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**WHY DO DIFFERENT NEW VENTURES
INTERNATIONALIZE DIFFERENTLY?**

**A COGNITIVE MODEL OF ENTREPRENEURS'
INTERNATIONALIZATION DECISIONS**

by

David Warren Williams

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

of

Doctor of Philosophy

in the Robinson College of Business

of

Georgia State University

GEORGIA STATE UNIVERSITY
ROBINSON COLLEGE OF BUSINESS
2010

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ACCEPTANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor in Philosophy in Business Administration in the Robinson College of Business of Georgia State University.

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Atlanta, Georgia,
July 2010

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ABSTRACT

WHY DO DIFFERENT NEW VENTURES INTERNATIONALIZE DIFFERENTLY?

A COGNITIVE MODEL OF ENTREPRENEURS'
INTERNATIONALIZATION DECISIONS

by

David W. Williams

July 30, 2010

Committee Chairs: Dr. Denis A. Grégoire and Dr. Pamela S. Barr

Major Department: Managerial Sciences

What makes entrepreneurs select one international opportunity while rejecting or ignoring others? Furthermore, what makes entrepreneurs decide to exploit an international opportunity earlier or later? Two theories of internationalization provide answers to these questions: the Uppsala Model and International Entrepreneurship theory. However, these two theories provide competing answers to these questions, and empirical research offers inconsistent evidence about what influences entrepreneurs to select an international opportunity – and when to exploit the opportunity. To address these issues, I develop a cognitive model that explains when and why the predictions of these theories do (and do not) explain entrepreneurs' behavior regarding new venture internationalization. More specifically, I propose that entrepreneurs' internationalization decision making rests, in part, on cognitive processes of similarity comparison and structural alignment.

I use a multi-method / multi-study approach to answer the above questions. In the first study, I use verbal protocol techniques to analyze the cognitive processes of entrepreneurs as they ‘think out loud’ while making decisions on international opportunity selection and age at entry. In the second study, I use a survey plus secondary data to test if the actual decisions made by entrepreneurs on international opportunity selection and age at entry correspond to the dissertation’s predictions.

Results show that cognitive processes of similarity comparison and structural alignment underpin entrepreneurs’ internationalization decisions. Entrepreneurs rely heavily on commonalities and look for high levels of similarity between the home and host country when deciding when to internationalize their firms. Regarding entrepreneurs’ decisions on international opportunity selection, their decisions reflect the influence of both comparable and noncomparable opportunity features. Interestingly, I observe that prior international knowledge directly impacts entrepreneurs’ internationalization decisions, but also moderates the relationship between similarity considerations and entrepreneurs’ decisions on international opportunity selection.

Ultimately, I reconcile and integrate two competing internationalization theories by resolving tensions between them. I demonstrate that the different predictions of the two internationalization theories can be explained by the differential focus that entrepreneurs place on comparable and noncomparable attributes of their opportunity set. I also show the importance of taking an individual-level and cognitive view to understanding these decisions.

CHAPTER I

INTRODUCTION

Chapter Overview

In this dissertation, I develop a cognitive model that explains when and why the predictions of competing theories of new venture internationalization do (and do not) explain entrepreneurs' decisions regarding new venture internationalization. This chapter lays the foundations for this dissertation by identifying challenges, limitations, and gaps in extant research on new venture internationalization. More specifically, I integrate and reconcile two prominent internationalization theories by demonstrating that cognitive processes of comparison and structural alignment underpin entrepreneurs' internationalization decision making.

Chapter I covers the following topics. First, the chapter addresses the primary research questions of the dissertation and outlines the theory and methods I used to explore these research questions. Next, this chapter discusses the objectives, assumptions, and scope of this dissertation before proceeding to the implications and contributions of the dissertation to research, practice, and policy. Finally, the chapter concludes with a brief summary and an outline of the organization of the dissertation.

Research Questions and Research Objectives

Research Questions. *What makes entrepreneurs select one international opportunity while rejecting or ignoring others? Furthermore, what makes entrepreneurs decide to exploit an international opportunity earlier or later?* Two theories of internationalization provide answers to these questions: the Uppsala Model and

International Entrepreneurship theory. However, these two important theories provide competing answers to these questions, and empirical research offers inconsistent evidence about what influences entrepreneurs to select an international opportunity and when to exploit the opportunity. Furthermore, the bulk of past research has tended to overlook the entrepreneur's role in internationalization behavior, focusing instead on firm-level factors or using methods and approaches that were ill-equipped to document the direct and specific influence of individual-level factors on entrepreneurs' internationalization decisions. As such, extant internationalization research largely fails to articulate the cognitive underpinnings of entrepreneurs' internationalization decisions.

To address these issues and answer this dissertation's research questions, I develop a cognitive model that explains when and why the predictions of these theories do (and do not) explain entrepreneurs' behavior regarding new venture internationalization. More specifically, I propose that entrepreneurs' internationalization decision making rests, in part, on cognitive processes of similarity comparison and structural alignment. Doing so, I reconcile and integrate two competing theories of internationalization and directly address the gap in extant research on the individual-level of analysis and the role of cognition in entrepreneurs' internationalization decisions.

Objectives of this research. Building on the research questions above, I aim to accomplish the following five objectives with this research:

- better understand why different entrepreneurs make different internationalization decisions;
- reconcile and integrate two competing theories of new venture internationalization by demonstrating that cognitive processes of comparison and structural alignment account for the different predictions of each theory;
- reinforce the importance of studying the role of entrepreneurs' cognitive processes in explaining internationalization patterns and age at entry;

- detail the impact of international prior knowledge on cognitive processes behind both internationalization theories; and
- further support the role of comparisons and structural alignment as key cognitive processes that underpin important entrepreneurial decisions such as opportunity recognition, evaluation, and selection.

Motivation: Understanding New Venture Internationalization

Challenge: Competing predictions of internationalization. Extant research provides a number of possible answers to the research questions posed above, but none are satisfactory because existing theory provides incomplete and contradictory predictions regarding international opportunity selection and age at entry. The two major process theories of new venture internationalization that answer these research questions, the Uppsala Model and International Entrepreneurship theory, offer competing predictions and views of new venture international opportunity selection and age at entry. The next paragraphs describe each theory and how each theory provides competing answers to the dissertation's research questions.

The Uppsala Model (Johanson and Vahlne, 1977, 1990) follows the behavioral theory of the firm (Cyert and March, 1963) and focuses on the development of international knowledge and organizational learning. This theory predicts that firms follow an incremental process of internationalization, whereby they select opportunities that are progressively more distant 'psychically' from their home country. After gaining experience, knowledge, and confidence in psychically close international opportunities, firms choose opportunities with increasing psychic distance from their home country. Furthermore, as firms gain more experience, knowledge, and confidence, they increase their level of commitment (*e.g.*, from exporting to foreign direct investment) in foreign markets. This internationalization process is gradual and has been operationalized as

stage models of internationalization (Cavusgil, 1980; Johanson and Wiedersheim-Paul, 1975; Reid, 1981) emphasizing the different sequence of stages that firms go through as they gradually increase commitment to existing markets and select increasingly distant foreign markets.

The second major approach for explaining firm internationalization is known as International Entrepreneurship (IE) theory. IE theory emphasizes the unique circumstances of each entrepreneur and his/her new venture that push or pull the firm to internationalize early in its lifecycle. IE theory emerged in the late 1980s and early 1990s when the rising number of new ventures that were internationalizing early in their lifecycle caught the eye of researchers. This approach is most associated with the research on “international new ventures” (Oviatt and McDougall, 1994, 2005) and “born globals” (Cavusgil, 1994a, 1994b; Knight and Cavusgil, 1996). Instead of a firm’s international opportunities being determined by psychic distance from the home country and organizational learning, IE theory suggests that the unique situation of the firm and the entrepreneur may drive it to internationalize earlier. The unique circumstances that drive entrepreneurs’ internationalization decisions consists of a mix of external forces (*e.g.*, industry, competition), internal forces (*e.g.*, firm-specific advantages, networks), and the entrepreneur him/herself. The unique mix of forces experienced by each entrepreneur and his/her firm explains why firms internationalize early, often from inception.

The two theories’ explicit predictions are complementary: the Uppsala Model predicts market selection (via psychic distance) while IE theory predicts age at initial internationalization (via internal and external forces). The different outcomes predicted

by these two theories suggest that the theories can be used to complement each other. However, researchers often ignore this complementarity and place the IE and Uppsala theories of new venture internationalization at odds with each other in the extant literature (*e.g.*, Cavusgil, 1994a; Oviatt and McDougall, 1994).

Although the two theories' explicit predictions are complementary, their implicit predictions are effectively at odds with one another. The Uppsala Model (and other stage models derived from it) include a stage where the firm engages in no international activity (Bilkey and Tesar, 1977; Johanson and Wiedersheim-Paul, 1975; Cavusgil, 1980). This non-international phase is a period of learning and development in the domestic market that results in an extended period of time between firm founding and international entry. As a result, the Uppsala Model provides an implicit prediction of a higher age at initial internationalization – but does not predict that firms can be international from inception, as IE theory allows. As a result, through its focus on gradual internationalization, the Uppsala Model contradicts IE theory's early internationalization prediction.

Similarly, IE theory predicts that born globals have an internationalization profile at odds with the psychic distance model of the Uppsala school. Born globals are not constrained by psychic distance arguments and the learning required by the behavioral theory of the firm, allowing born globals to internationalize both earlier and to potentially distant opportunities (whether psychically, geographically, culturally, etc.). Because a different set of internationalization factors drives born globals (Oviatt and McDougall, 2005), they may select opportunities that do not fit the traditional 'psychic distance' pattern predicted by the Uppsala and stage models of internationalization.

The implicit predictions of these two prevalent theories of internationalization, therefore, are at odds with one another. At best, IE theory suggests a possible boundary condition for the Uppsala Model. At worst, IE theory invalidates the Uppsala Model's predictions of gradual new venture internationalization. For instance, Oviatt and McDougall (1994) observed that the rise of born globals presents “a unique challenge (50)” to Johanson and Vahlne's (1977, 1990) stage theory, and that stage theory needs “more than a minor adjustment (51)” because it does not accurately describe the behavior of the growing population of born global firms.

In summary, the Uppsala and IE theories provide both complementary and contradictory predictions. On the one hand, the two theories are complementary in that they focus on different outcomes: whereas the U-Model explicitly emphasizes the selection of progressively more distant internationalization opportunities, IE Theory explicitly emphasizes how the particular internal and external conditions of a firm explain its internationalization at an earlier or later age. On the other hand, however, the two theories make implicit predictions about the other theories' primary dependent variable: the U-Model implicitly argues that firms will tend to internationalize later in life, whereas IE theory implicitly argues that under certain conditions, new ventures can internationalize early on to psychically distant markets. Because both outcomes are important to understanding the internationalization process, the implicitly competing predictions of the two theories have hindered the advancement of scholarly knowledge in this area – and notably by drawing attention away from the central role that entrepreneurs' reasoning plays in firms' decisions to internationalize. In other words, the implicitly competing predictions of these theories has made it difficult to understand how

entrepreneurs make internationalization decisions and which theories accurately describe their decision making process.

In this dissertation, I reconcile and integrate this duality of complementarity and competition by focusing on the decisions that entrepreneurs make and on the cognitive processes that underpin these decisions. In the next section, I show that an important gap contributing to the implicitly competing predictions of these theories is the lack of theory and empirical research examining internationalization behavior at the individual-level. Even more specifically, past research fails to articulate why, when, and how the predicted factors influence entrepreneurs' internationalization decisions.

Gaps and Limitations: The entrepreneur and internationalization. If the U-Model and IE theory provide implicitly competing predictions of firm internationalization age and market selection, how can these two theories be reconciled? The answer lies within the theories themselves, specifically the importance that each theory places on the individual. Behind every new venture's internationalization behavior is an individual who processes the relevant information and decides whether the venture will internationalize, where to, and when. For example, the different internationalization patterns predicted by each theory represent a difference in how entrepreneurs consider and evaluate potential opportunities. According to these two theories, some entrepreneurs evaluate opportunities based on psychic distance while others evaluate opportunities based on internal and external forces (*e.g.*, industry, technology). Researchers have examined the influence of these internal and external factors on entrepreneurs' internationalization decisions. Additionally, the extant literature examines the impact of culture (Kogut and Singh, 1998; Ojala and Tyrvainen, 2007), networks

(Bell, 1995; Coviello and Munro, 1995, 1997; Kiss and Danis, 2008), technological advances (Knight and Cavusgil, 1996; Oviatt and McDougall, 1999), competition (Oviatt and McDougall, 1995), industry (Fernhaber, McDougall, and Oviatt, 2007), and a product's knowledge intensity (Autio, Sapienza, and Almeida, 2000; Bell, McNaughton, and Crick, 2003) on new venture internationalization.

Buckley and Lessard (2005) describe the four most important levels of analysis in International Business research: the firm, industry, environment, and individual. Although extant research adequately covers the influence of the firm, industry, and environment on internationalization, emerging research demonstrates the importance of entrepreneurs' influence on internationalization. For example, Kundu and Katz (2003) show that entrepreneurs' characteristics drive internationalization decisions more so than firm characteristics. Furthermore, both theories of new venture internationalization include important elements about the entrepreneur making internationalization decisions. Johanson and Vahlne (1975, 1990, 2003) discuss individual learning, knowledge acquisition, and networks. Oviatt and McDougall (2005) center their model of forces influencing early internationalization on the entrepreneur. However, these models focus more on the forces and conditions impacting decisions than on the decision making process. Despite the inclusion of individual-level variables in these models, there remains an important gap in research about individuals and internationalization: entrepreneurs' decision making and the cognitive processes by which they make these decisions.

The most widely studied individual-level variable in internationalization research is prior international knowledge. Both theories of new venture internationalization argue

that prior international knowledge impacts the age at entry and pattern of new venture internationalization (Reuber and Fischer, 1997; Vahlne and Nordström, 1993) as it alters the attitude of entrepreneurs towards international markets. In their seminal work on the U-Model, Johanson and Vahlne (1977, 1990) discuss the critical role of foreign market knowledge and internationalization process knowledge for selection of international opportunities. Increases in prior international knowledge alter perceptions of uncertainty and reduce psychic distance between the home country and potential international opportunities. For their part, IE scholars also discuss prior international knowledge. For example, Oviatt and McDougall (2005) state that prior international knowledge alters entrepreneurs' perceptions of international opportunities and influences entrepreneurs' internationalization decisions.

However, despite the importance of prior international knowledge to entrepreneurs' internationalization decisions, the U-Model and IE research on prior international knowledge provides little guidance on how and why prior international knowledge influences entrepreneurs' decisions on where and when to internationalize. Most importantly, we know that prior international knowledge is important, but we remain uncertain as to how and why prior international knowledge influences entrepreneurs' decision making processes, or how and why it may alter entrepreneurs' perceptions of international opportunities. Prior international knowledge, then, is one example of an individual-level factor that influences entrepreneurs' internationalization decisions, and the example of prior international knowledge shows how little we know about the cognitive underpinnings of entrepreneurs' internationalization decisions.

In this dissertation, I argue that by studying entrepreneurs and the cognitive processes underpinning their internationalization decisions, we can better understand how, when and why some firms make certain internationalization choices while other firms make different choices. I can reconcile and integrate the competing internationalization theories by virtue of looking at internationalization from an individual-level of analysis and articulating the cognitive processes on which entrepreneurs' internationalization decisions rest. The next section discusses the role of cognition in entrepreneurs' internationalization decision making.

Synthesis, Integration, and Reconciliation: The role of cognition in internationalization decisions. Both major theories of new venture internationalization highlight the potential utility of understanding the cognitive processes behind decision making. For example, the concept of psychic distance reflects ideas about learning, information processing, and perception (Beckerman, 1956; Johanson and Vahlne, 1977), and these cognitive underpinnings determine - in part - age at entry, mode, and opportunity selection. In the most comprehensive model of International Entrepreneurship to date, Oviatt and McDougall (2005) put 'entrepreneurial actor perceptions' at the center of their model. Recent work on managerial cognitive mindsets in early internationalization (Freeman and Cavusgil, 2007) reinforces the central role of the entrepreneur and the cognitive processes of the entrepreneur when making internationalization decisions.

However, as previously stated, past internationalization research focuses not on the entrepreneur who has a substantial influence on his/her firm's internationalization nor on the cognitive underpinnings of his/her internationalization decisions, but on the

circumstances surrounding the entrepreneur that influence the internationalization decision. As discussed by Buckley and Lessard (2005), the extant literature richly describes factors related to the firm, industry, and environment of internationalizing firms. These long lists of factors influence entrepreneurs' decision to internationalize, which opportunity to select, when to exploit the opportunity, and how to exploit the opportunity (*e.g.*, entry mode or strategy). Yet few studies focus on how entrepreneurs actually make the decision, and even fewer on the cognitive processes that support decision making. As we saw with research on the role of prior knowledge in explaining early internationalization, this leads to problems of understanding how and why entrepreneurs actually make internationalization decisions such as what cognitive processes underpin their internationalization decisions. Furthermore, by understanding the cognitive processes behind entrepreneurs' internationalization decisions, we can better isolate the reasons why some factors influence entrepreneurs' decisions and the circumstances under which entrepreneurs heighten or lessen the importance of a factor. Cognition, therefore, is an important, yet understudied, potential reconciliation of the tensions between these competing theories of new venture internationalization.

Focus of this dissertation: The cognitive processes of comparison in decision making. By virtue of taking an individual-level and cognitive view of entrepreneurs' internationalization decisions, I focus this dissertation on cognitive processes underpinning entrepreneurs' decisions regarding where and when to internationalize. Specifically, I focus on cognitive comparison processes underpinning entrepreneurs' decision making. I do this for three main reasons:

- 1) comparisons underpin individuals' decision making (Markman and Moreau, 2001; Zhang and Markman, 2001);

- 2) comparisons such as similarity comparisons have a long and important tradition in the internationalization literature (Johanson and Vahlne, 1990; Sethi, 1971); and
- 3) individuals' decision making and comparisons like similarity comparisons share a common cognitive process, structural alignment (Markman and Medin, 1995; Medin, Goldstone, and Markman, 1995), that offers a cognitive basis to integrate and reconcile these two internationalization theories.

The following paragraphs discuss each of these reasons in more detail.

First, empirical research in Cognitive Psychology and Marketing demonstrates that cognitive comparison processes underpin individuals' decision making (Markman and Moreau, 2001; Zhang and Markman, 2001). Specifically, when faced with choice situations (*e.g.*, selecting among more than one potential option), comparison processes underpin individuals' decisions. As a result, individuals notice certain features of each option and neglect other features of each option that ultimately impacts which option individuals select (Zhang and Markman, 1998, 2001). For example, when selecting between potential product options, consumers make decisions based on readily comparable features of the products, such as the amount of butter in each brand of popcorn (Zhang and Markman, 2001). Entrepreneurs' internationalization decisions also reflect a choice situation. When making internationalization decisions, entrepreneurs often evaluate and select potential international opportunities from among a set of potential international opportunities (Buckley, Devinney, and Louviere, 2007; Grégoire, Williams, and Oviatt, 2008). Therefore, I propose that entrepreneurs' internationalization decisions rest on cognitive processes of comparison.

Second, similarity comparisons hold an important role in opportunity evaluation and selection in many business-related literatures including internationalization. International Business researchers use compared similarity between the home country and a potential host country as a key variable in clustering countries based on economic

development, culture, and other factors (Kogut and Singh, 1988; Sethi, 1971). The concept of psychic distance correlates closely to comparing similarity between the home and host country, and researchers predict that entrepreneurs choose a highly similar market as their first international opportunity and then expand to increasingly less similar markets in the future (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977, 1990). In fact, all ‘distance’ measures in internationalization research (*e.g.*, psychic, geographic, cultural, and institutional distance) attempt to measure the underlying similarity between the home country and potential international opportunities (*e.g.*, Brewer, 2007a; Dow, 2000; Ellis, 2007). However, the use of only ‘distance’ measures fails to accurately model how individuals perceive similarity between countries. Recent research in Cognitive Psychology demonstrates that individuals’ similarity comparisons reflect both common features between objects and different features between objects (*e.g.*, Gentner and Markman, 1994; Tversky, 1977). Seen in this light, then, extant research in internationalization demonstrates both the importance of similarity when making internationalization decisions but also a need for a more cognitively accurate means of conceptualizing and measuring similarity.

Finally, researchers link individuals’ comparisons among objects including both similarity comparisons and evaluating among potential alternatives to cognitive processes of structural alignment (Markman and Medin, 1995; Medin, Goldstone, and Markman, 1995). In fact, cognitive processes of structural alignment underpin a broad range of comparisons and influence a wide range of important cognitive tasks such as categorization, creativity, transfer, and problem solving (Markman and Gentner, 1993a) in addition to decision making. In short, cognitive processes of comparison and

structural alignment matter for individuals' decision making. This dissertation focuses on entrepreneurs' decisions on international opportunity selection and age at initial international entry, both of which involve processes of comparison and structural alignment. As a result, I advance in this dissertation that entrepreneurs' internationalization decisions rest, in part, on cognitive processes of comparison and structural alignment.

In light of the converging reasons above, cognitive research on comparisons and decision making forms the basis for this dissertation's theoretical model. As described above, comparisons are relevant to entrepreneurs considering internationalization opportunities because extant research shows that entrepreneurs identify multiple international opportunities or multiple variations of a single international opportunity (Buckley, Devinney, and Louviere, 2007; Grégoire, Williams, and Oviatt, 2008). Furthermore, similarity comparisons between countries underpin entrepreneurs' decisions on international opportunity selection and age at entry. As such, I focus this dissertation on comparisons underpinning entrepreneurs' decision making as the specific set of cognitive process for understanding new venture internationalization decisions. I develop a model that articulates the cognitive underpinnings of entrepreneurs' decisions regarding internationalization by proposing that entrepreneurs analyze the set of international opportunities they face by – more or less consciously – making comparisons between these opportunities.

Research Agenda

Theoretical underpinnings. In this dissertation, I aim to reconcile and integrate competing internationalization theories by studying internationalization behavior at the

individual-level of analysis and articulating the cognitive underpinnings of entrepreneurs' internationalization decisions. As such, I use three main theories in this dissertation. The first two are the competing theories of new venture internationalization: (1) the Uppsala model / stage theory of internationalization and (2) International Entrepreneurship theory on new venture internationalization. From these two internationalization theories, I develop hypotheses regarding which opportunities entrepreneurs select and when they decide to exploit these international opportunities.

Comparison theory from the Cognitive Psychology literature, specifically the literature on structural alignment, represents the third theoretical perspective central to this dissertation. I use theory on cognitive comparisons and structural alignment to highlight cognitive processes underpinning entrepreneurs' internationalization decisions predicted by both internationalization theories. By integrating theory on cognitive comparisons and structural alignment with the two internationalization theories described above, my dissertation's model of entrepreneurial decision making reconciles and integrates the two internationalization theories. The focus on cognitive processes of comparison and structural alignment also reflects the individual-level analysis of this dissertation.

Finally, I also draw from theory and research in Strategic Management, International Business, and Entrepreneurship to inform this dissertation's model of entrepreneurial decision making. From Strategic Management and International Business, I draw upon research on internationalization, market selection, and international knowledge. I also use Entrepreneurship research on opportunity

acknowledgment, evaluation, and selection and prior knowledge in the development of this dissertation's theoretical arguments.

Methodological approach. Capturing cognitive processes and demonstrating both their existence and their impact is difficult. In order to increase the internal and external validity of the research, I use two different research methods, combining qualitative verbal protocol techniques with quantitative survey and archival research, and two different samples of entrepreneurs. First, the verbal protocol study tests if entrepreneurs make internationalization decisions on international opportunity selection and age at entry whereby cognitive processes of comparison between countries highlight relevant features of the countries. The use of verbal protocol techniques follows decision making research in Strategic Management (*e.g.*, Isenberg, 1986; Melone, 1994), Entrepreneurship (*e.g.*, Grégoire, Barr, and Shepherd, 2010; Sarasvathy, 2001), Psychology (*e.g.*, Hurland and Kleinmuntz, 1994; Kuhberger and Huber, 1998) and Marketing (*e.g.*, Cooper-Martin, 1993a, 1993b; Zhang and Markman, 2001). In the verbal protocol study, I present entrepreneurs with a series of countries that represent potential international expansion opportunities and ask them to 'think out loud' as they evaluate each potential opportunity to determine which opportunities they would select for expansion and how soon to expand. Next, I present entrepreneurs a series of two countries at a time and ask entrepreneurs to 'think out loud' as they evaluate and determine which opportunities (countries) to select for expansion and how quickly to expand to those countries.

Second, I use a different sample of entrepreneurs and collect data via online survey and secondary data sources to test if the actual behavior of international firms

matches this dissertation's predictions on international opportunity selection and age at entry. Using the survey and secondary data, I collect data on the first international entry of each firm along with information on firm and entrepreneur demographics, control variables, and prior international knowledge. To the extent that I find that cognitive processes of comparison and structural alignment underpin entrepreneurs' internationalization decisions on opportunity selection and age at entry, the pattern of entrepreneurs' *actual* decisions regarding their new venture internationalization should match the hypotheses developed in this dissertation.

The use of two studies, each with a different method, enhances the internal and external validity of this dissertation's research. In the verbal protocol study, I demonstrate that when entrepreneurs make internationalization decisions, cognitive processes of comparison and structural alignment underpin their decisions. Then, in the survey, I confirm that the actual pattern of internationalization of these firms matches the predictions of this dissertation in terms of internationalization opportunity selection and age at entry. Internal validity concerns inferences about causal links between the independent and dependent variables. Using two studies with different methods builds internal validity by providing convergent evidence that the predicted relationships reflect the actual relationships between the independent variables and the dependent variables regarding entrepreneurs' internationalization decisions. Furthermore, the research design increases the external validity of the findings by testing this dissertation's predictions with two different samples of firms, thereby enhancing the potential generalizability of the dissertation's findings.

Assumptions and Scope of the Research

The dissertation rests on one important assumption, and I specify one boundary condition for this dissertation's research. The assumption concerns proactive opportunity-seeking behavior versus reactive internationalization. The boundary condition consists of a focus on successful international entries rather than failed entries. The following paragraphs discuss both points in turn.

Opportunity-seeking behavior. In this dissertation, I assume that opportunity-seeking behavior drives internationalization behavior. Internationalization theory suggests that firms can be proactive or reactive, but even reactive firms have to seek the best opportunity when making a commitment of time, money, and other resources to an international opportunity. A firm may react to an unsolicited inquiry from overseas by ignoring it or shipping a product, but the latter option does not imply a commitment to an international market nor an opportunity selection. Accordingly, commitment and opportunity-seeking behavior represents a boundary condition of this dissertation. In other words, this dissertation exclusively focuses on entrepreneurs that actively seek out new international opportunities and make a commitment to them, rather than on entrepreneurs and/or firms that passively react to unsolicited orders.

This dissertations' focus on proactive, opportunity-seeking behavior reflects this same focus in the internationalization literature. Major internationalization process models share a similar boundary condition. For example, the U-Model explicitly describes and predicts the *commitments* that firms make over time to international markets, demonstrating that firms must actively commit to international markets to continue their firm's internationalization process. IE theory also follows a proactive,

opportunity-seeking boundary condition. Specifically, IE researchers such as Oviatt and McDougall (2005) base IE theory on entrepreneurs discovering and exploiting international opportunities to create value across borders. As such, this dissertation's guiding assumption is that firms, and entrepreneurs, engage in *commitments* to international opportunities through opportunity-seeking behaviors that proactively compare a set of international opportunities.

Successful entries. An important boundary condition to this dissertation is that I do not predict the success or failure of an international opportunity selected in this dissertation. Other studies in Strategic Management and International Business focus on internationalization and/or export performance (*e.g.*, Hitt, Hoskisson, and Kim, 1997; Tallman and Li, 1996). However, because this research focuses on internationalization decisions and cognitive processes underpinning them, performance considerations such as success or failure are outside the scope of this dissertation.

Contributions and Implications

This dissertation makes several important contributions to theory and research in the fields of International Entrepreneurship, International Business, Entrepreneurship, and Strategic Management. In addition, this dissertation's research has significant implications for entrepreneurs, policy, and education. This section first address contributions before moving on to discuss the practical implications of this dissertation's research.

Contributions to theory and research. This dissertation contributes to theory and research in five important ways, namely:

- (1) by reconciling and integrating competing internationalization theories,

- (2) by demonstrating the importance of taking an individual-level view of internationalization, specifically a cognitive view,
- (3) by bringing the ‘decision’ back into the discussion of internationalization,
- (4) by showing how and why measuring similarity differently (relative to extant measures of psychic distance) improves Management research, and
- (5) by developing a model of entrepreneurial opportunity decision making relevant to contexts beyond internationalization decisions.

I briefly describe each of these five important contributions below. In Chapter VI, I demonstrate how the results of this dissertation reinforce these contributions, and I discuss each of these five contributions in greater detail.

Reconciling and integrating competing theories. First, I resolve tensions and integrate the two major new venture internationalization theories by providing a framework that articulates the cognitive underpinnings of international entrepreneurship behavior. I use theory from Cognitive Psychology on cognitive comparisons and structural alignment in conjunction with these two internationalization theories to build a model that demonstrates how and why entrepreneurs make the decisions that they do regarding their firm’s first international entry. Doing so, I identify key cognitive processes that underpin the predictions of both internationalization theories and demonstrate that these cognitive processes help us to understand when and why each internationalization theory applies. Further, I show in this dissertation why prior international knowledge alters entrepreneurs’ perceptions of international opportunities due to the way in which prior international knowledge changes the decisions that entrepreneurs make regarding their firm’s first international entry.

Individual-level and cognitive view. In this dissertation, I also show the importance of looking at internationalization behavior at the individual-level. Specifically, I demonstrate how we can improve our understanding of internationalization behavior by studying the cognitive processes underpinning entrepreneurs' decisions on international opportunity selection and age at initial international entry. By taking an individual-level and cognitive approach to studying internationalization behavior, I fill an important gap in the extant literature. More specifically, I extend internationalization theory so that we now better understand why, how, and when different factors influence entrepreneurs' internationalization decisions.

Bringing the 'decision' back. Third, I bring the 'decision' back into the discussion of internationalization behavior and emphasize the importance of studying decisions *ex ante* or *in situ* rather than *post hoc*. I use two methods in this dissertation to examine entrepreneurs' decisions on international opportunity selection and age at entry. One method (the verbal protocols) allows me to study entrepreneurs' internationalization decisions as they make their decisions and another method (the survey) that captures entrepreneurs' internationalization decisions after they have made the decisions. I reinforce the theoretical centrality of entrepreneurs' internationalization decisions and also show that studying entrepreneurs' decisions *post hoc* do not yield the same results as studying them *ex ante*. I discuss the methodological implications of this in Chapter VI.

Utility of measuring similarity differently. I also demonstrate the importance and utility of conceptualizing and measuring similarity according to the recent advances in Cognitive Psychology rather than extant approaches to measuring similarity such as psychic distance. This approach differs from what scholars have traditionally used in

International Business and Strategic Management. For example, International Business scholars have long used distance measures such as cultural distance to measure similarity between countries. This approach persists in the literature despite critiques that these similarity measures fail to account for ‘distance’ and ‘bridging’ factors (Shenkar, 2001; Shenkar, Luo, and Yeheskel, 2008). Distance factors, such as cultural distance, only show how countries differ, but bridging factors show what countries have in common. Consistent with current research in Cognitive Psychology on similarity considerations (*e.g.*, Gentner and Markman, 1994; Tversky, 1977), this dissertation conceptualizes and measures similarity using both commonalities (bridging factors) and differences (distance factors). This conceptualization and measurement of similarity more accurately reflects real world similarity considerations and provides a way forward for Management researchers studying topics ranging from foreign direct investment decisions to relatedness and resource accumulation.

Entrepreneurial opportunity decision model. Finally, the model I develop in this dissertation centers on entrepreneurial decision making. Although I use this model to explain entrepreneurs’ internationalization decisions, the internationalization context does not define the dissertation’s model. I build a model on a theoretical framework of opportunity-seeking decision making where entrepreneurs must select from a set of potential opportunities, and the model explains entrepreneurs’ evaluation, selection, and exploitation of opportunities. Beyond the context of internationalization opportunities, examples of entrepreneurs’ selection from a set of opportunities includes entrepreneurs choosing from multiple variations of a single opportunity, serial entrepreneurs selecting from a set of possible opportunities for their next start-up, and venture capitalists picking

an opportunity to fund from among many alternatives. This dissertation's model rests on theory that explains the cognitive underpinnings of entrepreneurs' decisions on which opportunity to exploit and when to exploit that opportunity. This dissertation also informs research on entrepreneurs' and managers' decisions when selecting from among a set of opportunities in product and factors markets whereby the comparability and noncomparability of opportunity features influence their decisions. For example, similarity comparisons are particularly relevant when managers select from among different product opportunities such that the new products have a high degree of relatedness to existing lines of business.

Practical Implications. In addition to the contributions to theory and research described above, this dissertation also has important implications for practice. This section discusses the implications for entrepreneurs, policy, and education. Chapter VI returns to these topics and covers each in greater depth in light of the results of this dissertation.

Implications for entrepreneurs. I build a model in this dissertation that articulates the cognitive underpinnings of entrepreneurs' internationalization decisions. In doing so, I help entrepreneurs to make better internationalization decisions by improving our and their understanding of how and why they make the decisions that they do regarding their firm's first international entry. Internationalization, especially early internationalization, has important performance consequences for firms. Although internationalization tends to improve overall firm performance, early internationalization helps firms to grow but also increases their chances for failure (Sapienza et al., 2006; Tallman and Li, 1996). The resource constraints faced by new ventures also limit their ability to 'bounce back'

from poor decisions which puts further pressure on firms to make the ‘right’ decisions regarding their firm’s first international entry. This dissertation demonstrates how and why certain factors influence entrepreneurs’ internationalization decisions and shows that entrepreneurs may neglect certain important factors due to the cognitive processes underpinning their internationalization decisions. As a result, entrepreneurs may select the wrong international opportunity or the wrong time to exploit an international opportunity which ultimately impacts the growth and survival of their firm. Therefore, this dissertation helps entrepreneurs to better understand how and why they make the decisions they do and thus provides entrepreneurs with knowledge that ultimately helps them to make internationalization decisions that best fit their firm’s strengths and weaknesses and improves their ability to grow and prosper.

Implications for policy. International expansion creates jobs and economic growth, and international businesses pay higher salaries and grow more than their domestic counterparts (Lu and Beamish, 2001; OECD, 1997). These economic benefits prompt policymakers at national and local levels to encourage international trade. However, international trade assistance programs are often expensive, requiring high levels of investment in domestic and overseas office personnel. A further challenge for policymakers is that despite their investments in international trade assistance, research shows that international businesses do not get the help they need to go international or expand their presence overseas (Holstein, 2008).

In this dissertation, I highlight the importance of prior international knowledge for entrepreneurs’ internationalization decisions. Therefore, policies that help entrepreneurs gain international knowledge benefit entrepreneurs and also provide the economic

benefits sought by policymakers. Given the growing number of entrepreneurs internationalizing their firms soon after founding, policymakers need to make these programs available in places where the entrepreneurs already seek assistance. One suggestion is to expand the use of internationally-oriented Small Business Development Centers (SBDCs) co-located within the existing network of SBDCs. This increases the visibility of such internationally-oriented programs to entrepreneurs already seeking assistance from an existing program while minimizing costs of the program by co-locating international SBDCs at existing SBDC locations.

Implications for education. In this dissertation, I highlight the importance of knowledge for entrepreneurs' internationalization decisions. Formal education provides a significant means by which entrepreneurs gain both foreign market knowledge and internationalization process knowledge. The number of born global firms has been increasing steadily since researchers first noticed the phenomenon, and recent research suggests that one-third or more of all new ventures internationalize early in the firm's lifecycle (Harveston, 2000). The growing number of born globals represents a significant market opportunity – and a challenge – to educators. Entrepreneurship and International Business tend to be offered as different classes from different departments. However, to born globals, expanding internationally represents just another exploitation of market opportunities. Educators can meet these needs in two ways. First, international topics can be introduced into Entrepreneurship courses so that would-be founders get increased exposure to international topics. Second, courses focusing on international entrepreneurship would surely appeal to this growing number of entrepreneurs internationalizing their firms soon after founding. Providing better education for

international entrepreneurs allows them to make better, more knowledgeable decisions and to expand more quickly and confidently to international markets. This benefits not only the entrepreneurs themselves but also the communities surrounding these new ventures.

Chapter Summary

This introductory chapter outlines the two motivations behind this dissertation: 1) the competing predictions of two major internationalization theories and 2) the lack of substantive research on cognitive processes behind internationalization decision making on opportunity selection and age at entry. I focus on cognitive processes, in general, as a way to reconcile the tensions between internationalization theories' competing predictions and identify comparisons, specifically, as cognitive processes of interest. Chapter I develops a research agenda around the joint research questions of "*What makes entrepreneurs select one international opportunity while rejecting or ignoring others? Furthermore, what makes entrepreneurs decide to exploit an international opportunity earlier or later?*" By building a model of entrepreneurs' internationalization decision making, I center the dissertation on internationalization theory (the Uppsala Model and International Entrepreneurship theory) and Cognitive Psychology theory on comparisons and decision making. I develop a two-study, multi-method research design to test the predictions of the dissertation's model. Finally, in the last section, Chapter I highlights contributions and implications for theory, policy, and practice.

Organization of the Dissertation

I organize the remainder of the dissertation according to the following outline. Chapter II reviews the internationalization literature in light of the born-global phenomenon, demonstrates the extent of the competing predictions of internationalization theory, highlights the role of international knowledge in the internationalization process, and establishes that cognition sits at the heart of new venture internationalization theory. Chapter III takes the cognitive elements from Chapter II and develops a model and set of predictions regarding entrepreneurs' internationalization decisions and the cognitive processes of comparison and structural alignment that underpin these decisions. This chapter argues that cognitive processes of comparisons and structural alignment underpin entrepreneurs' internationalization decisions predicted by both theories of new venture internationalization, and the dissertation's model provides a reconciliation and integration of the theories' predictions. Chapter III also predicts that individual differences in prior international knowledge moderate the effects of these cognitive processes on entrepreneurs' decision making on international opportunity selection and age at entry. Chapter IV outlines the two-study design including research methods, samples, variables, validity, pre-tests, and analytical techniques. Chapter V summarizes the results from Study 1 and Study 2 outlined in Chapter IV and compares the results of the two studies. Chapter VI discusses the meaning of the dissertation's results as well as expanding on the conversation in Chapter I regarding the contributions, implications, and future extensions of the dissertation. The final section of the dissertation includes all appendices and reference materials.

CHAPTER II

UNDERSTANDING NEW VENTURE INTERNATIONALIZATION

Chapter Overview

Chapter II reviews the extant literature on internationalization theory with a special focus on new venture internationalization, and the role of the entrepreneur and cognition in internationalization theory. This chapter outlines the way in which the rise and growth of the born global phenomenon created a new perspective on internationalization theory: International Entrepreneurship (IE) theory. IE theory emerged as the born global phenomenon could not be explained by existing theory, creating a rift with previous internationalization process theory, specifically the Uppsala Model (U-Model). This chapter discusses the challenge to reconcile and integrate these theories and demonstrates the validity and complementarity of both theories despite competing predictions. In addition, Chapter II examines the importance of the entrepreneur and cognition in the extant literature in light of limited research in these areas, and explores the potential of cognitive perspectives to integrate and reconcile the competing predictions of the IE and U-Model theories of internationalization. Finally, the chapter discusses the roles of cognitive comparisons and entrepreneurs' prior international knowledge when entrepreneurs make decisions on international opportunity selection and age when entering the initial international market.

The Rise of Born Globals

The growing phenomenon of born globals. In the late 1980's, the public press (Gupta, 1989; Mamis, 1989) reported on a growing phenomenon in the United States:

firms that internationalize early in their life. These firms actively participate in international product, capital, and/or resource markets from their inception, or shortly thereafter. These “born global” firms (Cavusgil, 1994b) enter into international markets via a variety of modes from importing to indirect export to foreign direct investment. Academic researchers soon turned their attention to these firms, first with case studies (Knight, 1997; McDougall, Oviatt, Shrader, and Simon, 1993a, 1993b; McDougall, Shane, and Oviatt, 1994; Oviatt, McDougall, Simon, and Shrader, 1993, Cavusgil, 1994a), then with theoretical work to explain the phenomenon (Cavusgil, 1994b; Knight and Cavusgil, 1996; Oviatt and McDougall, 1994).

Empirical research soon confirmed the existence of the phenomenon (Brush, 1992; Knight, 1997) and pointed to some of the factors driving early internationalization. Researchers found that factors internal and external to the firm influence early internationalization. Externally, major environmental changes such as changes in trade barriers and technologies are important drivers of early internationalization. Lower trade barriers and improvements in shipping and communication technologies increase the ease of internationalization for large and small firms. Industry-wide improvements in production technologies allow small firms to efficiently make batch and customized products for global niche markets (Cavusgil, 1994b; Knight, 1997).

Extant research also shows the importance of internal factors such as the availability of social and business networks, international experience, and the firm’s knowledge and technology. Social networks provide a source of contacts that help firms gain information on internationalization or link firms with potential partners in foreign countries (Bell, 1995; Coviello and Munro, 1995, 1997; Garcia-Canal, Duarte, Criado,

and Llaneza, 2002). Entrepreneurs with prior international experience transfer what they learned previously to the internationalization of their current firm including critical foreign market knowledge (Dichtl, Koeglmayr, and Mueller, 1990; Reuber and Fischer, 1997). Finally, firms that successfully innovate, have advanced technology and/or and sell products with a high level of knowledge intensity improve their potential for internationalization by tapping into global markets for the newest and best products (Autio, Sapienza, and Almeida, 2000; McDougall, Oviatt, and Shrader, 2003; Zahra, Matherne, and Carleton, 2003).

Born globals are more important and relevant today than ever before, as the early internationalization phenomenon continues to grow in the United States and throughout the world. In her dissertation research, Brush (1992) found that 13% of her nationwide (U.S.) sample of small, international firms decided to expand to foreign markets within their first year of operation. Cavusgil (1994a) estimated that up to 25% of exporters are born globals, and 29% of Harveston's (2000) dissertation sample of international firms internationalized early. Other studies have found rates of early internationalization at nearly 40% or more (McDougall et al., 2003; Moen and Servais, 2002), demonstrating the continuing increase in the proportion of born global firms over time.

Early internationalization also reflects a global trend because the born global phenomenon is not limited to the United States. Researchers throughout the world have reported on born globals in continental Europe (Acedo and Florin, 2007; Moen and Servais, 2002), central and eastern Europe (Al-Laham and Souitaris, 2008; Matthias, Rainer, and Kraus, 2008), northern Europe (Gabrielsson and Pelkonen, 2008), China (Child, Ng, and Wong, 2002), Australia and New Zealand (Chetty and Campbell-Hunt,

2004; Knight and Cavusgil, 2004), and the United Kingdom (Bell, McNaughton, Young, and Crick, 2003). The growth in the number of born globals and the prevalence of born globals worldwide reflects that born globals, once the exception to internationalization theory, now need a theory of their own.

Born globals require new theory because they do not follow the patterns of internationalization explained by traditional internationalization theory. Historically, the two major process theories of internationalization were the Uppsala Model (U-Model) and the Innovation Model (I-Model). Both models predict a gradual internationalization based on developing international experience and foreign market knowledge. The following sections describe these theories.

The Uppsala Model of Internationalization

The U- and I-Models of internationalization. Historically, the Uppsala Model (U-Model) and the Innovation Model (I-Model) have been the two main process theories of internationalization. The two models are highly complementary as both describe a process of incremental internationalization. Both models also describe the sequential stages of internationalization behavior as driven by market knowledge and uncertainty. The major difference between the two models is that the U-Model advances that push and/or pull factors, such as the receipt of an unsolicited order, triggers firms to begin internationalization. In contrast to the U-Model, the I-Model posits that internationalization results from management innovations whereby each new stage in the internationalization process represents an ‘innovation’ in behavior for the firm, regardless of the motivation for the advancement to the next stage. Despite this difference, the stages of both models are highly consistent as both models include a domestic marketing

(non-international) stage followed by stages of increasing commitment to internationalization. This increasing commitment is twofold. First, both models describe how firms move from less involved entry modes (*e.g.*, exporting) to more involved entry modes (*e.g.*, foreign direct investment) as entrepreneurs gain international experience. Second, both models explain that firms expand to markets increasingly psychologically distant from their home market, *i.e.*, to markets that progressively share less and less similarities with the home market, whether in terms of culture, language, religion, or other characteristics (Andersen, 1993; Knight and Cavusgil, 1996).

Following researchers' theoretical focus on the stages of internationalization in the I-Model, empirical research attempts to confirm this sequence of stages. However, because the stages are subjective, and the boundaries between stages are unstated, research on the I-Model tends to argue about the boundaries and existence of specific stages rather than the internationalization process. For this reason, the I-Model is not as rich in theoretical or open to empirical extension as the U-Model. Furthermore, the I-Model is based on the U-Model. Although early variations of the U-Model also focused on specific stages (Johanson and Wiedersheim-Paul, 1975), latter variations ultimately made a broader theoretical contribution by using the behavioral theory of the firm (Cyert and March, 1963) to explain how firms internationalize. Specifically, the U-Model explains incremental internationalization in terms of mode of entry and psychic distance. As a result, the U-Model became the dominant paradigm for the process of internationalization in International Business.

The U-Model predicts both the mode of entry and the international market selection of internationalizing firms via a basic mechanism of state and change aspects of

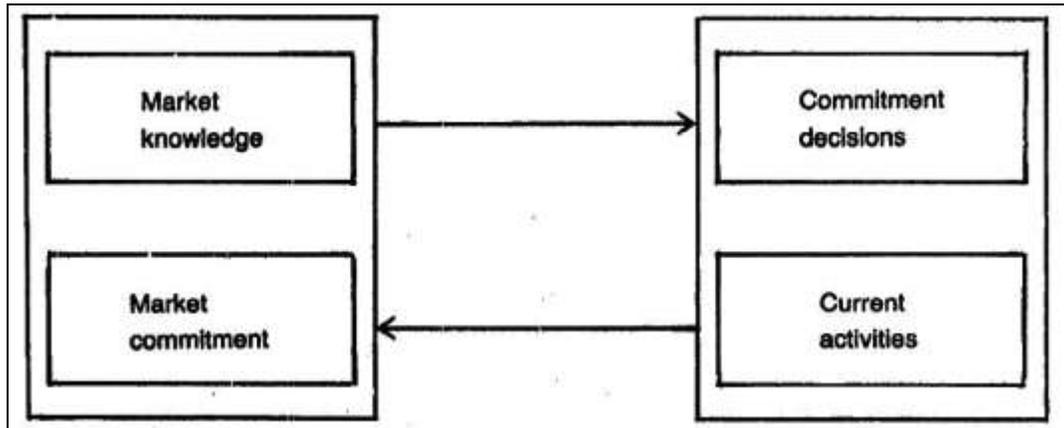
firm internationalization centered on market knowledge and uncertainty. Figure 2.1 below shows the basic predictions of the U-Model from Johanson and Vahlne (1977: 26). In short, the U-Model predicts that current levels of market knowledge positively impact commitment decisions so that more knowledge leads to a greater market commitment. Further, current activities drive the level of current market knowledge and allow firms to gain additional market knowledge. Market commitment and commitment decisions relate to the mode of entry, as more committed modes (*e.g.*, foreign direct investment) require a greater investment of resources.

The “state” aspects of the model represent the current level of market knowledge of the firm and the market commitment of the firm to a specific international market (the items on the left hand side of Figure 2.1). The process of internationalization introduces the two change aspects: additional commitment decisions and current activities of the firm in foreign markets (the right hand side items in Figure 2.1). Market knowledge and market commitment impact subsequent decisions on market commitment and the way in which firms perform current activities which in turn change the level of current knowledge and commitment (Aharoni, 1966; Johanson and Vahlne, 1977). The U-Model therefore uses current commitment and knowledge to predict future knowledge and commitment.

The U-Model highlights the relationship between foreign market knowledge and decision making to determine both the foreign market selected and the entry mode in the foreign market. Regarding market selection, the U-Model predicts that firms enter markets psychically close to the home market. The U-Model also predicts that firms start

with less committed entry modes and advance to more committed entry modes. The sections below discuss each of these predictions.

Figure 2.1: Predictions of the U-Model: Mode and Selection



Model reproduced from Johanson and Vahlne, 1977: 26.

U-Model researchers argue that when internationalizing, firms follow a consistent pattern of increasing commitment of entry modes. In Figure 2.1, the “market commitment” and “commitment decisions” boxes refer to the entry mode of the firm in a particular foreign market. Johanson and Wiedersheim-Paul (1975) demonstrate the entry mode prediction in outlining four successive stages of international involvement:

Stage 1: No regular export activities

Stage 2: Export via independent representatives (agents)

Stage 3: Establishment of an overseas sales subsidiary.

Stage 4: Overseas production/manufacturing units.

These stages, called the establishment chain, show an increasing commitment in mode of entry from no international activity through exporting to foreign direct investment in sales subsidiaries and production facilities. The establishment chain is

important because it involves increasing levels of commitment to the market and allows the firm to gain market knowledge and experience in order to reduce the uncertainty inherent when internationalizing to a foreign market. Empirical research on the U-Model and entry modes is mixed with some researchers finding support (*e.g.*, Kogut and Singh, 1988) for the U-Model prediction of increasing commitment while other researchers fail to find support (*e.g.*, Benito and Gripsud, 1992) for this prediction.

In addition to mode of entry, the U-Model predicts which international markets firms select, and in what sequence. This prediction is grounded in principles of decision making based on foreign market knowledge and uncertainty. Psychic distance from the home (domestic) market to a foreign market reflects the level of foreign market knowledge needed and the uncertainty level associated with that foreign market. Johanson and Vahlne (1977) define psychic distance as the “sum of factors preventing the flow of information from and to the market (24).” Examples of factors preventing information flow include language, education, business practices, political systems, culture, and industrial development (Johanson and Vahlne, 1977; Johanson and Wiedersheim-Paul, 1975).

The U-Model predicts that firms begin internationalizing by entering markets psychically close to the home country. As firms build market and internationalization process knowledge through international experience, the level of uncertainty in internationalization decreases and firms select markets increasingly psychically distant from the home country. In this way, the U-Model predicts both the initial entry (psychically close) and the pattern of internationalization (increasing psychic distance).

Psychic distance also predicts the mode of entry as firms are likely to use less committed and less resource intensive entry modes in markets in which they are less familiar and are psychically distant. Originally used in the international trade literature to explain trade patterns between nations (Beckerman, 1956; Linnemann, 1966), psychic distance is one of the most important concepts in the International Business literature explaining market selection by firms. The relationship between psychic distance and market selection remains the enduring legacy of the U-Model.

Empirical evidence and the U-Model. The relationship discussed above between psychic distance and market selection continues to be one of the most studied and debated concepts in International Business. The empirical evidence on the U-Model pattern of internationalization remains somewhat muddled. Some authors find that firms follow the incremental, sequential path of internationalization predicted by the U-Model (*e.g.*, Denis and Depelteau, 1985; Dow, 2000) while others find that firms do not follow this path (*e.g.*, Benito and Gripsud, 1992; Turnbull, 1982). However, these muddled empirical findings center mostly on the entry mode prediction and subsequent extensions of the U-Model to explain firm performance. In fact, many of the most cited studies finding problems with the psychic distance predictions centered on entry mode (Benito and Gripsud, 1992; Edwards and Buckley, 1998) and organizational performance (Evans and Mavondo, 2002; Stottinger and Schlegelmilch, 1998).

Extant research generally supports the foreign market selection prediction of the U-Model (*e.g.*, Denis and Depelteau, 1985; Dow, 2000). Yet, some scholars find mixed results (*e.g.*, Benito and Gripsud, 1992; Turnbull, 1982). These mixed results stem from a wide variation in how scholars define and measure psychic distance. The most common

measure of psychic distance is cultural distance, which uses Hofstede's (1980) dimensions of culture to estimate the distance between countries with a single cultural distance score (Kogut and Singh, 1988). Researchers also use geographic distance as a proxy for psychic distance (Brewer, 2007a; Srivastava and Green, 1986) despite the fact that the original conceptualization of psychic distance does not include geographic distance (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977). Additional measures of psychic distance include institutional distance (*e.g.*, Kostova and Roth, 2002; Xu and Shenkar, 2002), subject responses to questions about market 'foreignness' (*e.g.*, Klein and Roth, 1990; Stottinger and Schlegelmilch, 1998; Sousa and Bradley, 2005), or some combination of these distance measures (*e.g.*, Clark and Pugh, 2001; Grosse and Trevino, 1996). Recently, researchers developed new measures of psychic distance that go back to the original definition of "factors preventing information flow" and found continued support for the psychic distance-market selection prediction (Dow, 2000; Ellis, 2007, 2008; Nordstrom and Vahlne, 1994). Even with a variety of measures of psychic distance, the majority of studies confirm the predictions of psychic distance and foreign market selection for the first entry.

Although the above issues demonstrate some problems with the U-Model, the born global phenomenon presents the most pressing challenge to the U-Model. Because the U-Model assumes that firms need to develop resources (*e.g.*, foreign market and internationalization process knowledge) before internationalizing, the born globals' internationalization behavior cannot be explained by the gradual knowledge accumulation predictions of traditional internationalization models. Oviatt and McDougall (1994) argue that born globals use alternative governance structures, such as

hybrid forms, to overcome resource constraints to internationalize early rather than following the establishment chain specified by the U-Model. Moreover, born globals internationalize at or near inception, eliminating the domestic learning phase in the U-Model. Finally, the young age at internationalization of born globals invalidates the predictions of gradual foreign market knowledge and international experience acquisition of the U-Model. These inconsistencies between born globals' internationalization behavior and the predictions of the U-Model led researchers to call gradual internationalization "dead" (Cavusgil, 1994a), "obsolete" (Cavusgil, 1994b), and at least needing "more than a minor adjustment" (Oviatt and McDougall, 1994).

Early Internationalization and International Entrepreneurship Theory

Towards a new internationalization theory. Given the rise and growth of the born global phenomenon, a new theory of internationalization was needed. The new theory of internationalization attempted to account for the challenges presented by born globals and predict their behavior. In order to develop a theory of early internationalization, it was important to understand the benefits and risks of internationalizing at a young age. The benefits and risks of early internationalization represent the decision making context under which entrepreneurs decide to internationalize early in the firm's life cycle.

Benefits of early internationalization. There are important benefits of early internationalization for this growing group of born globals. First, International Business research outlines several important advantages of internationalization to firms of all sizes and ages. These motivations include access to resources, seeking growing markets, and building economies of scale (Foley, 2004). Firms also learn through internationalization

(Barkema and Vermeulen, 1998; Hitt, Hoskisson, and Kim, 1997) as they gain experience in new environments, with new competitors, and modify product offerings and strategy. Organizational learning helps firms improve their products and strategies in both domestic and foreign markets. Finally, international firms also perform better than domestic firms (Tallman and Li, 1996).

Born globals integrate internationalization benefits with the potential benefits of being young and small. Small firms innovate more, respond more quickly to customers and crises, and adapt easier to their environment (Dobrev and Carroll, 2003; Lewin and Massini, 2003). Young firms are generally unconstrained by routines that burden older firms with inertia, allowing a learning advantage of newness (Autio, Sapienza, and Almeida, 2000).

Born globals attempt to combine the benefits of size, age, and internationalization. Ultimately, the major benefits of early internationalization are improvements in organization-level learning, innovation, growth, and performance. Internationalizing early promotes a culture of learning that encourages innovation and technology development (Sapienza, DeClercq, and Sandberg, 2005). As a result, early internationalizers leverage their technology in international and domestic markets leading to an improvement in the breadth, depth, and speed of firm-level technological learning (Zahra, Ireland, and Hitt, 2000). Similarly, born globals are more innovative than their domestic counterparts (McDougall et al., 2003) and develop long-term technological capabilities. Reflecting their entrepreneurial character, early internationalizers are more likely to grow and grow faster (Autio et al., 2000; Zahra et al., 2000) than later internationalizers. Finally, born globals perform better than domestic firms and later

internationalizers. Extant research demonstrates a positive impact of early internationalization on market share, firm growth, international sales growth, and other firm financial performance like return on investment (Bloodgood, Sapienza, and Almeida, 1996; McDougall and Oviatt, 1996; Zahra, Ireland, and Hitt, 2000). Thus, early internationalization has important benefits for new ventures.

Risks of early internationalization. Although the benefits stated above provide both tangible and intangible motivations to internationalize early, early internationalization is also inherently risky. International new ventures must overcome twin liabilities: the liability of newness and the liability of foreignness. All new ventures must deal with a liability of newness (Stinchcombe, 1965) whereby recently founded firms are more likely to fail. Failure increases due to a lack of resources, underdeveloped routines and roles, and a paucity of legitimacy with external stakeholders such as banks, customers, and suppliers.

The internationalization process intensively consumes resource and exacerbates the problem of liability of newness by demanding additional resources while subjecting the firm to a new problem – the liability of foreignness. The liability of foreignness (Zaheer, 1995) results from the costs of uncertainty and unfamiliarity in foreign environments and the disadvantage international firms have vis-à-vis domestic firms in the foreign market. Zaheer (1995) describes four key problems that constitute the liability of foreignness. First, spatial distance creates issues with travel, transportation of goods, communication, and coordination. Second, a firm faces unfamiliarity with the local business environment (*e.g.*, psychic distance). Third, the institutional environment of the host country may be unfavorable, creating legitimacy problems or fighting

economic nationalism. Finally, the home country environment may impose costs such as trade restrictions. The firm lacks familiar routines to deal with these problems and must use more of its already constrained resources to deal with the liability of foreignness.

Born globals multiply the risk of the liability of newness by compounding it with the liability of foreignness. Early internationalizers must accrue and develop routines, resources, and legitimacy in the domestic environment and each foreign environment that it enters, increasing the resource requirements and complexity of operations and thus increasing the likelihood of failure. In short, the twin liabilities of newness and foreignness create an environment where born globals are more likely to grow but less likely to survive (Sapienza, Autio, George, and Zahra, 2006).

International Entrepreneurship theory: Explaining early internationalization.

Given the benefits and risks of early internationalization, International Entrepreneurship theory attempts to explain how and why firms internationalize early. Oviatt and McDougall (1994) created a typology of international new ventures and explored the factors leading to early internationalization by integrating theory from International Business, Entrepreneurship, and Strategic Management. As shown in Figure 2.2, Oviatt and McDougall (1994: 54) highlight four necessary and sufficient elements for early internationalization: organization emergence through internalization of some transactions, use of alternative governance structures (*e.g.*, networks, alliances, and joint ventures) to overcome resource scarcity, competitive advantage transferable across borders (*e.g.*, knowledge and technology), and control over unique resources for the establishment of competitive advantage. These four conditions create the opportunity for an organization to overcome the twin liabilities of newness and foreignness of early internationalization,

and spurred empirical research and theory building on the factors that drive early internationalization. Ultimately, this seminal article stimulated research focusing on the early internationalization of new ventures, and the factors that influence and drive that early internationalization.

Figure 2.2: Oviatt and McDougall's Elements for Early Internationalization

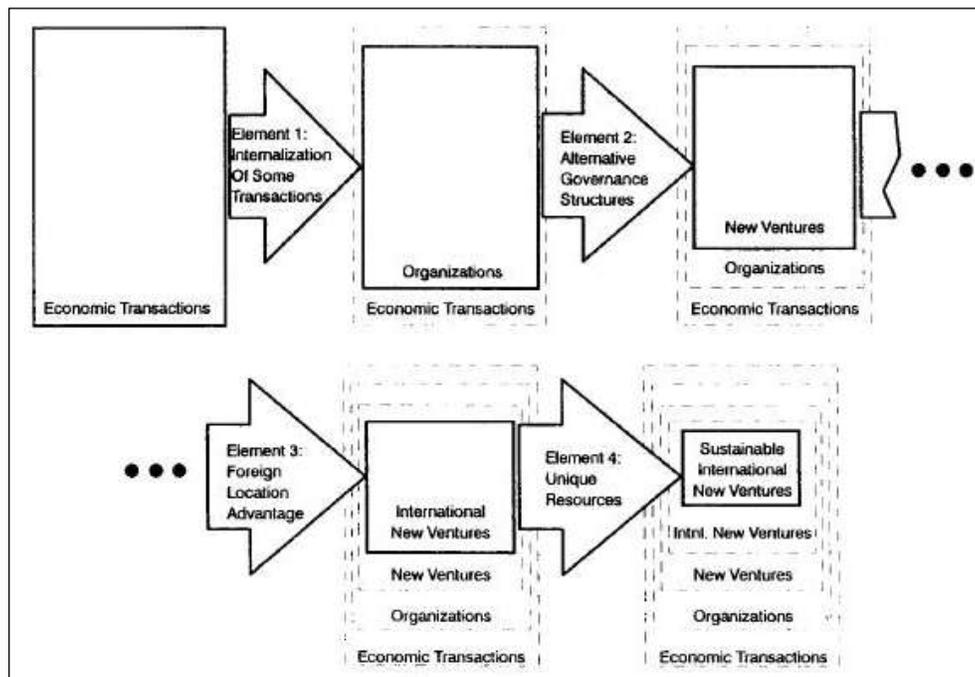


Figure reproduced from Oviatt and McDougall, 1994: 54.

Cavusgil (1994a, 1994b) discusses the born global phenomenon by explaining the firm and environmental factors driving new venture early internationalization. First, the development of international niche markets allows small firms to specialize and sell customized and unique products. Second, process technology improvements provide for economical development and production of customized products for the niche markets mentioned above. Third, advances in communication technology give born global entrepreneurs cheap access to suppliers, customers, and networks worldwide through fax,

email, and falling phone rates. Next, the advantages of smallness – response time, customer orientation, adaptability, and flexibility – play well with the fast-paced, quickly-changing globalized economy. Fifth, the means of internationalization - knowledge, funding, technology, assistance, etc. – are now available to firms large and small. Finally, global networks with distributors, trading companies, customers, suppliers, and so forth are accessible through cheap travel (*e.g.*, to trade shows and/or the international market itself) and cheap communication. Born globals use these factors to lower the cost and risks of internationalization while taking advantage of the benefits of internationalization.

Knight and Cavusgil (1996) expand on Cavusgil (1994a, 1994b) and delve deeper into the six factors described above and uncovering characteristics of the entrepreneurs that drive early internationalization in born globals. Because born globals tend to be small in terms of both the number of employees (less than 500) and financial resources (less than \$100 million in sales), they have limited resources to overcome the twin liabilities of foreignness and newness. Born globals do this in two ways. First, early internationalizers make use of technology to drive internationalization. This includes communication and transportation technologies, production and process technology, and innovative, value-added technology of the products and services sold by born globals in the international marketplace. Second, the entrepreneurs managing born globals are “visionaries who view the world as a single, borderless marketplace (Knight and Cavusgil, 1996: 12).” These entrepreneurs do not view international opportunities as secondary markets but instead see the world as their market and proactively seek to engage international markets as part of the firm’s overall strategy.

Researchers have found that many of the observations described above do indeed trigger early internationalization:

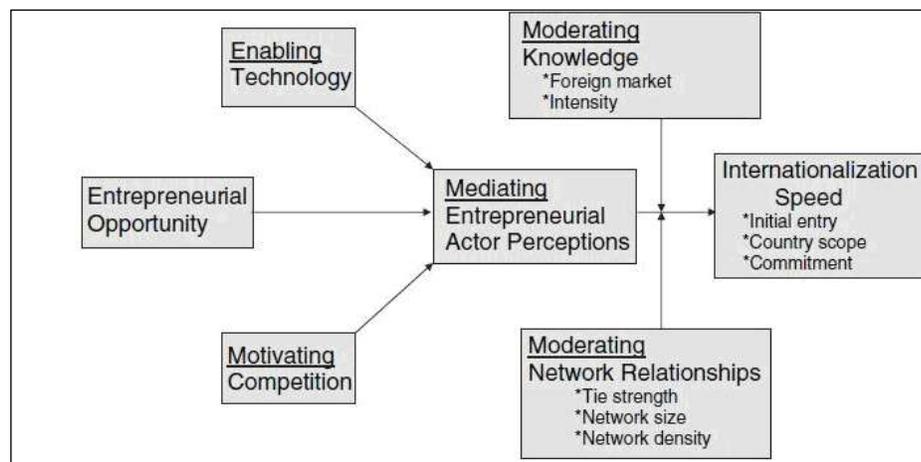
- Born globals heavily use intangible resources as a source of competitive advantage to overcome the liabilities of newness and foreignness. Firms base these intangible resources on knowledge, both individual and organizational, and the resources reflect the technological advancement and innovation of born global firms (Autio et al., 2000; Knight and Cavusgil, 2004; Zahra et al., 2000).
- Born globals also adopt differentiation and niche strategies to capitalize on their knowledge-related capabilities (Bell, 1995; Bloodgood et al., 1996; Moen, 2000; Rennie, 1993).
- External and internal factors, specifically networks, also strongly promote early internationalization (Acs, Morck, Shaver, and Yeung, 1997; Coviello and Munro, 1995, 1997; Dana and Wright, 2004).
- Other drivers include international, entrepreneurial, marketing, and learning orientations (DeClercq, Sapienza, and Crijns, 2005; Knight, 1997; Knight and Cavusgil, 2004; Moen and Servais, 2002).
- Finally, individual characteristics such as international experience (Reuber and Fischer, 1997) that relate to the firm-level concept of market knowledge also link firms to early internationalization.

Based on this theoretical and empirical work, Oviatt and McDougall (2005: 541) present the most complete model of early internationalization to date (see Figure 2.3 below). Their model includes necessary, but insufficient, drivers of early internationalization such as improvements in transportation and communication technology and competitors' actions. Oviatt and McDougall (2005) highlight the moderating role of networks and knowledge (both foreign market knowledge and a firm's knowledge intensity), especially given the strong empirical support for these factors. In fact, the bulk of the research both before and after Oviatt and McDougall (2005) concentrates on these moderating factors of knowledge (Kropp, Lindsay, and Shoham, 2006), networks (Al-Laham and Souitaris, 2008; Prashantham and McNaughton, 2006),

or both knowledge and networks (Gellynck, Vermeire, and Viaene, 2007; Loane, Bell, and McNaughton, 2007).

Most importantly, entrepreneurs' perceptions mediate international decision making on age at initial internationalization. As Figure 2.3 shows, the entrepreneur lies at the center of Oviatt and McDougall's (2005) model predicting early internationalization. The entrepreneur's perceptions filter all of the other factors in this model, and their cognitions drive decision making leading to early internationalization (Oviatt and McDougall, 2005; Oviatt, Shrader, and McDougall, 2004). The factors in this model encourage entrepreneurs to decide to internationalize early, and a full understanding of born globals requires a complete comprehension of all of these factors that drive early internationalization.

Figure 2.3: Oviatt and McDougall's Model of Early Internationalization



Model reproduced from Oviatt and McDougall, 2005: 541.

Born Globals as Entrepreneurial Opportunity Seekers

New venture early internationalization as entrepreneurial behavior. The International Entrepreneurship (IE) literature lies at the intersection of the fields of

International Business, Strategic Management, and Entrepreneurship. IE theory draws from International Business theory in its focus on how and why firms expand to foreign markets, specifically the Uppsala and Innovation Models of internationalization. From Strategic Management, IE draws on ideas of maximizing firm performance through firm strategy, hence the importance of the performance benefits (*e.g.*, learning, resource accumulation, financial) of early internationalization and the focus on using unique capabilities as a source of competitive advantage across international boundaries.

IE theory also draws from both International Business and Entrepreneurship in viewing internationalization as innovation. In the International Business literature, innovation models (Bilkey and Tesar, 1977; Cavusgil, 1980) view internationalization as an innovation process. These models describe internationalization as the decision to adopt the innovation of expanding to a foreign market, and the stages in the innovation models parallel Rogers' (1962) stages of the innovation adoption process (Andersen, 1993).

Entrepreneurship theory also frames new entry as innovation. Like Schumpeter's (1934) view of "new combinations" and market innovation, Davidsson (2005) describes the concept of entrepreneurship as market processes new to the firm. In short, entrepreneurship means firms must be actively engaging in entering markets new to the firm. This can be a new product into a new market, or an existing product into a new market. Internationalization behavior in which a firm extends any product into a market new to the firm fits the definition of entrepreneurial behavior as innovation and new entry. Born global firms exhibit a very high level of entrepreneurial behavior by creating new ventures and entering new markets simultaneously.

Finally, Entrepreneurship theory contributes a focus on the entrepreneur and on opportunity recognition. Shane and Venkataraman (2000) describe entrepreneurship as consisting of two components: opportunities and the entrepreneurs that exploit these opportunities. Along the same vein, one of the most accepted definitions of international entrepreneurship draws heavily from Shane and Venkataraman's (2000) focus on opportunities:

International entrepreneurship is the discovery, enactment, evaluation, and exploitation of opportunities – across national borders – to create future goods and services (Oviatt and McDougall, 2005: 540).

Building on this definition, IE theory also focuses on opportunities, specifically those across national borders, and the individuals that exploit those opportunities. As such, the opportunity and the entrepreneur's perceptions of the opportunity reflect the necessary conditions for international expansion. The next two sections discuss the entrepreneur and his/her role in opportunity recognition and exploitation in early internationalization.

Role of entrepreneurs in early internationalization. Although not all IE research centers on the entrepreneur, entrepreneurs are at the heart of new venture early internationalization. The entrepreneur is the firm's key resource, and the one that filters information and makes internationalization decisions (Oviatt and McDougall, 2005; Wright, Westhead, and Ucbasaran, 2007). As both the major firm resource and the central decision maker, the entrepreneur serves as the focal point for early internationalizing in both theory and practice (Knight and Cavusgil, 1996; Oviatt and McDougall, 2005).

Opportunity and early internationalization. Opportunities constitute sources of economic opportunity for the entrepreneurs that recognize and exploit them.

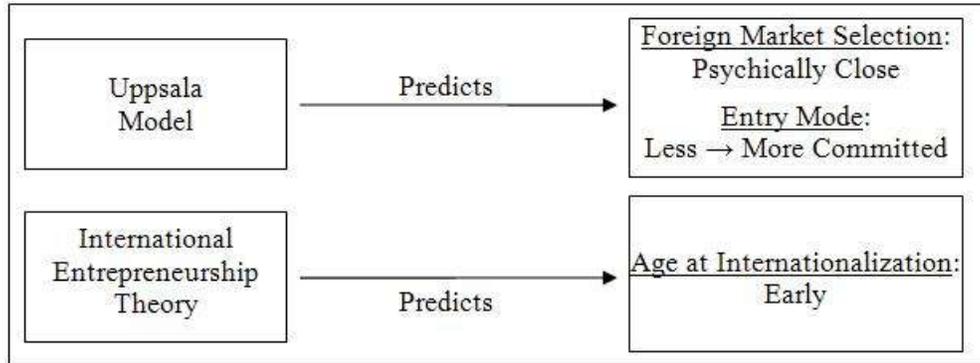
International opportunities are those that allow a firm to expand its operations or products across national borders seeking economic gains. Early internationalizers seek international opportunities at or near inception as a result of both external (*e.g.*, technology, competition) and internal (*e.g.*, networks, knowledge intensive products and services) forces. These forces are sources of potential opportunities as well as drivers for the selection or exploitation of opportunities. However, the entrepreneurs running born globals filter signals from internal and external sources to perceive or create opportunities and then act to exploit these opportunities.

Oviatt and McDougall (2005) describe factors such as technology and competition that reflect potential drivers of entrepreneurs' internationalization decisions but do not represent necessary and sufficient conditions for exploiting international opportunities. The entrepreneur and the opportunity represent the two necessary conditions for internationalization because without either, no internationalization can take place. As such, this dissertation focuses on the cognitive processes underpinning entrepreneurs' decisions regarding international opportunities.

Competing and Complementary Internationalization Theories: The Uppsala Model versus International Entrepreneurship

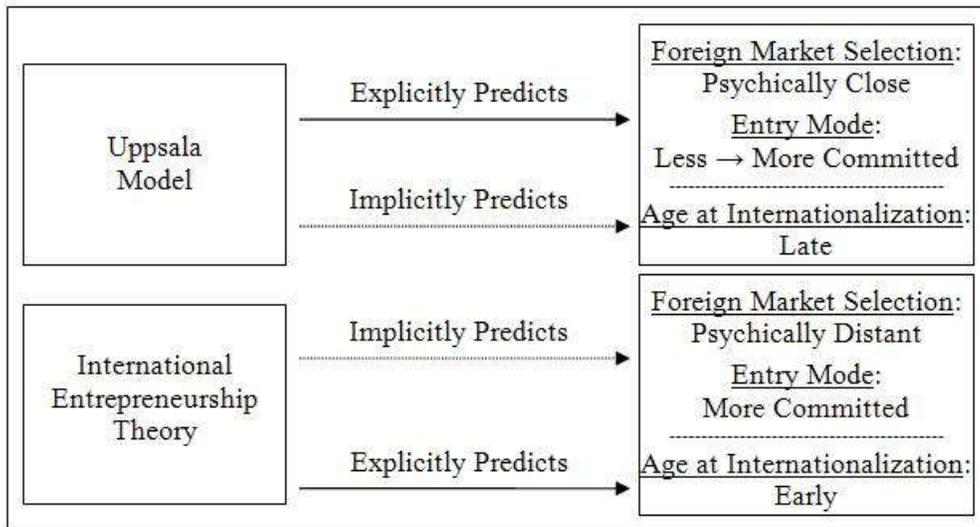
Complementary predictions of internationalization theory. Despite claims of the U-Model's obsolescence (Cavusgil, 1994a, 1994b), the U-Model and International Entrepreneurship theory have complementary predictions on internationalization (cf. Figure 2.4 below): on the one hand, the U-Model predicts mode and market selection whereas on the other hand, IE theory predicts age at internationalization. By evaluating the dependent variables and explicit predictions of each model, these models can be viewed as complementary in explaining the internationalization behavior of firms.

Figure 2.4: Complementary Predictions of the U-Model and IE Theory



Conflicting predictions of internationalization theory. Although these two theories have complementary predictions when viewed by their dependent variables, the devil is in the details. As highlighted in Figure 2.5, the implicit predictions and the processes of internationalization described by each theory emphasize important differences between them. Specifically, each theory implicitly predicts the dependent variable of the other, and the following sections discuss how each theory does this.

Figure 2.5: Competing Predictions of the U-Model and IE Theory



Early and Distant? The hidden aspects of International Entrepreneurship theory. International Entrepreneurship (IE) theory focuses on the age at initial internationalization as the preoccupation with born globals demonstrates implicitly and the outcome of Oviatt and McDougall's (2005) model shows explicitly. However, whereas the key dependent variable in IE theory measures age at entry, IE theory also discusses why firms may choose markets 'distant' from the home country by accounting for the same factors that predict early internationalization. Competitors may drive born globals to distant markets to engage a competitor, or to avoid it. Technology improvements in shipping and communication or demand for innovative products may favor advanced, but distant, markets such as Asia (for a U.S. firm) rather than near markets such as Mexico. Foreign market knowledge and networks may vary greatly depending on the characteristics of the founder such as previous international and industry experience, prompting an entry into a distant market. Therefore, although IE theory makes no explicit predictions regarding near versus distant entry, it implicitly opens the door for born globals to enter distant markets.

IE theory also predicts differences in mode. Johanson and Vahlne (1977, 1990) predict a gradual increase in commitment to markets resulting in a sequence of entry modes like that described by Johanson and Wiedersheim-Paul (1975). Oviatt and McDougall (1994) claim that born globals may leapfrog past exporting yet also ignore foreign direct investment. Instead, the use of alternative governance structures such as alliances and joint ventures allow born globals to make the best use of their limited resources in overcoming the twin liabilities of newness and foreignness. The establishment chain of the U-Model does not account for hybrid forms, nor does it

explain firms using – and remaining stable with – hybrid forms of commitment to international markets.

Close and Late? The hidden aspects of the U-Model. The U-Model predicts market selection and mode of entry, but remains explicitly silent on the age at initial internationalization. However, researchers commenting on the born global phenomenon quickly realized that early internationalizers did not follow the internationalization process described by the U-Model. These researchers strongly criticized the U-Model for its inability to predict the internationalization behavior of born globals (Cavusgil, 1994a, 1994b; Oviatt and McDougall, 1994).

The U-Model identifies stages that firms progress through as they internationalize, starting with a domestic learning stage where the firm performs no international activities (Johanson and Wiedersheim-Paul, 1975). However, born globals internationalize at, or near, inception, which invalidates this first stage of the U-Model. More specifically, it invalidates the U-Model's prediction of incremental foreign market knowledge acquisition through experience that allows a firm to go international. Some authors (Moen and Servais, 2002) suggest that the U-Model is still valid for born globals, but the first stage has been shortened as factors such as technology advancements and globalization allow a firm to proceed through the domestic stage more quickly than in years past. However, IE theory regards the push and pull factors driving the U-Model's typical firm to its first internationalization as necessary, but insufficient, conditions for early internationalization (Knight and Cavusgil, 1996; Oviatt and McDougall, 2005). Therefore, the U-Model implicitly suggests not just gradual internationalization in terms

of market commitment and psychic distance but also a later age at internationalization (i.e., from founding to first international commitment).

Reconciliation: The Individual and Cognition. If the U-Model and IE theory provide fundamentally competing predictions of firm internationalization age and scope, how can these two theories be reconciled? The answer lies within the theories themselves, specifically the importance that each theory places on the individual. Behind every new venture's initial internationalization behavior is an entrepreneur who processes the relevant information and decides that the firm will internationalize, where to, and when. The next section describes how the entrepreneur and his/her cognition lie at the heart of internationalization theory.

Cognition at the Heart of New Venture Internationalization Theory

New venture internationalization: The individual, organization, industry, and environment. Researchers study internationalization at four primary levels of analysis: the individual, the organization, the industry, and the environment (Buckley and Lessard, 2005). In practice, however, most internationalization research concentrates on large multinationals. As a result, the bulk of internationalization research on the U-Model and IE theory tends to be articulated at the firm-level, and consequently minimizes the influence of the individual. Furthermore, International Business research on the individual (typically the manager) usually focuses on the individual outside of a firm context, such as research on culture and national differences in managers (Hofstede, 1980, 1991). Yet top-level managers play a key role in the growth, scope, and market selection of international firms. Managers evaluate international competition, the firm's strengths and weakness, the environment, and opportunities for growth (Buckley, 1993).

In line with the dissertation's focus on internationalization decisions, the next paragraphs review the limited research on the individual level of analysis and highlight entrepreneurial cognition as a means to better understand internationalization behavior.

The individual and the U-Model. Johanson and Vahlne (1977) clearly state that they view the U-Model as a firm-level theory: "(we) do not deal explicitly with the individual decision maker (26)." Instead, their model focuses on state and change aspects that drive the internationalization process of firms. The U-Model follows the behavioral theory of the firm (Cyert and March, 1963) where individuals search for solutions for problems and identify new opportunities. Firms can store market knowledge in computer databases and routinize decision making, but firms cannot transfer person experience to market knowledge nor feel uncertainty. Behind the internationalization decisions of any firm are individuals that experience international expansion, store information about foreign markets, and process uncertainty regarding current and future international activities. This is particularly true in new ventures where the founders tend to play a critical role in most major decisions and especially internationalization decisions (Chandler and Hanks, 1994; Reuber and Fischer, 1999). Accordingly, this dissertation argues that by looking deeper inside the U-Model and studying internationalization behavior at the individual-level, we can better understand internationalization behavior and reconcile the U-Model and IE Theory.

Extant internationalization research at the individual level provides some insight regarding how individual-level factors influence entrepreneurs' internationalization decisions. Even though the U-Model focuses on firm-level behaviors, the model suggests that lack of foreign market knowledge and uncertainty trigger the gradual

internationalization process of the U-Model (Johanson and Vahlne, 1977, 1990). More specifically, the U-Model predicts that firms select markets that they most easily understand because they see more opportunities and perceive a low level of market uncertainty (Johanson and Vahlne, 1990: 13). Both lack of foreign market knowledge and the uncertainty that results from insufficient foreign market knowledge impact the perception of risk regarding an international opportunity and the ability to evaluate alternative international opportunities. Without foreign market knowledge, entrepreneurs find it much more difficult to understand the benefits and risks of any international opportunity, and without foreign market knowledge, entrepreneurs tend to perceive a lack of ability to estimate important market-related factors (Johanson and Vahlne, 1977). Extant research at the individual-level shows that entrepreneurs' perceptions of uncertainty and risk strongly influence entrepreneurs' internationalization decisions (Acedo and Florin, 2006; Acedo and Jones, 2007; Chang and Rosenzweig, 2001; Harveston, 2000). Such observations are particularly relevant for the present dissertation: they demonstrate that an individual-level of analysis helps us to better understand the U-Model's predictions regarding firm's internationalization behaviors. Further, these observations emphasize the importance of studying individual cognition (*e.g.*, perceptions of risk and uncertainty) to understand entrepreneurs' internationalization decisions – a point to which I come back in a few paragraphs.

The individual and IE theory. As we have seen earlier in this Chapter, International Entrepreneurship theory integrates Entrepreneurship theory with International Business theory. As such, IE theory explicitly recognizes the central role of the entrepreneur. In principle, however, IE theory emphasizes a multi-level approach to

internationalization. IE theory focuses on important variables that drive early internationalization at different levels of analysis: the individual-level (*e.g.*, personality traits), firm-level (*e.g.*, competition), and macro-level (*e.g.*, technology changes). However, the theory also incorporates aspects such as knowledge and networks that are relevant at both the firm- and individual-level. Foreign market knowledge stems from both the firm's and the entrepreneur's international experience, and researchers operationalize knowledge intensity at the firm-level. Networks can also exist at both the firm-level (*e.g.*, alliances) and the individual-level (*e.g.*, social networks). Seen in this light, IE theory puts the entrepreneur at the center of models of early internationalization by incorporating the Entrepreneurship view of entrepreneurs and opportunities as key drivers of behavior.

Oviatt and McDougall (2005) not only place the entrepreneur at the center of their model of early internationalization but specifically label entrepreneurs' cognitive processes as 'entrepreneurial actor perceptions' and suggest that the other factors in their model are filtered through the entrepreneur's perceptions. Building on this focus on entrepreneurial cognition and early internationalization, Freeman and Cavusgil (2007) discuss the importance of managerial mindsets of entrepreneurs that drive early internationalization. Similarly, other research on born globals finds cognitive orientations distinguish those firms that internationalize early from those that internationalize late. Several researchers find that entrepreneurs founding born globals have higher levels of certain cognitive orientations linked to internationalization such as entrepreneurial, global, and international orientations (Harveston, 2000; Knight and

Cavusgil, 2004; Moen and Servais, 2002) and that these orientations increase a firm's propensity to internationalize early.

These findings suggest that entrepreneurs of born globals think about international factors differently than their later internationalizing counterparts. Different orientations with respect to internationalization allow these entrepreneurs to focus on aspects related to the internationalization decision that others ignore. IE researchers describe some of these different aspects upon which born globals focus and later internationalizers do not. When making internationalization decisions, rather than focusing exclusively on distance issues (*e.g.*, psychic distance), entrepreneurs of born globals use networks more (Bell, 1995; Coviello and Munro, 1995, 1997), are more attuned to competitive factors (Oviatt and McDougall, 1995), and formulate specific types of competitive strategies (Knight, 1997; Oviatt and McDougall, 2005; Rennie, 1993). Taken together, these differences between born globals and later internationalizers suggest that born globals evaluate internationalization decisions differently by focusing on aspects largely ignored by later internationalizers. Accordingly, IE research also highlights the utility of studying internationalization behavior at the individual-level of analysis.

The individual, international experience, and prior knowledge. The individual-level characteristic that has received the most attention in the extant literature on internationalization is international experience. International Business theories including the U-Model (Johanson and Vahlne, 1977, 1990) and IE theory (Knight and Cavusgil, 1996; Oviatt and McDougall, 2005) discuss the role of international experience in why firms and entrepreneurs make decisions on where and when to internationalize. Although the U-Model focuses on firm-level international experience, IE theory acknowledges the

importance of individual-level international experience. In IE theory, new ventures do not have any organizational experience, routines, or capabilities with international business at founding. Instead, the past experiences of the entrepreneurs substitute for organizational experiences (Chandler and Hanks, 1994; Reuber and Fischer, 1999). Thus IE theory suggests that an entrepreneur's prior experience allows the born global to "leapfrog" the stages and processes suggested by the U-Model (Oviatt and McDougall, 2005).

Prior experience serves as a source of both foreign market knowledge and networks that enable internationalization and allow the firm to overcome the liabilities of newness and foreignness (Lord and Ranft, 2000). It is not well understood which prior experiences or what types of experiences are most valuable to the firm to internationalize early nor how these experiences impact entrepreneurs' internationalization decision making (Reuber and Fischer, 1997; Sapienza et al., 2006). However, extant literature in International Entrepreneurship and International Business focuses on one key outcome of international experience - the importance of prior knowledge, and its influence on entrepreneurs' internationalization decisions. The U-Model highlights the role of prior international knowledge in reducing uncertainty, increasing commitment to international markets, and selecting more psychically distant markets (Johanson and Vahlne, 1977, 1990). IE theory also discusses the importance of prior international knowledge to entrepreneurs' perceptions of opportunities (Oviatt and McDougall, 2005). This research shows that prior international knowledge influences entrepreneurs' internationalization decisions. More specifically, prior international knowledge reduces uncertainty and changes entrepreneurs' perceptions of international opportunities. These effects suggest

that prior international knowledge alters the way in which entrepreneurs perceive and think about international opportunities. However, the extant literature provides little guidance on how and why prior international knowledge influences entrepreneurs' internationalization decisions.

The neglected role of the entrepreneur in the U-Model and IE Theory. In spite of the many studies on the effects of prior knowledge and experience in internationalization research, the entrepreneur's role in internationalization behavior remains underdeveloped in theory and understudied in empirical research. For instance, U-Model research focuses on the impact of psychic distance on market selection and entry mode (*e.g.*, Dow, 2000; Ellis, 2007) rather than on whether and to what extent entrepreneurs consider such issues in their internationalization decisions. For their part, IE researchers look at individual-level characteristics of the entrepreneur such as the entrepreneur's network (*e.g.*, Al-Laham and Souitaris, 2008; Prashantham and McNaughton, 2006), but do not directly document the direct and specific influence of networks on entrepreneurs' internationalization decisions. Finally, research on IE theory and the U-Model points to the importance of prior international knowledge in altering entrepreneurs' internationalization decisions, but researchers have not articulated why prior international experience impacts entrepreneurs' internationalization decisions. These examples show that extant research on internationalization decisions largely fails to articulate the cognitive underpinnings of entrepreneurs' internationalization decisions. Prior research discusses the influence of particular variables (*e.g.*, prior international knowledge or networks) but does not explore how, why, and when entrepreneurs use these considerations in their efforts to make decisions. To address this important gap in

the literature, this dissertation uses an individual-level of analysis, specifically a focus on cognitive processes underpinning entrepreneurs' internationalization decisions, as the means to reconcile and integrate the U-Model and IE Theory. The next section discusses the important role of the entrepreneur and the cognitive processes underpinning his/her internationalization decisions.

Cognition: Linking the individual to internationalization. An important gap exists regarding individual-level internationalization research. The limited theory and empirical research described above demonstrates that studying the individual-level of analysis – the entrepreneur – provides insight into firm internationalization behavior. Entrepreneurs notice and evaluate international opportunities, perceive and process information and uncertainty, and make decisions regarding their firm's internationalization. This centrality of the entrepreneur to the internationalization decision making process highlights the entrepreneurs' importance to understanding new venture internationalization behavior. Further, extant internationalization research suggests that entrepreneurial cognition plays an important role. IE researchers argue that differences in entrepreneurial decision making on internationalization stem from variations in cognitive orientations of entrepreneurs (Harveston, 2000; Knight and Cavusgil, 2004; Moen and Servais, 2002), yet the nature and articulation of such orientations have not received much elaboration to date. Additionally, IE theory places “entrepreneurial actor perceptions” at the center of models of early internationalization and argue that these perceptions filter the other factors influencing early internationalization (Oviatt and McDougall, 2005). However, articulation of the cognitive processes that underpin these decisions remains absent from IE theory and U-

Model research. As such, extant research fails to explain the way in which entrepreneurs think about and evaluate international opportunities. Therefore, we know that entrepreneurial cognition matters, but we do not know why it matters or the cognitive processes underpinning entrepreneurs' internationalization decisions. Extant research on cognition and internationalization does not offer specific explanations for how entrepreneurs evaluate and select internationalization opportunities, nor why prior international knowledge impacts the way in which entrepreneurs make internationalization decisions. As a result, cognitive processes underpinning entrepreneurial decision making on early internationalization and market selection are not well understood (Acedo and Jones, 2007; Zahra, Korri, and Yu, 2005) and require additional research. By focusing on individual-level cognitive processes behind internationalization decision making, we can better understand what enables entrepreneurs to acknowledge and exploit internationalization opportunities. In this dissertation, I go beyond extant internationalization research and look at research and theory linking entrepreneurs' cognitive processes to their internationalization decision making. The next section argues that cognitive processes of comparison and structural alignment underpin entrepreneurs' internationalization decision making.

Decision Making, Comparisons, and Internationalization

As explained in Chapter I, I propose in this dissertation that entrepreneurial decision making on internationalization rests on cognitive processes of comparison and structural alignment for three reasons. First, extant research shows that comparisons underpin individuals' decision making, especially when evaluating and selecting among alternative opportunities. Second, internationalization theory relies heavily on one

specific comparison: a similarity comparison, which researchers operationalize as distance measures (*e.g.*, psychic, cultural, and geographic distance). Third, decision making and comparisons such as similarity comparisons share common cognitive processes of structural alignment. I further propose that a cognitive model of entrepreneurs' internationalization decision making that takes into account comparison and alignment processes integrates and reconciles the U-Model and IE theories of internationalization.

Structural alignment: Common to comparisons and decision making.

Psychology and Marketing literatures demonstrate the importance of comparisons when individuals make decisions (Markman and Medin, 1995; Zhang and Fitzsimons, 1999; Zhang and Markman, 2001). These studies show that consumers evaluate products based on each product's features, and which types of product features that individuals use to choose a product rest on cognitive processes of comparison and structural alignment. These studies led to a realization that comparisons and structural alignment underpin individuals' decision making, notably selection among alternatives (Medin, Goldstone, and Markman, 1995). This common cognitive process of structural alignment makes it suitable for research on internationalization because internationalization decisions rely heavily on similarity comparisons between the home and host market (Johanson and Vahlne, 1977, 1990) while also including a choice among alternative potential international opportunities (Buckley, Devinney, and Louviere, 2007; Grégoire, Williams, and Oviatt, 2008). Chapter III builds on these basic ideas and provides a detailed discussion of entrepreneurs' internationalization decision making via cognitive processes of comparison and structural alignment. Furthermore, Chapter III proposes that this

dissertation's model of international decision making integrates the explicit and implicit predictions of both the U-Model and IE theory on internationalization.

Chapter Summary

Chapter II reviews new venture internationalization theory with a focus on the Uppsala Model (U-Model) and International Entrepreneurship (IE) Theory. The chapter emphasizes the complementary and competing predictions of these two theories and argues that the theories can be reconciled and integrated via a focus on the entrepreneur, specifically the cognitive processes of entrepreneurs' internationalization decisions. Cognitive processes of comparison and structural alignment underpin entrepreneurs' decision making, and this chapter proposes that these cognitive processes help explain and reconcile the differing predictions of the U-Model and IE theories and the different international behavior of different new ventures. Chapter III articulates this proposition in more detail, and that by developing a cognitive model of entrepreneurs' internationalization decisions based on the predictions of structural alignment theory.

CHAPTER III

INTERNATIONALIZATION AND STRUCTURAL ALIGNMENT

Chapter Overview

This chapter proposes a formal model of entrepreneurs' internationalization decisions underpinned by cognitive processes of comparison and structural alignment. This model provides a cognitive basis for understanding entrepreneurs' decisions regarding international market selection and age at initial internationalization. More importantly, this model integrates key predictions of the U-Model and International Entrepreneurship theories on internationalization.

The first part of the chapter describes structural alignment theory and the role of cognitive processes of structural alignment when individuals make comparisons. Specifically, this section focuses on cognitive comparisons that support individuals' decision making through the individual's alignment of relevant options and their features. The chapter then argues that two distinct comparisons underpin entrepreneurs' decisions about which international markets to enter and when to enter that market. One comparison is a similarity comparison between the home country and a potential host country. The second comparison is between potential international opportunities such as two different potential international entries. The chapter develops hypotheses regarding entrepreneurs' decisions, specifically the relative influence of the features of internationalization options. Variations in the way different features influence entrepreneurs' evaluation of countries directly impact why entrepreneurs' select international opportunities and age at initial internationalization. The last part of the chapter extends the basic model by considering the moderating role of individual

differences. More specifically, the chapter proposes that prior international knowledge – a key variable in internationalization research - moderates entrepreneurs' cognitive processes of alignment when making internationalization decisions on international opportunity selection and age at initial international entry.

Structural Alignment Theory

Individuals compare objects using cognitive processes of structural alignment (Gentner and Markman, 1994; Markman and Gentner, 1993a, 1993b; Medin, Goldstone, and Markman, 1995). In its most basic sense, structural alignment is a cognitive tool that individuals use to compare objects according to what they perceive as common dimensions between them. Comparisons are an important, basic, and useful part of how we see and make sense of the world around us, and we use comparisons in a large number of our reasoning activities. For example, when exposed to a new object, individuals naturally compare the new object to objects they already know in order to better understand the new object. By mapping the common dimensions between the two objects, we can determine the extent to which a new object is similar to (or different from) objects we already know, and thus can make sense of the world around us. Researchers have demonstrated that comparisons between objects underpin a wide variety of individuals' cognitive activities such as learning (Gentner, 1989), classification (Sifonis and Ross, 2002), categorization (Markman and Wisniewski, 1997), analogy (Gentner, 1983), induction (Lassaline, 1996), conceptual combination (Costello and Keane, 2001), and social comparisons (Mussweiler and Gentner, 2007). A primary finding of this research is that individuals make comparisons by aligning objects according to their common dimensions. This research also highlights that structural

alignment underpins a variety of useful cognitive activities, and these activities are important in how we see the world around us.

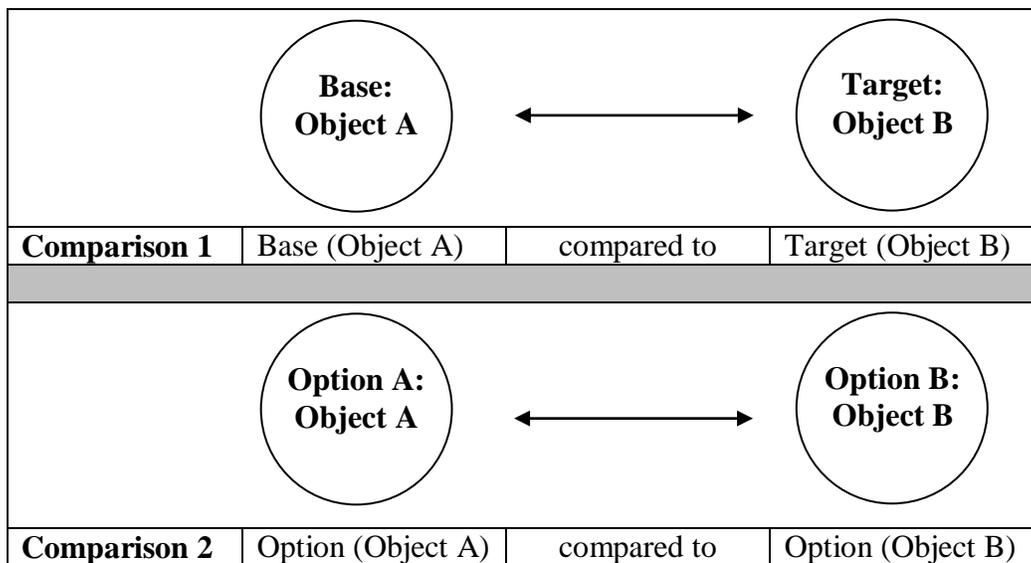
From a cognitive processing standpoint, individuals make comparisons by matching the mental representations of objects. These mental representations comprise both the features of objects and the connections that unite the features between objects. Features are a prominent or conspicuous characteristic of an object such as geographic location or the language spoken in a particular country. Connections between objects exist when a common dimension links the two objects being compared. For example, if the same language is spoken in two countries, there is a common dimension between features (language) of the two countries. When comparing objects, individuals seek to match the mental representations of objects by finding the connections between them (*i.e.*, their common features). The aligning of features and the common dimensions between features represents the comparative structure of these two objects. A key point is that when making comparisons, individuals attend to the comparative structure of the objects being compared, and the features included in the comparative structure between objects influences individuals' decision making. The next section discusses why comparisons underpin individuals' decision making, and the following sections describe the three cognitive outputs that result from structural alignment and cognitive comparisons.

Decision making as a process of structural alignment. When making decisions involving more than one object or alternative, individuals naturally use cognitive processes of comparison to evaluate them. Specifically, individuals use comparisons in choice situations. A choice situation is one where individuals identify a goal and a set of

alternatives to satisfy that goal (Markman and Moreau, 2001). Individuals make a choice by identifying the options in the consideration set of possible options, evaluating the options, and finally selecting one option (Markman and Moreau, 2001). Researchers describe the impact of comparisons on individuals' decisions as a result of comparing the options according to their features and the connections between the features of options (Markman and Medin, 1995; Medin, Goldstone, and Markman, 1995).

From a cognitive standpoint, individuals in choice situations make two important comparisons. They make one comparison directionally (target to base) and the other non-directionally (option-option), and both comparisons are relevant for decision making. Figure 3.1 graphically demonstrates these two types of comparisons.

Figure 3.1: Two Comparisons in Choice Situations



First, individuals assess a potential option (target) against a base (source). The source is generally more familiar to the individual than the target object. When making these types of comparisons, individuals start with the features of the base object and attempt to align the features of the target object with those of the base object. The base-

target comparison is the most common type of comparison, and individuals use it when making analogies (Gentner, 1983), metaphors (Gentner and Wolff, 1997), learning about new objects (Gentner, Rattermann, and Forbus, 1993), problem solving (Holyoak and Koh, 1987), and categorization and classification (Markman and Wisniewski, 1997).

As I describe later, similarity comparisons are an important target/base comparison because of their relevance for entrepreneurs' internationalization decision making. In the context of this dissertation, entrepreneurs compare a base (home country) to a target (potential host country). For example, entrepreneurs make decisions resting on comparisons of the features and connections between the United States (the base / home country) against the United Kingdom (the target / host country).

The second comparison is relevant specifically when individuals make choices. In choice situations, individuals compare among alternatives, and they evaluate the options and their features. This comparison does not involve a base or target. Instead, individuals compare the options against each other, rather than against a particular ideal option (Markman and Moreau, 2001). This comparison involves evaluating the attractiveness of each option versus the other potential options. Continuing with the internationalization example, entrepreneurs' option set might consist of two countries: Canada and the United Kingdom. When selecting which market to enter, entrepreneurs evaluate the market features of both countries as well as the comparability of the features between the countries.

Outputs of the comparison process. When making comparisons by evaluating features and connections between objects, individuals attend to three cognitive “outputs” (*i.e.*, types of cognitive considerations that underpin individuals' decision making):

commonalities, alignable differences, and nonalignable differences. Individuals generate these three outputs by comparing each object's features and identifying connections between object features. Connections between features exist when they share a common dimension. For example, the predominant language spoken in the United States is English just as the predominant language spoken in the United Kingdom is English. A common dimension between these countries is language. Because there is a common dimension linking this feature (language) of each country, a connection exists between these features. By comparing objects using the cognitive process of structural alignment, individuals notice two outputs based on features connected on the same dimensions: *commonalities* and *alignable differences*. A third output, *nonalignable differences*, is a difference that takes place along a unique dimension that is not part of the comparative structure between objects. The next section defines and describes commonalities, alignable differences, and nonalignable differences.

Commonalities, alignable differences, and nonalignable differences. In structural alignment terminology, *commonalities* (Cs) represent common features, or the set of features that overlap between objects. Because commonalities between objects rest on the same dimensions, individuals perceive commonalities as part of the comparative structure between objects. In the example above, English is a commonality between the U.S. and the U.K. because the two countries share a common value (English) on a common dimension (language).

Like commonalities, *alignable differences* (ADs) are distinctive features that individuals perceive as sharing the common comparative structure between objects. Unlike commonalities, however, alignable differences of two objects represent different

values along a common dimension. For example, the predominant language in the U.S. is English and the predominant language in Spain is Spanish, therefore, this is an alignable difference because the countries have different values (English, Spanish) on a common dimension (language). The fact that there is a common dimension (language in this example) is what makes Cs and ADs part of the common comparative structure between the U.S. and the U.K. (commonality) and between the U.S. and Spain (alignable difference). Because Cs and ADs are part of the common comparative structure, Cs and ADs represent comparable features between countries.

Individuals may also notice and consider differences that are not part of the common comparative structure between objects and their features. Unlike commonalities and alignable differences, *nonalignable differences* (NADs) fall outside of the common structure because they reflect dimensions not common between objects, or features that have no correspondence between the objects on a common dimension (Gentner and Markman, 1994). In practice, nonalignable differences arise when one object contains a feature not shared by the other object, or information is missing which prevents the processing of connections between the features of objects. For example, if a firm can use the same distribution system it has in the United States when doing business in the U.K. but not in Spain, this is a nonalignable difference because there are different values (can use distribution system, cannot use distribution system) but no common dimension (distribution system) exists because distribution system usage does not exist as a feature for both countries. Therefore, the feature distribution system is not part of the comparative structure between the two countries, and NADs reflect noncomparable features between countries. Tables 3.1 and 3.2 present additional examples of

commonalities, alignable differences, and nonalignable differences. Specifically, Tables 3.1 and 3.2 reinforce how individuals perceive Cs and ADs as part of the common comparative structure while viewing NADs as falling outside of the comparative structure.

Table 3.1: Aligning Commonalities and Differences of Elephants and Fish

		Elephant	Fish
Commonalities	<u>Class:</u>	Living Thing	Living Thing
Alignable Differences	<u>Size:</u>	Big	Small
	<u>Color:</u>	Gray	Silver
Nonalignable Differences		Has Trunk	- -
		- -	Has Fins

Table Created Using Examples from Costello and Keane (2001)

Table 3.2: Examples of Commonalities, Alignable and Nonalignable Differences

Objects Compared	Commonality	Alignable Difference	Nonalignable Difference
	Similar features of concepts	Differences on the same dimension	Differences on an unshared dimension
Car vs. Motorcycle Markman & Wisniewski (1997)	Both have wheels	2 vs. 4 wheels	Cars have a jack, motorcycles do not
Brands of Popcorn Zhang & Markman (1998)	Both have low sodium	Size of the kernel	One brand is buttered, the other is not
Roses vs. Violets Estes & Hasson (2004)	Both have petals	Red vs. blue petals	Thorns (roses) vs. no thorns (violets)

A Cognitive Model of International Opportunity Selection and Age at Initial Entry

This section applies the logic and findings of the cognitive literature on comparison and structural alignment to the particular context of new venture internationalization, specifically entrepreneurs' decisions regarding international opportunity selection and age at initial internationalization. First, this section discusses

the baseline proposition guiding this dissertation regarding entrepreneurs making internationalization decisions. Then, this section demonstrates why cognitive comparisons underpin entrepreneurs' decisions regarding international opportunity selection and age at internationalization. Finally, the last part of this section explores the role of prior international knowledge in moderating entrepreneurs' decision making.

As discussed above, two types of comparisons support individuals' decision making: a comparison of a base to a target and a comparison of two or more alternatives. As explained earlier, researchers demonstrate that individuals compare objects via cognitive processes of structural alignment (Gentner, 1983; Gentner and Markman, 1994; Markman and Gentner, 1993b) whereby they align objects and their features to find common (comparable) dimensions and attend to three types of cognitive outputs: commonalities, alignable differences, and nonalignable differences (Markman and Medin, 1995; Medin, Goldstone, and Markman, 1995). Because individuals think in terms of a common comparative system, they process comparable features (commonalities and alignable differences) differently than noncomparable features (nonalignable differences) (Gentner, 1983; Markman and Gentner, 1993a; Medin, Goldstone, and Gentner, 1990). As a result, certain types of features of the compared objects that are part of the comparative structure influence individuals differently than features not part of the comparative structure.

Building on this research, I propose that entrepreneurs make internationalization choices on opportunity selection and age at internationalization resting on cognitive comparisons whereby they evaluate the features and comparative structure between countries. In choice situations, both types of comparisons between objects impact

entrepreneurs' decisions. As described earlier, the first comparison affecting entrepreneurs' decisions is between the home country (base) and a potential international opportunity (target). Internationalization researchers demonstrate the importance that entrepreneurs place on comparing the home country to the potential host country when determining which opportunity to select and how early to enter a market. Specifically, research on the U-Model (Johanson and Vahlne, 1977, 1990; Johanson and Wiedersheim-Paul, 1975) and market similarity (*e.g.*, Davidson, 1983; Grein, 2000; and Sethi, 1971) shows that similarity between the home and host countries matters when entrepreneurs make internationalization decisions.

The second comparison affecting entrepreneurs' internationalization decisions is between potential alternatives. This comparison is consistent with research showing that when it comes to making internationalization decisions, most entrepreneurs tend to choose among two or more alternatives – as opposed to simply considering alternatives one at a time, independently from each other (Buckley, Devinney, and Louviere, 2007; Grégoire, Williams, and Oviatt, 2008). In both the option versus option and home versus host comparisons, entrepreneurs' alignment of the features of these countries according to their place in the common comparative system underpins their internationalization decisions. In this dissertation, I propose that when entrepreneurs make decisions on internationalization, country comparisons impact these decisions. As a result, entrepreneurs align countries and their features when making two key internationalization decisions: deciding *which opportunity to select* (P0a) and *when to exploit the opportunity* (P0b). This chapter states these foundational propositions more formally below:

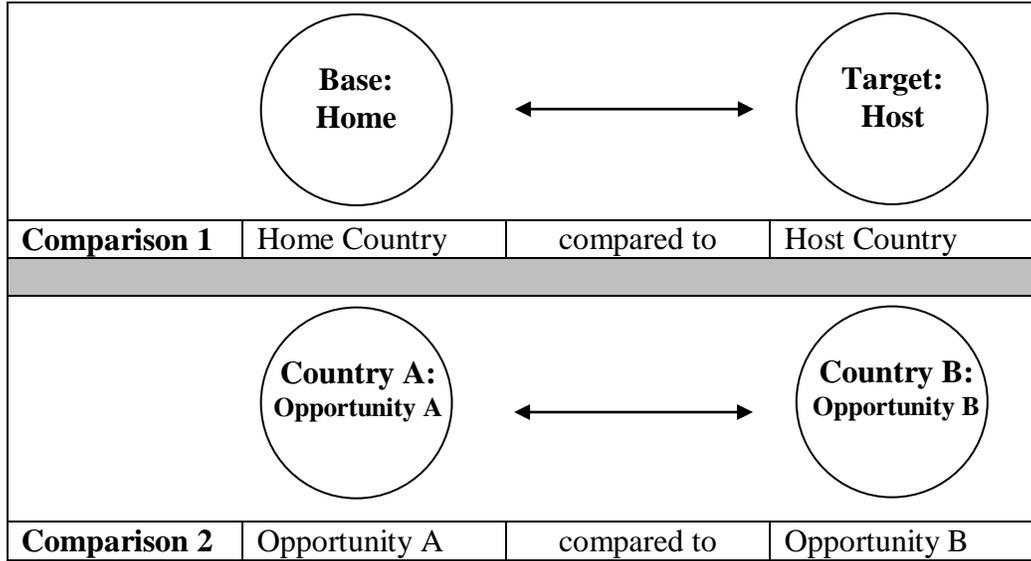
*P0a: Entrepreneurs **select** international opportunities, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.*

*P0b: Entrepreneurs **decide when** to exploit an opportunity, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.*

The following sections build on the foundational propositions above (P0a-b) to develop hypotheses regarding entrepreneurs' internationalization decisions for both comparison processes. Although this dissertation does not directly test P0, the Hypotheses (1 through 8) based off of P0 reflect the dissertation's basic model of entrepreneurs' internationalization decision making. Furthermore, a pattern of significant empirical results for Hypotheses 1 through 8 would demonstrate support consistent with the validity of the overall model and P0a-b.

In developing Hypotheses 1 through 8, I draw attention to the important role of cognitive comparison process when entrepreneurs make decisions regarding both international opportunity selection and age at internationalization. Ultimately, I integrate into a single unifying framework the complimentary and competing predictions of the U-Model and IE theory on internationalization by examining specific cognitive processes of comparison and structural alignment that underpin entrepreneurs' internationalization decision making. As summarized in Figure 3.2 below, the next sections discuss each comparison and why each comparison supports entrepreneurs' internationalization decision making on international opportunity selection and age at internationalization.

Figure 3.2: Two Comparisons Underpinning Entrepreneurs' Decisions

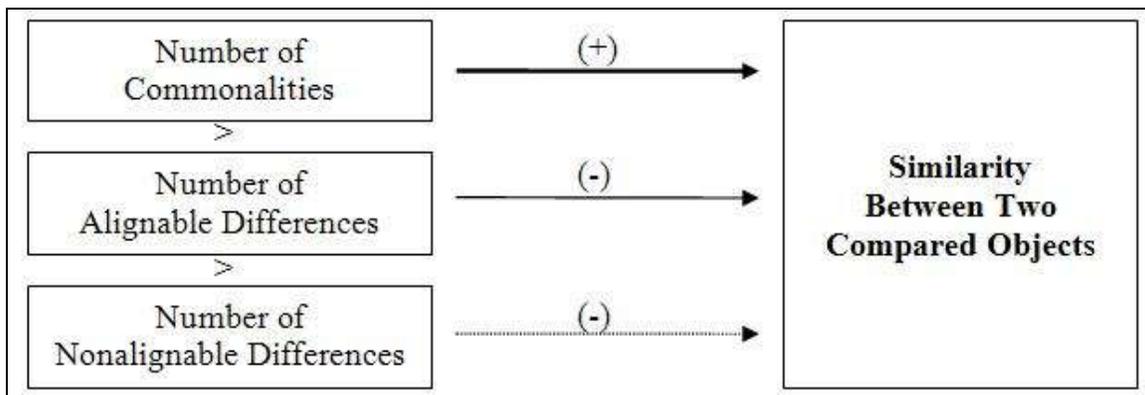


Comparison of base and target: similarity comparisons. In this dissertation, I advance that entrepreneurs' similarity comparisons between the home (base) and host (target) countries underpin their propensity to select an opportunity and the age at initial internationalization. The next section describes how individuals make similarity comparisons between objects before moving on to describe the importance of similarity comparisons for international opportunity selection and age at internationalization.

Figure 3.3 summarizes two major predictions of structural alignment theory on similarity comparisons. First, individuals perceive the number of commonalities as positively related to similarity while perceiving the number of both kinds of differences (ADs and NADs) as negatively related to similarity. Second, the weight of the impact of Cs, ADs, and NADs varies with individuals placing more weight on Cs, then ADs, and finally placing the least weight on NADs in judged similarity. Consistent with the structural alignment prediction that individuals think in terms of a common comparative system (Gentner, 1983; Markman and Gentner, 1993a; Medin, Goldstone, and Gentner,

1990), in their similarity considerations, individuals give greater weight to those features connected to the common structure (Cs and ADs) between objects than those not connected to the common structure (NADs). The following paragraphs explain each of these predictions in more detail.

Figure 3.3: Structural Alignment Predictions on Similarity Comparisons



Note: the thickness of the lines as well as the “>” symbol represent the hierarchy of importance of each factor in individuals’ similarity considerations.

When individuals compare objects to determine similarity, the comparison process yields commonalities, alignable differences, and nonalignable differences. By aligning the structure of objects during similarity comparisons, individuals determine in what ways the two are similar but also in what ways they are different. Individuals use commonalities to evaluate how two objects are similar to each other. More commonalities mean greater similarity between objects because commonalities reflect the same value on a common dimension between objects. Indeed, of all the outputs of similarity comparisons (*i.e.*, Cs, ADs, and NADs), individuals weigh commonalities the most heavily relative to ADs and NADs. They do this because commonalities most directly measure similarity by virtue of representing the same value on the same dimension (*e.g.*, the same value of English on the common dimension of language).

Therefore, individuals judge objects as more similar when the objects have more commonalities between them. Intuitively, this makes sense because objects with more features in common should be judged as more similar to each other. Research on similarity comparisons shows a positive relationship between the number of commonalities and judged similarity. For instance, individuals list more commonalities for a pair of items that they judge as more similar to each other (Markman and Gentner, 1993b, 1996).

For both alignable and nonalignable differences, individuals perceive objects with a greater number of differences between them as less similar. This is because both types of differences reflect unshared values between objects. Further, researchers also argue that individuals view alignable differences as more salient than nonalignable differences due to their role as part of the common comparative structure between objects (Gentner and Markman, 1995). As a result, individuals notice ADs more frequently and place greater importance on them than nonalignable differences. Individuals place greater weight on alignable differences because individuals can more easily compare two objects with different values on the same dimension (*e.g.*, values of English and Spanish on the dimension of language). This allows individuals to make a relative judgment of value (*e.g.*, of English versus Spanish) without knowing the absolute value of either English or Spanish in isolation. As a result, the noticing of alignable differences contributes heavily to similarity judgments because individuals judge objects with more ADs as less similar to each other (Gentner and Markman, 1994; Markman and Gentner, 1996). These results also make sense intuitively because individuals perceive objects with more differences

between them as less similar to each other, and more heavily weight differences when they can more readily evaluate the relative values of objects' features.

Finally, individuals also perceive the number of nonalignable differences between objects to be negatively related to similarity. But they weigh NADs less in similarity comparisons than Cs or ADs. Research shows that individuals notice fewer NADs and find NADs harder to process because individuals perceive nonalignable differences as not part of the common comparative structure (Gentner and Markman, 1994; Markman and Gentner, 1996). Because individuals perceive NADs as falling outside the comparative structure, they find NADs harder to process than outputs inside the comparative structure (Cs and ADs). For example, if one country compared allows a firm to use its existing distribution system and the other does not, individuals comparing the countries must know how to value distribution system usage on an absolute level to determine the importance of this NAD to judged similarity.

In sum, more nonalignable differences between objects also results in objects being judged as less similar. However, NADs do not contribute as heavily to similarity considerations as commonalities and alignable differences because individuals cannot readily evaluate the importance of NADs. Accordingly, individuals list fewer NADs than Cs or ADs for similar pairs (Gentner and Markman, 1994; Markman and Gentner, 1993b; Markman and Gentner, 1996), and find it more difficult to list NADs than ADs for similar pairs of objects (Gentner and Markman, 1994). Therefore, the number of NADs negatively relates to judged similarity, though less so than ADs.

Similarity comparisons and international opportunity selection. I propose that when selecting international opportunities, entrepreneurs mentally assess similarity using

the number of commonalities, alignable differences, and nonalignable differences noticed during comparison between countries. Regardless of whether these comparison processes occur consciously or subconsciously, entrepreneurs process those features relevant and salient to them, and use similarity as a key variable when deciding which international opportunity to select.

The internationalization literature demonstrates the major role similarity plays in international opportunity selection. Early literature on internationalization in Marketing supports the importance of similarity when selecting international opportunities, and is implicitly consistent with the tenants of structural alignment when arguing for the market similarity approach to market selection. For example, Sethi (1971) segments international markets by clustering eighty-six countries on their similarity based on number of shared attributes (which mirrors the structural alignment definition for commonalities) on environmental and societal factors. Evaluating a sample of 954 new product entries, Davidson (1983) demonstrates a “significant preference for markets similar to the home market (439)” based on four broad categories of features that could be interpreted as commonalities and alignable differences. Finally, Grein (2000) showed that market similarity (measured using features that reflect the structural alignment definitions of commonalities and alignable differences) drives market selection and marketing strategy of automobile companies. Taken together, the above research provides a first line of evidence that extant research on similarity and international opportunity selection is consistent with the structural alignment view that the number of commonalities and alignable differences influences the similarity considerations of

internationalizing entrepreneurs and that similarity matters when selecting international opportunities.

In addition, the U-Model description of market similarity closely echoes the importance of commonalities and alignable differences described by the structural alignment theory of similarity. As discussed in Chapter II, the market selection predictions of the U-Model center on the concept of “psychic distance,” which researchers define as “factors preventing or disturbing the flows of information between firm and market (Johanson and Wiedersheim-Paul, 1975: 308).” Johanson and Wiedersheim-Paul (1975) describe similar markets as having similar business practices, and therefore fewer factors preventing the flow of information. Seen in this way, psychic distance measures similarity, and countries less psychically distant from the home country allow for easier information flow than more psychically distant markets. As a result, one major prediction of the U-Model is that a firm’s first international entry is more likely to be similar (*i.e.*, psychically close) to the home country. Indeed, empirical work shows that psychic distance between the home and host countries is an accurate predictor and a critical factor in a firm’s initial entry, and that distance measures accurately predict a firm’s priority of market entry (Brewer, 2007a; Clark and Pugh, 2001; Dow, 2000).

Psychic distance is important because it potentially represents an important commonality or alignable difference between the home and host country. In principle, entrepreneurs should evaluate countries with no psychic distance between them as a commonality (same value on the same dimension of psychic distance) and countries with a difference in psychic distance as an alignable difference (different value on the same

dimension of psychic distance). No matter which definition of psychic distance is used, the concept reflects the importance of entrepreneurs' considerations of similarity between the home country and the potential international opportunity on an important commonality or alignable difference. Consistent with research above regarding Cognitive Psychology on similarity comparisons and internationalization research on opportunity selection, I advance that when making decisions about international opportunity selection, entrepreneurs choose more similar markets due to their perception of the number of commonalties, alignable differences, and nonalignable differences between the home country and the potential host country.

H1: The propensity to select an international opportunity increases as similarity between the home country and the initial international opportunity increases.

Similarity comparisons and age at internationalization. I also hypothesize that an increase in similarity between the home country and host opportunity leads entrepreneurs to decide to enter international markets at an earlier age. Firms that internationalize early need to overcome the twin liabilities of newness and foreignness. In order to deal with the resource constraints imposed by being both a new venture and internationalizing early, entrepreneurs seek ways to conserve scarce resources. In practice, entering similar markets offers an efficient and effective strategy to do just that. By entering markets that entrepreneurs judge to be highly similar, they create efficiencies in several ways. First, markets more similar to the home market require less adaptation in both product and strategy (Grein, 2000), in part because this reduces entry costs (Davidson, 1983). Second, when entrepreneurs identify markets with more commonalties and fewer alignable differences, the entrepreneurs need less new foreign

market knowledge in order to understand the new market. Reduced need for foreign market knowledge reduces entrepreneurs' time and effort learning about the new market (Johanson and Vahlne, 1977, 1990) and lowers the entrepreneurs' perceived cost of entering the market (Eriksson, Johanson, Majkgard, and Sharma, 1997). Third, an increase in similarity between the home and host countries increases the information flow between markets and therefore decreases the age at entry by decreasing entrepreneurs' uncertainty about the new international market (Davidson, 1983; Johanson and Vahlne, 1990).

When entrepreneurs notice higher numbers of nonalignable differences, by contrast, they tend to take their firms international later in the firm's lifecycle. Although past research does not directly examine the role of NADs on age at entry, the extant internationalization research suggests that greater numbers of NADs result in a later age at entry. For example, researchers show that when there are more differences such as differences in strategy (Knight, 1997; Oviatt and McDougall, 2005; Rennie, 1993), competition (Oviatt and McDougall, 1995), and use of networks (Bell, 1995; Coviello and Munro, 1995, 1997) between the home and host countries, entrepreneurs take their firms international at a later age (Harveston, 2000; Knight, 1997). Each of the above factors can be interpreted as a nonalignable difference because each represents a potential factor that exists in one country but not in another. Nonalignable differences are important because they represent characteristics of the foreign market that can increase costs, decrease information flow, and slow the process of entering an international market. Just as above, although past research does not directly address the role of NADs on entrepreneurs' age at entry decisions, examples in the extant literature suggest that

when potential NADs are instead Cs, entrepreneurs take their firms international at an earlier age. For example, Knight (1997) demonstrates that when selling to markets with different sales paths and distribution channels are instead the same paths and channels, entrepreneurs take their firms international earlier. Similarly, when entrepreneurs can extend their firms' marketing strategies to a new country instead of being unable to extend their strategy to the new country, entrepreneurs take their firms international earlier (Knight and Cavusgil, 2004). In each case above, when a potential NAD (sales/distribution channels and strategy extension) is instead a commonality, entrepreneurs take their firms international at an earlier age. Taken together, these factors help entrepreneurs move their firm internationally early in their lifecycle by reducing the perceived and actual cost of entering a new market and thus overcoming perceived and real barriers to internationalizing. As a result, greater similarity between the home country and initial entry results in lower costs and greater conservation of resources which leads entrepreneurs to internationalize at an earlier age.

H2: The age at initial international entry decreases as the similarity between the home country and the initial international opportunity increases.

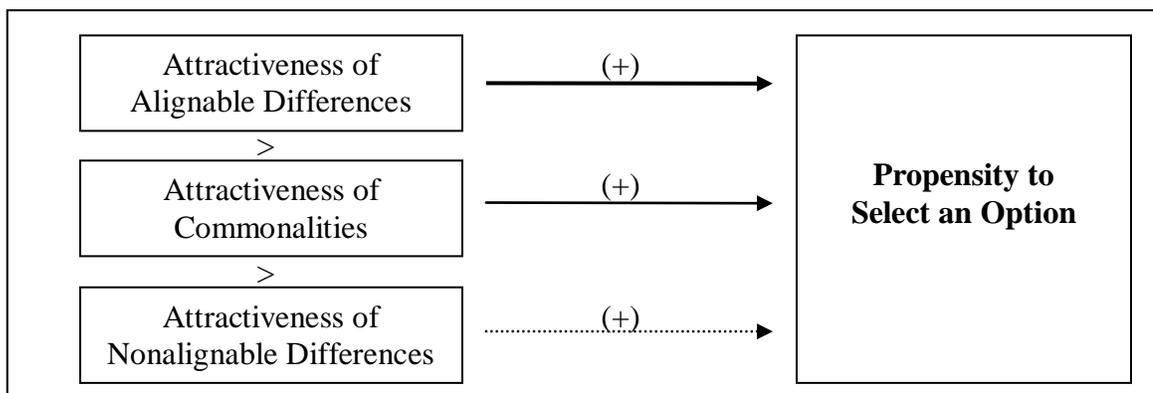
Comparison of alternatives and option selection. In addition to the comparison between home and host country described above, cognitive comparisons of potential options when evaluating these options underpin entrepreneurs' internationalization decisions. When comparing alternatives, individuals consider the attractiveness of commonalities, alignable differences, and nonalignable differences between the features of the alternatives (Johnson, 1984, 1989; Zhang and Fitzsimons, 1999). Individuals make choices based on option attractiveness because the guiding question when choosing from

a set of alternatives is “which alternative is more attractive for my purposes?” Individuals, consciously or subconsciously, evaluate the relative attractiveness of each option based on their decision criteria. In order to evaluate option attractiveness, individuals compare the options, and they identify and rate the attractiveness of commonalities, alignable differences, and nonalignable differences between the alternatives. All other things equal, individuals select the most attractive option based upon their evaluation of the attractiveness of Cs, ADs, and NADs such that more attractive Cs, ADs, and NADs increase the likelihood of option selection.

However, the attractiveness of Cs, ADs, and NADs have different relative impacts on an individuals’ overall rating of an option’s attractiveness. When comparing alternatives, individuals place emphasis on the attractiveness of the alignable differences and then the attractiveness of the commonalities while generally neglecting the attractiveness of the nonalignable differences between the features of the alternatives (Johnson, 1984, 1989; Zhang and Fitzsimons, 1999). As explained in more detail below, attractive ADs are more diagnostic than attractive Cs because attractive ADs represent different values on the same dimension, providing greater information to evaluate the relative attractiveness of options. As before, because individuals find NADs hard to process, attractiveness of NADs tends to be neglected in individuals’ considerations of attractiveness of options. Therefore, individuals’ propensity to select an option varies with the attractiveness of the ADs, Cs, and NADs. Figure 3.4 presents the predictions of structural alignment theory on individuals’ propensity to select an option, specifically the positive relationships between the attractiveness of ADs, Cs, and NADs and the propensity to select an option as well as the relative influence of the attractiveness of

ADs, Cs, and NADs on the propensity to select an option. The next paragraphs address each of these arguments, starting with why individuals prefer attractive alignable differences when making choices between alternatives before moving on to discuss individuals' declining preference for the attractiveness of commonalities and then nonalignable differences.

Figure 3.4: Structural Alignment Predictions on Option Comparisons



Note: the thickness of the lines as well as the “>” symbol represent the hierarchy of importance of each factor in individuals’ similarity comparisons and choice preferences.

Individuals prefer making decisions on the basis of alignable differences when choosing between alternatives, and individuals select options with attractive alignable differences as a result of this cognitive preference (Johnson, 1984, 1986a, 1986b, 1989; Russo and Doshier, 1983; Zhang and Fitzsimons, 1999). When individuals compare options, they evaluate the features of each alternative. As they make the comparison between alternatives, individuals analyze both (a) the common features between alternatives (commonalities) and also (b) the important differences along relevant dimensions between alternatives (alignable differences) (Medin, Goldstone, and Markman, 1995). Unlike similarity comparisons where individuals place more emphasis on commonalities, individuals find alignable differences to be particularly salient in

choice situations because ADs have a shared dimension between alternatives. Because they can readily compare the relative values of each alternative using ADs, individuals use less cognitive processing to evaluate if the difference between alternatives is important as a result of the shared dimension. For example, if we are looking at new houses, we can easily determine how attractive a drive to work of 10 miles is compared to a drive of 100 miles. All other things equal, we prefer the shorter drive to work. In this way, individuals use ADs as diagnostic indicators because ADs provide the most information due to having different values along the same dimension. Ultimately, individuals tend to select alternatives on the basis of the attractiveness of the alignable differences because ADs are more salient, provide more information about the alternatives, and are the most diagnostic when evaluating the overall attractiveness of each alternative.

Individuals also evaluate the attractiveness of the commonalities between alternatives but use them less when selecting an alternative. Like ADs, commonalities share a common dimension that makes them more salient when comparing alternatives. Unlike ADs, commonalities share the same value on that common dimension. Therefore, when individuals evaluate *relative* attractiveness between alternatives, commonalities serve no important purpose because commonalities represent the same value on the same dimension. By definition, the commonalities of options have the same absolute and relative value. Continuing with the ‘drive to work’ example, if both options have a 10-mile drive to work, that information might make both options more or less attractive, but it does not help us choose between them. As a result, commonalties help individuals evaluate the overall attractiveness of each alternative but not distinguish the relative

attractiveness of each alternative. This explains why individuals rely more heavily on the attractiveness of ADs than Cs in choice situations (comparisons between options) than in target-to-base similarity comparisons.

Finally, individuals generally tend to neglect the attractiveness of nonalignable differences when making decisions despite the potential importance of NADs. They neglect NADs because of the cognitive difficulty of processing nonalignable differences (Markman and Moreau, 2001). This difficulty stems from two primary dynamics. First, individuals must recognize the importance of the NAD in order to process it as part of their decision. This means that individuals must already know that the potential NAD is important to their decision in order to include it in their decision since it is not readily comparable to other alternative options. Second, individuals need to know the absolute value of a NAD since they do not have an alternative value provided as with an AD. Returning a final time to the ‘drive to work’ example, if we only know that one drive is 10 miles, but we do not know how far away our second house is, this distance of 10 miles is harder to evaluate. Is a ten mile drive an attractive or unattractive feature of our house selection? It is hard to say since we do not know how far the other house is from work. As a result, we are likely to minimize the attention we place on this feature and the importance we place on it when making our decision. Taken together, both dynamics help explain why the attractiveness of NADs have less impact than ADs in choice situations (comparison between options).

Decision making researchers support this finding that individuals tend to select alternatives based on the attractiveness of ADs and generally neglect the attractiveness of NADs when selecting between alternatives (Markman and Medin, 1995; Zhang and

Markman, 1998, 2001). This tendency persists even if an option is less attractive overall (including both alignable and nonalignable differences) than other options (Zhang and Markman, 2001). In other words, individuals select options based on attractiveness of ADs and neglect the attractiveness of nonalignable differences even if the NADs make an option the most attractive among the set of alternatives. This implies that individuals may miss potential opportunities as a result of their preference to make decisions based on attractive alignable differences.

Support for the predictions above that individuals select alternatives based on the attractiveness of ADs and neglect NADs comes from research on individual choice in Business Management and Marketing. Researchers demonstrate that structural alignment considerations underpin individuals' choice decisions and explain product first mover advantages (Zhang and Markman, 1998) and consumer choices of goods and services (Markman and Medin, 1995; Zhang and Fitzsimons, 1999). Another study on consumer choice in Marketing did not use structural alignment theory but generated results consistent with structural alignment in choice decisions. Huber and McCann (1982) found that consumers discounted dimensions with missing information for one option (nonalignable differences) which had a statistically significant effect on product choice.

Finally, support for the predictions of structural alignment theory that individuals emphasize the attractiveness of alignable differences in choice situations and neglect the attractiveness of nonalignable differences comes from other models of decision making. Tversky (1972) explains decision making as a process of elimination where individuals find a salient aspect of the choice and proceed to eliminate alternatives that do not have an acceptable value on that salient aspect. This process of selecting a salient aspect and

eliminating non-conforming alternatives continues until one alternative remains. Although not using structural alignment language, Tversky (1972) essentially describes a process of selecting out nonalignable differences while concentrating on alignable differences between alternatives. In their research analyzing decision cues in choice situations, Slovic and MacPhillamy (1974) found that subjects over-weighted common dimensions (alignable differences) compared to unique dimensions (nonalignable differences). Even more interesting, this over-weighting of common dimensions persisted despite explicit cautions to subjects not to over-weight the common dimension at the expense of the unique dimension. Finally, Tversky and Kahneman (1986) studied rational choice and framing of decisions and found that individuals strayed from optimal decisions when the choice dimensions were harder to align and that subjects aligned comparable items at the expense of more attractive non-alignable items (NADs).

In summary, individuals select alternatives not based on the attractiveness of commonalities and nonalignable differences but rather the attractiveness of alignable differences. First, individuals emphasize the attractiveness of alignable differences when making choices because alignable differences provide information on relative attractiveness of an option. Second, commonalities are not as diagnostic as alignable differences when comparing options because commonalities provide information for the absolute attractiveness of options but not the relative attractiveness of different options. Third, individuals neglect the attractiveness of nonalignable differences in choice situations because of the difficulty of determining the attractiveness of NADs. Finally, support for these predictions is robust across a variety of choice situations and are also

supported by other models of decision making in addition to those focusing on structural alignment.

Comparison of alternatives and international opportunity selection. When making the decision to expand internationally, entrepreneurs evaluate sets of potential alternatives. An opportunity set is the group of countries compared when deciding which market to enter and when to enter it. As an integral part of the model I develop in this dissertation, I hypothesize that entrepreneurs thinking about internationalizing evaluate possible alternatives through cognitive processes of similarity comparison and structural alignment. As a result of their cognitive comparison processes, entrepreneurs evaluate the attractiveness of the commonalities (Cs), alignable differences (ADs), and nonalignable differences (NADs) as shown in Figure 3.4 above.

The similarity in contexts between internationalization decisions and prior research on attractiveness of alignable differences and choice suggests that the relationships in Figure 3.4 also hold for entrepreneurs making internationalization decisions. Prior work demonstrates consistent results in a variety of choice areas, including consumer choice of brands (Zhang and Markman, 1998), selection of which new product will sell best (Markman and Medin, 1995), and choosing which student will perform better than others (Slovic and MacPhillamy, 1974). These empirical results that individuals select alternatives based on attractiveness of alignable differences are robust across varied choice situations. These varied contexts demonstrate that in choice situations where entrepreneurs compare alternatives, they emphasize the attractiveness of the alignable differences of the alternatives. The similarity in decision contexts regarding the need to choose among discrete alternatives suggests that entrepreneurs making

internationalization decisions follow the same emphasis on attractiveness of alignable differences as they do when making other discrete choice decisions.

Although a few studies explicitly map the cognition behind internationalization decisions, no research directly examines the impact of commonalities, alignable differences, or nonalignable differences on international opportunity selection. Yet, evidence exists in the internationalization literature that cognitive comparison processes underpin entrepreneurs' evaluations of the attractiveness of opportunities' alignable and nonalignable differences when making internationalization decisions.

First, internationalization research indicates that entrepreneurs compare options using distance measures and select markets based on the attractiveness of these distance measures (*e.g.*, Johanson and Vahlne, 1977, 1990; Johanson and Wiedersheim-Paul, 1975; Kogut and Singh, 1988). Each of these distance measures reflects either a commonality (*e.g.*, same cultural score) or an alignable difference (*e.g.*, a different cultural score) between countries. Entrepreneurs evaluate the attractiveness of these alignable differences by measuring how close or distant one market is from another. A short distance is attractive while a long distance is unattractive. A short distance is attractive because shorter distances reflect greater similarity between countries, greater ability to transfer information, and greater confidence when entering markets with short distances between them (Johanson and Vahlne, 1977, 1990; Johanson and Wiedersheim-Paul, 1975).

In addition, internationalizing entrepreneurs prefer attractive alignable differences over attractive nonalignable differences because ADs provide more information for them to process. Entrepreneurs process less information from NADs than ADs because

entrepreneurs do not have a matching piece of information for NADs. Internationalization theorists highlight the importance of information to market selection, arguing that selection propensity increases when information flow increases (Johanson and Vahlne, 1977; Johanson and Wiedersheim-Paul, 1975). Because entrepreneurs can better evaluate options by using the information inherent in the alignable differences, entrepreneurs more easily evaluate the level of attractiveness of alignable differences than NADs. Attractiveness of commonalities do not directly influence entrepreneurs' decisions when choosing between options because commonalities provide no relative difference between options and therefore are not diagnostic when considering and selecting an option.

When deciding between alternatives, entrepreneurs compare the options. As a result of the comparison, entrepreneurs notice and evaluate the attractiveness of alignable differences, commonalities, and nonalignable differences. Attractiveness of commonalities between options does not provide any direct information relative to the attractiveness of one option versus another and therefore has little relative influence when entrepreneurs evaluate and select opportunities. Instead, both attractiveness of ADs and NADs provide information on the differences between potential options. Because ADs are the most diagnostic and NADs are more difficult to process, entrepreneurs' propensity to select options primarily varies with the attractiveness of alignable differences. Likewise, internationalization research supports that entrepreneurs compare and select international opportunities on the basis of the attractiveness of the ADs of an option. As a result, I argue that entrepreneurs' propensity to select an opportunity varies primarily with the attractiveness of the alignable differences because the attractiveness of

ADs dominates decision making about international opportunity selection at the expense of the NADs.

H3: The propensity to select an international opportunity increases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.

Although entrepreneurs tend to select opportunities on the basis of the attractiveness of the alignable differences, the attractiveness of the nonalignable differences are also important. When individuals take the time to fully evaluate nonalignable differences, the attractiveness of these differences influences their selection of options. For some individuals, these NADs are a relevant and important part of their decision making process. For example, highly motivated individuals may emphasize the attractiveness of NADs more than less motivated individuals (Zhang and Markman, 2001). Furthermore, NADs constitute unique aspects of each option: because of this uniqueness, individuals may attend to and evaluate NADs (Markman and Moreau, 2001). Building on these considerations, I advance that the attractiveness of NADs is relevant for entrepreneurs, and the more attractive an opportunity's nonalignable differences, the greater the propensity for entrepreneurs to select the opportunity.

H4: The propensity to select an international opportunity increases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.

Comparison of alternatives and age at internationalization. When comparing and evaluating international opportunities, entrepreneurs make decisions on age at initial internationalization based on the attractiveness of the alignable differences. Parallel to

the arguments on entrepreneurs' similarity considerations on age at entry, when internationalizing early, born globals must overcome the twin liabilities of newness and foreignness, imposing serious resource constraints on their operations. As a result of these resource constraints, entrepreneurs must identify efficiencies and cost savings in order to conserve resources and minimize the liabilities of newness and foreignness. As discussed earlier, attractive alignable differences are those with short 'distance' measures (*e.g.*, cultural or psychic distance). For example, if Opportunity A has a cultural distance of 1 and Opportunity B has a cultural distance of 10, Opportunity A has the more attractive cultural distance (an alignable difference). Attractive alignable differences allow entrepreneurs to minimize adaptation inherent in foreign market entry and conserve scarce resources. Less adaptation of product and strategy leads to less use of constrained resources, lower cost of entry, and therefore earlier internationalization.

As described by the U-Model, emphasizing attractive alignable differences like low psychic distance also minimizes entrepreneurs' needs for foreign market knowledge. Reduced need for foreign market knowledge on an opportunity leads to less organizational and individual learning about new international markets. As such, the reduction in needed market knowledge also decreases the age at international entry, as implicitly predicted by the U-Model. The U-Model predicts a gradual, later initial entry as firms focus first on the domestic market while developing foreign market knowledge. Just as the U-Model predicts that increased information flows impact market selection, increased information flow also allows for earlier internationalization. In summary, I argue that the more attractive the alignable differences, the earlier the initial entry because attractive alignable differences minimize adaptation, resource expenditures, and

need for market knowledge while maximizing information flow, all of which lead to earlier initial international entry.

H5: The age at initial international entry decreases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.

Parallel to the arguments on the impact of NADs on entrepreneurs' similarity considerations and decision to internationalize earlier, more attractive NADs between potential opportunities also decrease the age at initial entry. Entrepreneurs internationalize earlier as the attractiveness of NADs increases because attractive NADs decrease costs and required adaptation which facilitates the process of entering an international market.

H6: The age at initial international entry decreases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.

Alignment, Prior International Knowledge, and Internationalization

Much of the extant International Business and International Entrepreneurship literatures discuss the broad and influential roles of international experience and prior knowledge in internationalization efforts. The first part of this section reviews the place of international experience in key theories of International Business and International Entrepreneurship. The section also highlights the conceptual relationships between relevant prior knowledge and international experience – and notably the notion that international experience (however defined) leads to the development of knowledge that is relevant for subsequent internationalization. Building on that basis, the remainder of the section develops hypotheses regarding the moderating effects of prior international

knowledge on the relationships between similarity and attractiveness of nonalignable differences on international opportunity selection and age at initial international entry.

International experience is widely recognized as important to the decision to internationalize. More importantly, it has been shown to moderate the relationship between entrepreneurs' internationalization decision making and internationalization outcomes (*e.g.*, market selection, age at initial internationalization, mode of entry). Most major Strategic Management and International Business theories use international experience as a key moderating variable, including the U-Model (Johanson and Vahlne, 1977, 1990), and Innovation models (Bilkey and Tesar, 1977; Cavusgil, 1980; Czinkota, 1982; Reid, 1981). Johanson and Vahlne (1977, 1990) describe how international experience interacts with the step by step process of gathering information to impact decision making on increasing levels of commitment to international markets. In this model, firms use prior experience as the basis for foreign market knowledge which decreases uncertainty and thus allows them to enter more distant markets. International Entrepreneurship (IE) researchers suggest that the prior international experience of entrepreneurs critically differentiates born globals from later internationalizers because prior experience changes the factors that entrepreneurs consider when internationalizing (Knight, 1997; Oviatt and McDougall, 1994, 2005). In addition, other internationalization theories such as the eclectic model (Dunning and McQueen, 1981; Dunning, 1988) also give experience a prominent role moderating the link between internationalization decision making and outcomes.

Consistent with U-Model predictions on international experience and internationalization, entrepreneurs and their firms benefit from higher levels of

international experience and suffer when they lack it. International experience plays a crucial role as a source of competitive advantage (Spreitzer, McCall, and Mahoney, 1997) because it creates relevant knowledge, specifically foreign market knowledge and knowledge about internationalization processes (Eriksson et al., 1997; Johanson and Vahlne, 1977). Lack of international experience results in an inability to carry out global initiatives (Takeuchi, Tesluk, Yun, and Lepak, 2005), reduced capacity of the firm's managers to recognize new opportunities, and a more costly search process (Eriksson et al., 1997). Increases in international experience also promote certain types of risk taking and entrepreneurial behavior, making firms more aggressive when seeking new opportunities. Consistent with U-Model predictions, firms are more likely to accept the uncertainty of a new opportunity if the managers have experience with uncertain environments (Henisz and Delios, 2001; Martin, Swaminathan, and Mitchell, 1998). As argued by Johanson and Vahlne (1977, 1990), the major benefit of international experience resides in enabling firms to overcome the major barriers to internationalization: lack of foreign market knowledge and high uncertainty. The U-Model predicts that increased levels of international experience result in increased psychic distance of the markets chosen, or that international experience allows entrepreneurs to comfortably choose less similar markets as compared to the home market.

Oviatt and McDougall's (2005) model of early internationalization for new ventures also highlights the moderating role of experience. In this model, knowledge gained through experience moderates the effect of decision making on the age at initial internationalization. Entrepreneurs combine knowledge of an international opportunity

with entrepreneurs' existing international knowledge and international network to determine when to internationalize. Case studies and empirical research show that entrepreneurs founding born globals often worked internationally prior to joining the new venture (Knight, 1997; Oviatt and McDougall, 1994). Although new ventures do not have organizational experience, routines, or capabilities with international business at founding, the past experiences of the entrepreneurs serve as proxies for organizational experience (Reuber and Fischer, 1997; Chandler and Hanks, 1994). Entrepreneurs strongly influence the strategies, decisions, and behavior of born globals due to their position of power as well as the small size of most born globals and the imprinting effect of entrepreneurs on the firm during the founding process (Hambrick and Mason, 1984; Knight and Cavusgil, 1996).

In summary, prior research indicates that international experience directly impacts entrepreneurs' internationalization decisions such as international opportunity selection and age at internationalization. However, the primary benefit of international experience is increased levels of knowledge, specifically market knowledge. The extant literature described above demonstrates that prior international knowledge proxies for firm knowledge, reduces uncertainty when making internationalization decisions, alters entrepreneurs' interpretation of opportunities, and leads to less costly search processes, greater international market commitment, and selection of more psychically distant markets. Because this dissertation focuses on cognitive processes underpinning entrepreneurs' internationalization decisions, the key question is why does prior international knowledge have the effect that it does? As discussed in the following sections, extant research in Cognitive Psychology shows that prior knowledge impacts

the cognitive process of comparison and structural alignment and therefore potentially alters the relationships between outputs of the comparison processes and internationalization outcomes hypothesized earlier (H1-H6). The next sections develop hypotheses that describe the moderating effect of prior international knowledge on the influence of similarity, attractiveness of alignable differences, and the attractiveness of nonalignable differences on entrepreneurs' decisions regarding international opportunity selection and age at initial internationalization.

Prior international knowledge and structural alignment in similarity comparisons. Prior knowledge plays a critical role in individuals' processing of similarity and how much they compare objects by judging similarity between them. When comparing objects, novices attend to less complex connections between objects such as similarity comparisons. Experts possess extensive knowledge and think about deeper connections between objects (*e.g.*, create analogies) and process comparisons at higher levels of abstraction or deeper cues (Gentner and Markman, 1997; Zhang and Sood, 2002). As a result of an increase in knowledge, experts / experienced individuals shift their reasoning beyond using similarity comparisons to different kinds of comparisons as their primary method of comparison. These different kinds of base-target comparisons include analogies (Gentner, 1983) and other comparisons involving relationships between objects (Markman and Medin, 1995).

Individuals also better evaluate the comparative structure between objects as a result of an increase in domain knowledge gained through experience. The richer someone's domain knowledge, the more they think in terms of features with differing values on common dimensions (ADs) and differing values on non-common dimensions

(NADs) as opposed to only using common features (Cs) (Gentner and Rattermann, 1991; Mussweiler and Gentner, 2007). This suggests that individuals with greater knowledge shift their processing of comparisons from simple similarity (more commonalities) to the noticing – and consideration - of more differences (ADs and NADs).

Experts also use more nonalignable differences in their comparisons of a base and target. Although novices rely more heavily on alignable features (Cs and ADs) because they do not have the requisite knowledge to determine the importance or value of a nonalignable feature, experts can create alignable features from nonalignable features by changing the level of abstraction or recognizing the value of the ‘missing information’ that makes a feature nonalignable (Markman and Medin, 1995; Zhang and Markman, 2001). For example, Markman and Medin (1995) found that when individuals compared two video game descriptions, more knowledgeable subjects inferred values on missing information (*e.g.*, whether a player can design his/her own plays). Expert subjects also ‘created’ alignable differences by inferring a property for the games (*e.g.*, how easy or hard each game is to play or how exciting each game is). Experts also process more holistically, rather than focusing only on the features, and use more features in their analysis, both alignable and nonalignable (Medin, Goldstone, and Markman, 1995). As a result, expert individuals use similarity less than novices as a method of comparing two options.

The above findings from the Cognitive Science literature have parallels in the internationalization literatures. In their U-Model, Johanson and Vahlne (1977, 1990) also argue that prior international knowledge moderates the relationship between similarity and internationalization decisions by shifting market selection to less similar markets.

Experience provides first hand foreign market knowledge, and augments internationalization process knowledge. From the point of view of the entrepreneur, this reduces perceived uncertainty about international markets (Vahlne and Nordstrom, 1993). As a result of increased comfort with different international opportunities, entrepreneurs choose markets with decreasing similarity from the home country. The impact of prior knowledge on the psychic distance – market selection relationship has strong empirical support in addition to its theoretical centrality in the U-Model (*e.g.*, Brewer, 2007a; Davidson 1980, 1983; Dow, 2000; Erramilli, 1991). Consistent with the U-Model's theory and empirical findings, increased levels of knowledge result in entrepreneurs selecting international opportunities less similar to the home market.

Hypothesis 1 argued that an increase in similarity between the home market and an international opportunity increases the propensity of entrepreneurs to select an international opportunity. Given the evidence of the impact of prior international knowledge in reducing the similarity of markets selected, I argue that prior international knowledge moderates the relationship between similarity and opportunity selection propensity so that as prior international knowledge increases, entrepreneurs select less similar markets based on the number of Cs, ADs, and NADs between the home and host countries.

H7a: There is a negative interaction between the effects of prior international knowledge and similarity such that the positive effect of similarity between the home country and the initial international opportunity on the propensity to select an international opportunity is smaller when there is an increase in prior international knowledge.

In contrast to the effect of prior international knowledge on entrepreneurs' similarity considerations and market selection, prior international knowledge reinforces the effect of similarity on age at initial internationalization. The additional domain knowledge gained through experience allows experienced entrepreneurs to use more features (more Cs, ADs, and NADs) of countries in their decision making. Although entrepreneurs process more features between the home and host country, the comparison of the countries' features still represents a similarity comparison between the home and host country. More knowledgeable entrepreneurs recognize the importance of reducing the cost of market entry through entering a similar international market. Even though increased foreign market knowledge increases entrepreneurs' confidence when entering more distant markets, entrepreneurs internationalizing early still have to deal with the dual liabilities of newness and foreignness. The resource constraints imposed on the firm are critical enough for internationally experienced entrepreneurs to recognize the importance of conserving scarce resources (Oviatt and McDougall, 1994). In other words, more knowledgeable entrepreneurs recognize the importance of being conservative with resources while expanding internationally early. Therefore, I hypothesize that prior international knowledge enhances the effect of similarity on age at initial internationalization.

H7b: There is a positive interaction between the effects of prior international knowledge and similarity such that the inverse relationship between similarity between the home country and the initial international opportunity on the age at initial international entry is larger when there is an increase in prior international knowledge.

Prior international knowledge and structural alignment in comparing options.

Prior knowledge impacts individuals' comparisons of options in two ways. First, prior knowledge increases individuals' emphasis on the attractiveness of both alignable and nonalignable differences of opportunities. Greater knowledge increases individuals' attention on the attractiveness of alignable differences because experts think more about connections between choices rather than on commonalities of choices. Second, expanding domain knowledge allows individuals to process more features without overloading their cognitive processing (Markman and Moreau, 2001; Zhang, 1997; Zhang and Markman, 2001). The increase in domain knowledge further allows individuals to increase their attention on the attractiveness of the nonalignable differences. When individuals have more knowledge, they can 'fill in the blanks' on missing information and evaluate items without needing features to be alignable or connected on common dimensions (Sanbonmatsu, Kardes, and Herr, 1992). Although novices need relative levels of value on a feature provided by alignable differences (*e.g.*, a four gigabyte iPod versus an eight gigabyte iPod), experts use their domain knowledge to fill in the missing information on nonalignable differences by providing an absolute value for the nonalignable difference. Novices cannot create this absolute value for nonalignable differences because they do not have the domain knowledge to determine a value for nonalignable differences. For example, when evaluating different iPod music players, an expert knows how "good" an eight gigabyte iPod is for storing music and videos. Research shows that novices recognize the importance of such features but discount them if not alignable because the novice cannot easily establish value without features being alignable. As a result, novices discount even attractive nonalignable

differences while experts understand their importance, evaluate them fully as part of the choice decision, and emphasize more heavily the attractiveness of nonalignable features than novices (Markman and Moreau, 2001; Zhang, 1997; Zhang and Markman, 2001).

Prior knowledge also changes the factors evaluated by entrepreneurs for internationalization decisions. Prior international knowledge provides a new window through which entrepreneurs interpret and evaluate international opportunities, often fundamentally changing their interpretation of international opportunities (Oviatt and McDougall, 2005). Evidence of this claim in the internationalization literature comes from Robertson and Wood (2001), who show that more knowledgeable managers use a broader set of decision criteria, not just attractive alignable differences. The increase in the number of criteria used to evaluate international opportunities reflects a change in domain knowledge of the individual, whereby attractive nonalignable differences influence the decision making process. Without additional knowledge, the attractive alignable differences of the traditional U-Model 'distance' measures (*e.g.*, psychic or cultural distance) dominated entrepreneurs' decision making.

Empirical work in Entrepreneurship reinforces Oviatt and McDougall's (2005) claim that prior knowledge alters individuals' interpretation of potential opportunities as experienced entrepreneurs identify and select different opportunities than novice entrepreneurs. Ucbasaran, Westhead, and Wright (2009) found that more experienced entrepreneurs identified more innovative opportunities than less experienced entrepreneurs. Furthermore, more experienced entrepreneurs identify and exploit more growth opportunities than less experienced entrepreneurs (Kor, 2003). Research in Entrepreneurship on prior knowledge and opportunity interpretation also demonstrates

important differences based on the amount of an entrepreneurs' prior knowledge. Shane (2000) found that prior knowledge critically impacted which opportunity entrepreneurs select as eight entrepreneurs selected eight different venture ideas based on a single new technology. All eight venture ideas reflected the prior knowledge of the founder(s). Grégoire, Barr, and Shepherd (2010) demonstrated that the prior knowledge of entrepreneurs strongly influences the likelihood of aligning deeper connections as opposed to superficial features when acknowledging (finding) opportunities.

As entrepreneurs expand their domain knowledge, they place more attention on the attractiveness of more factors and different factors, while not being constrained to focusing only on the attractiveness of alignable differences when evaluating options. Knowledgeable entrepreneurs have the expertise to process missing information and also to evaluate the attractiveness of nonalignable differences on an absolute scale rather than a relative scale. Therefore, as more knowledgeable entrepreneurs place more emphasis on the attractiveness of nonalignable differences, the level of attractiveness of both the alignable and nonalignable differences become relevant to entrepreneurs. This amplifies the relationship between the attractiveness of an opportunity's nonalignable differences and the propensity to select an international opportunity.

H8a: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity's nonalignable differences such that the positive effect of the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the propensity to select an international opportunity is larger when there is an increase in prior international knowledge.

Prior international knowledge also increases entrepreneurs' emphasis on the attractiveness of nonalignable differences when making internationalization decisions

related to age at initial entry. Internationalization researchers demonstrate that entrepreneurs with prior international knowledge attend to aspects novices discount, specifically including traditional ‘distance’ aspects (alignable differences) in decision making but increasing their focus on aspects such as distribution characteristics and partner capabilities (nonalignable differences) (Clark and Pugh, 2001; Robertson and Wood, 2001). An increase in prior international knowledge therefore increases entrepreneurs’ emphasis on the attractiveness of nonalignable features and positively moderates the relationship between the attractiveness of an opportunity’s nonalignable differences and the age at first international entry.

H8b: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity’s nonalignable differences such that the inverse relationship between the attractiveness of an opportunity’s nonalignable differences with concurrent opportunities on the age at initial international entry is larger when there is an increase in prior international knowledge.

Chapter Summary

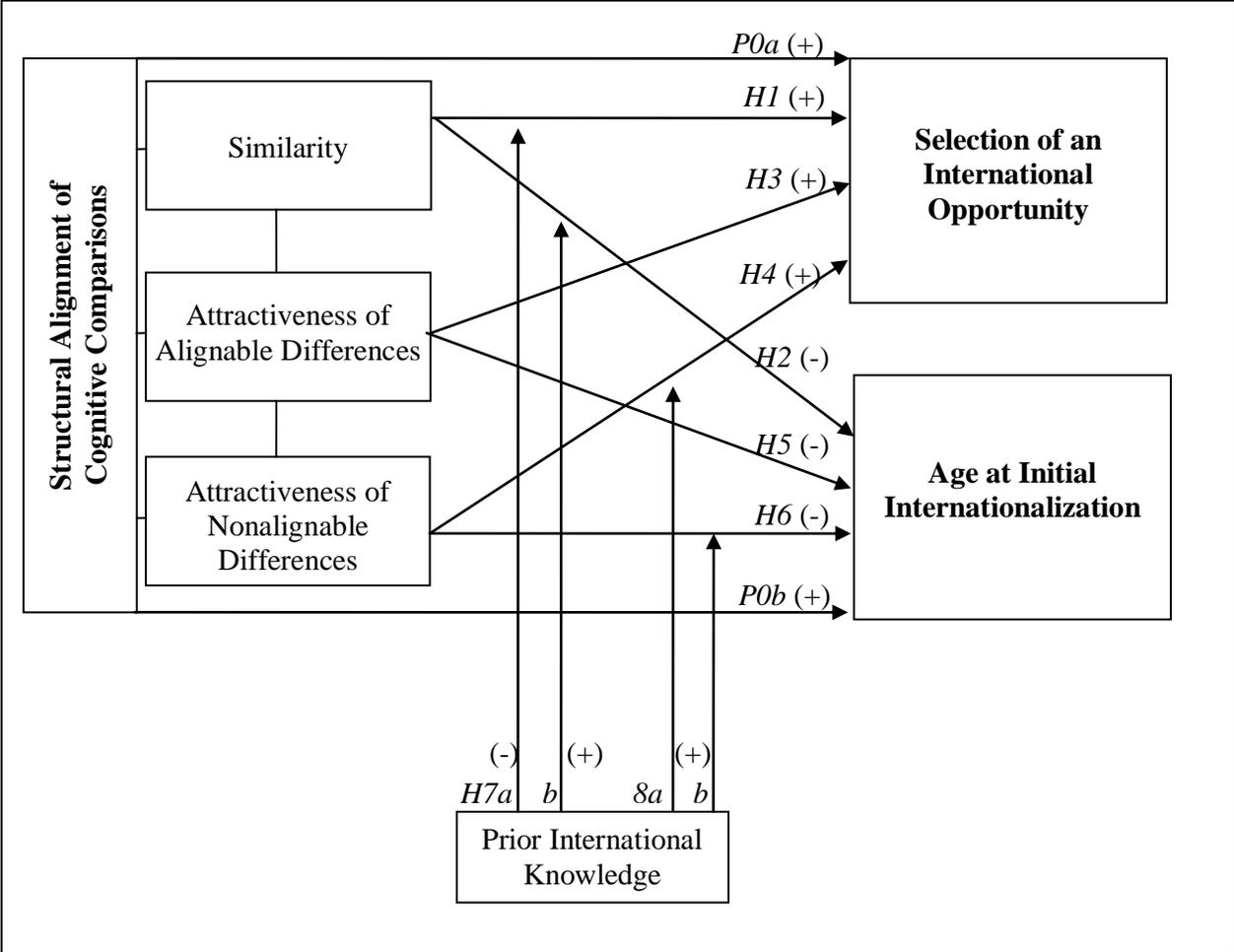
Chapter III introduces option comparisons and similarity comparisons in choice situations as critical to the internationalization decision making processes. Entrepreneurs’ internationalization decisions rest, in part, on two comparisons made through cognitive processes of structural alignment whereby entrepreneurs cognitively connect the comparative structure of objects, concepts, or alternatives. The implications of the model proposed in this chapter are that entrepreneurs do not weigh all decision criteria equally. Instead, entrepreneurs evaluate different criteria (Cs, ADs, and NADs) differently and make different decisions on international opportunity selection and age at initial entry as a result of cognitive processes of comparison and structural alignment.

This chapter argues that when combined with internationalization theory, structural alignment theory helps us explain patterns of behavior predicted by two competing theories: the Uppsala Model (international opportunity selection) and International Entrepreneurship theory on born globals (age at initial international entry). Chapter III integrates these internationalization theories with structural alignment theory on similarity comparisons and choice selection via a series of hypotheses predicting international opportunity selection and age at initial international entry as well as the moderating role of prior international knowledge on both outcomes. Table 3.3 summarizes these hypotheses, and Figure 3.5 graphically depicts the proposed relationships.

Table 3.3: Summary of Hypotheses: Structural Alignment and Internationalization

<i>Foundational Propositions</i>
<i>P0a: Entrepreneurs select international opportunities, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.</i>
<i>P0b: Entrepreneurs decide when to exploit an opportunity, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.</i>
<i>Direct Effects of Similarity (home country ↔ international opportunity similarity comparison)</i>
<i>H1: The propensity to select an international opportunity increases as similarity between the home country and the initial international opportunity increases.</i>
<i>H2: The age at initial international entry decreases as the similarity between the home country and the initial international opportunity increases.</i>
<i>Direct Effects of Attractiveness of Differences (option ↔ option comparison)</i>
<i>H3: The propensity to select an international opportunity increases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.</i>
<i>H4: The propensity to select an international opportunity increases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.</i>
<i>H5: The age at initial international entry decreases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.</i>
<i>H6: The age at initial international entry decreases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.</i>
<i>Moderating Effects of Prior International Knowledge</i>
<i>H7a: There is a negative interaction between the effects of prior international knowledge and similarity such that the positive effect of similarity between the home country and the initial international opportunity on the propensity to select an international opportunity is smaller when there is an increase in prior international knowledge.</i>
<i>H7b: There is a positive interaction between the effects of prior international knowledge and similarity such that the inverse relationship between similarity between the home country and the initial international opportunity on the age at initial international entry is larger when there is an increase in prior international knowledge.</i>
<i>H8a: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity's nonalignable differences such that the positive effect of the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the propensity to select an international opportunity is larger when there is an increase in prior international knowledge.</i>
<i>H8b: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity's nonalignable differences such that the inverse relationship between the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the age at initial international entry is larger when there is an increase in prior international knowledge.</i>

Figure 3.5: Structural Alignment and International Opportunity Selection and Age at Entry



CHAPTER IV

RESEARCH DESIGN AND METHODS

Chapter Overview

I utilized a two-study approach to test the hypotheses developed in Chapter III. Each study employed a different research design including different methods and samples. In the first Study, I used verbal protocol techniques to test that entrepreneurs' considerations of similarity and the attractiveness of alignable and nonalignable differences influence their internationalization decisions on likelihood of opportunity selection and age at entry. The verbal protocol study included two different types of scenarios. For the first type of scenario (VP1), I asked entrepreneurs to evaluate an individual country, and in the second type of scenario (VP2), entrepreneurs evaluated two countries. In the second Study, I used survey techniques and secondary data analyses to investigate whether the patterns of real decisions made by real entrepreneurs corresponded to the predictions of the dissertation regarding the influence of similarity considerations and attractiveness of differences. In Chapter IV, I describe the sample frame, variables, and analysis techniques as well as outlining the design of the research material, scenarios and procedures, and the validation of the measures for each study. Table 4.1 on the following page summarizes how the dissertation tests each hypothesis from Chapter III.

Table 4.1: Methods for Testing Each Chapter III Hypothesis

Hypothesis	Study 1		Study 2
	VP1	VP2	Survey & Data
Foundational Propositions			
<i>P0a: Entrepreneurs select international opportunities, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.</i>	Support provided by H1, H3, H4, H7a, and H8a.		
<i>P0b: Entrepreneurs decide when to exploit an opportunity, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features.</i>	Support provided by H2, H5, H6, H7b, and H8b.		
Direct Effects of Similarity (home country ↔ international opportunity similarity comparison)			
<i>H1: The propensity to select an international opportunity increases as similarity between the home country and the initial international opportunity increases.</i>	X	X	X
<i>H2: The age at initial international entry decreases as the similarity between the home country and the initial international opportunity increases.</i>	X	X	X
Direct Effects of Attractiveness of Differences (option ↔ option comparison)			
<i>H3: The propensity to select an international opportunity increases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.</i>		X	X
<i>H4: The propensity to select an international opportunity increases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.</i>		X	X
<i>H5: The age at initial international entry decreases as the attractiveness of an opportunity's alignable differences with concurrent opportunities increases.</i>		X	X
<i>H6: The age at initial international entry decreases as the attractiveness of an opportunity's nonalignable differences with concurrent opportunities increases.</i>		X	X
Moderating Effects of Prior International Knowledge			
<i>H7a: There is a negative interaction between the effects of prior international knowledge and similarity such that the positive effect of similarity between the home country and the initial international opportunity on the propensity to select an international opportunity is smaller when there is an increase in prior international knowledge.</i>	X	X	X
<i>H7b: There is a positive interaction between the effects of prior international knowledge and similarity such that the inverse relationship between similarity between the home country and the initial international opportunity on the age at initial international entry is larger when there is an increase in prior international knowledge.</i>	X	X	X
<i>H8a: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity's nonalignable differences such that the positive effect of the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the propensity to select an international opportunity is larger when there is an increase in prior international knowledge.</i>		X	X
<i>H8b: There is a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity's nonalignable differences such that the inverse relationship between the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the age at initial international entry is larger when there is an increase in prior international knowledge.</i>		X	X

Study 1 – Verbal Protocols

In Study 1, I used a series of verbal protocols to assess whether entrepreneurs' patterns of reasoning when they make internationalization decisions present evidence that structural alignment considerations influence their decisions. To accomplish this, I presented entrepreneurs whose firms have not yet internationalized with decision making scenarios involving foreign market opportunities and asked them to 'think out loud' while they evaluated which opportunities to select and when to exploit the opportunities. Each participant evaluated nine countries (opportunities). First, participants evaluated three foreign market opportunities, one at a time (VP1). Then, participants evaluated six foreign market opportunities, two foreign market opportunities at a time (VP2). Both types of scenarios (all nine country evaluations) involved entrepreneurs' consideration of similarity (the home country ↔ host country comparison). The second type of scenario allowed entrepreneurs to also consider attractiveness between two potential opportunities (the Opportunity A ↔ Opportunity B comparison). Following standard practices for this methodology, I content analyzed the transcripts of each participant's verbalized reasoning for evidence of structural alignment in their internationalization decision making. Specifically, I looked for stated reasoning involving commonalities, alignable differences, and nonalignable differences between countries.

Verbal protocol techniques allow researchers to collect "accurate and representative measures of cognitive processes (Isenberg, 1986: 778)." In *Management and Entrepreneurship*, researchers conducted verbal protocols to study individuals' cognitive processes in problem solving (Isenberg, 1986), opportunity acknowledgment (Grégoire, 2005; Grégoire et al., 2010), and most importantly for this dissertation,

decision making (Cooper-Martin, 1993a, 1993b; Kuusela, Spence, and Kanto, 1998; Kuhberger and Huber, 1998; Melone, 1994; Sarasvathy, 2001). When using verbal protocol techniques, the researcher asks individuals to ‘think out loud’ as they perform a reasoning task or consider a scenario presented to them. Rather than directly asking individuals about specific cognitive processes, verbal protocols provide evidence of cognitive processes through the individuals’ verbalized responses to the task or scenario presented to them. For example, researchers do not ask ‘*do you use similarity to determine which market to select?*’ Rather, verbal protocol techniques assess if individuals use similarity considerations in their verbalized reasoning for market selection. Individuals do not use terms like ‘commonalities,’ ‘alignable differences,’ or ‘nonalignable differences,’ in their verbalized responses. Instead, individuals talk about what they believe to be important and non-important factors in their own market selection decisions. Individuals ‘think out loud’ so that researchers can hear, observe, and document the thought processes that individuals use when performing a specific task. The next section describes the scenarios I presented to participants in Study 1.

Research materials. In Study 1, I asked entrepreneurs to consider potential international opportunities for expansion and answer two questions: “*how likely are you to select this country for your firm’s first international expansion?*” and “*when would you recommend expanding to this country?*” The research material consisted of countries for the entrepreneur to consider for his/her firm’s international expansion. I presented the names of countries (*e.g.*, China, the United Kingdom, and Brazil) to participants but not any descriptions nor any other information on each country. I provided only the country name because any information provided could bias the reasoning process of the

participant. This study used real countries to maximize the realism of the opportunity evaluation scenario for the participants and to ensure external validity of the evaluation scenarios. I presented nine potential international opportunities to the participants: the United Kingdom, China, Brazil, Mexico, India, Japan, Australia, Germany, and South Korea. I selected these nine countries because each of these countries ranked in the top twenty export markets from the United States and from the state in which the participants' firms are located. This increased the likelihood that participants had adequate knowledge about each country to perform the opportunity evaluation as these markets represented the markets in which their friends and neighbors currently do business.

Sampling and sample selection. The sample frame for Study 1 consisted of high level executives managing new ventures in a major city in the southeastern United States. The key inclusion criteria for the sample was that these entrepreneurs and their new ventures were interested in but had not yet expanded their sales internationally, and that these entrepreneurs had formal authority over these decisions. In addition, firms must be headquartered in the United States and also be independent businesses (not owned by another firm or a subsidiary of a firm).

Using this sampling frame strategy has several important benefits for the dissertation. First, the sample frame includes entrepreneurs that, although they had not yet internationalized, viewed internationalization as relevant and important. This allows for participants that are more motivated and interested in the internationalization decisions of interest in this study than entrepreneurs with no interest in internationalizing. Second, entrepreneurs with formal authority to make internationalization decisions helps

ensure valid inferences of the Study's results to the population of entrepreneurs making internationalization decisions. Third, independent firms retain the freedom to make major strategic decisions like internationalization that may not exist with non-independent firms. Non-independent firms may have influences that promote or restrict their international activity which would bias the results of this Study and results that do not adequately reflect the population of internationalizing new ventures. Finally, the sample frame includes only entrepreneurs from firms in a single country. This controls for institutional, cultural, and other country effects on entrepreneurs' internationalization decision making.

In order to identify entrepreneurs managing firms meeting the criteria above, I contacted four local, state, and federal agencies that help new ventures expand internationally. Through the assistance of these agencies, I contacted 29 potential participants via phone or email. Three potential participants' firms did not meet the above criteria, and an additional seven did not agree to participate in the study. A final sample of 19 entrepreneurs at high levels (*e.g.*, founder, CEO, President, or Vice President of Sales) of their firm and with authority over internationalization decisions agreed to participate in this study.

Data collection and research procedures. Data collection took place in the participant's office or at a Georgia State University facility. First, I described the study and the verbal protocol procedures and explained that the study is about how individuals make internationalization decisions. After obtaining the participant's informed consent to participate and have their verbalizations audio-recorded, the participant completed two practice verbal protocol exercises. Following past research, the first practice exercise

required the participant to ‘think out loud’ while solving a simple math problem, and the second practice exercise asked them how many windows are in their house (Ericsson and Simon, 1980). These practice problems helped the participant get used to thinking out loud while he/she completed a particular task. I audio-recorded the practice session for realism, but did not use the information in the research. After the participant completed the practice session, I presented the participant with the first scenario. Table 4.2 shows an example of the first scenario along with the specific instructions that were given to participants. All 19 participants completed the full set of nine country evaluation scenarios and received an incentive of \$40 in Amazon.com gift cards. Funding for participant incentives came from grant support from the Georgia Research Alliance and a Georgia State University Dissertation Grant from the University Research Services and Administration.

Table 4.2: Example of First Verbal Protocol Scenario

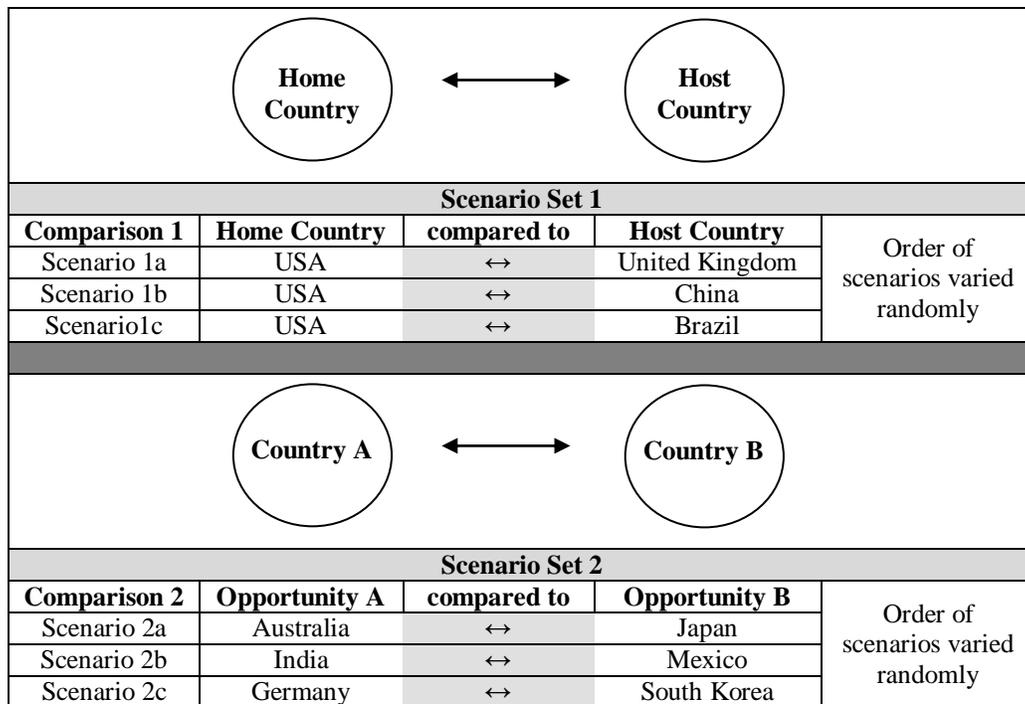
<p>Imagine that you are considering a proposal to expand your firm's sales into another country. This could be a proposal to export, build a plant, open a distribution center, or any other commitment to expand your firm’s sales into another country.</p> <p>Please THINK OUT LOUD as you to consider whether you and your firm should expand to this country, and if so, when and how.</p> <p>I want you to read the country name out loud, and also talk about everything that you are thinking about as you consider each country. If you stop talking, I will ask you to ‘keep talking.’</p>
<p>the United Kingdom</p> <p><i>Remember, please think out loud while considering the UK for your firm’s first international expansion.</i></p>

When the participant finished talking about the first scenario, I presented each of the remaining scenarios in turn with short breaks in between each protocol to fill out questions on the dependent and/or control variables (see Table 4.3). To control for order

effects, the order of presentation of the scenarios within a set to each subject was random. I audio-recorded all protocols and transcribed them after each participant’s session. The next paragraphs describe the specific scenarios completed by each participant.

The verbal protocol study included two different types of scenarios. Each type of scenario corresponded to one of the two comparisons discussed in Chapter III. Figure 4.1 illustrates the correspondence between the two types of scenarios in the verbal protocol study and the two comparisons discussed in Chapter III. The figure also shows the countries presented to each participant.

Figure 4.1: Chapter III Comparisons and Scenarios Presented to Participants



The first part of the verbal protocol study used a set of scenarios to examine entrepreneurs’ thought patterns when comparing the home country (U.S.) to potential international opportunities (*e.g.*, the United Kingdom) and making decisions on opportunity selection and age at initial internationalization. The second set of scenarios

focused on individuals' internationalization decisions on opportunity selection and age at entry when comparing two potential international opportunities (*e.g.*, Australia to Japan). In the second set of scenarios, I looked for participants' verbal reasoning regarding both types of comparisons: comparisons between U.S. and a potential international opportunity and comparisons between potential international opportunities. All protocols asked the participant to consider each potential international opportunity or set of potential international opportunities for expansion and to 'think out loud' while considering how likely he/she is to select the single opportunity presented (scenarios 1a-1c) or how likely he/she is to select each of the two opportunities (scenarios 2a-2c).

Each scenario presented to the participant asked him/her to evaluate the opportunities presented for potential international expansion instead of explicitly asking the participant to make comparisons between countries. This strategy augments the internal validity of the research, as the scenarios do not explicitly prompt participants to make the comparisons that underpin their alignment of countries' features. In Table 4.3 below, I provide the instructions and scenarios as given to the participant. I also identify the breaks I built in the research design for participants to answer questions on how likely they are to select an opportunity, when they recommend exploiting the opportunity, and their level of prior knowledge about each country. Each participant performed the first set of scenarios (Scenario Set 1) first before moving on to the second set of scenarios (Scenario Set 2).

Table 4.3: Instructions and Research Design for Verbal Protocol Study

<i>General Instructions for Verbal Protocol Study</i>
BEGIN Protocol Scenario Set 1
Imagine that you are considering a proposal to expand your firm's sales into another country. This could be a proposal to export, build a plant, open a distribution center, or any other commitment to expand your firm's sales into another country.
Please THINK OUT LOUD as you to consider whether you and your firm should expand to this country, and if so, when and how.
I want you to read the country name out loud, and also talk about everything that you are thinking about as you consider each country. If you stop talking, I will ask you to 'keep talking.'
<i>the United Kingdom.</i> <i>Remember, please think out loud while considering the UK for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
<i>China.</i> <i>Remember, please think out loud while considering China for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
<i>Brazil.</i> <i>Remember, please think out loud while considering Brazil for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
BEGIN Protocol Scenario Set 2
Imagine again that you are considering a proposal to expand your firm's sales into another country. This could be a proposal to export, build a plant, open a distribution center, or any other commitment to expand your firm's sales into another country.
For each pair of countries, please THINK OUT LOUD as you consider whether you and your firm should expand to each of the countries, and if so, when and how.
Please read the country names out loud, and talk about everything that you are thinking about as you consider each country for your firm's first international expansion. If you stop talking, I will ask you to 'keep talking.'
<i>Australia and Japan</i> <i>Remember, please think aloud while considering each of these countries for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
<i>India and Mexico</i> <i>Remember, please think aloud while considering each of these countries for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
<i>Germany and South Korea</i> <i>Remember, please think aloud while considering each of these countries for your firm's first international expansion.</i>
---- participant answers questions related to the dependent and control variables ---
END OF VERBAL PROTOCOL SCENARIOS
POST-EXERCISE SURVEY
END OF MEETING

As shown in Tables 4.2 and 4.3, each participant completed nine ‘think out loud’ scenarios. The first three scenarios asked participants to evaluate a single country at a time, and entrepreneurs then evaluated six more countries, two countries at a time. Therefore, each respondent evaluated nine international opportunities, for a total of 171 protocols (19 respondents x 9 country evaluation protocols). All 171 protocols involved comparison 1 (U.S. ↔ opportunity), and 114 of the protocols (19 respondents x 6 country evaluations) involved comparison 2 (opportunity ↔ opportunity). Each country evaluation protocol took between five and fifteen minutes per subject for a total ‘think out loud’ participation time ranging from 29 to 77 minutes (not including the post-exercise survey). Total participant time commitment including instructions, practice exercises, country evaluation protocols, and post-exercise survey ranged from 40 to 90 minutes. I conducted meetings with the verbal protocol participants and collected this data between September 2009 and February 2010.

Data analysis and coding schemes. Consistent with extant research using verbal protocols (*e.g.*, Grégoire, Barr, and Shepherd, 2010; Sarasvathy, 2001), I analyzed all verbal protocols using content analysis techniques (Krippendorff, 2004; Neuendorf, 2002). First, I evaluated protocols to identify semantic chunks, or meaningful blocks of text. Semantic chunks can be phrases, sentences, or strings of sentences that the participant used to make meaningful points about the task given to him/her. For all protocols, meaningful chunks consisted of what factors entrepreneurs considered when evaluating potential international opportunities. More specifically, I evaluated and coded each meaningful semantic chunk as a commonality, alignable difference, or nonalignable difference between countries. As shown in Table 4.4, common values (*e.g.*, English,

English) on shared dimensions (*e.g.*, language) represented indicators of commonalities while different values (*e.g.*, English, Spanish) on shared dimensions (*e.g.*, language) reflected alignable differences. Different values (*e.g.*, can use distribution system, cannot use distribution system) on unshared dimensions (*e.g.*, distribution system) indicated nonalignable differences.

For all nine country evaluation protocols, I looked for implicit and explicit comparisons verbalized by the participant between the home country (USA) and the potential international opportunities presented to the participant. For the last six country evaluation protocols (scenario set 2), I also looked for implicit and explicit comparisons between the two potential international opportunities presented to the participant (*e.g.*, Australia and Japan). For the last six country evaluation protocols, entrepreneurs often made separate statements reflecting the U.S. ↔ opportunity and opportunity ↔ opportunity comparisons. I coded the implicit and explicit comparisons made by participants as commonalities, alignable differences, and nonalignable differences between the countries compared by the participants.

For the second set of scenarios (the comparisons between potential opportunities), I also coded ‘attractive ADs’ and ‘attractive NADs.’ For each meaningful chunk from these protocols, I coded whether the subject explicitly or implicitly places a value on the AD or NAD between potential opportunities. For example, subjects that used words such as “better than,” “more viable,” or “easier to” provided explicit value statements that they perceived the feature of one country as more attractive than the corresponding feature of another country. Table 4.4 demonstrates this coding scheme and provides examples of statements coded as Cs, ADs, and NADs and attractive ADs and attractive NADs.

Table 4.4: Coding Scheme and Examples of Verbal Protocol Coding

Comparison 1: Between Home Country and Each Potential International Opportunity Presented		
Code	Indicator	Example
Commonality	Common values on shared dimensions between countries	<i>"...in considering the United Kingdom, it does have a certain easiness as we think about expansion internationally because of the language"</i> R2 09/10/2009 ¹
Alignable Difference	Different values on shared dimensions between countries	<i>"...Australia ... the furthestmost country from the US if not New Zealand... I would want to have...and learn from doing business internationally from countries which are closer... closer in proximity..."</i> R15 01/27/2010
Nonalignable Difference	Different values on unshared dimensions between countries	<i>"... I'm not grounded there [Australia] with anyone personally or professionally to help me do my initial due diligence..."</i> R7 11/20/2009
Comparison 2: Between the Two Potential International Opportunities Presented		
Code	Indicator	Example
Attractive Alignable Difference	Value statement (e.g., better or easier) on a specific alignable difference	<i>"...South Korea...you do have a larger distance than you would to Germany..."</i> R1 09/10/2009
Attractive Nonalignable Difference	Value statement (e.g., better or easier) on a specific nonalignable difference	<i>"it would be Mexico because I can...it would be India if they would let our products in..."</i> R12 01/25/2010

To increase reliability and rule out the possibility that the author's interpretations drive the results, a second coder blind to the theoretical predictions of the dissertation also coded each semantic chunk. Following standard practice in content analysis (Krippendorff, 2004; Neuendorf, 2002), we coded one of the nineteen participants' full nine country evaluation protocols together and discussed the coding procedure as part of the training of the blind coder on the coding procedures. We then coded three additional participants' protocols separately and discussed the meaning and interpretation of the coding categories. After discussing disagreements in the three participants' protocols, we then coded the remaining 15 participants' protocols separately. Using two measures of interrater reliability for the coding categories, we obtained reliabilities of 93% agreement

¹ This means that this example comes from Respondent 2 (R2) and the verbal protocol was conducted on September 10, 2009 (9/10/2009). All of the examples follow the same format.

and Cohen's κ of 0.891. We discussed all remaining disagreements to arrive at the final coding for all 171 protocols across the 19 participants. Overall, this blind coding process ensures that the coding accurately reflects the indicators specified in Table 4.4 above.

Variables and measures. The variables and measures in this study came from three different sources: content analyses of participants' verbalized reasonings, a series of questions that participants answered after each of the country evaluation protocols, and a post-exercise survey. Table 4.5 lists the full set of questions asked after each country evaluation protocol, and Table 4.6 summarizes all variables for the verbal protocol portion of this dissertation. The next sections discuss the measures of the dependent, independent, and control variables.

Table 4.5: Questions Asked After Each Country Evaluation Protocol for Study 1

Instructions: <i>Please answer each of the questions below by circling the number that corresponds to your answer.</i>							
1. How likely are you to select Brazil for your firm's first international expansion?							
	-3	-2	-1	0	1	2	3
	Very Unlikely	Unlikely	Slightly Unlikely	Neither Likely nor Unlikely	Slightly Likely	Likely	Very Likely
2. When would you recommend expanding to Brazil for your firm's first international expansion?							
	1	2	3	4	5	6	7
	0-12 Month	1-2 Years	3-4 Years	5-6 Years	7-8 Years	9-10 Years	More than 10 Years
3. What entry mode would you use if expanding to Brazil for your firm's first international expansion?							
	1	2	3	4	5	6	7
	Exporting	Licensing	Franchising	Strategic Alliance (No Equity Commitment)	Joint Venture (Equity Commitment)	Merger or Acquisition	Wholly Owned Subsidiary
4. How much do you know about doing business in Brazil?							
	1	2	3	4	5	6	7
	No Knowledge	Some Knowledge	A Moderate Amount of Knowledge	Quite a bit of Knowledge	A Great Amount of Knowledge	An Extraordinary Amount of Knowledge	Almost Complete Knowledge
5. How similar is Brazil to the United States?							
	-3	-2	-1	0	1	2	3
	Very Dissimilar	Moderately Dissimilar	Somewhat Dissimilar	Neither Dissimilar nor Similar	Somewhat Similar	Moderately Similar	Very Similar

Dependent variables. Consistent with Hypotheses 1-8 in Chapter III, the dependent variables were likelihood to select an international opportunity and age at initial international entry. After considering each country, participants rated their likelihood of selecting each opportunity on a 7-point scale from -3 = “Very Unlikely” to +3 = “Very Likely.” They also rated when they recommend entering that opportunity on a 7-point scale.

Independent variables. For each of the nine country evaluations, the independent variables measured participants’ similarity considerations between the home country (USA) and each potential international opportunity presented to them. As described in Chapter III, similarity reflects the number of commonalities, alignable differences, and nonalignable differences between two countries. A count of the number of semantic chunks for each protocol coded as a C, AD, or NAD determined the number of perceived Cs, ADs, and NADs for each protocol. We coded 679 commonalities, 441 alignable differences, and 280 nonalignable differences in the 171 protocols.

For the last six countries evaluated (two opportunities presented concurrently), the independent variables measured a count of participants’ statements reflecting the attractiveness of the alignable and nonalignable differences between the two potential international opportunities presented to them. Attractiveness of the alignable and nonalignable differences reflected the number of attractive ADs and attractive NADs between potential international opportunities coded for each protocol. We coded 249 attractive alignable differences and 166 attractive nonalignable differences between opportunities in 114 protocols.

Moderating variable. As shown in Table 4.5 above, participants also rated their level of knowledge about each country. This single item ranges from 1 = “No Knowledge” to 7 = “Almost Complete Knowledge.”

Control variables. Control variables included those related to the scenarios, the participant, and the participant’s firm. Dummy variables controlled for the scenario (country) and the participant. I also controlled for the current level of perceived similarity (see question in Table 4.5) to demonstrate the effect of the independent variables above and beyond basic perceived similarity. Including perceived similarity along with the similarity measures (Cs, ADs, and NADs) provided a conservative test for the dissertation’s hypotheses. Entrepreneurs often evaluate entry mode along with country selection and age at entry, so I controlled for entry mode (see question in Table 4.5). Furthermore, I controlled for firm characteristics such as firm age, firm size, level of product customization (Bloodgood, Sapienza, and Almeida, 1996; Ojala, 2008), and the distinction between service and manufacturing industries (Erramilli, 1991) as these factors may also impact internationalization decisions. Firms that expect to depend heavily on international sales in the near future will also be more motivated to internationalize early and often, so I also controlled for anticipated dependence on international sales. Finally, characteristics of the individual entrepreneur often strongly influence internationalization decisions (Oviatt and McDougall, 2005), so I controlled for gender, age, education, work experience, and country of birth. Table 4.6 below summarizes the full set of independent, dependent, moderating, and control variables and the measurement of each.

Table 4.6: Summary of Variables for Study 1 - Verbal Protocol Study

Dependent Variables		Measure
Propensity to Select		Likelihood of Selecting (7-Point Scale)
Age at Entry		When To Enter (1-7 Scale)
Independent Variables		
Similarity		Determined by the verbalized number of Cs, ADs, and NADs between the home country and potential international opportunities presented
Number of Commonalities		Count of Cs coded in each protocol
Number of Alignable Differences		Count of ADs coded in each protocol
Number of Nonalignable Differences		Count of NADs coded in each protocol
Attractiveness of ADs		Count of attractive ADs between two countries in each protocol
Attractiveness of NADs		Count of attractive NADs between two countries in each protocol
Moderating Variable		
Country Prior Knowledge		Amount of prior knowledge on each country (1-7 Scale)
Control Variables		
Participant		Dummy variables for each participant (18)
Scenario		Dummy variables for each country presented (8)
Perceived Similarity		Perceived Similarity Between the U.S. and each potential opportunity (7-Point Scale)
Entry Mode		Recommended Mode of Market Entry (1-7 Scale)
Anticipated Dependence on International Sales		Extent to which the participant's firm's sales will depend on international activities in the next three years (1-7 Scale)
Industry		Dummy variable for service or manufacturing (1)
Firm Age		Age, in years, from founding to 2010
Firm Size		Natural logarithm of current full time employees Natural logarithm of current firm sales
Product Customization		Extent to which the participant's firm's primary product or service is customized to each customer (7-Point Scale)
Gender		Gender of participant
Age		Age of participant
Education		Level of highest level of education completed by participant (6-Point Scale)
Work Experience		Years of work experience of participant
Country of Birth		Dummy variable for born inside or outside of the U.S. (1)

Analysis. I used multiple hierarchical regression to test the impact of the control variables, independent variables, and moderating variables on the two dependent variables. There were 171 observations for regressions of the number of Cs, ADs, and NADs on each dependent variable and 114 observations for regressions on the number of attractive ADs and attractive NADs on each dependent variable. I ran separate models for each dependent variable starting with the control variables, then adding the

independent variables, and finally models with the moderating variables. I conducted three alternate sets of analyses using different mixes of control variables to test the robustness of the effects of the independent and moderating variables on the dependent variables. The first set of analyses included the participant dummies, country/scenario dummies, perceived similarity, and entry mode as control variables. This test represented the most conservative test as the participant dummies explain all differences related to the participant and the firm. However, the participant dummies may have pulled out variance reflecting important individual differences in the way participants make internationalization decisions. Also, using participant dummies told us if the individual or firm ‘mattered’ but not what, specifically, mattered in internationalization decisions. Therefore, in a second set of analyses, I replaced the participant dummies with the set of firm and individual control variables listed in Table 4.6. Finally, Becker (2005) argues that including improper control variables can lead to increases in Type I and Type II errors, and he recommends removing “impotent” control variables that are not correlated with the dependent variable(s). I ran a third set of analyses that included only the individual and firm control variables that correlated with the dependent variable. Finally, I checked all regression analyses for outliers and violations of regression assumptions. Because verbal protocol participants made more than one decision, checks for non-independence of residuals were particularly important. I detected no signs of clustering or autocorrelation in the residuals, and all analyses had Durbin Watson statistics near 2, which indicated no autocorrelation (Cohen, Cohen, West, and Aiken, 2003).

Study 1 Summary. In Study 1, I used verbal protocol techniques to test the influence of similarity and attractiveness of differences on entrepreneurs’

internationalization decisions on age at entry and opportunity selection. Using verbal protocol techniques allowed me to investigate the extent to which cognitive comparison processes explain entrepreneurs' internationalization decisions. The verbal protocol exercises described above tested all eight hypotheses developed in Chapter III using multiple hierarchical regression.

Study 2 – Internationalization Survey and Secondary Data Collection

Although the verbal protocol study (Study 1) tested if individuals make internationalization decisions consistent with the hypotheses in Chapter III, Study 2 determined if the actual behavior of entrepreneurs and their firms reflected the predictions in Hypotheses 1-8. To do so, I used an online survey and secondary data collection on actual firm internationalization patterns, specifically targeting the choice of country and age at the initial international entry. In contrast to Study 1 (which presented potential international decision scenarios to entrepreneurs), Study 2 focused on actual internationalization decisions made by international entrepreneurs. This strengthens the internal and external validity of the dissertation. Using more than one method and more than one sample builds internal validity by demonstrating convergent evidence that the relationships found in both studies represented the actual relationships and pattern of entrepreneurial decision making. Similarly, this multiple-study approach improved external validity by testing the prediction with more than one sample, increasing the ability to generalize from this dissertation to the population of internationalizing firms.

Study 2 used a combination of research techniques to analyze the actual internationalization decisions made by entrepreneurs. A combination of an online survey and secondary data collection provided data on the first international market selected by a sample of international firms, the age at internationalization to this first market, and the characteristics of this market relevant to entrepreneurs. I used regression techniques to test the impact of similarity between the home country and the first market entered and the attractiveness of different market features on both the entrepreneur's selection decision and the decision on when to enter that market.

Research design and materials. I developed an online survey asking high-level managers of international firms about their firm's initial international entry. The survey specifically asked respondents to name the first country entered and the year in which the firm entered the country. Furthermore, respondents answered a battery of questions about the features of the market and their relevance to their internationalization decision. Finally, respondents answered questions on the firm, their demographic characteristics, and background such as prior knowledge on the country entered.

I pre-tested the online survey before it was sent to the sample described below. The pre-test involved a small group of experts on internationalization including academics, consultants, and entrepreneurs from international firms. This group reviewed the survey to ensure its accuracy, that it made sense, and that it was not cumbersome for the potential respondents. This academic portion of this group of experts also provided additional validity on the operationalization of the independent variables.

Additional information on the characteristics of the initial market entered for each firm came from secondary sources. Secondary sources of data provided details on international markets for the year in which a firm entered a particular market.

Sampling and sample selection. The original sample frame for Study 2 consisted of all client firms of a non-profit international small business development center (SBDC) in a Midwestern state of the United States. This international SBDC worked with firms throughout the state encompassing a variety of industries as well as both rural and urban businesses. In over twenty years of service, the international SBDC worked with more than 750 firms, encompassing a significant percentage of the total number of exporters in the state in which the center is located. All firms in the target sample frame were

headquartered in the United States. For each firm in the sample frame, I obtained the name and contact information of at least one key executive dealing with the firm's internationalization. Most contacts were founders and/or top managers including CEOs, Presidents, and international managers. In each case, the contact was intimately involved in the internationalization decision making of his or her firm.

Focusing on this sampling frame has several important benefits. First, the sample frame included firms that have expanded internationally improving the external validity to the population of international new ventures. Second, the sample was broad enough on key variables (*e.g.*, industry and urbanization) to build external validity, which allowed me to generalize the results of Study 2 to the population of internationalizing firms. Finally, the sample frame included firms based in only a single country (the U.S.): this controlled for institutional, cultural, and other potential country effects on entrepreneurs' internationalization decision making.

Data collection. After revisions based on pre-testing and approval by the Georgia State University Institutional Review Board, I sent the final version of the online survey to the sample frame described above via email on January 20, 2010. The email described the study, explained the risks and benefits, described the measures to protect the anonymity of respondents, invited the entrepreneur to participate, and offered both the financial incentive and a summary of the study's results. Furthermore, the email contained the Informed Consent documentation required by the Georgia State University Institutional Review Board. Pre-testing confirmed that the survey took approximately twenty minutes to complete. Each respondent completing the survey received a \$30 Amazon.com gift card emailed to the respondent after I received the completed survey.

Funding for participant incentives came from grant support from the Georgia Research Alliance and a Georgia State University Dissertation Grant from the University Research Services and Administration.

I sent the first email to the sample frame on January 20, 2010 to a total of 605 firms for which the international SBDC had email addresses. A reminder email was sent nearly two weeks later on February 2, 2010 to those firms that had not yet responded. Between February 16 and March 26, 2010, I called each firm that had not yet responded. I paired these follow-up calls with an additional email so that the potential respondents would have immediate access to their personalized link for the survey. When completed surveys were received, I emailed a thank-you note to the participant: the note included the Amazon.com gift codes and a promise to send a summary of the results to them. Through the process of emailing and calling each firm in the sample frame, I identified a large number of firms that did not fit the sampling criteria. Therefore, I removed 382 firms from the sample frame for not being an independent business (79 firms), or not making an internationalization decision due to not internationalizing at all or only doing minor, reactive internationalization (144 firms). Many of these 144 firms were ‘tirekickers’ interested in international at one point in the last 20 years but ultimately never pursuing international business. Another 154 firms were no longer in business, had been acquired, and/or the key contact who made the internationalization decision was no longer with the firm. I used phone calls, emails, and web searches to attempt to locate contact information for the key respondents in each of these firms, and only those where these efforts were unsuccessful were dropped from the sample frame. The final sample

frame consisted of 223 firms, of which 105 firms completed the survey for a response rate of 47.09%.

The only information available on the non-responding firms was firm age and number of full time employees. Tests of differences in the means on these two items between responding and non-responding firms showed no significant difference. I also tested for non-response bias by analyzing early versus late respondents on all dependent, independent, and moderating variables. Early respondents (61 firms) completed their surveys before the phone calls, and late respondents (44 firms) completed their surveys after receiving a phone call. No significant differences existed in the means of the eight DVs, IVs, and moderators between early and late respondents. This suggests that non-response bias (Dillman, 2000) did not influence the results of Study 2, and suggested improved generalizability to the population of internationalizing firms.

Variables and measures. The variables for Study 2 came from two sources: the online survey and secondary data sources. After participants completed the online survey, I collected secondary data on the country of each firm's initial international entry. Table 4.14 at the end of Chapter IV summarizes the full list of dependent, independent, moderator, and control variables for Study 2 including how I measured each variable and the data source (survey versus secondary data) for each variable.

Dependent variables. Similar to Study 1, Study 2 measured two dependent variables (DVs): propensity to select an international opportunity and age at initial internationalization. Following Dow (2000), I created the propensity to select an international market DV (frequency) by analyzing the first international entry of each respondent and comparing this country to all other first entries in the sample. This

variable (propensity of opportunity selection) allowed a score to be created for each country that indicated its frequency of selection as an initial entry location relative to that of all other markets. I collected information for this DV in the online survey by asking respondents to list their first outward international entry regardless of entry mode (for which this study controls). Because this DV was a proportion, I transformed the DV using a linear logit transformation $[0.5 * (\ln(P/1-P))]$ where P = the proportion of entrepreneurs in the sample that picked a particular country as their first international entry. The linear logit transformation accounts for skew and bounded means inherent in proportions (Cohen et al, 2003: 240).

I measured the second dependent variable, age at initial internationalization, as the difference between the year of first international entry and the year of firm founding (Coviello and Jones, 2004; Oviatt and McDougall, 2005). This measure reflected outward internationalization (e.g., exporting) not inward internationalization (importing). For example, if a firm was founded in 1992 and made its first export commitment in 1996, the age at internationalization is 4 (1996 minus 1992). Table 4.7 lists the survey questions used to create both dependent variables for Study 2.

Table 4.7: Study 2 - Questions Measuring Dependent Variables

1. In what year was your firm founded?	_____
2. In what year did your firm make its first planned, outward international expansion?	_____
<p><i>Outward international expansion is designed to increase sales by expanding to international markets. This could be exporting to a new market, building a new facility, or any other sales-oriented international expansion but does not include inward internationalization (e.g., importing, outsourcing, or activities geared towards domestic sales).</i></p> <p><i>A planned international expansion is proactive and part of the firm's strategy and reflects a commitment of resources to the expansion. This does not include unplanned international expansion as a result of unsolicited orders via fax, email, etc.</i></p>	
3. To which country was your firm's first outward internationalization?	_____

Independent variables. This section first discusses the composition and measurement of each of the three independent variables (IVs): similarity, attractiveness of alignable differences, and attractiveness of nonalignable differences. Then, this section briefly describes the twenty indicators gathered from the survey and secondary data used to create these three independent variables. I provide additional information on these twenty indicators regarding the selection of the twenty indicators (Appendix 4.1), measurement of the twenty indicators (Appendix 4.2), and justification for aggregating these twenty indicators to Cs, ADs, NADs, attractive ADs, and attractive NADs (Appendix 4.3) in the Chapter IV appendices.

Study 2 measured similarity, the attractiveness of alignable differences, and the attractiveness of nonalignable differences. Because a large number of potential commonalities and differences existed between countries, all three of these independent variables required an objective evaluation of the relevant commonalities, alignable differences, and nonalignable differences between countries that influenced entrepreneurs' internationalization decision making. To do this, I conducted a literature review and survey in order to determine which commonalities, alignable differences, and nonalignable differences should be included in Study 2. The literature review identified the most important theoretical concepts in the internationalization literature on opportunity selection and age at entry as well as factors that prior research has indicated influences entrepreneurs' internationalization decisions. The survey captured the most important decision making criteria entrepreneurs use when making internationalization decisions. After completing the literature review and survey, I selected ten potential

ADs and ten potential NADs for Study 2. Appendix 4.1 provides a full description of this process I used to create and select the twenty potential Cs, ADs, and NADs for Study 2.

Similarity. Hypotheses 1, 2, 7a, and 7b specified the predicted effects of similarity on the DVs described above. According to structural alignment theory, individuals judge similarity via the number of commonalities, alignable differences, and nonalignable differences between objects. Consistent with Study 1, I measured similarity in Study 2 as the number of Cs, ADs, and NADs between the U.S. and the market entered. Any potential difference can also be a commonality if the U.S. and first market entered share the same value on that feature. Therefore, I used the set of ten potential Cs/ADs and ten potential Cs/NADs to count the number of Cs, ADs, and NADs between the U.S. and the first market entered for each firm. Table 4.8 lists the ten Cs/ADs used for counting the number Cs and ADs, and Table 4.10 lists the ten Cs/NADs used for counting the number of Cs and NADs.

Table 4.8: Study 2 - Measurement of the IVs: Ten Potential Cs/ADs

Alignable Difference	Distance Measured	Measure	Data Source
Cultural Distance	Between USA and 1 st market entered	Hofstede Measures (Euclidean Distance)	Secondary Data
Economic Distance	Between USA and 1 st market entered	Difference in GDP Growth Rates	Secondary Data
Geographic Distance	Between USA and 1 st market entered	Nautical Miles between Chicago, IL USA to nearest port in 1 st market entered	Secondary Data
Institutional Distance	Between USA and 1 st market entered	Global Competitiveness Report Measures (Euclidean Distance)	Secondary Data
Psychic Distance	Between USA and 1 st market entered	1-7 Scale from Study 2 Survey	Survey (1 item)
Commercial Tie Distance	Between USA and 1 st market entered	Inverse of percentage of total U.S. Exports (in US\$) to 1 st market entered	Secondary Data
Language Distance	Between USA and 1 st market entered	Language distance between countries (following Dow and Karunaratna, 2006)	Secondary Data
Trade Barrier Distance	Between USA and 1 st market entered	Global Competitiveness Report Measure (1-7 scale)	Secondary Data
Competition Distance	Between USA and 1 st market entered	Global Competitiveness Report Measure (1-7 scale)	Secondary Data
Market Size Distance	Between USA and 1 st market entered	Difference in market sizes (GDP per capita in US\$)	Secondary Data

In order to count the *number of commonalities* between the U.S. and a respondent firm's first market entered, I looked at the twenty measured features between the countries (the ten potential Cs/ADs and ten potential Cs/NADs listed in Tables 4.8 and 4.10). For any potential AD or NAD, if the U.S. and the first market entered shared the same value (*e.g.*, same language), I counted this as a commonality. If the value differed, I counted the feature as an AD or NAD. ADs represented those features for which a sliding (or 'alignable') scale exists between countries while NADs included features which existed in one market (*e.g.*, the home market) but not in the first market entered. For the ten potential Cs/ADs, I counted that a commonality existed if a 'distance' of zero existed between the U.S. and a respondent firm's first market entered. Because an actual zero distance was rare in practice, I used the distribution of each potential C/AD to identify a natural 'break' between distances to determine a C versus an AD. For example, the United States and Canada had a language distance of 0.478 (Dow and Karunaratna, 2006) due to the use of languages other than English (nearly 20% of the Canadian population speaks French). Using the language distance data on all countries in the survey dataset, the data showed a clear break between the U.S. ↔ Canada language distance (0.478) and the U.S. ↔ Singapore language distance (1.435). Singapore was the next closest language distance country to the United States after Canada. This technique was necessary because in practice, respondents considered the language between the U.S. and Canada as a commonality but did not consider the language between the U.S. and Singapore (where only 23% of the population speaks English) as a commonality between these two countries. In this way, I counted a feature as a commonality between countries if a distance score of zero or a very short distance (relative to other countries) existed

between the U.S. and the country entered. The potential Cs/ADs not counted as a commonality were counted as an *alignable difference* (AD) between the U.S. and the market entered. I used this procedure for all ten Cs/ADs to determine which features counted as Cs for which countries. Table 4.9 below uses the language data to show this procedure of identifying the natural break in the data between Cs and ADs.

Table 4.9: Language Distance and C/AD Determination

Country	Language Distance (from U.S.)	Commonality or Alignable Difference
Bermuda	0	Commonality
UK	0	Commonality
Canada	0.47828	Commonality
Singapore	1.43484	Alignable Difference
India	1.43484	Alignable Difference
India	1.43484	Alignable Difference
Israel	1.43484	Alignable Difference
Nigeria	1.43484	Alignable Difference
Philippines	1.43484	Alignable Difference
Ghana	1.43484	Alignable Difference
South Africa	1.43484	Alignable Difference
Germany	3.13112	Alignable Difference
Switzerland	3.13112	Alignable Difference
Dominican Republic	3.17572	Alignable Difference
Ecuador	3.17572	Alignable Difference

Note: Table 4.9 lists the 15 countries closest to the U.S. to demonstrate the natural break between Canada (0.47828) and the next group of countries including Singapore (1.43484).

Potential Cs/NADs came from survey items asking if a particular feature existed between the U.S. and the market entered. If the feature existed (same value on a common dimension), I counted this as a *commonality* between the countries. If the feature did not exist between the U.S. and the market entered, I counted it as a *nonalignable difference* (NAD). Table 4.10 lists the ten potential Cs/NADs used in this study, and Table 4.11 lists the survey questions used to measure each of them.

Table 4.10: Study 2 - Measurement of the IVs: Ten Potential Cs/NADs

Nonalignable Difference	Measure	Data Source
Market Structure	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Networks	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Competitive Superiority	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Strategy Extension	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Diversify Sales Base	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Historical Ties	Existence of NAD (or not) between USA and 1 st market entered	Secondary Data
Competitive Advantage	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
International Customer	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Economies of Scale	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)
Learning	Existence of NAD (or not) between USA and 1 st market entered	Survey (1 item)

Table 4.11: Study 2 – Measurement of the IVs: Survey Questions for Cs/NADs

Nonalignable Difference	Survey Item
Market Structure	<u>At the time of entry...</u> did the country entered have the same type of sales / distribution system as the United States?
Networks	<u>At the time of entry...</u> were you able to use your existing personal or professional networks in that country?
Competitive Superiority	<u>At the time of entry...</u> were your products or services superior to competition in that country?
Strategy Extension	<u>At the time of entry...</u> were you able to extend your firm's strategy to that country?
Diversify Sales Base	<u>At the time of entry...</u> were you able to diversify your firm's sales base by expanding to that country?
Competitive Advantage	<u>At the time of entry...</u> were you able to transfer to that country or otherwise take advantage of your firm's main competitive advantage in that country?
International Customer	<u>At the time of entry...</u> did you follow an existing customer to that country?
Economies of Scale	<u>At the time of entry...</u> were you able to leverage economies of scale by entering that country?
Learning	<u>At the time of entry...</u> were you able to learn from expanding to that country?

Attractiveness of alignable differences. Hypotheses 3 and 5 explained the predicted effects of the attractiveness of alignable differences on the DVs. Study 2 measured attractiveness of alignable differences by evaluating the level of attractiveness of the ten Cs/ADs between the U.S. and the market entered. I measured the ten C/AD features following the extant international business literature for each, and I explain the measurement of each in Appendix 4.2. By definition, each of these ten features was a continuous measure reflecting a distance between the U.S. and the market entered. In structural alignment language, smaller distances (or smaller differences) reflected more attractive choices. For example, individuals perceived a smaller institutional distance as

more attractive than a larger institutional distance. A U.S. firm was more likely to pick the United Kingdom over Italy because the UK was more attractive due to a smaller (more attractive) institutional distance between the U.S. and UK (1.86) as compared to the larger (less attractive) institutional distance between the U.S. and Italy (6.37).

Table 4.8 lists all ten country features used to measure attractiveness of alignable differences in Study 2, how they are measured, and the data source for each AD. In order to measure the overall attractiveness of alignable differences, it was necessary to sum these ten distances up to a single measure of AD attractiveness between the U.S. and the first market entered for each firm. Because each AD was measured on a different scale, and these different scales prevent each AD from being treated equally when summed, I transformed each variable into z scores so that they may be summed on a single scale. Appendix 4.3 explains the theoretical and statistical rationale for summing the 10 AD indicators into a single score.

Attractiveness of nonalignable differences. Hypotheses 4, 6, 8a, and 8b showed the expected effects of attractiveness of nonalignable differences on the DVs. Just as Study 2 evaluated ten features as alignable differences between countries, Study 2 also measured ten features between countries that represented nonalignable differences.

Attractive NADs were simply those that entrepreneurs found favorable. Therefore, although I measured the presence of each potential NAD between the home and host country as a dichotomous item, respondents also rated how each NAD impacted their evaluation of the attractiveness of the first market selected on a 7-point scale from 1 = “Very Unattractive” to 7 = “Very Attractive.” Table 4.12 provides examples of the questions asked of each respondent regarding NADs, and Table 4.10 lists the ten NADs

used in Study 2 along with their measures and data source. Table 4.13 summarizes the dependent and independent variables for Study 2.

Table 4.12: Study 2 - Sample Questions Measuring Attractiveness of NADs

Please continue telling us about the country of the expansion you described earlier. The questions below ask about how attractive (i.e., good for your firm) or unattractive (i.e., bad for your firm) each factor below was in your decision to expand to this country.							
When deciding about entering that country, how attractive was the...	Very Unattractive	Moderately Unattractive	Slightly Unattractive	Neither Unattractive nor Attractive	Slightly Attractive	Moderately Attractive	Very Attractive
25. ...type of distribution system in that country?	1	2	3	4	5	6	7
26. ...superiority of your firm's products or services to competition in that country?	1	2	3	4	5	6	7
27. ...opportunity to learn from expanding to that country?	1	2	3	4	5	6	7

Table 4.13: Study 2 - DV and IV Measurements and Data Sources

Variable	Measure	Data Source
<i>Dependent Variables</i>		
Market Selection Propensity	Frequency with which a market is selected	Survey (1 item)
Age at Initial Internationalization	Time, in years, between firm founding and first outward internationalization	Survey (1 item)
<i>Independent Variables</i>		
Similarity		
Number of Commonalities	Number of NADs and ADs not significantly different between USA and 1 st market entered	Survey / Secondary Data
Number of Alignable Differences	Number of ADs significantly different between USA and 1 st market entered	Survey / Secondary Data
Number of Nonalignable Differences	Number of NADs significantly different between USA and 1 st market entered	Survey / Secondary Data
Attractiveness of ADs	Sum of z scores of the ten distance measures between the U.S. and the market entered	Survey / Secondary Data
Attractiveness of NADs	Sum of attractiveness (1-to-7 scale) for each NAD between the U.S. and the market entered	Survey / Secondary Data

Moderating variables. This dissertation predicted that *prior international knowledge* moderates both age at initial internationalization and international opportunity selection. Because this study focused on the first international entry of a firm, Study 2

measured prior international knowledge as that which individuals acquired prior to the first international entry, including work at other firms. Consistent with Study 1, Study 2 measured prior international knowledge with a survey item asking “how much knowledge did you have about doing business in the country of this expansion at the time of entry?” on a scale from 1 = “No Knowledge” to 7 = “Almost Complete Knowledge.”

Control variables. The extant literature shows that a number of other factors impact market selection and/or age at internationalization. Specifically, this study controlled for key variables regarding the firm, industry, the individual, and the internationalization decisions. I describe each set of controls below.

Firm age (in number of years) and *firm size* (log of sales) both potentially impact the dependent variables through reduction of the liability of newness (Bloodgood, Sapienza, and Almeida, 1996). The extant literature also finds links between *firm performance* and internationalization behavior (Hitt, Hoskisson, and Kim, 1997; Tallman and Li, 1996). Following this stream of research, Study 2 measured firm performance as return on assets (ROA). A firm’s *knowledge intensity* also potentially affects the dependent variables, specifically age at initial internationalization. Many studies have found that higher knowledge intensity drives earlier internationalization (Autio, Sapienza, and Almeida, 2000; McNaughton, 2003). Following Autio et al. (2000), Study 2 measured knowledge intensity via three items on seven point Likert scale. In this sample, the Cronbach α was 0.87, similar to the 0.85 reported by Autio et al. (2000), and all three items loaded on a single factor with loadings at 0.830 or greater.

Some industries are more global than others. Highly global industries may provide both more support to a new venture for its internationalization efforts (*e.g.*,

through trade associations) as well as increasing competitive pressures for all firms in the industry to internationalize, so I controlled for *industry* (as measured by SIC codes) via industry dummies.

Entry mode decisions tend to be interrelated to international opportunity selection and age at internationalization. Therefore, I controlled for entry mode using the same 7-point scale as in Study 1 (see Table 4.5). As in Study 1, I included the control variable perceived similarity because including this variable allowed me to show the effects of similarity (measured by Cs, ADs, and NADs) above and beyond the effect of basic ‘perceived’ similarity. This variable was measured with a single item on a 7-point scale asking about the respondent’s perceived similarity between the U.S. and the first country entered at the time of entry.

Finally, because I argued that individuals make these important internationalization decisions, I also controlled for several items related to the individual: age, gender, education, work experience, and a dummy variable indicating if the respondent was born in the United States or elsewhere. All control variables were obtained via items on the survey instrument. Table 4.14 below contains a full list of all variables for Study 2 including the dependent, independent, moderating, and control variables.

Analysis. Study 2 used multiple hierarchical regression to test the relationship between each dependent variable (international opportunity selection and age at internationalization) and the independent, moderator, and control variables. Consistent with the model developed in Chapter III, I ran separate models for each dependent variable. In each case, model specification began with the control variables, I then added

independent variables to the model, and finally I added the moderating variables to the model.

Because I measured the independent variables as counts of the twenty possible features between countries (10 Cs/ADs and 10 Cs/NADs), the sum of the number of Cs + ADs + NADs always equaled twenty. As a result, exact collinearity existed between the three IVs (number of Cs, number of ADs, and number of NADs) similar to what happens if one attempts to enter all dummies into a regression equation instead of entering *k-1* dummy variables (Cohen et al, 2003: 419-420). To address these unavoidable design constraints, I used a sequence of three regression models, where I entered only two of the three count IVs into the equation at any time, but tested each IV with each of the two other IVs. This maintained the consistency of the count of the number of Cs, ADs, and NADs with prior research while minimizing problems of multicollinearity. Following Clogg, Pekova and Haritou (1995), I compared the effects of each IV between models to establish the stability of observed effects.

As with Study 1, I also ran a set of analyses following the recommendations of Becker (2005) to remove “impotent” controls variables that are not correlated with the dependent variable(s). This last set of analyses following Becker’s (2005) recommendations produced results equivalent to the first set of results, so Chapter V only reports the results of the main analyses for Study 2.

I ran two other sets of analyses to test the robustness of the results regarding the measurement of each DV. First, I ran analyses with and without the linear logit transformation of the likelihood of opportunity selection dependent variable. There were no differences in the pattern of results between analyses on the transformed and non-

transformed DV. Consistent with prior research (*e.g.*, Dow, 2000) and statistical norms for using propensities as dependent variables (Cohen et al, 2003), I focus on the logit-transformed data. Second, following Edwards (1995), I ran a multivariable multiple regression on the components of the age at entry dependent variable. This analysis is important because direct effects between the independent variables and the components of the age at entry variable (year of founding and year of first international entry) could cause misinterpretation of the effects of these IVs on the DV age at entry. In spite of their validity, these concerns do not seem to affect the results reported below: I found no effects of the independent or moderator variables on year of firm founding or year of first internationalization. Therefore, in Chapter V, I report the results of the main analyses only – those where I used age at entry as the dependent variable. Appendix 5.2 lists the results of these two additional analyses.

Finally, I verified that no violations of regression assumptions occurred. To this aim, I checked for statistical outliers using scatterplots and statistics on leverage (centered leverage), discrepancy (studentized deleted residuals), and influence (Cook's D) as well as DFBETAs to check for influence on the regression coefficients.

Study 2 Summary. In Study 2, I used an online survey combined with secondary data collection to examine cognitive comparisons and structural alignment underpinning entrepreneurs' decisions regarding when to internationalize and to which country. In contrast to Study 1, Study 2 focused on the actual internationalization decisions made by entrepreneurs.

Chapter Summary

Chapter IV laid out two approaches for testing the hypotheses from Chapter III predicting international opportunity selection and age at initial international entry. I implemented each approach using different methods (verbal protocols and a survey) and using different sample frames of firms for which the decision to internationalize was relevant. For each hypothesis, Chapter IV described the method to test it, the operationalization of the independent, dependent, moderator, and control variables, and the analysis technique used to test the hypotheses. Finally, I described how I obtained data from multiple methods (verbal protocols and survey), multiple samples, and multiple sources (entrepreneurs and secondary data sources) for testing these hypotheses. Because it minimizes biases associated with using a single data source and single method, this design strengthened both the internal and external validity of the dissertation's results.

Table 4.14: Study 2 - Variable Measurements and Data Sources

Variable	Measure	Data Source
<i>Dependent Variables</i>		
Market Selection Propensity	Frequency with which a market is selected	Survey (1 item)
Age at Initial Internationalization	Time, in years, between firm founding and first outward internationalization	Survey (1 item)
<i>Independent Variables</i>		
Similarity		
Number of Commonalities	Number of NADs and ADs (below) not significantly different between USA and 1 st market entered	Survey / Secondary Data
Number of Alignable Differences	Number of ADs (below) significantly different between USA and 1 st market entered	Survey / Secondary Data
Number of Nonalignable Differences	Number of NADs (above) significantly different between USA and 1 st market entered	Survey / Secondary Data
Attractiveness of ADs	Sum of z scores of the ten distance measures between the U.S. and the market entered	Survey / Secondary Data
Attractiveness of NADs	Sum of attractiveness (1-to-7 scale) for each NAD between the U.S. and the market entered	Survey / Secondary Data
<u>Alignable Differences</u>		
Cultural Distance	Between USA and 1st market entered	Secondary Data

Economic Distance	Between USA and 1st market entered	Secondary Data
Geographic Distance	Between USA and 1st market entered	Secondary Data
Institutional Distance	Between USA and 1st market entered	Secondary Data
Psychic Distance	Between USA and 1st market entered	Survey (1 item)
Commercial Tie Distance	Between USA and 1st market entered	Secondary Data
Language Distance	Between USA and 1st market entered	Secondary Data
Trade Barrier Distance	Between USA and 1st market entered	Secondary Data
Competition Distance	Between USA and 1st market entered	Secondary Data
Market Size Distance	Between USA and 1st market entered	Secondary Data
Nonalignable Differences		
Market Structure	Between USA and 1 st market entered	Survey (1 item)
Networks	Between USA and 1 st market entered	Survey (1 item)
Competitive Superiority	Between USA and 1 st market entered	Survey (1 item)
Strategy Extension	Between USA and 1 st market entered	Survey (1 item)
Diversify Sales Base	Between USA and 1 st market entered	Survey (1 item)
Historical Ties	Between USA and 1 st market entered	Secondary Data
Competitive Advantage	Between USA and 1 st market entered	Survey (1 item)
International Customer	Between USA and 1 st market entered	Survey (1 item)
Economies of Scale	Between USA and 1 st market entered	Survey (1 item)
Learning	Between USA and 1 st market entered	Survey (1 item)
Moderator Variables		
Prior International Knowledge	1-to-7 Scale	Survey (1 items)
Control Variables		
Firm Age	Years since firm founding	Survey (1 item)
Firm Size	Log of sales (US\$) in the year of entry	Survey (1 items)
Firm Performance	Return on Assets	Survey (1 item)
Industry	SIC Code dummy variables	Survey (1 item)
Knowledge Intensity	Autio et al (2000) 3-items; 7-point Likert Scale	Survey (3 items)
Entry Mode	1-to-7 Scale	Survey (1 item)
Perceived Similarity	Perceived Similarity Between USA and 1 st market entered (7-Point Scale)	Survey (1 item)
Respondent Age	1-to-6 Scale	Survey (1 item)
Respondent Gender	Dummy Variable	Survey (1 item)
Respondent Education Level	1-to-6 Scale	Survey (1 item)
Respondent Work Experience	1-to-7 Scale	Survey (1 item)
Respondent Country of Birth	Dummy Variable (U.S. vs. non-U.S. born)	Survey (1 item)

CHAPTER V

RESULTS FROM STUDY 1 AND STUDY 2

Chapter Overview

Chapter V describes, discusses, and summarizes the results from Study 1 and Study 2. First, the Chapter discusses the results from Study 1, the Verbal Protocol study. Next, the Chapter reviews the Study 2 results, from the survey and secondary data. Finally, Chapter V describes the overall results of this dissertation by comparing and contrasting the results from both studies. Overall, the two studies provide support for the foundational proposition of this dissertation regarding the role of cognitive comparisons and alignment of country features when entrepreneurs' make internationalization decisions.

Study 1 Results

The 19 participants in Study 1 provided 171 useable protocols to analyze predictions on comparisons between the U.S. and a target market and 114 useable protocols to analyze comparisons between potential target markets. Table 5.1 shows the descriptive statistics for the key dependent, independent, moderator, control, and interaction variables for testing Hypotheses 1-8 in Study 1. The data presented in Table 5.1 reflects non-centered variables. Fourteen men and five women participated in the study, and four of the participants were born outside of the United States. Most of the participants were highly educated (all 19 had at least bachelor's degrees) and had significant work experience (13 – 45 years). The nineteen firms included twelve firms in manufacturing and seven firms in service industries. Participating firms were relatively

young (mean age = 13.44 years) and small (mean number of full time employees = 43.61, mean sales = US\$ 28,464,000).

Table 5.1: Descriptive Statistics for Study 1 – Verbal Protocols

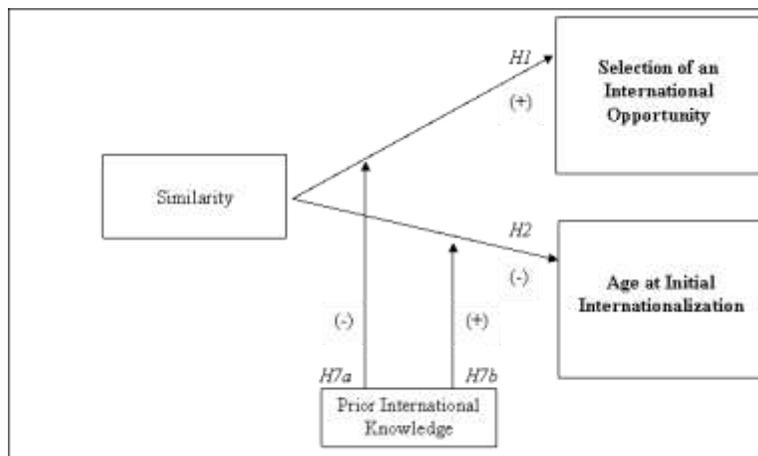
	N	Range	Min	Max	Mean	Std. Dev.	Variance
Dependent Variables							
Likely	171	6	1	7	4.462	2.103	4.424
AgeEntry	171	6	1	7	3.064	1.710	2.926
Control Variables							
Gender	171	1	0	1	0.737	0.440	0.194
Age	162	3	3	6	4.111	0.875	0.765
Education	162	2	4	6	4.389	0.591	0.349
Work Experience	162	32	13	45	26.167	9.197	84.583
Country of Birth	162	1	0	1	0.778	0.417	0.174
Ind	171	1	0	1	0.368	0.482	0.233
Firm Age	162	37	1	38	13.444	13.192	174.025
Full Time Employees	162	249	1	250	43.610	68.645	4712.077
Full Time Employees (ln)	162	5.521	0.000	5.521	2.389	1.795	3.221
Sales (in US\$)*	162	170,597	20	170,617	28,464	55,420	3,072,000,000,000
Sales (in US\$) (ln)	162	9.051	9.903	18.955	14.636	2.610	6.813
Product Customization	162	6	1	7	3.722	2.103	4.423
Intl Sales Dependence	162	6	1	7	3.444	2.191	4.802
PercSim	171	6	1	7	3.942	1.915	3.669
Entry Mode	171	6	1	7	3.991	1.851	3.425
Independent Variables							
Commonalities	171	31	0	31	6.240	4.650	21.621
Alignable Differences	171	13	0	13	4.351	2.868	8.228
Nonalignable Differences	171	11	0	11	2.550	2.327	5.417
Attractive ADs	114	12	0	12	2.246	2.476	6.133
Attractive NADs	114	7	0	7	1.491	1.687	2.846
Moderator Variable							
Prior Knowledge	171	6	1	7	2.643	1.621	2.627
Interaction Terms							
PK*C	171	81.190	-22.831	58.359	2.852	8.716	75.961
PK*AD	171	36.921	-14.600	22.321	0.950	4.998	24.983
PK*NAD	171	26.142	-11.110	15.032	0.506	3.358	11.276
PK*AttAD	114	32.776	-9.786	22.990	1.191	3.467	12.022
PK*AttNAD	114	17.322	-9.051	8.271	0.487	2.634	6.939

* sales figures in thousands (000) of US\$

Effects of similarity. The first set of hypotheses focused on the impact of similarity on the dependent variables: likelihood of opportunity selection and age at initial international entry. Figure 5.1 graphically displays these predicted relationships.

Consistent with structural alignment research, I measured similarity as the number of commonalities (Cs), number of alignable differences, (ADs), and number of nonalignable differences (NADs) (Markman and Gentner, 1993b, 1996). The descriptive data is consistent with the structural alignment theory prediction that in their verbalized reasonings, entrepreneurs described more Cs than ADs (6.24 vs. 4.35 per protocol), and more ADs than NADs (4.35 vs. 2.55 per protocol). These descriptive statistics showed that entrepreneurs' considerations of Cs, ADs, and NADs between countries are consistent with extant research on structural alignment and similarity between objects (Gentner and Markman, 1994; Markman and Gentner, 1993b) and consumer choices of products (Huber and McCann, 1982; Zhang and Fitzsimons, 1999).

Figure 5.1: Predicted Effects of Similarity



The data supported Hypothesis 1 if the number of Cs positively and significantly predicted likelihood of international opportunity selection while the number of ADs and NADs negatively predicted likelihood. In contrast, support for Hypothesis 2 came from a negative relationship between Cs and age at initial international entry (the more Cs, the younger the firm at internationalization) and a positive relationship between ADs and

NADs and age at initial international entry (the more ADs and NADs, the older the firm at internationalization). Though not formally expressed as a hypothesis, I also expected that NADs alone should not significantly predict either DV.

Initial evidence of the effects of similarity (as measured by the number of Cs, ADs, and NADs) on internationalization decisions came from the correlations between Cs, ADs, and NADs and each dependent variable. Table 5.2 below shows the full correlation matrix for Study 1. The number of Cs significantly correlated in the proper direction with both likelihood of opportunity selection (0.401***) and age at initial international entry (-0.399***). The number of ADs correlated with both DVs in the directions predicted but only significantly correlated with likelihood of opportunity selection (-0.145*). The number of NADs correlated in the predicted direction with both DVs. However, NADs strongly correlated with likelihood of international opportunity selection (-0.196***), which suggested that NADs had a stronger influence on internationalization decisions than predicted.

As described in Chapter IV, I ran three sets of analyses on each dependent variable using three different sets of controls. The first analysis was the most conservative test of the hypotheses because it included participant dummies along with country/scenario dummies, entry mode, and perceived similarity. A second analysis used the country/scenario dummies, entry, mode, and perceived similarity along with the full set of individual and firm characteristics listed in Table 4.6. A final set of analyses followed Becker's (2005) suggestions to include only those control variables correlated with the dependent variable(s). In all analyses, I looked for stability of effects across models. Given that each model contained fewer control variables than the previous, the

participant dummy control models explained more variance than the models with firm/individual controls, and the firm/individual control models explained more variance than the “Becker” models. The Chapter includes tables summarizing the effects of the IVs and moderators on the DVs (such as Table 5.3 below), and Appendix 5.1 contains the full set of results tables for all six analyses (3 sets of analyses per DV) including all control variables.

Table 5.2: Correlations for Study 1 – Verbal Protocols

	Likely	AgeEntry	Gender	Age	Education	Work Exp	Country Born	Industry	Firm Age	FTE_In	Sales_In	Std/Cust	IntlSales Dep	
Likely	1													Likely
AgeEntry	-0.706***	1												AgeEntry
Gender	-0.165**	0.240***	1											Gender
Age	-0.094	-0.017	0.504***	1										Age
Education	-0.139*	-0.005	-0.012	0.024	1									Education
Work Exp	-0.071	0.023	0.321***	0.895***	-0.012	1								Work Exp
Country Born	-0.056	-0.013	-0.331***	0.068	0.352***	0.111	1							Country Born
Industry	-0.012	0.078	-0.535***	-0.492***	0.054	-0.461***	0.152*	1						Industry
Firm Age	0.047	0.026	0.359***	0.559***	0.120	0.519***	0.261***	-0.528***	1					Firm Age
FTE_In	0.047	0.037	0.412***	0.434***	-0.018	0.382***	0.020	-0.638***	0.844***	1				FTE_In
Sales_In	0.008	0.062	0.491***	0.419***	-0.019	0.374***	-0.072	-0.636***	0.732***	0.930***	1			Sales_In
Std/Cust	-0.156**	0.382***	0.095	-0.346***	-0.360***	-0.276***	-0.198**	0.376***	-0.216***	-0.181**	-0.144*	1		Std/Cust
IntlSalesDep	0.076	-0.125	0.239***	-0.026	0.038	-0.028	-0.196**	-0.214***	0.097	0.342***	0.433***	-0.178**	1	IntlSalesDep
Similarity	0.346***	-0.272***	0.009	-0.122	0.091	-0.108	-0.159**	-0.078	-0.072	-0.051	-0.023	-0.073	0.190**	Similarity
EntryMode	0.009	0.105	-0.075	-0.211***	-0.048	-0.094	-0.241***	0.102	-0.186**	0.008	0.049	0.009	0.356***	EntryMode
Cs	0.401***	-0.399***	-0.038	0.142*	0.222***	0.183**	0.027	-0.136*	0.051	0.071	0.065	-0.202**	0.059	Cs
ADs	-0.145*	-0.026	-0.084	0.076	0.322***	0.119	-0.007	-0.115	-0.007	0.011	0.026	-0.206***	-0.110	ADs
NADs	-0.196***	-0.007	0.101	0.056	0.134*	0.076	-0.194**	-0.186**	-0.073	0.045	0.119	-0.104	0.048	NADs
AttADs	0.314***	-0.173*	0.003	0.095	0.146	0.068	0.034	-0.142	0.175	0.196**	0.129	-0.134	-0.132	AttADs
AttNADs	0.334***	-0.218**	0.009	-0.076	-0.064	-0.060	0.012	-0.115	-0.005	0.086	0.133	0.009	0.106	AttNADs
PriorKnow	0.187**	-0.251***	0.139	0.252***	0.373***	0.276***	-0.215***	-0.251***	0.192**	0.267***	0.361***	-0.248***	0.248***	PriorKnow
PK*C	0.020	-0.128*	0.026	0.086	0.237***	0.038	0.067	-0.040	0.045	0.060	0.088	-0.089	0.104	PK*C
PK*AD	-0.086	-0.081	-0.187**	-0.087	0.242***	-0.112	0.077	0.244***	-0.230***	-0.220***	-0.139*	0.020	-0.029	PK*AD
PK*NAD	0.052	0.015	-0.068	-0.075	-0.039	-0.108	-0.074	0.218***	-0.194**	-0.194**	-0.168*	0.170**	-0.158**	PK*NAD
PK*AttAD	0.134	-0.112	-0.049	0.024	-0.012	-0.036	-0.074	0.040	-0.075	0.047	0.071	-0.041	0.090	PK*AttAD
PK*AttNAD	0.064	-0.077	0.047	0.175	0.044	0.146	0.036	-0.056	0.071	0.001	-0.082	-0.089	-0.014	PK*AttNAD

	Similarity	EntryMode	Cs	ADs	NADs	AttADs	AttNADs	PriorKnow	PK*C	PK*AD	PK*NAD	PK*AttAD	PK*AttNAD	
Likely														Likely
AgeEntry														AgeEntry
Gender														Gender
Age														Age
Education														Education
Work Exp														Work Exp
Country Born														Country Born
Industry														Industry
Firm Age														Firm Age
FTE_In														FTE_In
Sales_In														Sales_In
Std/Cust														Std/Cust
IntlSalesDep														IntlSalesDep
Similarity	1													Similarity
EntryMode	0.137*	1												EntryMode
Cs	0.332***	-0.075	1											Cs
ADs	-0.152**	-0.154**	0.148*	1										ADs
NADs	-0.124*	-0.040	0.036	0.309***	1									NADs
AttADs	0.233**	-0.012	0.653***	0.059	0.011	1								AttADs
AttNADs	0.254***	-0.025	0.508***	-0.196**	-0.003	0.374***	1							AttNADs
PriorKnow	0.313***	0.214***	0.378***	0.204***	0.134*	0.301***	0.181*	1						PriorKnow
PK*C	0.045	-0.059	0.411***	0.089	-0.007	0.135	0.059	0.230***	1					PK*C
PK*AD	0.001	-0.131*	0.095	0.155**	0.074	-0.130	-0.065	0.105	0.241***	1				PK*AD
PK*NAD	-0.177**	-0.072	-0.009	0.090	0.149*	-0.053	0.001	-0.065	-0.057	0.244***	1			PK*NAD
PK*AttAD	0.018	0.103	0.208**	-0.135	0.006	0.152	0.032	0.043	0.691***	0.032	-0.041	1		PK*AttAD
PK*AttNAD	0.026	0.051	0.088	-0.059	0.036	0.029	-0.042	0.054	0.327***	-0.347***	0.046	0.284***	1	PK*AttNAD

*** p≤.01 ** p≤.05 * p≤.10

Similarity and likelihood of selection. Table 5.3 below summarizes the effects of the independent and moderator variables on likelihood of international opportunity selection. I included the control variable perceived similarity in Table 5.3 for three reasons. First, participants rated perceived similarity for each of their nine country evaluations. Second, it allowed me to show the effects of a subjective measure of similarity (perceived similarity) as compared with the effects of the independent variables (an implicit measure of similarity). Last, I included perceived similarity because it allowed for a conservative test of the hypotheses by demonstrating effects of the IVs above and beyond the effects of perceived similarity.

Table 5.3: Summary of Effects of IVs and Moderators on Likelihood of International Opportunity Selection

<u>Model 1: Participant Controls</u>				<u>Model 2: Individual And Firm Controls</u>				<u>Model 3: Only Controls Correlated with the DV</u>			
	B		SE		B		SE		B		SE
PercSim	0.400	***	0.100	PercSim	0.267	**	0.106	PercSim	0.298	***	0.098
Cs	0.181	***	0.036	Cs	0.168	***	0.038	Cs	0.148	***	0.037
ADs	-0.060		0.053	ADs	-0.106	*	0.058	ADs	-0.118	**	0.055
NADs	-0.238	***	0.070	NADs	-0.181	**	0.083	NADs	-0.239	***	0.078
PK	0.255	**	0.126	PK	0.321	**	0.135	PK	0.220	**	0.103
PK*C	-0.028	*	0.016	PK*C	-0.020		0.018	PK*C	-0.020		0.018
PK*AD	-0.009		0.029	PK*AD	-0.028		0.032	PK*AD	-0.043		0.030
PK*NAD	0.086	**	0.040	PK*NAD	0.093	**	0.048	PK*NAD	0.105	**	0.048
R^2	0.592			R^2	0.485			R^2	0.436		
Adjusted R^2	0.490			Adjusted R^2	0.381			Adjusted R^2	0.361		
F	5.835	***		F	4.667	***		F	5.785	***	
df	171			df	161			df	161		
ΔR^2	0.039			ΔR^2	0.044			ΔR^2	0.047		

*** p≤.01

** p≤.05

* p≤.10

All three sets of analyses showed that commonalities positively impacted likelihood of international opportunity selection while nonalignable differences negatively impacted likelihood of selection. The effect of alignable differences on likelihood of selection was more equivocal, with the significance of ADs increasing as number of control variables was reduced in each model from Model 1 to Model 3. The signs of all three independent variables were in the proper direction predicted by Hypothesis 1. In terms of the actual effects, an increase of 5.52 commonalities between the U.S. and the international opportunity evaluated increased the likelihood of selecting that opportunity by 1 point on a 7-point scale. In other words, an increase in the number of commonalities resulted in an increased likelihood of opportunity selection. A decrease of 16.67 ADs and a decrease of 4.20 NADs each increased the likelihood of selection by 1 point, which meant that fewer differences increased the likelihood of selection. Furthermore, the effects of Cs, ADs, and NADs in Table 5.3 reflected their impact on

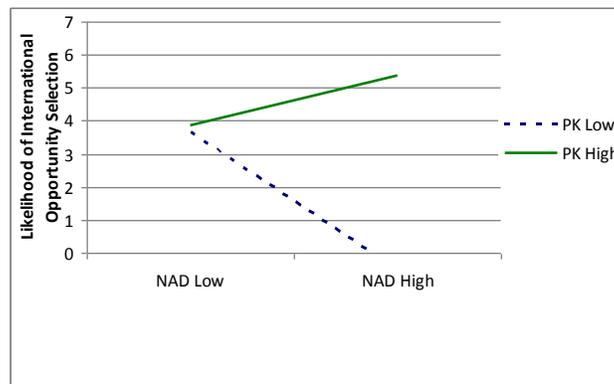
likelihood of international opportunity selection *above and beyond* the effect of each participant's perceived similarity between the international opportunity and the U.S. Further, these effects were robust across the inclusion of different sets of control variables as shown in Table 5.3. In total, these effects provided support for Hypothesis 1 that similarity, as measured by the number of Cs, ADs, and NADs, positively impacted the likelihood of entrepreneurs' international opportunity selection.

Hypothesis 7a predicted a negative interaction between the effects of prior international knowledge and similarity, such that the positive effect of similarity between the home country and the international opportunity on the propensity to select an international opportunity is smaller when there is an increase in prior international knowledge. The results listed in Table 5.3 show that there was a direct and positive impact of prior knowledge on likelihood of selection such that an increase in prior knowledge by 4 points (on a 7-point scale) increased the likelihood of international opportunity selection by 1 point. Furthermore, a significant interaction occurred between prior international knowledge and the number of NADs while no significant interactions occurred between the number of Cs and prior knowledge² and the number of ADs and prior knowledge. Figure 5.2 illustrates the interaction effect of prior international knowledge and the number of nonalignable differences on the likelihood of international opportunity selection. At low levels of prior knowledge, an increase in the number of NADs between the U.S. and the target market decreased the likelihood of selection, as predicted by the effect of similarity on likelihood of selection. However, at high levels of

² While Model 1 showed an interaction effect between Cs and prior knowledge on likelihood of selection, this effect was significant at only $p \leq .10$ and not robust across Models 2 and 3. There was also not a significant correlation between the C*PK interaction term and likelihood of selection, further indicating that this was not a significant effect.

prior international knowledge, an increase in NADs between the U.S. and the international opportunity resulted in an increase in the likelihood of selection, in contrast to the effects of similarity on likelihood of selection. As predicted by H7a, the interaction of prior knowledge and similarity resulted in a reduced impact of similarity on opportunity selection as an increase in prior knowledge did not increase the use of Cs and ADs in likelihood of selection but did result in an effect where more NADs increased the likelihood of selection.

Figure 5.2: Interaction of Prior International Knowledge and Number of NADs on Likelihood of International Opportunity Selection



Similarity and age at international entry. Table 5.4 below summarizes the effects of the independent variables and moderating variables on the age at international entry across the three sets of analyses.

Like the analyses on likelihood of selection, the number of commonalities also consistently predicted age at international entry. An increase of 7.41 commonalities decreased the age at entry by 1 point on a 7-point scale; in other words, an increase in commonalities led to faster internationalization. The number of ADs and NADs did not consistently predict age at entry across the three models. Again, these effects were *above and beyond* the effect of the participant's perceived similarity between the U.S. and the

international opportunity evaluated and were robust across different sets of control variables. These results partially supported Hypothesis 2. Commonalities contributed the most to entrepreneurs' similarity considerations, and commonalities strongly predicted age at entry. However, the lack of effects of ADs and NADs on age at entry limited full support for the prediction that an increase in similarity decreased age at entry. As expected, an increase in perceived similarity (a control variable) and an increase in prior international knowledge each led to an earlier age at international entry.

Table 5.4: Summary of Effects of IVs and Moderators on Age at International Entry

<u>Model 1: Participant Controls</u>				<u>Model 2: Individual And Firm Controls</u>				<u>Model 3: Only Controls Correlated with the DV</u>			
	B		SE		B		SE		B		SE
PercSim	-0.224	***	0.068	PercSim	-0.231	***	0.086	PercSim	-0.244	***	0.083
Cs	-0.135	***	0.023	Cs	-0.080	***	0.030	Cs	-0.073	**	0.031
ADs	-0.049		0.035	ADs	0.052		0.046	ADs	0.085	*	0.046
NADs	0.045		0.046	NADs	0.011		0.065	NADs	0.069		0.066
PK	-0.227	***	0.082	PK	-0.386	***	0.108	PK	-0.150	*	0.085
PK*C	0.022	**	0.011	PK*C	0.004		0.014	PK*C	0.001		0.015
PK*AD	-0.009		0.019	PK*AD	-0.003		0.025	PK*AD	-0.004		0.025
PK*NAD	0.011		0.026	PK*NAD	-0.036		0.039	PK*NAD	-0.054		0.041
R^2	0.736			R^2	0.507			R^2	0.396		
Adjusted R^2	0.668			Adjusted R^2	0.408			Adjusted R^2	0.320		
F	10.834	***		F	5.105	***		F	5.211	***	
df	171			df	161			df	161		
ΔR^2	0.022			ΔR^2	0.050			ΔR^2	0.021		

*** p≤01

** p≤05

* p≤10

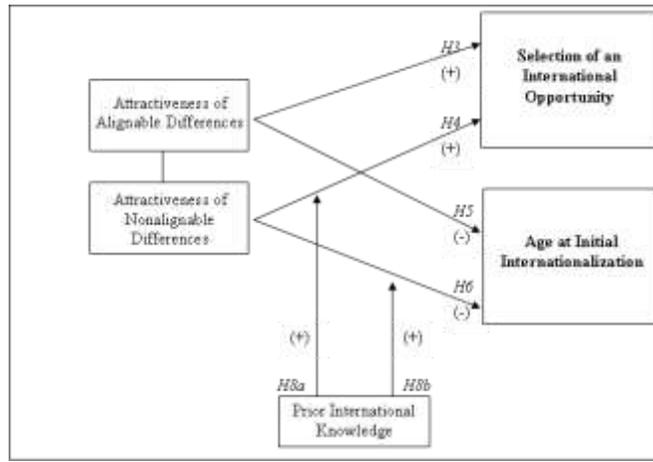
Hypothesis 7b predicted a positive interaction between the effects of prior international knowledge and similarity such that the inverse relationship between similarity between the home country and the international opportunity on the age at initial international entry was larger when there was an increase in prior international knowledge. Although commonalities and prior international knowledge directly

impacted age at entry, I observed no interaction effect. Alternate analyses using years of prior international experience also showed no interaction effects. Therefore, I found no support for H7b.

One interesting result from the analyses was the difference in the effects of firm and individual characteristics on likelihood of selection and age at entry. The number of significant participant dummies rose from a maximum of 9 (of 18) in analyses on likelihood of selection to all 18 participant dummies significantly predicting the DV in analyses on age at entry. In addition, participant dummies explained 39.4% of the variance (R^2) in likelihood of selection but a much larger percentage (62.4%) of the variance explained (R^2) for age at entry. Specifically, individual characteristics gender, age, education, and work experience predicted age at entry with male respondents moving international slower and older respondents moving international more quickly. Increases in education and work experience also led to a later age at entry. Finally, firm characteristics also mattered. Firms with more standardized products moved international at an earlier age while firms that anticipated relying on international sales in the future also moved international at an earlier age. Only education and level of product customization influenced likelihood of selection with more education decreasing the likelihood of selection and more standardized products increasing the likelihood of selection. The greater influence of firm and individual characteristics identified in this study matches with the extant literature on age at international entry (*e.g.*, Oviatt and McDougall, 2005). I will return to this topic when I discuss the implications of my research in the next chapter.

Effects of attractiveness of ADs and NADs. In addition to the above hypotheses regarding similarity, additional hypotheses predicted the effects of the attractiveness of alignable and nonalignable differences on likelihood of international opportunity selection and age at international entry. Figure 5.3 summarizes these predictions.

Figure 5.3: Predicted Effects of Attractiveness of ADs and NADs



A review of correlations (see Table 5.2) provided initial evidence in support of Hypotheses 3 and 5 on the positive and negative effects, respectively, of attractiveness of alignable differences on likelihood of selection (0.314***) and age at entry (-0.173*) whereby as the attractiveness of ADs increase, likelihood of selection increases and age at entry decreases. A similar set of correlations provided early support for Hypotheses 4 and 6 on the effect of the attractiveness of nonalignable differences on likelihood of selection (0.334***) and age at entry (-0.218**).

Attractiveness of ADs and NADs and likelihood of selection. I summarize the effects of the number of attractive ADs and attractive NADs on the likelihood of international opportunity selection in Table 5.5 below. Tables 5.1.7 – 5.1.9 in Appendix 5.1 contain the full set of analyses, including all control variables.

Table 5.5: Summary of Effects of Attractiveness of IVs and Moderators on Likelihood of International Opportunity Selection

<u>Model 1: Participant Controls</u>				<u>Model 2: Individual And Firm Controls</u>				<u>Model 3: Only Controls Correlated with the DV</u>			
	B		SE		B		SE		B		SE
PercSim	0.436	***	0.120	PercSim	0.460	***	0.131	PercSim	0.426	***	0.124
Attractive ADs	0.145	**	0.073	Attractive ADs	0.084		0.080	Attractive ADs	0.117		0.078
Attractive NADs	0.343	***	0.105	Attractive NADs	0.229	**	0.116	Attractive NADs	0.206	*	0.121
PK	0.323	**	0.139	PK	0.383	**	0.156	PK	0.105		0.126
PK*AttAD	0.029		0.049	PK*AttAD	0.087	*	0.053	PK*AttAD	0.037		0.053
PK*AttNAD	-0.028		0.061	PK*AttNAD	0.015		0.070	PK*AttNAD	0.043		0.070
R^2	0.646			R^2	0.509			R^2	0.349		
Adjusted R^2	0.514			Adjusted R^2	0.375			Adjusted R^2	0.252		
F	4.883	***		F	3.792	***		F	3.568	***	
df	114			df	107			df	107		
ΔR^2	0.024			ΔR^2	0.051			ΔR^2	0.013		

*** p≤.01

** p≤.05

* p≤.10

In contrast to the predictions of H3, I found no consistent effect of attractiveness of ADs on likelihood of international opportunity selection. Interestingly, the only significant result was in the “participant controls” model which was the most conservative of the three models. Because this effect did not exist in the other two models, however, I cannot claim support for H3. By contrast, the models did show support for H4, that an increase in the number of attractive nonalignable differences increases likelihood of opportunity selection, as the regression coefficient was positive and significant across all three models. In the participant control model, an increase of 2.91 attractive nonalignable differences increased the likelihood of selecting an opportunity by 1 point on the 7-point scale meaning that more attractive differences increased the likelihood of international opportunity selection.

Hypothesis 8a posited that there was a positive interaction between the effects of prior international knowledge and the attractiveness of an opportunity’s nonalignable

differences such that the positive effect of the attractiveness of an opportunity's nonalignable differences with concurrent opportunities on the propensity to select an international opportunity was larger when there was an increase in prior international knowledge. In other words, an increase in prior knowledge should have strengthened the relationship between the number of attractive NADs and likelihood to select. Unfortunately, although prior international knowledge had a direct effect on increasing likelihood to select, I found no significant effect for the interaction term (PK*AttNAD) in any of the three models. Therefore, the results did not support H8a.

Attractiveness of ADs and NADs and age at entry. Table 5.6 below lists the effects of the number of attractive ADs and NADs on age at entry with the full set of tables provided in Appendix 5.1 (Tables 5.1.10 – 5.1.12). Similar to the results on likelihood of selection, although the most conservative model showed the predicted effect, I found no consistent effect of the number of attractive ADs on age at initial international entry. The participant model was also the only model to show an effect of the number of attractive NADs on age at initial international entry. Therefore, the pattern of effects demonstrated a lack of support for Hypotheses 5 (attractive ADs) and 6 (attractive NADs). Although an increase in prior international knowledge predicted a lower age at entry, the interaction term for prior knowledge and number of attractive NADs was also not significant, providing no support for Hypothesis 8b. As discussed earlier in the chapter, however, the key predictors of age at entry were individual and firm characteristics, not the numbers of ADs or NADs that participants considered in their verbalized reasonings.

Table 5.6: Summary of Effects of Attractiveness of IVs and Moderators on Age at Initial International Entry

Model 1: Participant Controls			Model 2: Individual And Firm Controls			Model 3: Only Controls Correlated with the DV					
	B	SE		B	SE		B	SE			
PercSim	-0.266	***	0.077	PercSim	-0.407	***	0.108	PercSim	-0.260	**	0.104
Attractive ADs	-0.107	**	0.047	Attractive ADs	-0.004		0.067	Attractive ADs	0.007		0.066
Attractive NADs	-0.241	***	0.067	Attractive NADs	-0.045		0.098	Attractive NADs	-0.106		0.102
PK	-0.172	**	0.090	PK	-0.390	***	0.131	PK	-0.092		0.103
PK*AttAD	0.055	*	0.031	PK*AttAD	-0.018		0.044	PK*AttAD	-0.035		0.045
PK*AttNAD	0.004		0.039	PK*AttNAD	-0.028		0.059	PK*AttNAD	-0.023		0.060
R^2	0.793			R^2	0.486			R^2	0.314		
Adjusted R^2	0.718			Adjusted R^2	0.353			Adjusted R^2	0.219		
F	10.592	***		F	3.651	***		F	3.309	***	
df	113			df	107			df	107		
ΔR^2	0.02			ΔR^2	0.056			ΔR^2	0.014		

*** p≤.01

** p≤.05

* p≤.10

Summary of Study 1 Results. Study 1 tested all of the hypotheses described in Chapter III. In support of the baseline propositions of this dissertation, I found that structural alignment and cognitive comparisons mattered when entrepreneurs made internationalization decisions. Commonalities, in particular, drove decisions on both DVs: the opportunities entrepreneurs selected and when they decided to exploit these opportunities. Consistent with structural alignment theory and cognitive comparisons, entrepreneurs listed more Cs than ADs and more ADs than NADs in their verbalized reasonings. Interestingly, and in contrast to the predictions specified in Hypotheses 1-8, nonalignable differences impacted entrepreneurs' decisions more so than alignable differences. Similarity also mattered a great deal as perceived similarity significantly predicted internationalization decisions in all models, and similarity based on the number of Cs, ADs, and NADs between the home and target markets strongly shaped internationalization decisions.

As discussed in Chapter III, prior international knowledge powerfully influenced internationalization decisions, but in Study 1, these effects were direct and generally did not moderate the impact of similarity or attractiveness of ADs and NADs on internationalization decisions. However, prior knowledge did moderate the effects of NADs on opportunity selection.

Finally, Study 1 demonstrated that different factors impacted how entrepreneurs made the decision on where to internationalize as opposed to decisions on when to internationalize. While a broad range of cognitive factors (Cs, ADs, and NADs) affected entrepreneurs' decisions on international opportunity selection, firm and individual characteristics along with commonalities drove entrepreneurs' decisions on age at initial international entry. Table 5.7 below summarizes the support, partial support, or lack of support for each of the hypotheses tested.

Table 5.7: Summary of Results for Study 1 – Verbal Protocols

Direct Effects of Similarity (home country ↔ international opportunity similarity comparison)				
Hypothesis	IV	Prediction	DV	Study 1 Results
1	Similarity	(+)	Likelihood of Selection	Supported
	Cs	(+)	Likelihood of Selection	Supported
	ADs	(-)	Likelihood of Selection	Supported
	NADs	(-)	Likelihood of Selection	Supported
2	Similarity	(-)	Age at Entry	Partial Support
	Cs	(-)	Age at Entry	Supported
	ADs	(+)	Age at Entry	Not Supported
	NADs	(+)	Age at Entry	Not Supported
Direct Effects of Attractiveness of Differences (option ↔ option comparison)				
Hypothesis	IV	Prediction	DV	Study 1 Results
3	Attractiveness of ADs	(+)	Likelihood of Selection	Not Supported
4	Attractiveness of NADs	(+)	Likelihood of Selection	Supported
5	Attractiveness of ADs	(-)	Age at Entry	Not Supported
6	Attractiveness of NADs	(-)	Age at Entry	Not Supported
Moderating Effects of Prior International Knowledge				
Hypothesis	IV	Prediction	DV	Study 1 Results
7a	Similarity * PK	(-)	Likelihood of Selection	Supported
7b	Similarity * PK	(+)	Age at Entry	Not Supported
8a	AttractiveNADs * PK	(+)	Likelihood of Selection	Not Supported
8b	AttractiveNADs * PK	(+)	Age at Entry	Not Supported
Foundational Proposition				
Hypothesis	IV	Prediction	DV	Study 1 Results
P0a	Structural Alignment & Cognitive Comparisons	(+)	Likelihood of Selection	Partial Support
P0b	Structural Alignment & Cognitive Comparisons	(+)	Age at Entry	Partial Support

Study 2 Results

Study 2 also tested all eight hypotheses developed in Chapter III. In contrast to Study 1's focus on potential internationalization decisions, the online survey and secondary data collection effort provided information on the *actual* first market entry decision for 105 firms. Table 5.8 lists the descriptive statistics for the dependent, independent, moderator, control, and interaction variables used to test this dissertation's hypotheses. The data presented in Table 5.8 reflect non-centered variables. The respondents included 75 men and 20 women, and 12 respondents born outside the United States (9 men and 3 women). The average respondent had at least some college education (Associate's Degree), was between 40-50 years old, and was very experienced (over 20 years of work experience). These demographics made sense given that the study targets senior managers and founders of established firms. Respondents' firms averaged 48 employees and sales of US\$ 13,930,411. The bulk of the responding firms manufactured products (48) with the remaining firms participating in agricultural products (8), trade (20), and services (24). In addition, the average firm had a fairly high level of knowledge intensity with a mean of 17.64 out of 24 possible points. This was not surprising given that the study targeted firms that have already internationalized, and extant research demonstrates that firms with greater knowledge intensity are more likely to internationalize (Bloodgood, Sapienza, and Almeida, 1996).

Table 5.9 below provides the correlation matrix for all of the control, independent, dependent, moderators, and interaction terms in Study 2.

Table 5.8: Descriptive Statistics for Study 2 – Survey

	N	Range	Min	Max	Mean	Std. Dev.	Variance
Dependent Variables							
Likely (logit)	105	2.8332	-4.6539	-1.8207	-2.987	1.1518	1.327
AgeEntry	101	92	0	92	20.18	21.672	469.668
Control Variables							
Gender	95	1	0	1	0.79	0.410	0.168
Age	98	5	1	6	3.84	1.173	1.375
Education	99	5	1	6	3.83	1.378	1.899
Work Experience	99	6	1	7	5.60	1.253	1.570
Country of Birth	99	1	0	1	0.12	0.328	0.108
Firm Age	101	93	2	95	28.95	22.681	514.448
Full Time Employees	96	300	0	300	47.98	73.062	5338.089
Sales (in US\$)*	85	250,000*	0	250,000*	13,930*	4.074E7	1.660E15
Return on Assets (ROA)	83	6	1	7	3.43	1.532	2.346
Knowledge Intensity	99	18	3	21	17.64	3.699	13.683
PercSim	101	6	1	7	4.14	2.045	4.181
Entry Mode	102	6	1	7	2.58	2.245	5.038
Independent Variables							
Commonalities	105	15	1	16	7.457	3.022	9.135
Alignable Differences	105	8	2	10	7.514	2.262	5.118
Nonalignable Differences	105	9	1	10	5.029	2.428	5.893
Attractive ADs	105	22	-9.17	12.82	0.000	4.637	21.503
Attractive NADs	100	48	15	63	43.89	8.546	73.028
Moderator Variable							
Prior Knowledge	101	6	1	7	2.51	1.301	1.692
Interaction Terms							
PK*C	99	81.45	-45.41	36.04	0.0309	9.588	91.935
PK*AD	99	71.27	-45.92	25.35	0.4060	7.827	61.263
PK*NAD	99	81.45	-30.85	50.60	-0.4377	9.462	89.537
PK*AttAD	99	310.72	-95.44	215.29	0.2749	59.333	3520.442
PK*AttNAD	99	67.24	-29.54	37.70	0.7051	10.131	102.644

* sales figures in thousands (000) of US\$

Table 5.9: Correlations for Study 2 – Survey

	Likely	AgeEntry	Firm Age	Sales_In	ROA	IND_ag	IND_trade	IND_services	Know.Int.	Age	Gender	Education	Work Exp	
Likely	1													Likely
AgeEntry	0.149	1												AgeEntry
Firm Age	0.178*	0.914***	1											Firm Age
Sales_In	0.093	0.186*	0.234**	1										Sales_In
ROA	-0.120	-0.048	-0.059	0.136	1									ROA
IND_ag	-0.146	-0.055	-0.052	0.256**	0.094	1								IND_ag
IND_trade	-0.049	-0.106	-0.155	-0.136	0.012	-0.149	1							IND_trade
IND_services	0.000	-0.280***	-0.301***	-0.163	0.165	-0.168*	-0.285***	1						IND_services
Know.Int.	0.144	0.078	0.123	0.146	0.143	0.000	-0.244**	0.203**	1					Know.Int.
Age	-0.145	-0.018	0.058	-0.024	-0.100	0.201**	-0.038	-0.129	-0.077	1				Age
Gender	-0.030	0.008	-0.053	0.111	0.085	0.064	-0.050	-0.023	0.059	0.147	1			Gender
Education	-0.038	-0.044	-0.016	0.262**	0.084	0.065	-0.157	0.192	-0.062	0.014	0.223**	1		Education
Work Exp	0.006	0.147	0.241**	0.248**	-0.079	0.126	0.002	-0.327***	-0.041	0.747***	0.073	-0.045	1	Work Exp
Country Born	-0.126	-0.254***	-0.269***	-0.089	-0.039	-0.104	0.120	0.294***	0.007	-0.105	-0.035	0.164	-0.152	Country Born
EntryMode	0.042	-0.010	0.065	0.306***	0.078	-0.016	-0.253**	0.212**	0.111	0.031	0.086	0.267***	0.092	EntryMode
Similarity	0.095	0.025	0.074	-0.014	0.007	-0.093	0.090	-0.088	0.010	0.100	0.120	0.209**	0.058	Similarity
Cs	0.378***	-0.047	0.093	0.261**	0.086	-0.050	-0.032	0.035	0.227**	-0.187*	-0.082	0.183*	-0.127	Cs
ADs	-0.612***	0.000	-0.072	-0.077	0.118	0.073	-0.123	0.064	-0.026	0.163	0.149	-0.019	0.142	ADs
NADs	0.099	0.059	-0.049	-0.266**	-0.224**	-0.007	0.156	-0.105	-0.260***	0.079	-0.036	-0.210**	0.025	NADs
AttADs	-0.593***	-0.091	-0.089	-0.070	0.082	0.172*	0.026	-0.073	-0.089	0.146	-0.033	0.028	0.101	AttADs
AttNADs	0.049	-0.104	-0.028	0.094	-0.175	-0.149	-0.076	0.025	0.117	-0.166	-0.244**	0.053	-0.099	AttNADs
Prior Know.	-0.108	0.062	0.075	0.217	0.038	0.046	-0.091	0.130	0.015	0.039	0.120	0.473***	-0.173	Prior Know.
PK*C	0.021	-0.013	-0.060	-0.159	-0.023	-0.074	-0.026	-0.037	-0.110	0.019	-0.159	-0.130	0.023	PK*C
PK*AD	-0.014	0.044	0.105	0.187*	-0.003	0.020	-0.078	0.086	0.057	-0.026	0.065	0.124	-0.031	PK*AD
PK*NAD	-0.009	-0.023	-0.026	0.004	0.024	0.058	0.091	-0.034	0.063	0.003	0.104	0.028	0.003	PK*NAD
PK*AttAD	-0.134	0.045	0.052	0.178	0.044	0.055	-0.113	0.142	0.006	-0.034	0.144	0.441***	-0.180*	PK*AttAD
PK*AttNAD	-0.059	0.000	-0.011	-0.139	0.040	0.062	-0.149	0.099	-0.050	0.025	0.169	-0.095	-0.077	PK*AttNAD

	Country Born	EntryMode	Similarity	Cs	ADs	NADs	AttADs	AttNADs	Prior Know.	PK*C	PK*AD	PK*NAD	PK*AttAD	
Likely	1													Likely
AgeEntry	0.246**	1												AgeEntry
Firm Age	0.008	-0.183*	1											Firm Age
Sales_In	-0.039	0.169*	0.219**	1										Sales_In
ROA	0.042	0.108	-0.244**	-0.611***	1									ROA
IND_ag	0.011	-0.322***	-0.050	-0.675***	-0.171*	1								IND_ag
IND_trade	0.010	0.109	-0.375***	-0.454***	0.786***	-0.167*	1							IND_trade
IND_services	0.019	0.087	0.230**	0.349***	-0.030	-0.434***	-0.024	1						IND_services
Know.Int.	0.260**	0.149	0.287***	0.082	0.052	-0.155	0.007	0.104	1					Know.Int.
Age	-0.094	-0.132	-0.013	-0.162	0.162	0.057	0.108	0.097	-0.061	1				Age
Gender	-0.015	0.131	0.018	0.142	-0.061	-0.128	-0.011	-0.010	0.213**	-0.242***	1			Gender
Education	0.108	0.025	-0.002	0.047	-0.114	0.048	-0.100	-0.089	-0.115	-0.662***	-0.397**	1		Education
Work Exp	0.245**	0.149	0.266***	0.097	0.087	-0.213**	0.031	0.090	0.986***	-0.012	0.189*	-0.144	1	Work Exp
Country Born	-0.034	-0.011	0.013	0.130	0.053	-0.224**	0.012	-0.062	0.121	0.272**	-0.096	-0.196	0.287***	Country Born
EntryMode														EntryMode
Similarity														Similarity
Cs														Cs
ADs														ADs
NADs														NADs
AttADs														AttADs
AttNADs														AttNADs
Prior Know.														Prior Know.
PK*C														PK*C
PK*AD														PK*AD
PK*NAD														PK*NAD
PK*AttAD														PK*AttAD
PK*AttNAD														PK*AttNAD

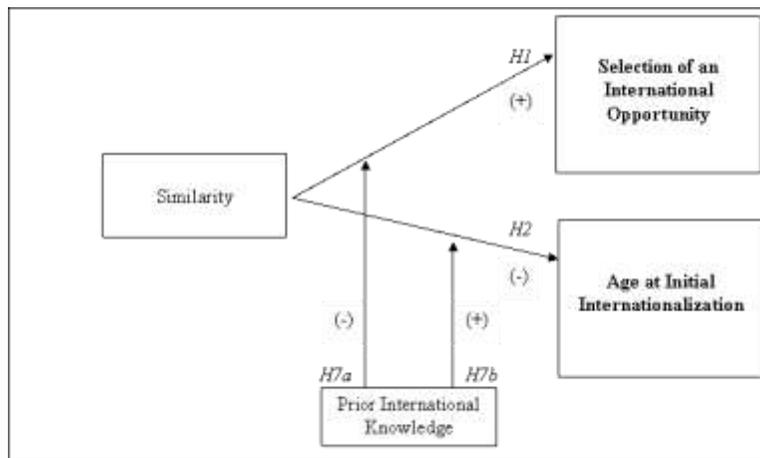
*** p≤.01

** p≤.05

* p≤.10

Effects of similarity. The first set of results centered on the hypothesized effects of similarity on each of the internationalization decisions: likelihood of international opportunity selection and age at initial international entry. Just as in Study 1, Study 2 measured similarity by the number of Cs, ADs, and NADs between the U.S. and the first market entered. Figure 5.1 below demonstrates the predicted effects.

Figure 5.1: Predicted Effects of Similarity



Similarity and likelihood of selection. As described in Chapter IV, all three independent variables (number of Cs, ADs, and NADs) cannot be entered into the same regression equation. However, by analyzing the individual effects of each IV as well as the effects of each IV when entered with each of the other IVs, a specific pattern emerged. Table 5.10 lists the correlation of each IV with likelihood of international opportunity selection, the regression coefficient (B) when entered by itself (but after the control variables), and the change in variance explained (R^2) that resulted from entering each independent variable after the control variables. Table 5.11 summarizes the effects of each independent variable on likelihood of international opportunity selection when

entered with each of the other IVs. Appendix 5.2 contains the full set of regression results.

**Table 5.10: Summary of Effects of IVs on DV:
Likelihood of International Opportunity Selection**

Independent Variable	r_{12}		B		ΔR^2
Commonalities (Cs)	0.378	***	0.077	***	0.076
Alignable Differences (ADs)	-0.612	***	-0.165	***	0.316
Nonalignable Differences (NADs)	0.099		0.025		0.000

*** $p \leq .01$ ** $p \leq .05$ * $p \leq .10$

**Table 5.11: Summary of Effects of IVs on DV:
Likelihood of International Opportunity Selection**

Independent Variable	B (alone)		B (with C)		B (with AD)		B (with NAD)	
Commonalities (Cs)	0.077	***	---		-0.030		0.180	***
Alignable Differences (ADs)	-0.165	***	-0.210	***	---		-0.180	***
Nonalignable Differences (NADs)	0.025		0.210	***	0.030		---	

*** $p \leq .01$ ** $p \leq .05$ * $p \leq .10$

The above tables show a consistent pattern of effects. The number of commonalities positively and significantly correlated with likelihood of selection. The regression coefficient for the number of Cs was significant (when entered alone), and the number of C's explained 7.6% of the variance in likelihood of selection. When considering the effect of the number of Cs along with the number ADs and NADs, the regression coefficient was positive and significant except when entered with ADs (Table 5.11). I found an even more consistent pattern for the number of ADs. The number of ADs strongly and negatively correlated with likelihood of selection, had a consistent significant and negative regression coefficient in all models (Tables 5.10 and 5.11), and explained a very large percentage (31.6%) of the variance in likelihood of selection. In contrast to the number of ADs, the number of NADs showed a consistent pattern of nonsignificance in correlation and regression analyses. The overall pattern of effects

demonstrated that the number of Cs positively predicted likelihood of selection, the number of ADs negatively predicted likelihood of selection, and the number of NADs was insignificant predictors of likelihood of selection. These effects supported Hypothesis 1 on the effect of similarity on likelihood of international opportunity selection.

Table 5.12 below lists the effects of each independent variable, the moderator variable prior international knowledge, and the interaction terms on the likelihood of international opportunity selection. Surprisingly, prior international knowledge did not directly affect likelihood of selection, and none of the interaction terms were significant. Alternate analyses using a reduced set of controls following Becker (2005) increased degrees of freedom but showed no substantial difference in results. Additional analyses using years of international experience as the moderating variable also did not produce different results from Table 5.12. Therefore, I found no support for H7a on the moderating effect of prior international knowledge on the relationship between similarity and likelihood of international opportunity selection.

Table 5.12: Summary of Direct and Moderation Effects on Likelihood of International Opportunity Selection

Model 1: Cs and ADs			Model 2: Cs and NADs			Model 3: ADs and NADs					
	B	SE		B	SE		B	SE			
Constant	-1.615	***	0.175	Constant	-1.615	***	0.175	Constant	-1.615	***	0.175
Firm Age	0.002		0.003	Firm Age	0.002		0.003	Firm Age	0.002		0.003
FirmSales(ln)	-0.022		0.021	FirmSales(ln)	-0.022		0.021	FirmSales(ln)	-0.022		0.021
ROA	-0.018		0.042	ROA	-0.018		0.042	ROA	-0.018		0.042
IND_Ag	-0.236		0.298	IND_Ag	-0.236		0.298	IND_Ag	-0.236		0.298
IND_Trade	-0.027		0.173	IND_Trade	-0.027		0.173	IND_Trade	-0.027		0.173
IND_Service	0.136		0.190	IND_Service	0.136		0.190	IND_Service	0.136		0.190
KnowIntens.	0.002		0.019	KnowIntens.	0.002		0.019	KnowIntens.	0.002		0.019
Age	-0.124		0.083	Age	-0.124		0.083	Age	-0.124		0.083
Gender	0.296		0.189	Gender	0.296		0.189	Gender	0.296		0.189
Education	0.003		0.056	Education	0.003		0.056	Education	0.003		0.056
Work Exp	0.164	*	0.084	Work Exp	0.164	*	0.084	Work Exp	0.164	*	0.084
Country Born	-0.339		0.275	Country Born	-0.339		0.275	Country Born	-0.339		0.275
Entry Mode	0.048		0.036	Entry Mode	0.048		0.036	Entry Mode	0.047		0.036
PercSim	-0.022		0.039	PercSim	-0.022		0.039	PercSim	-0.022		0.039
Cs	-0.035		0.031	Cs	0.188	***	0.035	ADs	-0.188	***	0.035
ADs	-0.223	***	0.048	NADs	0.223	***	0.048	NADs	0.035		0.031
PK	0.020		0.064	PK	0.020		0.064	PK	0.020		0.064
PK*C	0.010		0.008	PK*C	0.010		0.009	PK*AD	-0.010		0.009
PK*AD	0.000		0.008	PK*NAD	0.000		0.008	PK*NAD	-0.010		0.008
R^2	0.515			R^2	0.515			R^2	0.515		
Adjusted R^2	0.328			Adjusted R^2	0.328			Adjusted R^2	0.328		
F	2.743	***	8	F	2.743	***		F	2.743	***	
df	68			df	68			df	68		
ΔR^2	0.020			ΔR^2	0.020			ΔR^2	0.020		

*** p≤.01

** p≤.05

* p≤.10

Similarity and age at international entry. The analyses for the effects of similarity on age at initial international entry followed the same process described above. Neither tables 5.13 and 5.14 below show significant correlations or regression coefficients for the number of Cs, ADs, or NADs in predicting the dependent variable age at initial international entry, indicating no support for H2.

Table 5.13: Summary of Effects of IVs on DV: Age at Initial International Entry

Independent Variable	r_{12}	B	ΔR^2
Commonalities (Cs)	-0.047	-0.609	0.006
Alignable Differences (ADs)	0.000	-0.186	0.001
Nonalignable Differences (NADs)	0.059	1.193	0.013

*** p≤.01 ** p≤.05 * p≤.10

Table 5.14: Summary of Effects of IVs on DV: Age at Initial International Entry

Independent Variable	B (alone)	B (with C)	B (with AD)	B (with NAD)
Commonalities (Cs)	-0.609	---	-1.187	0.064
Alignable Differences (ADs)	-0.186	-1.251	---	-0.064
Nonalignable Differences (NADs)	1.193	1.251	1.187	---

*** p≤.01 ** p≤.05 * p≤.10

Table 5.15 displays the results of regression analyses of the moderating effect of prior international knowledge on the relationship between similarity and age at initial international entry. None of the interaction terms nor the direct effect of prior international knowledge were significant. Additional analyses using limited control variables and years of international experience instead of prior knowledge yielded similar results. I found no support for Hypothesis 7b on the moderating effect of prior international knowledge on the relationship between similarity and age at entry.

**Table 5.15: Summary of Direct and Moderation Effects
on Age at Initial International Entry**

Model 1: Cs and ADs			Model 2: Cs and NADs			Model 3: ADs and NADs					
	B	SE		B	SE		B	SE			
Constant	20.817	***	7.577	Constant	20.816	***	7.577	Constant	20.816	***	7.578
FirmSales(ln)	0.278		0.902	FirmSales(ln)	0.278		0.902	FirmSales(ln)	0.278		0.902
ROA	-0.927		1.958	ROA	-0.927		1.958	ROA	-0.927		1.958
IND_Ag	-16.393		14.129	IND_Ag	-16.393		14.129	IND_Ag	-16.393		14.129
IND_Trade	-7.885		7.712	IND_Trade	-7.884		7.712	IND_Trade	-7.884		7.712
IND_Service	-14.424	*	8.118	IND_Service	-14.424	*	8.117	IND_Service	-14.424	*	8.117
KnowIntens.	0.489		0.802	KnowIntens.	0.490		0.802	KnowIntens.	0.490		0.802
Age	-4.256		4.095	Age	-4.256		4.095	Age	-4.256		4.095
Gender	9.634		8.839	Gender	9.634		8.839	Gender	9.634		8.839
Education	-0.427		2.644	Education	-0.426		2.644	Education	-0.426		2.644
Work Exp	3.511		4.022	Work Exp	3.512		4.022	Work Exp	3.511		4.022
Country Born	-21.650	*	11.767	Country Born	-21.650	*	11.767	Country Born	-21.649	*	11.767
Entry Mode	-1.377		1.581	Entry Mode	-1.377		1.581	Entry Mode	-1.377		1.581
PercSim	-3.221	*	1.815	PercSim	-3.222	*	1.815	PercSim	-3.222	*	1.815
Cs	-1.606		1.375	Cs	0.635		1.563	ADs	-0.635		1.563
ADs	-2.242		2.061	NADs	2.242		2.061	NADs	1.606		1.375
PK	2.745		2.873	PK	2.745		2.873	PK	2.745		2.873
PK*C	0.000		0.338	PK*C	-0.130		0.372	PK*AD	0.130		0.372
PK*AD	0.129		0.348	PK*NAD	-0.129		0.348	PK*NAD	0.001		0.338
R^2	0.271			R^2	0.271			R^2	0.271		
Adjusted R^2	-0.027			Adjusted R^2	-0.027			Adjusted R^2	-0.027		
F	0.911			F	0.911			F	0.911		
df	62			df	62			df	62		
ΔR^2	0.037			ΔR^2	0.037			ΔR^2	0.037		

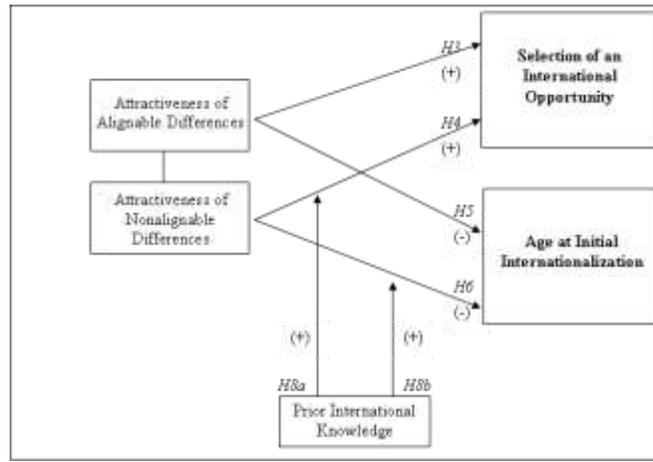
*** p≤.01

** p≤.05

* p≤.10

Effects of attractiveness of ADs and NADs. The remaining hypotheses focused on the effects of the attractiveness of alignable and nonalignable differences on the likelihood of selection of an international opportunity and age at initial international entry. Figure 5.3 summarizes these predicted effects.

Figure 5.3: Predicted Effects of Attractiveness of ADs and NADs



Attractiveness of ADs and NADs and likelihood of selection. Table 5.16 below presents the regression results for the analyses on attractiveness of ADs and NADs on likelihood of international opportunity selection. The smaller the distance between the U.S. and the first market entered, the more attractive the market. Therefore, the significant and negative coefficient for attractiveness of alignable differences means that as the distance between countries decreased (attractiveness increased), the likelihood of opportunity selection increased. This supported Hypothesis 3.

Table 5.16: Attractiveness of ADs and NADs on Likelihood of International Opportunity Selection

Model 1: Control Variables			Model 2: Independent Variables			Model 3: Moderator Variables					
	B	SE		B	SE		B	SE			
Constant	-1.422	***	0.212	Constant	-1.703	***	0.526	Constant	-1.664	***	0.569
Firm Age	0.004		0.004	Firm Age	0.003		0.004	Firm Age	0.003		0.004
FirmSales(ln)	-0.048	**	0.024	FirmSales(ln)	-0.037	*	0.021	FirmSales(ln)	-0.035		0.022
ROA	-0.034		0.052	ROA	-0.018		0.047	ROA	-0.020		0.048
IND_Ag	-0.102		0.362	IND_Ag	0.331		0.353	IND_Ag	0.270		0.385
IND_Trade	0.019		0.209	IND_Trade	0.192		0.184	IND_Trade	0.167		0.195
IND_Service	0.082		0.233	IND_Service	0.131		0.197	IND_Service	0.140		0.208
KnowIntens.	0.001		0.022	KnowIntens.	0.003		0.019	KnowIntens.	0.000		0.020
Age	-0.189	*	0.102	Age	-0.147		0.097	Age	-0.138		0.101
Gender	-0.009		0.220	Gender	-0.260		0.198	Gender	-0.247		0.209
Education	0.010		0.060	Education	0.076		0.055	Education	0.076		0.063
Work Exp	0.124		0.100	Work Exp	0.167	*	0.092	Work Exp	0.159		0.098
Country Born	-0.241		0.306	Country Born	-0.212		0.259	Country Born	-0.202		0.283
Entry Mode	0.059		0.043	Entry Mode	0.054		0.037	Entry Mode	0.055		0.039
PercSim	0.063		0.043	PercSim	-0.007		0.043	PercSim	-0.004		0.046
				Attractive ADs	-0.100	***	0.017	Attractive ADs	-0.097	***	0.018
				Attractive NADs	0.010		0.010	Attractive NADs	0.009		0.011
								PK	-0.013		0.068
								PK*AttAD	-0.003		0.008
								PK*AttNAD	-0.003		0.008
R^2	0.179			R^2	0.469			R^2	0.484		
Adjusted R^2	-0.030			Adjusted R^2	0.324			Adjusted R^2	0.273		
F	0.855			F	2.889	***		F	2.293	**	
df	69			df	63			df	62		
ΔR^2				ΔR^2	0.290			ΔR^2	0.015		

*** p≤.01

** p≤.05

* p≤.10

Attractiveness of NADs did not significantly predict likelihood of selection, providing no support for H4. Table 5.16 also showed no direct effect of prior international knowledge or an interaction effect of prior international knowledge on the relationship between attractive NADs and likelihood of international opportunity selection demonstrating no support for H8a in Study 2.

Attractiveness of ADs and NADs and age at entry. Table 5.17 below displays the regression results for the attractiveness of ADs and NADs on age at international entry. Attractiveness of ADs did not significantly influence age at entry, providing no support for H5. However, attractive NADs did predict age at entry in the predicted direction. The more attractive the NADs, the earlier a firm entered international markets, which supported Hypothesis 6. Finally, prior international knowledge and the interaction effects did not significantly impact age at entry in Study 2, offering no support for H8b. I ran additional models using limited control variables and also substituting international experience for prior international knowledge. These analyses showed no significant differences from the analyses presented in Table 5.17.

**Table 5.17: Attractiveness of ADs and NADs on
Age at Initial International Entry**

Model 1: Control Variables			Model 2: Independent Variables			Model 3: Moderator Variables					
	B	SE		B	SE		B	SE			
Constant	23.142	***	7.084	Constant	27.727	***	7.065	Constant	27.259	***	7.035
FirmSales(ln)	0.216		0.815	FirmSales(ln)	0.469		0.810	FirmSales(ln)	0.468		0.831
ROA	-1.188		1.896	ROA	-1.527		1.829	ROA	-1.491		1.817
IND_Ag	-11.619		13.418	IND_Ag	-18.302		13.545	IND_Ag	-23.049		14.069
IND_Trade	-6.947		7.250	IND_Trade	-6.692		7.070	IND_Trade	-7.653		7.181
IND_Service	-14.449	*	7.726	IND_Service	-14.420	*	7.439	IND_Service	-14.859	*	7.500
KnowIntens.	0.554		0.744	KnowIntens.	0.785		0.723	KnowIntens.	0.559		0.755
Age	-4.758		3.916	Age	-4.974		3.776	Age	-4.979		3.780
Gender	3.960		7.811	Gender	-0.893		7.769	Gender	1.796		7.894
Education	1.066		2.181	Education	1.481		2.133	Education	0.177		2.379
Work Exp	2.511		3.745	Work Exp	2.176		3.608	Work Exp	3.295		3.654
Country Born	-16.375		10.102	Country Born	-19.442	*	9.819	Country Born	-22.377	**	10.226
Entry Mode	-1.465		1.486	Entry Mode	-0.951		1.445	Entry Mode	-1.086		1.483
PercSim	-2.134		1.581	PercSim	-1.734		1.659	PercSim	-2.434		1.699
				Attractive ADs	-0.324		0.668	Attractive ADs	-0.295		0.697
				Attractive NADs	-0.857	**	0.386	Attractive NADs	-1.036	**	0.399
								PK	2.426		2.390
								PK*AttAD	0.052		0.058
								PK*AttNAD	0.000		0.329
R^2	0.221			R^2	0.308			R^2	0.361		
Adjusted R^2	0.019			Adjusted R^2	0.092			Adjusted R^2	0.120		
F	1.093			F	1.427			F	1.497		
df	63			df	63			df	62		
ΔR^2				ΔR^2	0.087			ΔR^2	0.053		

*** p≤01

** p≤05

* p≤10

Summary of Study 2 Results. Study 2 also tested all of the hypotheses described in Chapter III. In contrast to Study 1 (which highlighted potential internationalization decisions), Study 2 focused on the actual decisions made by international firms regarding their first international entry. The foundational proposition of this dissertation states that entrepreneurs select international opportunities and decide when to internationalize, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features. Study 2 provided evidence supporting this proposition as I found that similarity (H1) and attractiveness of alignable differences (H3) influenced the likelihood of selecting an international opportunity for a firm's first international entry. Furthermore, attractiveness of NADs (H6) played an important role in when firms made their first foray into international business.

Interestingly, Study 2 demonstrated no impact of prior international knowledge either as a direct effect on internationalization decisions or as a moderator on the relationships between similarity or attractiveness of ADs and NADs on internationalization outcomes. This surprising finding may have resulted from retrospective bias inherent in the survey methodology as respondents needed to remember their level of prior knowledge (or international experience) at the time of entry. Since some firms internationalized more than twenty years ago, retrospective bias due to inability to remember these details represented a potentially important limitation of the survey and Study 2. I will discuss this issue in more detail in the next chapter.

Study 2 also demonstrated that different cognitive factors mattered differently for different internationalization decisions. Similarity, specifically the number of Cs and ADs, and the attractiveness of ADs influenced entrepreneurs' decisions on where to

internationalize. In contrast, NADs, specifically the attractiveness of NADs, impacted entrepreneurs' decisions on when to first enter international markets. Finally, in contrast to the impact of control variables on age at entry, control variables in Study 2 did not consistently impact either DV. Table 5.18 above summarizes the results of Study 2.

Table 5.18: Summary of Results for Study 2 – Survey

Direct Effects of Similarity (home country ↔ international opportunity similarity comparison)				
Hypothesis	IV	Prediction	DV	Study 2 Results
1	Similarity	(+)	Likelihood of Selection	Supported
	Cs	(+)	Likelihood of Selection	Supported
	ADs	(-)	Likelihood of Selection	Supported
	NADs	(-)	Likelihood of Selection	Not Supported
2	Similarity	(-)	Age at Entry	Not Supported
	Cs	(-)	Age at Entry	Not Supported
	ADs	(+)	Age at Entry	Not Supported
	NADs	(+)	Age at Entry	Not Supported
Direct Effects of Attractiveness of Differences (option ↔ option comparison)				
Hypothesis	IV	Prediction	DV	Study 2 Results
3	Attractiveness of ADs	(+)	Likelihood of Selection	Supported
4	Attractiveness of NADs	(+)	Likelihood of Selection	Not Supported
5	Attractiveness of ADs	(-)	Age at Entry	Not Supported
6	Attractiveness of NADs	(-)	Age at Entry	Supported
Moderating Effects of Prior International Knowledge				
Hypothesis	IV	Prediction	DV	Study 2 Results
7a	Similarity * PK	(-)	Likelihood of Selection	Not Supported
7b	Similarity * PK	(+)	Age at Entry	Not Supported
8a	AttractiveNADs * PK	(+)	Likelihood of Selection	Not Supported
8b	AttractiveNADs * PK	(+)	Age at Entry	Not Supported
Foundational Proposition				
Hypothesis	IV	Prediction	DV	Study 2 Results
P0a	Structural Alignment & Cognitive Comparisons	(+)	Likelihood of Selection	Partial Support
P0b	Structural Alignment & Cognitive Comparisons	(+)	Age at Entry	Partial Support

Comparison of Results from Study 1 and Study 2

Table 5.19 compares the results from Study 1 and Study 2. Figure 5.4 at the end of the chapter also summarizes these results in graphical form. Bold lines indicate hypotheses supported by both PK studies. Hypotheses supported by one study but not the

other are partially supported, and I show these hypotheses with a regular line. Finally, a dotted line shows those hypotheses with no support in both studies.

Table 5.19: Summary of Results for Studies 1 and 2

Direct Effects of Similarity (home country ↔ international opportunity similarity comparison)					
Hypothesis	IV	Prediction	DV	Study 1 Results	Study 2 Results
1	Similarity	(+)	Likelihood of Selection	Supported	Supported
	Cs	(+)	Likelihood of Selection	Supported	Supported
	ADs	(-)	Likelihood of Selection	Supported	Supported
	NADs	(-)	Likelihood of Selection	Supported	Not Supported
2	Similarity	(-)	Age at Entry	Partial Support	Not Supported
	Cs	(-)	Age at Entry	Supported	Not Supported
	ADs	(+)	Age at Entry	Not Supported	Not Supported
	NADs	(+)	Age at Entry	Not Supported	Not Supported
Direct Effects of Attractiveness of Differences (option ↔ option comparison)					
Hypothesis	IV	Prediction	DV	Study 1 Results	Study 2 Results
3	Attractiveness of ADs	(+)	Likelihood of Selection	Not Supported	Supported
4	Attractiveness of NADs	(+)	Likelihood of Selection	Supported	Not Supported
5	Attractiveness of ADs	(-)	Age at Entry	Not Supported	Not Supported
6	Attractiveness of NADs	(-)	Age at Entry	Not Supported	Supported
Moderating Effects of Prior International Knowledge					
Hypothesis	IV	Prediction	DV	Study 1 Results	Study 2 Results
7a	Similarity * PK	(-)	Likelihood of Selection	Supported	Not Supported
7b	Similarity * PK	(+)	Age at Entry	Not Supported	Not Supported
8a	AttractiveNADs * PK	(+)	Likelihood of Selection	Not Supported	Not Supported
8b	AttractiveNADs * PK	(+)	Age at Entry	Not Supported	Not Supported
Foundational Proposition					
Hypothesis	IV	Prediction	DV	Study 1 Results	Study 2 Results
P0a	Structural Alignment & Cognitive Comparisons	(+)	Likelihood of Selection	Partial Support	Partial Support
P0b	Structural Alignment & Cognitive Comparisons	(+)	Age at Entry	Partial Support	Partial Support

Taken together, both studies showed the importance of similarity, and specifically the cognitive outputs of similarity consideration and comparisons. Because all results represented the effects of the components of similarity (number of Cs, ADs, and NADs) above and beyond the effect of an entrepreneur’s perceived similarity between the U.S. and an international opportunity, these findings on the importance of similarity on internationalization decisions were quite robust. These studies also showed that NADs may be more important in internationalization decisions than predicted in Chapter III, as

NADs had a significant influence on likelihood of selection in Study 1 and attractiveness of NADs significantly impacted likelihood of selection in Study 1 and age at entry in Study 2. Both studies found these effects of NADs despite there being fewer NADs ‘counted’ than Cs and ADs in each study. I will explore this idea and the implications of it in Chapter VI.

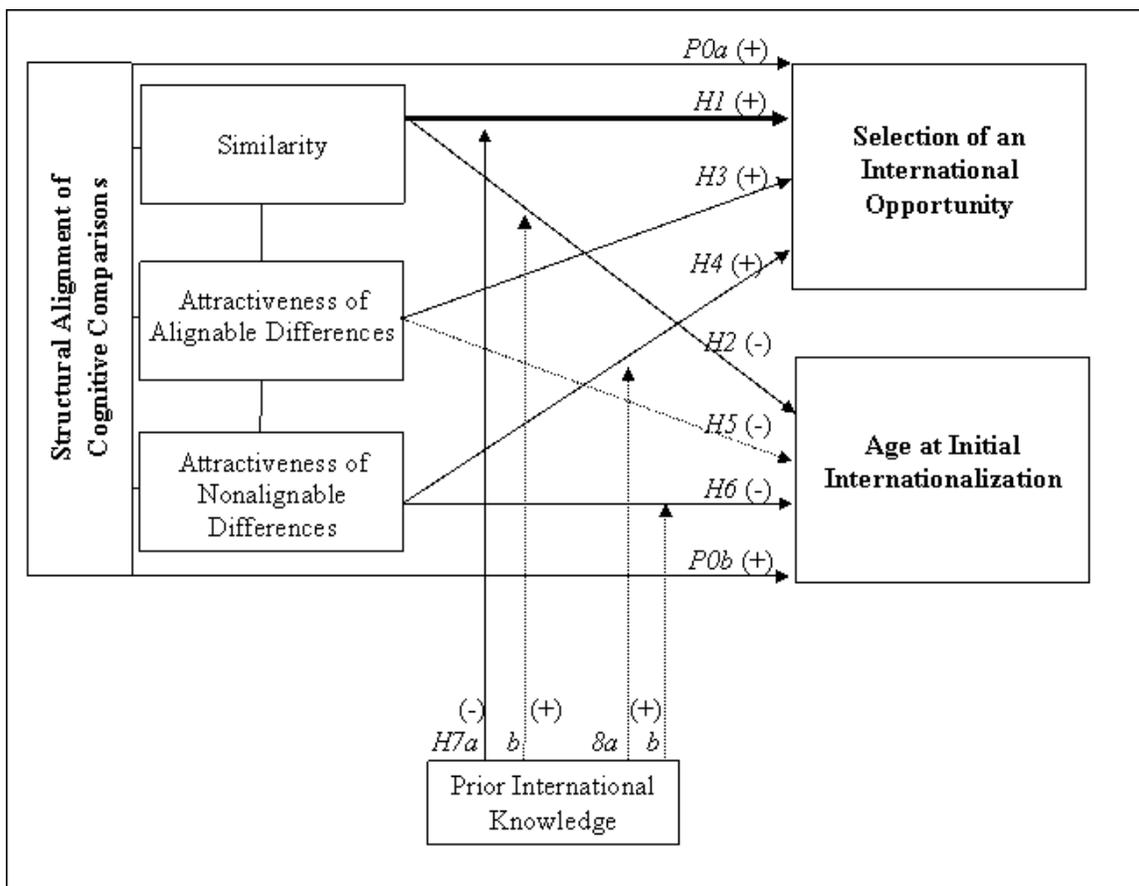
Finally, the two studies differed in the impact of prior international knowledge on internationalization decisions. Study 1 demonstrated a strong direct effect of prior international knowledge on both dependent variables as well as a significant moderating effect of prior international knowledge on the relationship between the number of NADs and likelihood of selection. In contrast to Study 1, Study 2 demonstrated no direct effects and no moderating effects of prior international knowledge. As discussed earlier in this Chapter, methodological considerations may have played a role in the difference between the studies. However, both studies showed no support for three of the four moderating hypotheses (H7b, H8a, and H8b) demonstrating that prior international knowledge did not influence internationalization decisions as predicted in Chapter III.

Chapter Summary

Chapter V described and explained the results of Study 1 and Study 2. Both studies tested all eight hypotheses developed in Chapter III in order to provide convergent evidence of the impact of similarity, attractiveness of ADs and NADs, and the moderating effect of prior international knowledge on likelihood of selection of international opportunities and age at initial international entry. The studies showed support for the importance of cognitive outputs from the two cognitive comparisons discussed in Chapter III: the comparison between the U.S. and international opportunities

and the comparison between international opportunities. The role of prior international knowledge remained somewhat equivocal, and the studies showed that different cognitive outputs mattered differently for each of the internationalization decisions studied in this dissertation. In the next Chapter, I discuss the theoretical and practical implications of these results.

Figure 5.4: Summary of Results on Dissertation Model from Studies 1 and 2



Bold lines = supported by both studies; Regular line = partial support; Dotted line = not supported in both studies

CHAPTER VI

DISCUSSION AND CONCLUSION

Chapter Overview

Chapter VI discusses the research contributions and practical implications of this dissertation. Building on these discussions, the Chapter outlines avenues for future research in the fields of International Entrepreneurship, International Business, Entrepreneurship, and Strategic Management.

Chapter VI begins with a review of the contributions and implications for the foundational proposition of this dissertation (P0a, P0b) and for each set of hypotheses on similarity (H1, H2), attractiveness of alignable differences (H3, H5), attractiveness of nonalignable differences (H4, H6), and the role of prior international knowledge (H7a, H7b, H8a, H8b). The Chapter then discusses direct extensions of the dissertation's model, as well as limitations and strengths of this research. Next, Chapter VI reviews contributions to relevant academic fields, including extensions of this dissertation to fields beyond research on international opportunity selection and age at entry. This section of the Chapter also highlights implications for entrepreneurs, managers, education, and policy. The Chapter concludes by demonstrating how this dissertation meets the research objectives presented in Chapter I.

General Discussion

In order to best understand the contributions, implications, and extensions of this dissertation, this first section of Chapter VI reviews the results observed in the dissertation's two empirical studies regarding the effects of the model's key variables on

entrepreneurs' internationalization decisions. This approach highlights the importance of each of the two key cognitive comparisons that underpin entrepreneurs' internationalization decisions – namely, the similarity comparison between the home country and a potential international opportunity and the comparison between potential international opportunities.

Propositions 0a and 0b: the dissertation's foundational propositions. In this dissertation's foundational propositions, I state that entrepreneurs select international opportunities and decide when to exploit an opportunity, in part, through cognitive comparison processes whereby they align relevant aspects of countries and their features. I find support for these foundational propositions in two ways.

First, the results for Hypotheses 1-8 provide evidence of the effect of these cognitive comparison processes on the two key internationalization decisions studied in this dissertation. All in all, at least one of the two studies discussed in Chapters IV and V demonstrates significant results for six of the ten hypotheses. Results for Hypotheses 1 and 2 (on Cs, ADs, and NADs) show that similarity comparisons between home and host country influence entrepreneurs' selection of international opportunities (H1), and entrepreneurs' decisions regarding the timing of internationalization (H2). In the same vein, results demonstrate that when making option ↔ option comparisons, entrepreneurs' considerations of alignable differences influence their selection of international opportunities (H3), but not their decisions regarding the timing of internationalization (H5). Likewise, entrepreneurs' considerations of nonalignable differences influence both their selection of international opportunities (H4), and their decisions regarding the timing of internationalization (H6). Finally, the results provide evidence for the

moderating effect of prior knowledge on the relationship between entrepreneurs' considerations of similarity and selection of international opportunities (H7a).

Second, it is worth observing that the results obtained in this dissertation are consistent with past research in other fields regarding structural alignment and cognitive comparisons. For instance, the results of Study 1 show that entrepreneurs verbalize more commonalities (Cs) than alignable differences (ADs) and more ADs than nonalignable differences (NADs) and more attractive ADs than attractive NADs – as suggested in Figures 3.3 and 3.4. In addition, results from both studies show that the number of Cs, ADs, and NADs between the home country and an international opportunity correlate appropriately with entrepreneurs' perceived similarity between the home country and an international opportunity.

Taken together, these observations provide initial support for the foundational proposition that entrepreneurs select international opportunities and decide when to exploit an international opportunity, in part, through cognitive comparison processes whereby they align relevant aspects and features of international opportunities.

Contributions and implications of P0a and P0b. All in all, these results show that cognitive processes of comparison and structural alignment matter when entrepreneurs make internationalization decisions. Indeed, the dissertation's two studies show that the effects reported above are significant above and beyond the factors predicted in the extant literature (*e.g.*, firm and industry factors) and above and beyond the effects of subjective perceptions of similarity (one of the control variables used in Studies 1 and 2). This demonstrates robust and important support that cognitive processes of structural alignment and similarity comparison underpin entrepreneurial decision making.

By demonstrating the importance of these cognitive dynamics, I reconcile and integrate the two main competing internationalization theories. More specifically, I show that cognitive processes of comparison and structural alignment underpin entrepreneurs' decisions predicted by both theories, and thus can explain and extend the patterns of behavior predicted by these competing internationalization theories. I return to and elaborate on this key contribution throughout this chapter. In the sections below, I expand on the contributions and implications of the specific effects of each independent variable considered in the dissertation's model.

Hypotheses 1 and 2: Similarity and entrepreneurs' internationalization decisions. The first comparison that I predict underpins entrepreneurs' internationalization decision making is the target ↔ base similarity comparison – *i.e.*, entrepreneurs' comparison of their home country with an internationalization opportunity. Commonalities (Cs), alignable differences (ADs), and nonalignable differences (NADs) represent the three cognitive outputs of the cognitive comparison processes of similarity. I find that each of these outputs affects entrepreneurs' decisions on likelihood of selection and/or age at initial international entry, but each matters differently for different internationalization decisions.

Commonalities. Prior research in Cognitive Psychology shows that commonalities represent the strongest cognitive contributor to similarity (Markman and Gentner, 1993b, 1996). In line with this research and U-Model arguments on psychic distance and opportunity selection, I find that the number of Cs strongly influenced entrepreneurs' decisions on both international opportunity selection and age at entry. Cs factored heavily in entrepreneurs' evaluations of international opportunities as

entrepreneurs verbalized more Cs (6.24) than ADs (4.35) and NADs (2.55) in Study 1. Further, both studies support the hypothesized effects of Cs on international opportunity selection (H1) such that more Cs between the home country and the potential international opportunity increases the likelihood of selection of that international opportunity. These results are consistent with the arguments in Chapter III and the U-Model that entrepreneurs prefer opportunities similar to their home country for their first international entry.

In Study 1, I also found support for the hypothesized effect of Cs on entrepreneurs' decisions regarding age at initial international entry (H2). More Cs between the home country and the potential international opportunity decrease the age at initial international entry, or when more Cs exist between the home country and an international opportunity, entrepreneurs take their firms international at an earlier age. In fact, of the three cognitive outputs from the comparison processes (Cs, ADs, and NADs), only the number of Cs drive entrepreneurs' decisions on age at international entry in Study 1. These results suggest that by using a decision heuristic focusing on opportunities with a large number of commonalities with the home country, entrepreneurs expend fewer resources as a result of less product and strategy adaptation, lower entry costs, less need for foreign market knowledge, and less uncertainty. This result conforms to the justification for Hypothesis 2 in Chapter III that entrepreneurs seek to minimize resource expenditures in order to overcome the resource constraints imposed by the liabilities of foreignness and newness.

Alignable differences. Unlike Cs which have a common value (*e.g.*, English, English) on a common dimension (*e.g.*, language), ADs have different values (*e.g.*,

Spanish, English) on a common dimension (*e.g.*, language). Because past cognition research suggests that individuals find ADs readily comparable and therefore highly useful when making comparisons (Medin, Goldstone, and Markman, 1995; Zhang and Fitzsimons, 1999), I reasoned that ADs should impact entrepreneurs' internationalization decisions so that fewer ADs mean greater similarity between the home and host countries. Entrepreneurs would therefore be more likely to select opportunities more similar to the home country and enter more similar opportunities earlier – a rationale consistent with both structural alignment and U-Model arguments. I find results consistent with these predictions. First, Study 1 shows that entrepreneurs easily verbalize ADs in their evaluations of countries (an average of 4.35 per protocol), suggesting that ADs represent an important part of their internationalization decisions. Second, consistent with the U-Model and International Business theory on psychic distance and cultural distance (Johanson and Vahlne, 1977, 1990; Kogut and Singh, 1988), in Study 2, ADs strongly influence entrepreneurs' decisions on opportunity selection with entrepreneurs' preferring opportunities with fewer differences.

Contrary to the idea that fewer ADs should result in fewer resources expended when internationalizing, however, both studies found that ADs do not factor into entrepreneurs' decisions on age at initial entry. Unlike Cs which impact entrepreneurs' decisions on both opportunity selection and age at entry, ADs influence each internationalization decision differently in that ADs only influence entrepreneurs' decisions on international opportunity selection. As such, these results indicate that entrepreneurs focus on the 'sure things' (Cs) when deciding *when* to internationalize but

take a more nuanced view of decisions on *where* to internationalize by focusing on both Cs and ADs.

Nonalignable differences. Structural alignment theory suggests that entrepreneurs neglect NADs because entrepreneurs find NADs hard to process – owing to the fact that NADs do not share a common comparative dimension (Markman and Medin, 1995; Zhang and Markman, 1998, 2001). Consistent with structural alignment theory, entrepreneurs in Study 1 discussed fewer NADs (2.55 per protocol) than Cs (6.24) or ADs (4.35) in their verbalized evaluations of countries. Similarly, these entrepreneurs preferred to internationalize to countries with fewer NADs than Cs or ADs. In Study 2, however, the number of NADs was not related to entrepreneurs’ internationalization decisions. Yet, the different methods underpinning the two studies suggest a plausible explanation for the difference in results. In practice, it appears that when entrepreneurs make decisions, NADs demonstrate a strong, negative influence on entrepreneurs’ opportunity selection decisions, as shown in Study 1 – the verbal protocol study. However, when we study entrepreneurs’ decisions *post hoc*, as in Study 2 – the survey, entrepreneurs’ remembrances of the factors influencing their internationalization decisions show that NADs do not influence entrepreneurs’ opportunity selection decisions. This raises an interesting methods issue that I discuss later in this Chapter.

However, these results also suggest that NADs may have a more important influence on entrepreneurs’ international opportunity selection decisions than discussed in Chapter III. Despite listing many fewer NADs per protocol than Cs and ADs, results of Study 1 show that these few NADs strongly and negatively impacted entrepreneurs’ decisions on international opportunity selection. In the Verbal Protocol study (Study 1),

the number of NADs also had a larger and more consistent effect than the number ADs on entrepreneurs' internationalization decisions on opportunity selection. Taken together, these results indicate that entrepreneurs may see ADs as 'surmountable' differences but NADs as 'insurmountable' differences when selecting an international opportunity. In effect, NADs appear to represent the 'deal breakers' that prevent entrepreneurs from selecting a particular international opportunity.

Interestingly, I observed a different pattern of results when looking at entrepreneurs' decisions about when to internationalize. Consistent with structural alignment theory that comparable features (Cs and ADs) most strongly influence similarity while individuals neglect noncomparable features (NADs) (Gentner and Markman, 1994; Markman and Gentner, 1996), I find no effect of NADs on age at initial international entry in both studies. This finding is so robust that *post hoc* analyses of the survey data show that even Cs that come from NADs do not predict the timing of internationalization decisions. Instead, only those Cs that could also be ADs influence entrepreneurs' age at entry internationalization decisions.

Taken together, these results suggest that although entrepreneurs likely view NADs as insurmountable 'deal breakers' in their decisions on international opportunity selection, they often neglect these 'deal breaker' considerations in their decisions regarding when to internationalize. They do this in spite of the potential importance of such differences for the potential to minimize resource expenditures and adaption requirements that will be necessary when choosing to internationalize at an early age. Doing so, I show that entrepreneurs' use NADs differently for different internationalization decisions.

Contributions and implications of Hypotheses 1 and 2. Hypotheses 1 and 2 predict the effects of similarity, as measured by the number of Cs, ADs, and NADs, on entrepreneurs' decisions on international opportunity selection and age at entry. The fact that similarity matters for entrepreneurs' selection of opportunities and deciding when to internationalize provides a first key takeaway regarding Hypotheses 1 and 2. Both the perceived similarity control variable and the independent variable similarity measures (number of Cs, ADs, and NADs) consistently predicted entrepreneurs' decisions on opportunity selection, and the perceived similarity control variable and number of Cs predicted entrepreneur's decisions on age at entry. The importance of similarity when entrepreneurs make internationalization decisions confirms that similarity comparisons strongly influence which international opportunities entrepreneurs select and when they decide to exploit these opportunities.

Second, when making internationalization decisions, entrepreneurs verbalize more comparable features (Cs and ADs) between countries than noncomparable features (NADs), and do not focus on noncomparable features (NADs) when making age at entry decisions. As a result, depending on their use of comparable versus noncomparable features between countries, entrepreneurs make very different decisions regarding which international opportunities they select and when they decide to exploit these international opportunities. Commonalities drive entrepreneurs' considerations of similarity between countries as well as their decisions on both international opportunity selection and age at entry. Entrepreneurs pay close attention to alignable differences, but these ADs appear to be surmountable challenges when selecting an opportunity but not when deciding when to exploit an opportunity. Therefore, International Business theory on market selection

(*e.g.*, the U-Model and its emphasis on psychic distance) makes sense for understanding entrepreneurs' decisions on international opportunity selection but cannot be directly extended to understand entrepreneurs' decisions on age at entry because ADs like psychic distance do not appear to influence entrepreneurs' decisions on age at entry. However, the importance of NADs when entrepreneurs select international opportunities suggests an important extension to the current U-Model theory.

Third, the strong influence of cognitive factors on entrepreneurs' evaluation of international opportunities and entrepreneurs' international opportunity exploitation decisions on age at initial international entry extends International Entrepreneurship theory. In this dissertation, I show that entrepreneurs consider commonalities as critical to their decisions on when to internationalize above and beyond the firm and individual characteristics described by International Entrepreneurship theory. In other words, I show that the age at which firms internationalize is not only determined by the characteristics of individual entrepreneurs, firm-level factors and environmental conditions, but also by the very characteristics of the internationalization opportunities that entrepreneurs face.

The results for Hypotheses 1 and 2 show that looking broadly at the cognitive outputs of the comparison processes helps us to better understand what influences entrepreneurs' decisions on both international opportunity selection and age at initial internationalization. Similarity comparisons matter to entrepreneurs making internationalization decisions, and their differential use of the cognitive outputs of similarity comparisons (Cs, ADs, and NADs) influence the internationalization decisions they make. The results of these hypotheses provide evidence that taking a look inside the

‘entrepreneurial actor perceptions’ (Oviatt and McDougall, 2005: 541) provides a fruitful means of understanding of entrepreneurs’ internationalization decision making. The results also demonstrate that we can understand when the predictions of each competing internationalization theory (the U-Model and IE theory) apply to entrepreneurs’ decisions by better understanding the cognitive processes that underpin entrepreneurs’ internationalization decisions. Similarity between the home country and potential international opportunity matters for entrepreneurs’ decisions on both opportunity selection and age at entry.

Hypotheses 3 and 5: Attractive alignable differences and entrepreneurs’ internationalization decisions. The above hypotheses on similarity reflect the first cognitive comparison (target ↔ base) that I predict underpins entrepreneurs’ internationalization decisions. The second cognitive comparison involves entrepreneurs evaluating different options (option ↔ option) to determine which option appeals to them the most. When comparing options, commonalities are irrelevant; as such, it is the attractiveness of alignable differences that should be the most diagnostic predictor of which opportunity entrepreneurs select and when they decide to exploit the opportunity. In principle, the attractiveness of alignable differences provides entrepreneurs with comparable, easy to process information on the differences between options.

Consistent with this argument, results from Study 2 (the survey) demonstrate that the attractiveness of alignable differences impacts entrepreneurs’ decisions on which international opportunity they select. Although some models in Study 1 (e.g., the participant control models) show an effect of attractiveness of ADs on entrepreneurs’ internationalization decisions, this effect is most pronounced in the survey data. This

may be because the survey measures actual levels of attractiveness of ADs whereas the protocol data focuses on the number of attractive ADs expressed by participants in their verbal protocols.

In contrast to the results on international opportunity selection, the two studies did not reveal an effect of the attractiveness of ADs on entrepreneurs' decisions on age at initial international entry. Increasing the attractiveness of the ADs of an opportunity does not appear to impact when an entrepreneur chooses to exploit the opportunity.

Contributions and implications of Hypotheses 3 and 5. The findings from Study 2 on the effects of the attractiveness of ADs on opportunity selection demonstrate that option ↔ option comparisons also underpin entrepreneurs' internationalization decisions and further support the dissertation's foundational propositions. However, only Study 2 found robust effects of the attractiveness of ADs on entrepreneurs' internationalization decisions. Furthermore, the attractiveness of ADs only predicts opportunity selection, not age at entry. These results suggest that the option ↔ option comparison may only matter for the decision to select an international opportunity; entrepreneurs trying to decide how early to exploit that opportunity appear to behave as if they do not need to compare other options.

These results also demonstrate how using structural alignment theory in conjunction with internationalization theory allows us to integrate and reconcile the two main competing internationalization theories. First, these results show that the different impact of attractiveness of ADs on international opportunity selection and age at initial international entry mirrors the complementary nature of the U-Model and International Entrepreneurship theory discussed in Chapter II. The importance of attractive ADs in

entrepreneurs' decisions on opportunity selection match the U-Model's predictions regarding psychic distance and extant International Business research on 'distance' measures (*e.g.*, cultural, institutional, and geographic distance) whereby shorter distances increase the likelihood of opportunity selection (Brewer 2007a; Dow 2000). The lack of importance of attractive ADs to entrepreneurs' decisions regarding when to expand internationally confirms claims by International Entrepreneurship scholars (*e.g.*, Cavusgil, 1994b; Oviatt and McDougall, 1994) that the U-Model and other International Business theory does not accurately predict the behavior of born global firms – at least with respect to the age at which firms internationalize.

The results for Hypotheses 3 and 5 on the attractiveness of alignable differences and entrepreneurs' internationalization decisions also integrate competing internationalization theories by showing that cognitive processes of comparison and structural alignment underpin the internationalization decisions predicted by both theories. By taking a cognitive perspective of entrepreneurs' internationalization decisions, we can better understand why entrepreneurs' make the decisions that they do and when different factors influence which of their internationalization decisions (*i.e.*, where versus when to internationalize).

Hypotheses 4 and 6: Attractive nonalignable differences and entrepreneurs' internationalization decisions. When comparing options, attractive nonalignable differences should increase an individuals' propensity to select an option. Hypotheses 4 and 6 predict the effects of attractive nonalignable differences on selection of an international opportunity and age at initial international entry, respectively. As expected, Study 1 results show that entrepreneurs verbalize fewer attractive NADs per protocol

(1.46) than attractive ADs (2.18). Furthermore, and consistent with the proposed model, attractive NADs had a strong effect on likelihood of opportunity selection; indeed, they even had a larger effect than attractive ADs on opportunity selection. In the same vein, results from Study 2 show that more attractive NADs decrease age at entry. The results of both studies regarding the attractiveness of NADs indicate that despite entrepreneurs identifying fewer NADs than Cs and ADs, these NADs represent very important aspects of their internationalization decision making. Entrepreneurs have a hard time identifying a large number of NADs, but the ones that they do identify make or break their decisions on where and when to internationalize.

Contributions and implications of Hypotheses 4 and 6. The results discussed above for Hypotheses 3 and 5 provide initial evidence that option ↔ option comparisons underpin entrepreneurs' internationalization decisions, and the results for Hypotheses 4 and 6 further support this conclusion. These results also build additional support that entrepreneurs' cognitive processes of comparison and structural alignment help us to integrate and reconcile competing international business theories. While extant International Business theory (*e.g.*, the U-Model) focuses on alignable differences such as 'distance' measures, the results of Hypotheses 4 and 6 suggest that noncomparable country features (NADs) also significantly impact entrepreneurs' decisions on international opportunity selection and age at initial international entry. Seen in this light, it appears that reconciling and integrating the competing internationalization theories does not amount to an either / or situation where only alignable differences (*e.g.*, the U-Model's 'psychic distance') or nonalignable differences (*e.g.*, IE theory's 'unique factors') predict entrepreneurs' internationalization decisions. Instead, alignable and

nonalignable differences influence entrepreneurs' decisions on both international opportunity selection and age at initial international entry.

These results also show that this dissertation's cognitive view and individual-level focus provides valuable insights into entrepreneurs' internationalization decisions. Given the importance of NADs in entrepreneurs' decisions but also their difficulty in verbalizing and processing NADs, entrepreneurs likely neglect some important NADs even as they consider a few critical NADs when making internationalization decisions. As such, observations from this dissertation suggest that cognitive comparisons underpin entrepreneurs' decisions so that the distinction between alignable (comparable) and nonalignable (noncomparable) differences matters. Without taking an individual-level and cognitive view of internationalization behavior, the role of Cs, ADs, and NADs would be lost. This suggests that extending theory to include discussion of these nonalignable country features is an important step in advancing our understanding of entrepreneurs' internationalization decisions.

Summary of implications and contributions of direct effects. The results described above show that both comparisons and cognitive processes discussed in Chapter III underpin entrepreneurs' internationalization decisions. Hypotheses 1 and 2 center on the role of home country ↔ international opportunity similarity comparisons when entrepreneurs make decisions on international opportunity selection and when to exploit international opportunities. Cs, ADs, and NADs influence entrepreneurs' decisions on *where* to internationalize such that entrepreneurs may see Cs as 'sure things', ADs as 'surmountable' differences, and NADs as 'insurmountable' differences or 'deal breakers.' When deciding *when* to internationalize, however, entrepreneurs appear

to focus exclusively on Cs rather than on the broader set of cognitive outputs (Cs, ADs, and NADs) used for international opportunity selection decisions. In practice, results suggests that when deciding how early to internationalize, entrepreneurs mainly focus on the ‘sure things’ (Cs), probably to maximize similarity and minimize resource expenditures and adaptation when making their first international entry. For their part, the results for Hypotheses 3, 4, and 6 demonstrate the role of option ↔ option comparisons when entrepreneurs make internationalization decisions. Attractiveness of ADs (H3) and attractiveness of NADs (H4) both influence entrepreneurs’ decisions on international opportunity selection. Only attractiveness of NADs (H6) impacted entrepreneurs’ decisions on age at initial international entry.

In terms of extant internationalization theory, these results show that the U-Model correctly predicts the use of ADs and attractive ADs when entrepreneurs make international opportunity selection decisions. However, the dissertation shows that entrepreneurs also used Cs, NADs, and attractive NADs when making decisions on *where* to internationalize. This suggests that the U-Model can be extended by looking more broadly at factors influencing entrepreneurs’ internationalization decisions and that a cognitive approach to understanding entrepreneurs’ internationalization decisions allows us to better understand what impacts entrepreneurs’ internationalization decisions and why.

That being said, the pattern of results obtained from the dissertation also suggests that the U-Models’ focus on ADs cannot be directly extended to understanding entrepreneurs’ decisions on *when* to internationalize. Neither ADs (similarity comparisons) nor attractive ADs (option ↔ option comparisons) influence entrepreneurs’

decisions regarding *when* to expand internationally, thus limiting the utility of the U-Model for understanding age at entry decisions.

For their part, the dissertation's results show that Cs (home country ↔ international opportunity similarity comparisons) and attractive NADs (option ↔ option comparisons) had a strong influence on entrepreneurs' decisions on *when* to internationalize *above and beyond* firm and individual factors predicted by IE theory. These results reinforce the importance of exploring the 'entrepreneurial actor perceptions' described by Oviatt and McDougall (2005) in order to understand entrepreneurs' decisions on early internationalization.

Taken together, the results of the direct effects hypotheses (H1 – H6) demonstrate that reconciling and integrating the two main internationalization theories not only requires understanding the boundary conditions of each theory (when each theory predicts entrepreneurs' internationalization decisions), but also extending the theories to account for entrepreneurs' decisions on both international opportunity selection and age at initial international entry. The U-Model's focus on ADs as 'similarity' is too limited, but a broader view of similarity comparisons encompassing cognitive outputs of Cs, ADs, and NADs (H1-H2) has great utility in understanding entrepreneurs' decisions on both international opportunity selection (Cs, ADs, and NADs) as well as entrepreneurs' decisions on age at initial international entry (Cs). Further, the option ↔ option comparison results (H3-H6) show that IE theory's focus on 'unique factors' and discussion of 'entrepreneurial actor perceptions' can be extended by looking at the cognitive process underpinning entrepreneurs' internationalization decisions to understand that attractive ADs and NADs influence entrepreneurs' decisions on *where* to

internationalize (attractive ADs and NADs) and *when* to internationalize (attractive NADs).

Hypotheses 7a, 7b, 8a, and 8b: The role of prior knowledge on entrepreneurs' internationalization decisions. Prior knowledge plays a critical role in International Business and Entrepreneurship theory. In this dissertation, I cast light on why and how prior knowledge might influence entrepreneurs' internationalization decisions.

In line with extant research, prior international knowledge had a strong and direct effect on entrepreneurs' internationalization decisions. In Study 1, prior knowledge directly impacted both dependent variables so that greater amounts of prior knowledge increased the likelihood of international opportunity selection and decreased age at initial international entry.

More importantly, I observed that prior knowledge moderates the relationship between similarity and international opportunity selection in such a way that entrepreneurs with greater prior knowledge move away from similarity comparisons when deciding which opportunity to select. In fact, and contrary to the findings generally observed in research on similarity comparisons, I found that those entrepreneurs with higher levels of prior international knowledge selected opportunities with more nonalignable differences, not fewer. This result is consistent with the arguments in Chapter III that increases in prior knowledge lead entrepreneurs' to move away from similarity comparisons when making decisions on international opportunity selection. Further, this result demonstrates that prior knowledge not only directly influences internationalization decisions but also alters the pattern of entrepreneurs' decision making.

Although evidence shows that prior knowledge moderates the relationship between entrepreneurs' similarity considerations and international opportunity selection, results did not provide evidence that prior international knowledge moderate the relationship between similarity and entrepreneurs' age at initial international entry decisions. Instead, it appears that entrepreneurs with more knowledge stubbornly stick to similarity comparisons, specifically the use of commonalities, when deciding when to internationalize. In line with prior research, this could be done in order to minimize resource expenditures and product and strategy adaptation when internationalizing at an early age.

Another interesting result is that prior knowledge does not appear to moderate the effects of attractive nonalignable differences on international opportunity selection (H8a) or age at initial international entry (H8b). One possible explanation for these results is that because nonalignable differences influence entrepreneurs' decision making to a greater degree than expected, entrepreneurs do not need increases in prior knowledge to identify these critical NADs. If NADs do indeed represent 'deal breakers' for entrepreneurs' internationalization decisions, entrepreneurs should be quite aware of these key 'deal breakers' even without high levels of prior international knowledge. Further, these 'deal breakers' would also likely be pointed out by consultants, bankers, potential partners, etc. with whom entrepreneurs may discuss their internationalization expansion plans.

Given the potential explanation above, it makes sense that I find direct effects of prior international knowledge and direct effects of the attractiveness of NADs, but no interaction between them since entrepreneurs already have 'enough' prior international

knowledge. Another potential explanation involves the dissertation's methods. In the survey, I ask entrepreneurs to rate the attractiveness of potential NADs. By bringing these potential NADs to their attention, it enables them to process these NADs in the context of their internationalization decision *post hoc* even if these NADs did not influence their initial international decision *ex ante*.

Contributions and implications of Hypotheses 7a, 7b, 8a, and 8b. The dissertation's results with respect to the role of prior knowledge within entrepreneurs' internationalization decisions show that entrepreneurs' evaluation of international opportunities and pattern of decision making shifts when levels of prior international knowledge change. Specifically, entrepreneurs move away from similarity considerations in their decisions on international opportunity selection. This contributes to research by showing that prior knowledge matters not just in a 'more is better' manner but that it impacts entrepreneurs' cognitive processes, and leads to different evaluation and exploitation decisions on different international opportunities.

Second, these results demonstrate why prior international experience alters entrepreneurs' decision making patterns. Previous internationalization theory discussed the importance of prior international knowledge but not the reasons why knowledge matters. In this dissertation, I show that different levels of prior international knowledge shift the influence of commonalities, alignable differences, and nonalignable differences on entrepreneurs' internationalization decisions. Specifically, increases in prior international knowledge shifts entrepreneurs' considerations of nonalignable differences such that similarity comparisons matter less when entrepreneurs make decisions regarding international opportunity selection.

Finally, the robust direct effects of prior international knowledge in Study 1 confirm previous research in International Business, Entrepreneurship, and International Entrepreneurship. First, Johanson and Vahlne (1977, 1990) argue that increases in market knowledge lead to greater propensity to select an opportunity, a prediction I confirm in this dissertation. Second, Oviatt and McDougall (2005) suggest that foreign market knowledge influences and moderates the relationship between ‘entrepreneurial actor perceptions’ and internationalization speed. I find this to also be true as prior knowledge directly impacts entrepreneurs’ internationalization decisions on age at entry. However, the moderating effect predicted by Oviatt and McDougall (2005) is not consistent with the data from Studies 1 and 2. Finally, extant research in Entrepreneurship on entrepreneurs and opportunity strongly emphasizes the role of prior knowledge in recognizing, acknowledging, and exploiting opportunities (Grégoire et al, 2010; Haynie, Shepherd, and McMullen, 2009; McMullen and Shepherd, 2006; Shane, 2000). In this dissertation, I confirm the importance of prior knowledge for entrepreneurs’ actions regarding international opportunities.

Extensions of the dissertation’s model with regard to internationalization decisions. The current model can be extended to answer a number of other important questions regarding entrepreneurs’ internationalization decisions. Some of these questions derive from the results of this dissertation whereas others are outside the scope of this dissertation. In this section, I discuss four logical extensions of the dissertation’s current model of cognitive comparisons and entrepreneurs’ internationalization decisions: (1) mode of entry, (2) magnitude of Cs, ADs, and NADs, (3) additional cognitive comparison processes, and (4) performance implications. I discuss each in turn below.

Mode of entry. Entrepreneurs must answer three key questions regarding their firm's internationalization: when, where, and how. This dissertation centers on the first two questions of when (age at initial international entry) and where (international opportunity selection) while controlling for how (mode of entry). Both internationalization theories discussed in Chapter II include predictions on entry mode. The U-Model argues for a staged approach where firms begin with less involved entry modes (*e.g.*, exporting) and then advance sequentially to more involved modes (*e.g.*, foreign direct investment). Conversely, International Entrepreneurship theory maintains that intermediate entry modes such as joint ventures and strategic alliances help entrepreneurs internationalize early by minimizing resource expenditures (Oviatt and McDougall, 1994). A logical and important extension of the current model is to incorporate the effects of similarity and attractive alignable and nonalignable differences on entrepreneurs' decisions on mode of entry. Because entrepreneurs cannot make all three internationalization decisions in isolation but instead consider when, where, and how concurrently, I expect cognitive processes of comparison and structural alignment also underpin entrepreneurs' entry mode decisions.

Magnitude of Cs, ADs, and NADs. Consistent with Cognitive Psychology theory on similarity comparisons, this dissertation focuses on the number of commonalities, alignable differences, and nonalignable differences and how changes in the number of each impacts entrepreneurs' internationalization decisions. However, it is likely that not all Cs, ADs, and NADs matter equally. For example, do entrepreneurs weigh cultural distance more than geographic distance in their internationalization decisions? Does one matter more for opportunity selection than age at entry? Extending the current model to

include the importance or magnitude of each C, AD, and NAD would help us to better understand the intricacies of entrepreneurs' internationalization decisions.

Additional cognitive comparison processes. A third important extension involves the comparisons and cognitive processes studied in this dissertation. I predict that two cognitive comparisons underpin entrepreneurs' internationalization decisions: a target ↔ base similarity comparison and an option ↔ option comparison. Cognitive psychologists argue that as individuals gain knowledge, they shift from simple comparisons (*e.g.*, similarity) to more complex comparisons (*e.g.*, analogies) (Gentner and Markman, 1997; Zhang and Sood, 2002). I demonstrate that entrepreneurs shift away from similarity when making decisions on international opportunity selection as they gain international knowledge. However, how does additional knowledge alter the cognitive processes underpinning entrepreneurs' internationalization decisions such that entrepreneurs may use different comparisons (*e.g.*, analogies) or may move away from comparisons as key cognitive processes underpinning their internationalization decisions. Exploring the impact of deeper and more complex comparison processes on entrepreneurs' internationalization decision making represents a logical extension of the current model.

Performance implications. Finally, I study decisions on opportunity selection and age at international entry as the critical outcomes of this dissertation's model. However, internationalization significantly impacts firm performance. Most scholars agree that the internationalization – performance relationship represents an inverted U (\cap) whereby increased internationalization positively impacts firm performance up to an inflection point. Past that inflection point, the complexity of managing international activities puts downward pressure on firm performance (Hitt, Hoskisson, and Kim, 1997; Tallman and

Li, 1996). However, the effects of early internationalization on firm performance are more equivocal. Sapienza et al. (2006) reason that firms that internationalize early are more likely to grow but also more likely to fail. In the dissertation, I show that commonalities drive entrepreneurs' internationalization decisions on both age at entry and opportunity selection, but that entrepreneurs also consider alignable and nonalignable differences in their international opportunity selection decisions. In addition, entrepreneurs likely neglect some important NADs in their internationalization decisions. Neglecting potentially important factors like NADs suggests that entrepreneurs may select sub-optimal opportunities and/or internationalize at the wrong time. I expect that these potentially sub-optimal decisions would negatively impact their firm's performance. Extending the current model to include the performance consequences of entrepreneurs' internationalization decisions on their firms would bridge the literature on internationalization processes with the literature on the performance implications of internationalization.

General limitations. This dissertation has three important limitations. First, each method used to test the hypotheses presented in this dissertation has inherent methodological limitations. Second, the dissertation only focuses on a narrow set of possible cognitive processes that underpin entrepreneurs' internationalization decisions. Third, and although I find support for six of the ten hypotheses, many of these hypotheses are supported by only one of the two studies. I discuss each of these limitations below.

Methodological limitations. The verbal protocol study (Study 1) allows us to 'hear' the cognitive considerations of entrepreneurs as they verbalize their evaluations of potential international opportunities. However, because these entrepreneurs have not yet

internationalized, their evaluations of international opportunities can only represent hypothetical internationalization decisions rather than actual ones. Although this criticism has long been minimized in the cognitive science literature (cf. Ericsson and Simon, 1993), it is possible that decisions made during the verbal protocols do not accurately reflect the actual decisions made by entrepreneurs regarding their first international entries. By contrast, the survey (Study 2) allows us to capture the actual initial internationalization decisions made by entrepreneurs. However, a significant recall bias may influence entrepreneurs' memories of the facts and the country features influencing their decisions. For example, research shows that venture capitalists do not understand – or accurately describe – the criteria used in their own decisions (Zacharakis and Meyer, 1998, 2000).

To effectively mitigate the inherent methodological limitations of both studies, I balance the strengths and weaknesses of each method by virtue of using both methodologies. For example, verbal protocol techniques do not have the recall bias of surveys, and the survey allows us to study actual decisions rather than potential internationalization decisions studied in the verbal protocols. Seen in this light, then, the approach taken in this dissertation effectively minimizes the validity threats posed by using either of these methods on its own.

Role of other cognitive processes. Second, I draw from a relatively narrow set of potential cognitive processes to explain entrepreneurs' internationalization decision making. It is quite possible that other cognitive processes support entrepreneurs' internationalization decisions. For example, extant research links cognitive 'mindsets' or 'orientations' to internationalization decisions (Harveston, 2000; Knight and Cavusgil,

2004; Moen and Servais, 2002). Furthermore, several respondents verbalized considerations of their level of comfort in or about a particular country. It is possible that entrepreneurs' affect influences their decision making as well. However, it is important to note that I chose the specific cognitive processes studied in this dissertation because of their theoretical relevance to entrepreneurs' internationalization decisions. In Chapter I, for instance, I specifically draw from Cognitive Psychology, International Business, and Entrepreneurship theory to outline three reasons why these specific cognitive processes underpin entrepreneurs' internationalization decisions. For these reasons, I advance that although many insights could be gained by studying other cognitive processes, the dissertation's particular focus on cognitive processes of similarity comparisons and structural alignment is theoretically valid and relevant.

Varying patterns of support by study. Table 5.19 demonstrates that although I find support for six of the ten hypotheses, five of the six hypotheses are supported by only one study. Methodological considerations play an important role in this varying pattern of hypothesis support. Study 1 (the verbal protocol study) captures entrepreneurs' verbalized reasoning regarding their internationalization decisions. Study 1 demonstrated support for four of the six hypotheses (H1, H2, H4, and H7a). Study 1 has the unique advantage of capturing entrepreneurs' internationalization decisions as entrepreneurs make them, which presents tremendous advantages in studying decision making as it happens. Study 2 (the survey) demonstrates support for fewer hypotheses (H1, H3, and H6), and also fails to support theoretically expected direct effects of prior international knowledge. As noted above, significant recall biases may influence the results from Study 2.

However, Study 2 has an important advantage over Study 1 regarding the measurement of attractiveness of alignable and nonalignable differences. Study 1 measures attractive ADs and NADs as a count between potential international opportunities, but Study 2 measures attractive ADs and NADs on scales varying by the level (or magnitude) of attractiveness. Not surprisingly, Study 2 demonstrated support for two of the three ‘attractiveness’ hypotheses proposed in this dissertation (H3, H4, and H6). Because Study 2 used a more fine-grained measurement than Study 1 for the attractiveness of ADs and NADs, it is likely that Study 2 better measured the option ↔ option comparison. Consistent with the discussion above regarding future extensions of this dissertation, these methodological differences suggest that measuring magnitude of Cs, ADs, NADs, attractiveness of ADs, and attractiveness of NADs may help identify important effects of entrepreneurs’ cognitive considerations on their internationalization decisions.

General strengths. This dissertation has three major strengths. Two of these relate to research design and methods: improvements in validity due to a multi-study and multi-method design and looking at entrepreneurs’ internationalization decisions *before the fact* rather than just *after the fact*. The third strength involves the integration of theory across different literatures to better understand a phenomenon of interest relevant to multiple fields.

Methodological and research design strengths. First, I use a multi-method approach to test this dissertation’s model. As part of this multi-method approach, I collect data from two different samples. In doing so, I increase the external validity of the research so that I can more broadly generalize the results from these two samples to

the population of internationalizing firms. I also improve internal validity by demonstrating convergent evidence that the relationships between entrepreneurs' cognitive considerations and internationalization decisions characterize the actual pattern of entrepreneurial decision making. Finally, the two-study research design balances the inherent limitations of each method in order to demonstrate that the results of this dissertation reflect the actual patterns of relationships regarding entrepreneurs' internationalization decisions.

A second strength of the dissertation involves the use of verbal protocol techniques. International Entrepreneurship research has been criticized for methodological problems, specifically researchers' limited use of methodologies other than surveys and case studies (Coviello and Jones, 2004). As a result, past research on internationalization behavior focused on studying decisions *after the fact*, or after the results of the decision were known. The use of verbal protocol techniques in this dissertation allowed me to study entrepreneurs' internationalization decisions as they occurred rather than relying on *post hoc* remembrances of decisions made in the past.

Theoretical strengths. Finally, the dissertation theoretically draws across disciplines in order to understand the internationalization decisions of entrepreneurs. Past research often failed to integrate theories from different literatures, specifically failing to use theoretical perspectives from both International Business and Entrepreneurship to understand entrepreneurs' internationalization decisions. In this dissertation, I draw from Cognitive Psychology, International Business, Entrepreneurship, International Entrepreneurship, and Strategic Management to form a coherent, consistent explanation for how and why entrepreneurs make the decisions that they do regarding their firm's

initial expansion into international markets. By avoiding the myopia of using ideas from a single field, this dissertation forms a more complete explanation for entrepreneurs' internationalization decisions and allows this dissertation to participate in discussions taking place in several fields.

Summary of the core contributions of this research. I make five core contributions to extant research with this dissertation. As these contributions parallel the discussion earlier in this chapter, this section provides only a brief summary of each core contribution. The five core contributions are: (1) reconciling and integrating competing internationalization theories, (2) demonstrating the importance of taking an individual-level view of internationalization, specifically a cognitive view, (3) bringing the 'decision' back into the discussion of internationalization, (4) showing how and why measuring similarity differently improves Management research, and (5) developing a model of entrepreneurial opportunity decision making relevant to contexts beyond internationalization decisions.

Reconciling and integrating competing theories. First and foremost, with this research, I reconcile and integrate competing theories of entrepreneurs' internationalization behavior. By using a third theory – that of structural alignment and cognitive comparisons – to understand how and why entrepreneurs make internationalization decisions, I identify critical cognitive processes that underpin entrepreneurs' decisions predicted by both the U-Model and International Entrepreneurship theory. First, I reconcile these theories competing predictions by confirming that extant internationalization process theories (the U-Model and IE theory) both accurately predict entrepreneurs' internationalization decisions and rejecting the

claim by IE researchers that the U-Model is outdated (Cavusgil, 1994b; Oviatt and McDougall, 1994). As predicted by the U-Model, similarity between the home country and potential international opportunities plays an important role in entrepreneurs' decisions on opportunity selection. As predicted by IE theory, the unique characteristics of the entrepreneur and the firm play an important role in entrepreneurs' decisions on age at initial international entry. These results show that both theories make accurate predictions regarding their explicit dependent variables.

However, the key aspect of reconciling and integrating these theories comes from looking at how entrepreneurs' decisions rest, in part, on cognitive processes of comparison and structural alignment. Commonalities, the most influential component of similarity, also drive entrepreneurs' decisions on age at entry above and beyond individual and firm characteristics predicted by IE theory. This shows that aspects of the U-Model (*e.g.*, similarity) also matter for entrepreneurs' age at entry decisions. IE theory suggests that unique opportunity characteristics such as networks (Bell, 1995; Coviello and Munro, 1995, 1997) and competitive factors (Oviatt and McDougall, 1995) influence age at entry decisions. These unique factors represent potential NADs, and I find that NADs influence not just decisions on age at entry (H6) but also entrepreneurs' decisions on opportunity selection (H1 and H4). These results show that aspects of IE theory (*e.g.*, unique opportunity characteristics) also matter for entrepreneurs' decisions on opportunity selection. In short, I find that cognitive processes of structural alignment and comparison underpin and help explain entrepreneurs' decisions on both international opportunity selection and age at initial international entry above and beyond extant research in these areas.

Individual-level and cognitive view. This dissertation also demonstrates and reinforces the importance of taking an individual-level and a cognitive approach to studying entrepreneurs' decisions regarding opportunity selection and age at internationalization. By taking an individual-level and cognitive view of entrepreneurs' internationalization decisions in this dissertation, I am able to reconcile, integrate, and extend internationalization theory.

The individual-level of analysis has been neglected in extant research on internationalization and the entrepreneur's role in internationalization behavior remains underdeveloped in theory and understudied in empirical research. Research on the U-Model focuses on firms and market characteristics (*e.g.*, Dow, 2000; Ellis, 2007). Although IE theory emphasizes the role of the entrepreneur, empirical research in IE often emphasizes the influence of individual characteristics (*e.g.*, networks or prior knowledge) but fails to explain exactly how, why, and when these characteristics influence entrepreneurs' internationalization decisions. This dissertation demonstrates the utility of taking an individual-level analysis to understand how and why entrepreneurs' make decisions on international opportunity selection and age at international entry.

Recently, researchers have highlighted the importance of studying cognition in entrepreneurship (Grégoire, Corbett, and McMullen, in press), international business (Acedo and Florin, 2006; Buckley and Lessard, 2005), and international entrepreneurship (Zahra, Korri, and Yu, 2005). Coupled with the lack of individual-level research described in the last paragraph (see also Chapter II), extant theory on internationalization has neglected to articulate cognitive processes underpinning entrepreneurs'

internationalization decisions. Despite models of early internationalization placing entrepreneurs' cognition at the center of the model (Oviatt and McDougall, 2005), past research does not detail how and why entrepreneurs' cognition filters the other factors in their models nor the cognitive processes underpinning entrepreneurs' evaluation and exploitation decisions regarding international opportunities. Consistent with research on opportunity recognition (Grégoire, Barr, and Shepherd, 2010), I also show that cognitive processes of structural alignment matter in opportunity evaluation and exploitation. I further advance extant research by demonstrating the impact of cognitive comparisons on opportunity evaluation and exploitation as well as proving the usefulness of these cognitive considerations for international opportunities. In short, I find that cognitive processes of structural alignment and comparison underpin and help explain entrepreneurs' decisions on both international opportunity selection and age at initial international entry above and beyond extant research in these areas.

Bringing the 'decision' back. A third major contribution of this dissertation involves emphasizing the importance of studying decisions *ex ante* or *in situ* rather than *post hoc*. Entrepreneurs' decisions are at the heart of models of early internationalization (e.g., Oviatt and McDougall, 2005), yet empirical research often neglects entrepreneurs' decisions regarding when, where, how, and why entrepreneurs decide to internationalize their firms. Much of the extant research studies factors that influence entrepreneurs' decisions after the fact, or after the results of the decision are known. Researchers studying internationalization behavior in this way makes the implicit, but untested, assumption that the factors that matter to entrepreneurs *after the fact* are the same ones that matter *before the fact*. As the differences between the results of Study 1 and Study 2

suggest, looking at decisions before the outcomes are known (Study 1) provide different results than studying decisions after the fact (Study 2). This dissertation brings the entrepreneurs' decision back into the discussion by demonstrating the theoretical centrality of the entrepreneur and his/her decisions regarding internationalization behavior as well as the methodological consequences of only studying internationalization behavior *post hoc*.

Utility of measuring similarity differently. Fourth, I demonstrate the importance and utility of conceptualizing and measuring similarity differently than scholars have done previously in International Business and Strategic Management. International Business scholars have long used distance measures (*e.g.*, cultural, psychic, or geographic distance) as proxies for similarity between countries. However, recently scholars have begun to question this approach. As discussed in Chapter I, Shenkar and colleagues (2001, 2008) disagree with the current approaches for measuring and conceptualizing similarity because current approaches fail to account for causality, stability, and asymmetry and do not address 'distance' and 'bridging' factors that show how countries differ (distance factors) but also the similarity between countries (bridging factors). Measures of similarity that fail to account for distance and bridging factors create an artificial similarity that does not accurately reflect real world considerations. Cognitive Psychology researchers have long advocated for approaches to similarity involving both commonalities and differences (Gentner and Markman, 1994; Tversky, 1977).

In this dissertation, I address Shenkar's concerns and approach similarity by considering both commonalities (bridging factors) and two different types of differences (distance factors). This approach represents both a better depiction of real-world factors

but also reflects current research in Cognitive Psychology on cognitive processes of similarity comparisons which provides a more conceptually accurate measurement of similarity. In short, this conceptualization and measurement of similarity in this dissertation allows us to better understand how objects are similar and different from each other. Although this dissertation focuses on internationalization decisions, scholars in other areas of management would also benefit by using this more conceptually accurate measure of similarity. For example, scholars in Strategic Management will find utility for similarity measures in the study of relatedness (how businesses compare to each other) (*e.g.*, Bryce and Winter, 2009), strategic groups (what makes competitors similar or different) (*e.g.*, Kabanoff and Brown, 2008), and resource combination to create organizational capabilities (which resources can be combined) (*e.g.*, Tanriverdi and Venkatraman, 2005). In each of these areas of research, a better means of measuring similarity based on cognitive research on structural alignment would be useful by showing how business units, companies, and resources are similar (commonalities) as well as how they are different from each other (alignable and nonalignable differences). As such, a stronger understanding of how individuals make similarity comparisons informs our understanding of the similarity of business units, strategic groups, and resources.

Entrepreneurial opportunity decision model. Finally, I develop a model of entrepreneurial decision making that explains decisions on opportunity selection and speed. Although this dissertation applies this model in the context of internationalization decisions, the theoretical framework applies more broadly to decision situations where managers and entrepreneurs must choose from among more than one opportunity.

Examples of these types of decisions exist throughout the Entrepreneurship literature, and I explain below how this dissertation's model reflects entrepreneurs' decisions beyond internationalization opportunities.

This dissertation sheds light on entrepreneurs' decision making processes and opportunity selection. Shane and Venkataraman (2000) define the field of Entrepreneurship as "*the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them (218).*" In this dissertation, I focus on the evaluation and selection of international opportunities, and the entrepreneurs who conduct the evaluations and selections. This dissertation demonstrates that cognitive processes of comparison and structural alignment underpin entrepreneurs' opportunity evaluations and exploitations of opportunities in situations where entrepreneurs select from a set of more than one opportunity. Examples of these situations in entrepreneurship include:

- entrepreneurs evaluating multiple variations of an opportunity as they modify their opportunity over time (Hills and Singh, 2004), especially among those entrepreneurs that decide to start a business before identifying an opportunity (Bhave, 1994);
- serial entrepreneurs generating a set of alternative market opportunities before selecting one as their next start-up (Gruber, MacMillan, and Thompson, 2008); and
- venture capitalists selecting from multiple opportunities

All of the above examples describe situations whereby entrepreneurs evaluate and select opportunities from among a set of two or more opportunities. Researchers in Cognitive Psychology studying cognitive comparisons and structural alignment argue that cognitive processes of comparison and structural alignment underpin individuals'

choices or decisions between opportunities (Markman and Medin, 1995; Markman and Moreau, 2001). In this dissertation, I apply this Cognitive Psychology theory and develop a theoretical decision making model explaining entrepreneurs' evaluation, selection, and exploitation of opportunities. In this way, I shed light on the cognitive processes of comparison and structural alignment that underpin entrepreneurs' decisions on opportunity selection and speed and inform future research regarding how and why the alignment of opportunity features impacts entrepreneurs' decisions. Specifically, the comparable and noncomparable nature of opportunity features influences which opportunities entrepreneurs select and when they decide to exploit an opportunity.

Practical Implications. In addition to making contributions to Management research on new venture internationalization and associated domains, the dissertation's results also have a number of important implications for practice. I discuss below the implications of this dissertation for entrepreneurs, public policy, and education.

Implications for entrepreneurs. In practice, the results of this dissertation help managers and entrepreneurs to better understand the cognitive reasoning behind important decisions on international opportunity selection and age at entry. These internationalization decisions critically impact new venture performance. Early internationalization creates the opportunity for new ventures to grow but also increases the likelihood of failure (Sapienza et al., 2006). Early internationalization also places the new venture under serious resource constraints, because the new venture must deal with both the liability of newness and the liability of foreignness. These resource constraints limit the ability of the new venture to recover from poor internationalization decisions. Given these considerations, making a 'good' initial internationalization decision is

critical for entrepreneurs and for the success of their new ventures. Seen in this light, the dissertation's findings have the potential to help entrepreneurs make better decisions regarding their firm's international expansion(s).

In this dissertation, I demonstrate that entrepreneurs use decidedly fewer NADs than Cs or ADs in their internationalization decisions. Yet, I also show that some NADs appear to be 'deal breakers' and have a notable influence on entrepreneurs' decisions on international opportunity selection and age at entry. These results imply that entrepreneurs may neglect important factors (*e.g.*, NADs) in their internationalization decisions that may lead to sub-optimal choices and negative performance consequences. For example, an entrepreneur may focus on culture (an alignable difference) that is readily comparable when selecting an opportunity but ignore the distribution system (a nonalignable difference). Ignoring a NAD such as the distribution system could lead to significant adaptation costs as well as important partner selection considerations. As such, entrepreneurs face an important challenge of overcoming their natural predisposition to focus on comparable (Cs and ADs) features and pay considerably less attention to noncomparable features like NADs. Seen in this light, the dissertation's result cast light on the potential relevance of using decision heuristics that consider both comparable and noncomparable features of potential international opportunities.

In order to assist entrepreneurs in their efforts to more fully evaluate the relevant and important features of international opportunities, I propose that existing consulting and assistance programs could be adjusted. Current consulting and international trade assistance programs cover the internationalization process in general but, to date, do not specifically assist entrepreneurs to more fully evaluate potential international

opportunities. Adjustments to existing programs would reflect the natural predisposition of entrepreneurs to focus on comparable opportunity features and potentially ignore relevant and important noncomparable opportunity features. By helping entrepreneurs to more completely evaluate potential international opportunities, these programs help entrepreneurs to make better, and more informed, internationalization decisions.

By extension, I propose that entrepreneurs can make decisions that best fit their individual and their firm's strengths and resources by better understanding how this decision making process proceeds, both consciously and subconsciously. Ultimately, a better understanding of the processes underpinning opportunity evaluation and selection as well as the potential problems shall help entrepreneurs make better decisions on which opportunities to exploit, how to exploit internationalization opportunities, and when to exploit them. In turn, entrepreneurs making more optimal decisions improve their odds of growth and survival when expanding internationally.

Along the same lines, prior research on structural alignment and decision making suggests that when deciding among alternative options, increases in domain knowledge allow individuals to process more comparable and more noncomparable features (Markman and Moreau, 2001; Zhang, 1997; Zhang and Markman, 2001). The U-Model and IE theory also highlight the importance of knowledge – both foreign market knowledge and internationalization process knowledge – for entrepreneurs' internationalization decisions. Therefore, increasing international knowledge represents one way for entrepreneurs to make better internationalization decisions. Entrepreneurs have several options available to them to build additional international knowledge (*e.g.*, self-studying international business, utilizing resources such as universities, public

training programs, or international trade assistance providers). The sections below on implications for policy and implications for education address this issue of knowledge acquisition.

Implications for policy. Entrepreneurship and International Business policies are the object of significant debate at the state and federal levels. Entrepreneurs create jobs and economic growth while international businesses pay higher salaries and grow more than their domestic counterparts (Lu and Beamish, 2001; OECD, 1997). As a result, local and national policy makers promote international expansion as a means for economic development. However, research shows that international businesses do not get the help they need to go international or expand their presence overseas (Holstein, 2008), and international trade assistance programs often require high levels of investment in domestic and overseas offices and personnel.

The results of this dissertation suggest that one important individual difference influencing entrepreneurs' internationalization decisions is the entrepreneurs' level of international knowledge. Further, extant research in International Business and International Entrepreneurship show that the unique characteristics of the environment (*e.g.*, competition), the firm (*e.g.*, alliances), and the entrepreneur (*e.g.*, networks) impact entrepreneurs internationalization decisions (Oviatt and McDougall, 1994, 2005).

These results indicate that international trade assistance programs could be tailored to the needs of the individual entrepreneur and firm. By better understanding what influences entrepreneurs' internationalization decisions, programs can be fit to the different needs of different entrepreneurs to increase the success of entrepreneurs in international markets. One entrepreneur might need help building a suitable network to

help his/her firm expand. A different entrepreneur might need training to develop international knowledge for his/her firm's international expansion.

In this regard, programs that help entrepreneurs to minimize their natural predisposition to focus on comparable (Cs and ADs) features and potentially neglect 'deal breaker' noncomparable features (NADs) when making internationalization decisions would be particularly useful. These programs would highlight the full range of important factors entrepreneurs might consider when expanding internationally with a special emphasis on the potentially neglected and 'deal breaking' noncomparable opportunity features.

Policies that help entrepreneurs improve their international knowledge also benefit entrepreneurs in their efforts to expand internationally and thus provide the economic benefits sought by policymakers. In this regard, fourteen of the nineteen verbal protocol participants (Study 1) reported participating in self-study on international topics, including non-academic or professional training on international topics. Due to the growing number of born global firms, international trade assistance providers have an important role to play in training and educating international entrepreneurs.

The challenge for policy makers is to make these programs accessible to entrepreneurs and to make these programs known to entrepreneurs early in the firm's lifecycle. Results from Study 2 (the survey) showed that if entrepreneurs do not internationalize within the firm's first fifteen years, they are unlikely to ever internationalize the firm. Policies that achieve these goals of accessibility and publicity include keeping international trade assistance local, such as international Small Business Development Centers (SBDCs) interspersed and co-located with 'regular' SBDCs that

provide start up, growth, and other advice to new ventures. By co-locating international SBDCs within the SBDC network, not only are entrepreneurs more likely to find the international SBDCs, but SBDC personnel are more likely to refer new ventures with internationalization needs to international SBDCs.

Implications for education. The above sections argued that helping entrepreneurs to consider the full range of opportunity features when expanding internationally involves increasing knowledge so that entrepreneurs include more comparable and noncomparable features in their evaluations of international opportunities. Ultimately, this may help entrepreneurs make better internationalization decisions and has important implications for Entrepreneurship and International Business education.

One important means by which entrepreneurs gain international knowledge (both foreign market knowledge and internationalization process knowledge) is through formal education. In fact, in Study 1 (the verbal protocol study), the level of formal education completed positively correlated with international opportunity selection so that more formal education positively relates to more likely selection of an international opportunity. However, Study 1 also indicates that few entrepreneurs take advantage of available formal education in international-related topics. Only seven of the nineteen Study 1 participants reported having formal education on international topics such as international business, international culture, international economics or international politics. In contrast, fourteen of the nineteen participants reported self-studying the same topics. For educators, this represents a missed opportunity. A market need exists to provide formal international education to interested entrepreneurs; yet, these entrepreneurs chose to go elsewhere for this education. The growing number of 'born

global' firms internationalizing early in the firm's lifecycle also suggests an increasingly large market need for formal international education as recent estimates state that one-third or more of all new ventures are internationalizing early (Harveston, 2000), and the data from Study 2 (the survey) showed that more than 25% of responding firms internationalized within five years of founding and more than half internationalized within fifteen years of founding.

Entrepreneurship scholars consider internationalization to be an entrepreneurial act (Davidsson, 2005), and entrepreneurs evaluate and exploit international opportunities just as they evaluate and exploit domestic market opportunities. Further, the number of new ventures internationalizing early continues to grow. This suggests that increasing the coverage of international entrepreneurship in entrepreneurship courses may help meet entrepreneurs' unmet demands for formal international education. Additionally, new courses focusing on international entrepreneurship, especially at the graduate level, would also provide opportunities for universities to meet entrepreneurs' needs for formal education in international entrepreneurship. Finally, better educating entrepreneurs on internationalization may improve their new ventures' performance while helping to achieve policy objects (as described above).

Conclusion

In Chapter I, I identify five research objectives derived from and extending extant research in International Entrepreneurship, International Business, Entrepreneurship, and Strategic Management. In concluding this dissertation, I revisit these research objectives here and demonstrate how I achieved each objective.

- Objective 1: better understand why entrepreneurs make different internationalization decisions;

Entrepreneurs make different internationalization decisions because cognitive comparisons of country features underpin these decisions, and the comparable and noncomparable nature of these features influences their internationalization decisions. In general, entrepreneurs focus on comparable features (Cs and ADs) between countries when making internationalization decisions, but a few critical noncomparable features (NADs) also strongly affect entrepreneurs' internationalization decisions.

- Objective 2: reconcile and integrate two competing theories of new venture internationalization by demonstrating that cognitive processes of comparison and structural alignment account for the different predictions of each theory;

By demonstrating support for the foundational propositions of this dissertation, I show how cognitive processes of comparison and structural alignment underpin entrepreneurs' decisions on both age at initial entry and likelihood of international opportunity selection. In doing so, I observe that common cognitive processes underpin the internationalization decisions discussed by each of the competing theories. In addition, the direct effects hypotheses (H1-H6) show that neither theory alone can account for entrepreneurs' internationalization decisions regarding *where* and *when* to internationalize. Instead, the U-Model's focus on 'similarity' makes sense for understanding both *where* to internationalize as entrepreneurs use Cs, ADs, and NADs in these decisions, and similarity considerations, specifically Cs, also matter for entrepreneurs' decisions on *when* to internationalize. Further, the IE theory's discussion of 'entrepreneurial actor perceptions' demonstrates that we need to understand the

cognitive processes underpinning entrepreneurs' internationalization decisions on international opportunity selection and age at initial international entry.

- Objective 3: reinforce the importance of studying the role of entrepreneurs' cognitive processes in explaining internationalization patterns and age at entry;

In response to limitations of prior research, there is growing interest in International Business, Entrepreneurship, and International Entrepreneurship regarding the role of cognition in internationalization decisions. Not only does understanding the cognitive processes underpinning entrepreneurs' decisions help us to integrate and reconcile different internationalization theories, but also shows how and why different factors influence entrepreneurs' decisions on international opportunity selection and age at initial international entry. As such, I show that different outputs of the cognitive comparisons (*i.e.*, Cs, ADs, and NADs) impact different internationalization decisions differently. Commonalities strongly influence both decisions while nonalignable differences and alignable differences most impact opportunity selection decisions. I clearly demonstrate in this dissertation the importance of taking an individual-level and cognitive approach to understanding entrepreneurs' internationalization decisions.

- Objective 4: detail the impact of international prior knowledge on cognitive processes behind both internationalization theories;

The extant internationalization literature advocates the importance of international prior knowledge when studying a variety of internationalization outcomes. Both internationalization theories discussed in this dissertation suggest that entrepreneurs' internationalization decisions change when they gain critical foreign market and internationalization process knowledge. In this dissertation, I predicted in Hypotheses 7

and 8 that prior international knowledge changes how entrepreneurs evaluate potential international opportunities. The results indicate that entrepreneurs shift their evaluations of opportunities away from similarity considerations as a result of great prior international knowledge and that prior international knowledge directly impacts entrepreneurs' decisions on both opportunity selection and age at entry.

- Objective 5: further support the role of comparisons and structural alignment as key cognitive processes that underpin important entrepreneurial decisions such as opportunity recognition, evaluation, and selection.

In addition to the arguments presented in this dissertation on similarity and option comparisons, researchers have successfully applied structural alignment theory to explain a broad range of phenomena in Marketing, Cognitive Psychology, and Entrepreneurship such as analogy (Gentner, 1983), categorization (Markman and Wisniewski, 1997), conceptual combination (Costello and Keane, 2001), early entrant advantages (Zhang and Markman, 1998), knowledge transfer (Gentner, Rattermann, and Forbus, 1993), and social comparison (Mussweiler and Gentner, 2007). Despite the usefulness of structural alignment theory to explain many phenomena, limited research exists in Management and related fields applying this theory to managers and entrepreneurs. Along with Grégoire, Barr, and Shepherd's 2010 work on opportunity recognition, I demonstrate that cognitive processes of structural alignment matter for entrepreneurs' decisions regarding opportunity evaluation and exploitation.

Chapter Summary

Chapter VI concludes this dissertation by discussing the theoretical and practical implications of the dissertation's results by reviewing the results of the foundational

propositions and each set of hypotheses. The Chapter also suggests extensions of the dissertation's current model and avenues for future research. Next, Chapter VI outlines five core contributions of this dissertation. Chapter VI ends by demonstrating how the dissertation meets the research objectives set out in Chapter I.

APPENDICES

Appendix 4.1 - Study 2 Independent Variable Construction

The development and selection of the ten Cs/ADs and ten Cs/NADs described in Chapter IV followed two approaches. For the first approach, I used a literature review and survey to evaluate the practical relevance to entrepreneurs of various country features. The second approach consisted of a confirmatory literature review to ensure that Study 2 included the most meaningful theoretical concepts in the international market selection and age at entry literatures.

Approach 1: Literature review and survey. Measuring the number and attractiveness of Cs, ADs, and NADs between countries required evaluating commonalities and differences between countries that entrepreneurs view as relevant. To address the relevance issue, I conducted an exhaustive search of the internationalization literature, and identified more than 60 items as theoretically important to internationalization decision making. Three academics familiar with the internationalization literature pared down this list from sixty items to the thirty-five most important factors.

Next, to verify the relevance of these items to actual entrepreneurs, we sent the list of thirty-five items to a sample of entrepreneurs managing high growth firms. Entrepreneurs within these firms rated each of the 35 factors on a scale from 1 = “Not at all Relevant” to 7 = “Extremely Relevant” in the context of evaluating a proposal to expand their firm’s business to a new foreign country. The mean relevance ratings of the 45 respondents for the thirty five items ranged from 3.32 (geographic proximity to the

United States) to 6.77 (financial return of the proposed expansion), demonstrating both the overall relevance of the items as well as the variance in relevance for these items.

For the purpose of this dissertation, twenty-nine of the thirty-five items rated by entrepreneurs met the criteria for inclusion in creating the three IVs (similarity, attractiveness of ADs, and attractiveness of NADs). I eliminated six items because they did not relate to characteristics of an international opportunity but instead related to the entrepreneurs (*e.g.*, your personal interest in doing business internationally), issues not included in the scope of this dissertation (*e.g.*, entry mode), or the domestic market (*e.g.*, saturation of the domestic market) rather than the international opportunity itself.

Next, I coded each of the twenty-nine remaining items as Cs, ADs, and NADs following the extant literature (*e.g.*, Gentner and Markman, 1994; McGill, 2002; Sifonis and Ross, 2002; Zhang and Markman, 2001). The extant research provided a simple and straightforward logic for coding commonalities: when a non-significant difference existed between the values (*e.g.*, English, English) of a common feature (*e.g.*, language) between countries, this feature represented a commonality between countries. Furthermore, the coding logic for alignable differences reflected situations where a significant difference exists between the values (*e.g.*, English, Spanish) of a common feature (*e.g.*, language) between countries. In contrast to ADs, nonalignable differences (NADs) occurred when a feature existed for one object but not for the other, which prevented the direct comparison of features between objects. For this reason, researchers often view nonalignable differences as being binary or dichotomous variables (McGill, 2002; Sifonis and Ross, 2002). This coding procedure followed the same rules as the coding for the independent variables in Study 1 regarding the coding of statements made

by entrepreneurs about comparisons between countries. Table 4.1.1 provides examples of operationalizing a product's features (an iPod) into Cs, ADs, and NADs, and Table 4.1.2 demonstrates how a country's features can be coded as Cs, ADs, and NADs. These coding procedures parallel those shown in Table 4.4 in the main text of Chapter IV.

Table 4.1.1: Structural Alignment in Choice: Cs, ADs, and NADs

iPod A	iPod B	C, AD, or NAD	Reason
8 GB Memory	8 GB Memory	Commonality	Same value along a common dimension (memory)
8 GB Memory	1 GB Memory	Alignable Difference	Different values along a common dimension (memory)
Plays Videos	Plays Videos	Commonality	Same value along a common dimension (video capabilities)
Plays Videos	Does Not Play Videos	Nonalignable Difference	Characteristic of one object not shared by the other

Table 4.1.2: Structural Alignment in Similarity: Cs, ADs, and NADs

Home	Host	C, AD, or NAD	Reason
English	English	Commonality	Same value along a common dimension (language)
English	Spanish	Alignable Difference	Different values along a common dimension (language)
Existing Firm Strategy	Can Extend Existing Strategy to This Market	Commonality	Same value along a common dimension (shared strategy)
Existing Firm Strategy	Cannot Extend Existing Strategy to This Market	Nonalignable Difference	Characteristic of one country not shared by the other

Using the above logic, I coded all twenty-nine items as potential alignable or nonalignable differences. Table 4.1.3 presents the list of 29 items, their average relevance (as rated by the 45 respondents), and their coding as alignable or nonalignable differences. I did not code any of the twenty-nine items as commonalities because they all represent potential commonalities because two countries could potentially share a value on each of them. Of the 29 items, 17 were potential nonalignable differences and

12 were potential alignable differences. For the full list of 35 items and their ratings, see Grégoire, Williams, and Oviatt (2008).

Table 4.1.3: Alignability and Nonalignability of Internationalization Factors

Item	Relevance	AD vs. NAD
Financial return of the proposed expansion	6.77	AD
Cost (financial + time + effort) of the proposed expansion	6.25	AD
Level of risk of the proposed expansion	6.20	AD
Consistency between the proposed expansion and your firm's current strategy	6.00	NAD
Barriers to entering the proposed international market	5.77	AD
Level of competition in the proposed international market	5.73	AD
Growth rate achieved by your firm because of the expansion	5.70	AD
Opportunities to use existing relationships in international markets	5.53	NAD
Superiority of your firm's products compared to your competitors'	5.23	NAD
Amount of modification required of your product / service for the international market	5.23	AD
Desire to transfer your firm's competitive advantage into other markets	5.18	NAD
Your firm's clients are international	4.98	NAD
Possibility to leverage economies of scale (e.g., in production, R&D, etc.)	4.91	NAD
Ability to diversify your sales base	4.89	NAD
Level of intellectual property protection in the proposed foreign country	4.86	AD
Ability to coordinate the competitive positions of your products in multiple foreign markets	4.80	NAD
Language spoken in the proposed international market	4.70	AD
Desire to develop new relationships and networks	4.68	NAD
Access to low-cost factors (e.g., labor, materials, etc.)	4.64	NAD
Need to protect your firm's assets through international expansion	4.50	NAD
Stage of your product(s)' life-cycle	4.34	AD
Access to new resources (e.g., knowledge, information, technology, innovation)	4.34	NAD
Cultural similarity of the country of the proposed expansion to the USA	4.32	AD
Need to create a new product / service for the foreign market	4.23	NAD
Need to achieve first-mover advantage	4.07	NAD
Opportunity for your firm to learn from the proposed expansion	3.89	NAD
Ability to sell over the internet	3.41	NAD
Geographic proximity of the proposed expansion to the USA	3.32	AD

Approach 2: Confirmatory literature review. After using the first approach to determine a list of potential, relevant features between countries, I conducted a confirmatory literature review to ensure that Study 2 included the most meaningful items in the international market selection and age at entry literatures. The literature review focused on empirical research regarding market selection, age at initial internationalization, market similarity, and psychic distance. I created a list of all variables included in these twenty-three studies. I merged like variables with different names into a single factor. For example, different studies used different names for the

factor I call ‘institutional factors,’ but if the authors’ description of the variable clearly linked the variable to institutional factors, I coded the study as including institutional factors. Table 4.1.4 contains the full set of twenty-three empirical articles examined, and Table 4.1.5 lists the most common factors from twenty-three empirical studies on the above topics. The table also notes the frequency of use in the twenty-three empirical studies along with a code of AD or NAD for each feature.

Table 4.1.4: IB Research: List of Twenty-Three Empirical Studies

Alexander et al. (2007)	Dow & Karunaratna (2006)	Grein (2000)
Benito & Gripsud (1992)	Dow (2000)	Oh & Rugman (2007)
Brewer (2007a)	Edwards & Buckley (1998)	Ojala & Tyrvaainen (2007)
Brewer (2007b)	Ellis (2007)	Ojala (2008)
Cavusgil & Zhou (1994)	Ellis (2008)	Sethi (1971)
Child et al. (2002)	Eriksson et al (1997)	Sousa & Bradley (2006)
Clark & Pugh (2001)	Erramilli (1991)	Yeniyurt et al. (2007)
Davidson (1983)	Evans & Mavondo (2002)	

Table 4.1.5: IB Research: Common Factors Influencing Market Selection

Factor	Frequency	AD vs. NAD
Cultural similarity or distance	75.00%	AD
Market size / growth	45.83%	AD
Economic development / environment / distance	41.67%	AD
Geographic distance	41.67%	AD
Institutional factors / distance (including political systems)	41.67%	AD
Psychic distance (subjective)	33.33%	AD
Language	25.00%	AD
Market / industry structure & sophistication	25.00%	NAD
Education	16.67%	AD
Historical or colonial ties	16.67%	NAD
Commercial ties (existing trade between countries)	16.67%	AD
Networks - business / personal / social	12.50%	NAD
Competition	12.50%	NAD
Technological development	8.33%	AD
Product exposure in the market	4.17%	AD
Religion	4.17%	AD

Selecting ADs and NADs for Study 2. In order to determine which country features to select as the ADs and NADs included in Study 2, I compared the results in Tables 4.1.3 and 4.1.5 to identify which international opportunity features both

entrepreneurs and researchers viewed as most important. The tables exhibit significant overlap in ideas, and I selected features prominently rated on both tables. Then, I selected any remaining items highly rated on one table but not already selected. In total, I chose the ten most important ADs and the ten most important NADs including the highest ranked ADs and NADs from each table. Of the ADs and NADs selected from Table 4.1.3, respondents rated NADs, on average, as slightly more relevant (5.03) than the ADs selected (4.77).

For alignable differences, distance measures (psychic, cultural, geographic, economic, and institutional) dominate the literature and entrepreneurs rated them as highly relevant. Therefore, I selected these five distance measures as ADs for Study 2. The other five ADs chosen include distance measures of commercial ties, language, level of trade barriers, level of competition in the foreign market, and market size difference.

I chose a corresponding number of ten nonalignable differences to measure similarity and the attractiveness of NADs in opportunity selection and age at international entry. These features included all four important NADs in the literature (Table 4.1.4): market structure, historical ties, networks, and competitive superiority. The ten NADs chosen also included the items rated highest by entrepreneurs (Table 4.1.3): ability to extend current strategy to the international market, ability to diversify sales base, competitive advantage extension, current customers are international, ability to build economies of scale, and opportunity for learning. Appendices 4.2 and 4.3 review and discuss the measurement and aggregation of each of the ten potential ADs and NADs, and Table 4.13 at the end of the Chapter IV text summarizes this discussion of the measurement of each variable and the data source for each variable.

Appendix 4.2 – Measurement of the Twenty Cs, ADs, and NADs in Study 2

Measures of commonalities / alignable differences. This section describes the measurement of each component of the independent variables. Distance measures common in the internationalization literature comprise the ten potential commonality / alignable differences used to measure similarity and attractiveness of ADs.

- *Cultural distance* derived from Hofstede's (1980) four cultural dimensions: power distance, uncertainty avoidance, individualism, and masculinity (Kogut and Singh, 1988). I used the Euclidean distance between the U.S. and each country entered (Slangen and Beugelsdijk, 2010).
- I measured *Economic distance* as the differences in GDP growth rates between the home country (United States) and the first international market entered (Yeniyurt, Townsend, and Talay, 2007). I based this measure on the year in which the entry was made using data from the World Bank's World Development Indicators.
- *Geographic distance* measured the distance, in nautical miles, between Chicago (the largest port and major city in the sample frame's geographical region) and the nearest port of entry for each entered market. Shipping distance between ports more accurately models the costs of trade and travel inherent in geographic distance than distance between the centers of countries or distance between capital cities (Combes and Lafourcade, 2005; Ellis, 2007). Data for geographical distance came from www.maritimechain.com.
- The measure for *Institutional distance* reflected the difference between the institutional profile of the United States and the first international entry. Following Xu, Pan, and Beamish (2004), I derived institutional profiles for the U.S. and the host country from *The Global Competitiveness Report*, and created a Euclidean distance measure between the two countries reflecting the regulative and normative facets of the institutional environment (Chao and Kumar, 2010; Kostova, 1997; Kostova and Roth, 2002).
- Several of the above distance measures have been used to measure *psychic distance* in the extant literature. However, recent research aiming to get back to the original definition of psychic distance as barriers to information flow have introduced subjective measures of psychic distance rather than relying on cultural or geographic distance to proxy for psychic distance. Following the view that psychic distance is a cognitive factor whereby the entrepreneurs' perception of psychic distance is what matters when making internationalization decisions, I measured psychic distance as the difference, rated by each entrepreneur, between the United States and their first international entry. The survey provided the original psychic distance definition from Johanson and Wiedersheim-Paul (1975)

to the subjects, who then rated their perceived level of psychic distance between the U.S. and their first international entry on a scale from 1 = “Not at all Distant” to 7 = “Almost Completely Distant” (Dow, 2000; Ellis, 2007; Ellis, 2008). The extant literature demonstrates the effectiveness of measuring psychic distance as an individual perception (Klein and Roth, 1990; O’Grady and Lane, 1996; Sousa and Bradley, 2005, 2006).

- *Commercial tie distance* reflected the amount of trade between countries as a percentage of the home country’s total trade flows. Because the United States is the home country for all firms in Study 2, this variable was U.S.-centric in taking the total dollars of U.S. exports to each host country, in the year of entry, and dividing by the amount of total U.S. exports in that year (Grien, 2000). I inverted this measure so that a larger commercial tie distance means less trade between countries. Trade statistics came from the U.S. Department of Commerce.
- I measured *language distance* using the different languages spoken in each country and the ‘closeness’ of the languages roots between the U.S. and the market entered (Gordon, 2005). This distance measure came from Dow and Karunaratna (2006) and included the major language spoken in each country as well as the incidence of one country’s major language in the other country.
- The distance between the level of trade barriers between the United States and each market entered determined *trade barrier distance*. I derived this measure from the *The Global Competitiveness Report* on prevalence of tariff and non-tariff trade barriers in 133 world markets.
- *Competition distance* reflected the difference in competitive intensity between the United States and the first market entered. Data on competition distance came from *The Global Competitiveness Report* on the intensity of local competition in 133 world markets.
- To measure *market size distance*, I calculated the difference between the GDP per capita of the United States and the first international market entered in the year of market entry. Data came from the World Bank World Development Indicators.

Measures of commonalities / nonalignable differences. Study 2 measured ten commonalities / nonalignable differences. Single items on the survey measured nine of these Cs/NADs by asking if the specific nonalignable difference existed (commonality) or did not exist (nonalignable difference) between the home market (U.S.) and the first international entry selected. Table 4.11 lists the survey questions for these nine Cs/NADs, and I explain each C/NAD below.

- *Market structure* referred to the sales and distribution system of a potential international market.
- *Networks* represented the chance to use existing personal or professional networks to help in the internationalization process.
- *Competitive superiority* in the foreign market measured the competitive superiority of the respondent's firm's product to the competitors in the foreign market.
- *Ability to extend the firm's current strategy* to the international market indicated consistency of the firm's strategy across markets (at least to the first international market).
- *Desire to diversify the firm's sales base* suggested an ability to balance sales across geographic regions.
- *Ability to transfer competitive advantage* measured whether the firm can transfer its competencies in the domestic market to the potential host country.
- *Leveraging economies of scale* allowed the firm to lower per unit costs by expanding an activity (*e.g.*, production or R & D).
- When firms had existing *international clients*, they made use of their clients' internationalization to tailor their own internationalization strategy to existing customers.
- Some firms internationalize seeking an *opportunity to learn* from the expansion that helped improve performance in the domestic market and other international markets.

Study 2 measured a tenth nonalignable difference: *historical ties*. If a colonial tie, either as the colonial power or a colony, existed between the U.S. and the first international market entered, then Study 2 counted this as a historical tie between the countries. Though colonial ties may play a lesser role for U.S.-based firms than firms based in other parts of the world, colonial ties have an important role in trade (Brewer, 2007a; Witter, 2004). Ghemawat (2001) found that the change in international trade between nations increases up to 900% based on colonial ties between the trading nations.

In the current sample, only the United Kingdom and the Philippines counted as colonial ties with the United States.

Appendix 4.3 – Rationale for Aggregating to Cs, ADs, and NADs in Study 2

As discussed in the main text of Chapter IV, I measured all independent variables for Study 2 at the level of commonalities (Cs), alignable differences (ADs), nonalignable differences (NADs), attractive ADs, or attractive NADs. This approach aggregated from the level of individual indicators (*e.g.*, cultural distance or market structure) to either a count of Cs, ADs, and NADs, or the summing of ‘attractiveness’ of each of these indicators. Appendix 4.3 explains the theoretical rationale for this aggregation and presents statistical evidence of the appropriateness of this aggregation.

The main argument in favor of aggregation was theoretical. The key theory used in this dissertation was structural alignment theory on cognitive processes of comparisons and similarity. This theory specifies that individuals process comparisons and similarity in terms of the number of commonalities, number of alignable differences, and number of nonalignable differences between objects. This level of analysis is consistent with the hypotheses developed in Chapter III. Therefore, I also tested these hypotheses at the appropriate level of analysis as specified by theory. The theory specifies that commonalities, alignable differences, and nonalignable differences are distinct concepts, and the selection (Appendix 4.1) and measurement (Appendix 4.2) reflected the theoretical differences between Cs, ADs, and NADs.

Statistical evidence derived from structural alignment theory also supports aggregation into total numbers (or total attractiveness) of Cs, ADs, and NADs. First, differences should be negatively correlated with perceived similarity. In the survey, I asked the respondents for their perception of similarity between the U.S. and the first country entered. Respondents rated similarity on a scale from 1 = “Very Dissimilar to the

U.S.” to 7 = “Very Similar to the U.S.” Table 4.3.1 shows the correlations between each of the 10 Cs/ADs and 10 Cs/NADs with respondents’ perceived similarity between the U.S. and the first country entered.

Table 4.3.1 Correlations of Cs/ADs and Cs/NADs with Perceived Similarity

Cs / ADs		Cs / NADs	
Indicator	Correlation	Indicator	Correlation
Cultural Distance	-0.380***	Market Structure	0.295***
Economic Distance	-0.338***	Networks	0.009
Geographic Distance	-0.129	Competitive Superiority	-0.037
Institutional Distance	-0.386***	Strategy Extension	0.082
Psychic Distance	-0.480***	Diversify Sales Base	-0.027
Commercial Tie Distance	-0.147	Historical Ties	0.171*
Language Distance	-0.298***	Competitive Advantage	0.144
Trade Barrier Distance	0.189*	International Customer	-0.127
Competition Distance	-0.210**	Economies of Scale	-0.075
Market Size Distance	0.420***	Learning	0.035

*** p≤.01 ** p≤.05 * p≤.10

Table 4.3.1 shows that 12 of the 20 indicators negatively correlated with perceived similarity as theory predicted. Further, 8 of the 10 Cs/ADs significantly correlated with perceived similarity while only 2 of 10 Cs/NADs significantly correlated with perceived similarity. This result was consistent with the structural alignment theory predictions that entrepreneurs account for Cs and ADs but may neglect NADs in their option and similarity comparisons.

Twelve of the twenty indicators in Table 4.3.1 had correlations in the proper (negative) direction despite the fact that these indicators included both potential commonalities and differences, which explains why some indicators positively correlated with perceived similarity. To demonstrate this, Table 4.3.2 shows the correlations of the aggregated independent variables with perceived similarity.

As shown in Table 4.3.2, when the Cs/ADs and Cs/NADs were parceled out and aggregated into the number of Cs, number of ADs, number of NADs, sum of attractiveness of ADs, and sum of attractiveness of NADs, the theoretically predicted correlations between these IVs and perceived similarity were clearly evident. Commonalities significantly and positively correlated with perceived similarity while alignable differences significantly and negatively correlated with perceived similarity.

In addition, nonalignable differences negatively correlated, as expected, but were not significant, indicating that individuals may have ‘neglected’ these NADs in their consideration of similarity as discussed in Chapter III. It is also worth noting that correlations between Cs, ADs, and NADs demonstrated that these were related but distinct concepts. For example, commonalities were significantly and negatively correlated with both ADs (-0.611***) and NADs (-0.675***).

Table 4.3.2 Correlations of Aggregated IVs with Perceived Similarity

Independent Variable	Correlation
Cs	0.219**
ADs	-0.244**
NADs	-0.050
AttADs	-0.375***
AttNADs	0.230**

*** p≤.01 ** p≤.05 * p≤.10

This appendix (Appendix 4.3) reinforces the theoretical difference between Cs, ADs, and NADs discussed in Chapter III as well as demonstrates statistically that these predicted theoretical differences existed in the indicators and aggregated constructs used for the independent variables in this dissertation. This appendix also clarifies that the aggregated measures appropriately matched the level of analysis of the theory and the hypotheses from Chapter III, and that this aggregation was appropriate based on the

correlations between the measures and perceived similarity, as predicted by theory. In conclusion, I showed that in addition to theoretical distinctions, there were statistical distinctions between the constructs as well. As such, both theoretical and statistical rationales supported aggregating from individual indicators to the constructs of Cs, ADs, and NADs.

Appendix 5.1 – Full Regression Results Tables for Study 1 – Verbal Protocols

**Table 5.1.1: Hierarchical Regression Analysis 1 – Participant Dummies as Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection**

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	3.452	***	0.748	Constant	3.144	***	0.668	Constant	3.112	***	0.583
Participant	5 of 18 significant at p≤.10			Participant	8 of 18 significant at p≤.10			Participant	9 of 18 significant at p≤.10		
Country	0 of 8 significant at p≤.10			Country	1 of 8 significant at p≤.10			Country	2 of 8 significant at p≤.10		
Entry Mode	-0.054		0.106	Entry Mode	-0.012		0.095	Entry Mode	-0.059		0.095
PercSim	0.572	***	0.114	PercSim	0.398	***	0.106	PercSim	0.400	***	0.100
				Cs	0.181	***	0.033	Cs	0.181	***	0.036
				ADs	-0.049		0.055	ADs	-0.060		0.053
				NADs	-0.206	***	0.070	NADs	-0.238	***	0.070
								PK	0.255	**	0.126
								PK*C	-0.028	*	0.016
								PK*AD	-0.009		0.029
								PK*NAD	0.086	**	0.040
R^2	0.394			R^2	0.553			R^2	0.592		
Adjusted R^2	0.276			Adjusted R^2	0.453			Adjusted R^2	0.490		
F	3.323	***		F	5.576	***		F	5.835	***	
df	171			df	171			df	171		
ΔR^2				ΔR^2	0.159			ΔR^2	0.039		

*** p≤.01

** p≤.05

* p≤.10

Table 5.1.2: Hierarchical Regression Analysis 2 – Individual and Firm Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	4.667	***	0.901	Constant	4.733	***	0.827	Constant	3.915	***	0.911
Country	0 of 8 significant at $p \leq 10$			Country	0 of 8 significant at $p \leq 10$			Country	2 of 8 significant at $p \leq 10$		
Gender	-0.379		0.668	Gender	-0.234		0.617	Gender	0.086		0.649
Age	-0.520		0.590	Age	-0.657		0.533	Age	-0.794		0.543
Education	-1.068	***	0.318	Education	-1.043	***	0.333	Education	-1.351	***	0.388
Work Exp	0.013		0.047	Work Exp	0.003		0.043	Work Exp	0.001		0.043
Country Born	-0.454		0.487	Country Born	-0.711		0.457	Country Born	-0.122		0.500
Industry	0.917		0.579	Industry	0.743		0.525	Industry	0.746		0.518
Firm Age	0.041		0.030	Firm Age	0.048	*	0.028	Firm Age	0.040		0.028
FTE_ln	0.118		0.341	FTE_ln	-0.076		0.311	FTE_ln	0.059		0.312
Sales_ln	-0.057		0.181	Sales_ln	0.042		0.165	Sales_ln	-0.071		0.177
Std/Cust	-0.322	***	0.119	Std/Cust	-0.337	***	0.108	Std/Cust	-0.356	***	0.108
IntlSalesDep	-0.015		0.095	IntlSalesDep	-0.052		0.086	IntlSalesDep	-0.035		0.085
Entry Mode	-0.056		0.102	Entry Mode	-0.024		0.095	Entry Mode	-0.093		0.099
PercSim	0.448	***	0.110	PercSim	0.256	**	0.106	PercSim	.267	**	0.106
				Cs	0.175	***	0.035	Cs	0.168	***	0.038
				ADs	-0.096	*	0.059	ADs	-0.106	*	0.058
				NADs	-0.159	*	0.083	NADs	-0.181	**	0.083
								PK	0.321	**	0.135
								PK*C	-0.020		0.018
								PK*AD	-0.028		0.032
								PK*NAD	0.093	**	0.048
R^2	0.295			R^2	0.441			R^2	0.485		
Adjusted R^2	0.196			Adjusted R^2	0.348			Adjusted R^2	0.381		
F	2.957	***		F	4.730	***		F	4.667	***	
df	161			df	161			df	161		
ΔR^2				ΔR^2	0.146			ΔR^2	0.044		

*** $p \leq 01$ ** $p \leq 05$ * $p \leq 10$

Table 5.1.3: Hierarchical Regression Analysis 3 – Only Significant Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	5.054	***	0.553	Constant	4.793	***	0.513	Constant	4.918	***	0.506
Country	0 of 8 significant at p≤.10			Country	0 of 8 significant at p≤.10			Country	1 of 8 significant at p≤.10		
Gender	-0.781	**	0.337	Gender	-0.693	**	0.309	Gender	-0.834	***	0.316
Education	-0.887	***	0.273	Education	-0.847	***	0.262	Education	-0.834	***	0.271
Std/Cust	-0.202	***	0.077	Std/Cust	-0.188	***	0.071	Std/Cust	-0.186	***	0.071
PercSim	0.426	***	0.103	PercSim	0.295	***	0.099	PercSim	0.298	***	0.098
				Cs	0.153	***	0.033	Cs	0.148	***	0.037
				ADs	-0.105	*	0.056	ADs	-0.118	**	0.055
				NADs	-0.183	**	0.078	NADs	-0.239	***	0.078
								PK	0.220	**	0.103
								PK*C	-0.020		0.018
								PK*AD	-0.043		0.030
								PK*NAD	0.105	**	0.048
R^2	0.248			R^2	0.389			R^2	0.436		
Adjusted R^2	0.188			Adjusted R^2	0.327			Adjusted R^2	0.361		
F	4.097	***		F	6.204	***		F	5.785	***	
df	161			df	161			df	161		
ΔR^2				ΔR^2	0.141			ΔR^2	0.047		

*** p≤.01

** p≤.05

* p≤.10

Table 5.1.4: Hierarchical Regression Analysis 1 – Participant Dummies as Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	5.991	***	0.479	Constant	6.340	***	0.434	Constant	6.289	***	0.428
Participant	16 of 18 significant at p≤.10			Participant	18 of 18 significant at p≤.10			Participant	18 of 18 significant at p≤.10		
Country	3 of 8 significant at p≤.10			Country	1 of 8 significant at p≤.10			Country	5 of 8 significant at p≤.10		
Entry Mode	0.083		0.068	Entry Mode	0.022		0.062	Entry Mode	0.053		0.062
PercSim	-0.374	***	0.073	PercSim	-0.254	***	0.069	PercSim	-0.224	***	0.068
				Cs	-0.129	***	0.021	Cs	-0.135	***	0.023
				ADs	-0.055		0.035	ADs	-0.049		0.035
				NADs	0.051		0.046	NADs	0.045		0.046
								PK	-0.227	***	0.082
								PK*C	0.022	**	0.011
								PK*AD	-0.009		0.019
								PK*NAD	0.011		0.026
R^2	0.624			R^2	0.714			R^2	0.736		
Adjusted R^2	0.551			Adjusted R^2	0.651			Adjusted R^2	0.668		
F	8.480	***		F	11.282	***		F	10.834	***	
df	171			df	171			df	171		
ΔR^2				ΔR^2	0.090			ΔR^2	0.022		

*** p≤.01

** p≤.05

* p≤.10

Table 5.1.5: Hierarchical Regression Analysis 2 – Individual and Firm Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	1.677	**	0.715	Constant	1.805	**	0.718	Constant	2.933	***	0.775
Country	0 of 8 significant at $p \leq 10$			Country	0 of 8 significant at $p \leq 10$			Country	2 of 8 significant at $p \leq 10$		
Gender	1.929	***	0.493	Gender	1.737	***	0.495	Gender	1.148	**	0.519
Age	-1.210	***	0.444	Age	-1.125	***	0.429	Age	-0.813	*	0.435
Education	0.358		0.239	Education	0.432	*	0.262	Education	0.991	***	0.306
Work Exp	0.084	**	0.035	Work Exp	0.089	***	0.034	Work Exp	0.086	**	0.033
Country Born	0.271		0.347	Country Born	0.266		0.361	Country Born	-0.381		0.391
Industry	0.281		0.431	Industry	0.299		0.422	Industry	0.200		0.413
FTE_ln	0.033		0.187	FTE_ln	0.069		0.184	FTE_ln	-0.107		0.191
Sales_ln	0.016		0.133	Sales_ln	-0.002		0.132	Sales_ln	0.185		0.141
Std/Cust	0.184	**	0.090	Std/Cust	0.195	**	0.087	Std/Cust	0.240	***	0.086
IntlSalesDep	-0.133	*	0.069	IntlSalesDep	-0.118	*	0.068	IntlSalesDep	-0.122	*	0.066
Entry Mode	0.102		0.075	Entry Mode	0.091		0.074	Entry Mode	0.160	**	0.076
PercSim	-0.348	***	0.085	PercSim	-0.249	***	0.087	PercSim	-0.231	***	0.086
				Cs	-0.097	***	0.028	Cs	-0.080	***	0.030
				ADs	0.040		0.048	ADs	0.052		0.046
				NADs	0.022		0.066	NADs	0.011		0.065
								PK	-0.386	***	0.108
								PK*C	0.004		0.014
								PK*AD	-0.003		0.025
								PK*NAD	-0.036		0.039
R^2	0.404			R^2	0.457			R^2	0.507		
Adjusted R^2	0.320			Adjusted R^2	0.367			Adjusted R^2	0.408		
F	4.782	***		F	5.053	***		F	5.105	***	
df	161			df	161			df	161		
ΔR^2				ΔR^2	0.053			ΔR^2	0.050		

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 5.1.6: Hierarchical Regression Analysis 3 – Only Significant Controls
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Age at International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	2.692	***	0.430	Constant	2.758	***	0.423	Constant	2.768	***	0.426
Country	0 of 8 significant at $p \leq 10$			Country	0 of 8 significant at $p \leq 10$			Country	0 of 8 significant at $p \leq 10$		
Gender	0.931	***	0.262	Gender	0.904	***	0.256	Gender	0.961	***	0.267
Std/Cust	0.274	***	0.056	Std/Cust	0.263	***	0.056	Std/Cust	0.263	***	0.058
PercSim	-0.330	***	0.080	PercSim	-0.249	***	0.081	PercSim	-0.244	***	0.083
				Cs	-0.090	***	0.027	Cs	-0.073	**	0.031
				ADs	0.069		0.045	ADs	0.085	*	0.046
				NADs	0.037		0.064	NADs	0.069		0.066
								PK	-0.150	*	0.085
								PK*C	0.001		0.015
								PK*AD	-0.004		0.025
								PK*NAD	-0.054		0.041
R^2	0.319			R^2	0.375			R^2	0.396		
Adjusted R^2	0.269			Adjusted R^2	0.316			Adjusted R^2	0.320		
F	6.397	***		F	6.306	***		F	5.211	***	
df	161			df	161			df	161		
ΔR^2				ΔR^2	0.056			ΔR^2	0.021		

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 5.1.7: Hierarchical Regression Analysis 1 – Participant Dummies as Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Likelihood of International Opportunity Selection

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	3.799	***	0.629	Constant	2.922		4.282	Constant	3.240		4.225
Participant	6 of 18 significant at p≤.10			Participant	12 of 18 significant at p≤.10			Participant	8 of 18 significant at p≤.10		
Country	1 of 6 significant at p≤.10			Country	0 of 6 significant at p≤.10			Country	0 of 6 significant at p≤.10		
Entry Mode	-0.052		0.105	Entry Mode	0.111		0.111	Entry Mode	0.068		0.114
PercSim	0.506	***	0.095	PercSim	0.466	***	0.121	PercSim	0.436	***	0.120
				Attractive ADs	0.174	**	0.071	Attractive ADs	0.145	**	0.073
				Attractive NADs	0.366	***	0.106	Attractive NADs	0.343	***	0.105
								PK	0.323	**	0.139
								PK*AttAD	0.029		0.049
								PK*AttNAD	-0.028		0.061
R^2	0.389			R^2	0.622			R^2	0.646		
Adjusted R^2	0.279			Adjusted R^2	0.499			Adjusted R^2	0.514		
F	3.548	***		F	5.060	***		F	4.883	***	
df	171			df	114			df	114		
ΔR^2				ΔR^2	0.233			ΔR^2	0.024		

*** p≤.01

** p≤.05

* p≤.10

Table 5.1.8: Hierarchical Regression Analysis 2 – Individual and Firm Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Likelihood of International Opportunity Selection

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	5.092	***	0.843	Constant	3.897	***	0.952	Constant	2.790	***	1.010
Country	2 of 6 significant at $p \leq 10$			Country	0 of 6 significant at $p \leq 10$			Country	1 of 6 significant at $p \leq 10$		
Gender	-0.405		0.667	Gender	-0.254		0.716	Gender	0.355		0.723
Age	-0.529		0.589	Age	0.133		0.640	Age	-0.348		0.646
Education	-1.046	***	0.317	Education	-1.243	***	0.352	Education	-1.721	***	0.392
Work Exp	0.012		0.047	Work Exp	-0.046		0.051	Work Exp	-0.036		0.050
Country Born	-0.501		0.484	Country Born	0.062		0.531	Country Born	0.779		0.591
Industry	0.859		0.575	Industry	1.022	*	0.622	Industry	0.920		0.608
Firm Age	0.044		0.029	Firm Age	0.095	***	0.032	Firm Age	0.097	***	0.031
FTE_ln	0.095		0.340	FTE_ln	-0.365		0.377	FTE_ln	-0.213		0.373
Sales_ln	-0.058		0.180	Sales_ln	-0.019		0.199	Sales_ln	-0.214		0.213
Std/Cust	-0.321	***	0.119	Std/Cust	-0.307	**	0.127	Std/Cust	-0.331	***	0.123
IntlSalesDep	-0.005		0.094	IntlSalesDep	0.038		0.107	IntlSalesDep	0.030		0.104
Entry Mode	-0.055		0.102	Entry Mode	-0.005		0.118	Entry Mode	-0.075		0.119
PercSim	0.398	***	0.098	PercSim	0.503	***	0.134	PercSim	0.460	***	0.131
				Attractive ADs	0.136	*	0.079	Attractive ADs	0.084		0.080
				Attractive NADs	0.235	**	0.119	Attractive NADs	0.229	**	0.116
								PK	0.383	**	0.156
								PK*AttAD	0.087	*	0.053
								PK*AttNAD	0.015		0.070
R^2	0.293			R^2	0.458			R^2	0.509		
Adjusted R^2	0.198			Adjusted R^2	0.333			Adjusted R^2	0.375		
F	3.090	***		F	3.669	***		F	3.792	***	
df	161			df	107			df	107		
ΔR^2				ΔR^2	0.165			ΔR^2	0.051		

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 5.1.9: Hierarchical Regression Analysis 3 – Only Significant Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Likelihood of International Opportunity Selection

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	5.304	***	0.355	Constant	4.677	***	0.496	Constant	4.666	***	0.501
Country	2 of 6 significant at $p \leq 10$			Country	0 of 6 significant at $p \leq 10$			Country	0 of 6 significant at $p \leq 10$		
Gender	-0.778	**	0.335	Gender	-0.662	*	0.084	Gender	-0.743	*	0.397
Education	-0.879	***	0.272	Education	-0.737	**	0.313	Education	-0.793	**	0.326
Std/Cust	-0.203	***	0.077	Std/Cust	-0.212	**	0.086	Std/Cust	-0.185	**	0.088
PercSim	0.391	***	0.090	PercSim	0.442	***	0.121	PercSim	0.426	***	0.124
				Attractive ADs	0.137	*	0.076	Attractive ADs	0.117		0.078
				Attractive NADs	0.202	*	0.120	Attractive NADs	0.206	*	0.121
								PK	0.105		0.126
								PK*AttAD	0.037		0.053
								PK*AttNAD	0.043		0.070
R^2	0.245			R^2	0.336			R^2	0.349		
Adjusted R^2	0.195			Adjusted R^2	0.259			Adjusted R^2	0.252		
F	4.907	***		F	4.408	***		F	3.568	***	
df	161			df	107			df	107		
ΔR^2				ΔR^2	0.091			ΔR^2	0.013		

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 5.1.10: Hierarchical Regression Analysis 1 – Participant Dummies as Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	5.458	***	0.409	Constant	6.556	***	0.465	Constant	6.694	***	0.478
Participant	16 of 18 significant at $p \leq .10$			Participant	17 of 18 significant at $p \leq .10$			Participant	17 of 18 significant at $p \leq .10$		
Country	2 of 6 significant at $p \leq .10$			Country	2 of 6 significant at $p \leq .10$			Country	3 of 6 significant at $p \leq .10$		
Entry Mode	0.075		0.068	Entry Mode	-0.029		0.072	Entry Mode	-0.038		0.074
PercSim	-0.292	***	0.062	PercSim	-0.271	***	0.079	PercSim	-0.266	***	0.077
				Attractive ADs	-0.099	**	0.046	Attractive ADs	-0.107	**	0.047
				Attractive NADs	-0.253	***	0.069	Attractive NADs	-0.241	***	0.067
								PK	-0.172	**	0.090
								PK*AttAD	0.055	*	0.031
								PK*AttNAD	0.004		0.039
R^2	0.613			R^2	0.773			R^2	0.793		
Adjusted R^2	0.543			Adjusted R^2	0.702			Adjusted R^2	0.718		
F	8.763	***		F	10.836	***		F	10.592	***	
df	170			df	113			df	113		
ΔR^2				ΔR^2	0.160			ΔR^2	0.02		

*** $p \leq .01$

** $p \leq .05$

* $p \leq .10$

Table 5.1.11: Hierarchical Regression Analysis 2 – Individual and Firm Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	1.072	*	0.607	Constant	2.729	***	0.772	Constant	3.729	***	0.819
Country	1 of 6 significant at $p \leq 10$			Country	1 of 6 significant at $p \leq 10$			Country	2 of 6 significant at $p \leq 10$		
Gender	1.953	***	0.494	Gender	1.455	**	0.597	Gender	1.023	*	0.604
Age	-1.198	***	0.444	Age	-1.477	***	0.542	Age	-1.186	**	0.546
Education	0.323		0.238	Education	0.718	**	0.297	Education	1.217	***	0.332
Work Exp	0.084	**	0.035	Work Exp	0.100	**	0.042	Work Exp	0.104	**	0.042
Country Born	0.318		0.346	Country Born	-0.380		0.423	Country Born	-1.083	**	0.473
Industry	0.352		0.429	Industry	-0.199		0.520	Industry	-0.126		0.506
FTE_In	0.041		0.187	FTE_In	0.061		0.235	FTE_In	-0.059		0.239
Sales_In	0.020		0.133	Sales_In	-0.026		0.164	Sales_In	0.130		0.178
Std/Cust	0.182	**	0.090	Std/Cust	0.236	**	0.107	Std/Cust	0.248	**	0.104
IntlSalesDep	-0.145	**	0.069	IntlSalesDep	-0.066		0.088	IntlSalesDep	-0.067		0.086
Entry Mode	0.101		0.075	Entry Mode	0.066		0.099	Entry Mode	0.125		0.099
PercSim	-0.281	***	0.073	PercSim	-0.440	***	0.111	PercSim	-0.407	***	0.108
				Attractive ADs	-0.034		0.067	Attractive ADs	-0.004		0.067
				Attractive NADs	-0.060		0.101	Attractive NADs	-0.045		0.098
								PK	-0.390	***	0.131
								PK*AttAD	-0.018		0.044
								PK*AttNAD	-0.028		0.059
R^2	0.393			R^2	0.430			R^2	0.486		
Adjusted R^2	0.317			Adjusted R^2	0.307			Adjusted R^2	0.353		
F	5.152	***		F	3.499	***		F	3.651	***	
df	161			df	107			df	107		
ΔR^2				ΔR^2	0.037			ΔR^2	0.056		

*** $p \leq 0.01$

** $p \leq 0.05$

* $p \leq 0.10$

Table 5.1.12: Hierarchical Regression Analysis 3 – Only Significant Controls
Independent Variables: Attractive ADs and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	2.205	***	0.277	Constant	2.801	***	0.421	Constant	2.801	***	0.425
Country	1 of 6 significant at $p \leq 10$			Country	0 of 6 significant at $p \leq 10$			Country	0 of 6 significant at $p \leq 10$		
Gender	0.926	***	0.262	Gender	0.758	**	0.322	Gender	0.824	**	0.336
Std/Cust	0.278	***	0.056	Std/Cust	0.286	***	0.069	Std/Cust	0.268	***	0.072
PercSim	-0.275	***	0.070	PercSim	-0.280	***	0.101	PercSim	-0.260	**	0.104
				Attractive ADs	-0.013		0.064	Attractive ADs	0.007		0.066
				Attractive NADs	-0.103		0.100	Attractive NADs	-0.106		0.102
								PK	-0.092		0.103
								PK*AttAD	-0.035		0.045
								PK*AttNAD	-0.023		0.060
R^2	0.309			R^2	0.300			R^2	0.314		
Adjusted R^2	0.268			Adjusted R^2	0.228			Adjusted R^2	0.219		
F	7.562	***		F	4.162	***		F	3.309	***	
df	161			df	107			df	107		
ΔR^2				ΔR^2	0.000			ΔR^2	0.014		

*** $p \leq 01$

** $p \leq 05$

* $p \leq 10$

Appendix 5.2 – Full Regression Results Tables for Study 2 – Survey

Table 5.2.1: Hierarchical Regression Analysis – Effects of Individual IVs
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection (logit)

Model 1: Commonalities				Model 2: Alignable Differences				Model 3: Nonalignable Differences			
	B		SE		B		SE		B		SE
Constant	-1.368	***	0.211	Constant	-1.472	***	0.175	Constant	-1.367	***	0.228
Firm Age	0.004		0.004	Firm Age	0.002		0.003	Firm Age	0.004		0.004
Firm Sales (ln)	-0.036		0.025	Firm Sales (ln)	-0.031		0.020	Firm Sales (ln)	-0.010		0.027
ROA	-0.019		0.056	ROA	-0.007		0.046	ROA	-0.009		0.060
IND_Ag	0.169		0.404	IND_Ag	0.095		0.330	IND_Ag	-0.032		0.435
IND_Trade	-0.025		0.219	IND_Trade	-0.118		0.181	IND_Trade	0.029		0.234
IND_Services	0.228		0.237	IND_Services	0.238		0.195	IND_Services	0.189		0.255
KnowIntensity	-0.012		0.022	KnowIntensity	0.001		0.018	KnowIntensity	-0.004		0.024
Age	-0.217	*	0.117	Age	-0.200	**	0.096	Age	-0.163		0.126
Gender	-0.180		0.230	Gender	0.062		0.194	Gender	-0.159		0.252
Education	0.006		0.065	Education	0.001		0.053	Education	0.020		0.069
Work Exp	0.203	*	0.113	Work Exp	0.229	**	0.093	Work Exp	0.140		0.120
Country Born	-0.037		0.305	Country Born	-0.250		0.254	Country Born	-0.085		0.332
Entry Mode	0.032		0.044	Entry Mode	0.039		0.036	Entry Mode	0.052		0.048
PercSim	0.058		0.048	PercSim	0.004		0.041	PercSim	0.077		0.051
Cs	0.084	***	0.029	ADs	-0.201	***	0.034	NADs	0.031		0.041
R^2	0.255			R^2	0.495			R^2	0.137		
Adjusted R^2	0.022			Adjusted R^2	0.337			Adjusted R^2	-0.132		
F	1.094			F	3.132	***		F	0.509		
df	63			df	63			df	63		
ΔR^2	0.076			ΔR^2	0.316			ΔR^2	0.000		

*** p≤.01

** p≤.05

* p≤.10

Table 5.2.2: Hierarchical Regression Analysis – Effects of Individual IVs
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection (not transformed)

Model 1: Commonalities				Model 2: Alignable Differences				Model 3: Nonalignable Differences			
	B		SE		B		SE		B		SE
Constant	0.089	***	0.023	Constant	0.078	***	0.018	Constant	0.090	***	0.024
Firm Age	0.000		0.000	Firm Age	0.000		0.000	Firm Age	0.000		0.000
Firm Sales (ln)	-0.003		0.003	Firm Sales (ln)	-0.002		0.002	Firm Sales (ln)	0.000		0.003
ROA	-0.002		0.006	ROA	0.000		0.005	ROA	-0.001		0.006
IND_Ag	0.019		0.041	IND_Ag	0.009		0.034	IND_Ag	0.001		0.045
IND_Trade	0.002		0.022	IND_Trade	-0.007		0.019	IND_Trade	0.008		0.024
IND_Services	0.017		0.024	IND_Services	0.018		0.020	IND_Services	0.013		0.027
KnowIntensity	-0.001		0.002	KnowIntensity	0.000		0.002	KnowIntensity	0.000		0.003
Age	-0.019		0.012	Age	-0.017	*	0.010	Age	-0.014		0.013
Gender	-0.015		0.023	Gender	0.011		0.020	Gender	-0.014		0.026
Education	-0.002		0.007	Education	-0.003		0.005	Education	0.000		0.007
Work Exp	0.018		0.011	Work Exp	0.021	**	0.009	Work Exp	0.012		0.013
Country Born	0.008		0.031	Country Born	-0.015		0.026	Country Born	0.004		0.035
Entry Mode	0.002		0.005	Entry Mode	0.003		0.004	Entry Mode	0.004		0.005
PercSim	0.003		0.005	PercSim	-0.003		0.004	PercSim	0.005		0.005
Cs	0.010	***	0.003	ADs	-0.021	***	0.003	NADs	0.002		0.004
R^2	0.0248			R^2	0.482			R^2	0.089		
Adjusted R^2	0.014			Adjusted R^2	0.320			Adjusted R^2	-0.195		
F	1.058			F	2.981	***		F	0.314		
df	63			df	63			df	63		
ΔR^2	0.162			ΔR^2	0.396			ΔR^2	0.003		

*** p≤.01

** p≤.05

* p≤.10

Table 5.2.3: Hierarchical Regression Analysis – Direct and Moderation Effects
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Likelihood of International Opportunity Selection (not transformed)

Model 1: Cs and ADs				Model 2: Cs and NADs				Model 3: ADs and NADs			
	B		SE		B		SE		B		SE
Constant	0.074		0.019	Constant	0.074	***	0.019	Constant	0.074	***	0.019
Firm Age	0.000		0.000	Firm Age	0.000		0.000	Firm Age	0.000		0.000
FirmSales(ln)	-0.002		0.002	FirmSales(ln)	-0.002		0.002	FirmSales(ln)	-0.002		0.002
ROA	0.000		0.005	ROA	0.000		0.005	ROA	0.000		0.005
IND_Ag	0.001		0.036	IND_Ag	0.001		0.036	IND_Ag	0.001		0.036
IND_Trade	-0.007		0.020	IND_Trade	-0.007		0.020	IND_Trade	-0.007		0.020
IND_Service	0.015		0.021	IND_Service	0.015		0.021	IND_Service	0.015		0.021
KnowIntens.	0.000		0.002	KnowIntens.	0.000		0.002	KnowIntens.	0.000		0.002
Age	-0.017		0.010	Age	-0.017		0.010	Age	-0.017		0.010
Gender	0.020		0.022	Gender	0.020		0.022	Gender	0.020		0.022
Education	-0.004		0.007	Education	-0.004		0.007	Education	-0.004		0.007
Work Exp	0.022	**	0.010	Work Exp	0.022	**	0.010	Work Exp	0.022	**	0.010
Country Born	-0.018		0.031	Country Born	-0.018		0.031	Country Born	-0.018		0.031
Entry Mode	0.003		0.004	Entry Mode	0.003		0.004	Entry Mode	0.003		0.004
PercSim	-0.005		0.005	PercSim	-0.005		0.005	PercSim	-0.005		0.005
Cs	0.000		0.003	Cs	0.022	***	0.004	ADs	-0.022	***	0.004
ADs	-0.023	***	0.005	NADs	0.023	***	0.005	NADs	0.001		0.003
PK	0.004		0.007	PK	0.004		0.007	PK	0.004		0.007
PK*C	0.001		0.001	PK*C	0.000		0.001	PK*AD	0.000		0.001
PK*AD	0.000		0.001	PK*NAD	0.000		0.001	PK*NAD	0.000		0.001
R ²	0.489			R ²	0.489			R ²	0.489		
Adjusted R ²	0.263			Adjusted R ²	0.263			Adjusted R ²	0.263		
F	2.166	**		F	2.166	**		F	2.166		
df	62			df	62			df	62		
Δ R ²	0.007			Δ R ²	0.007			Δ R ²	0.007		

*** p≤.01 ** p≤.05 * p≤.10

Table 5.2.4: Hierarchical Regression Analysis – Effects of Individual IVs
Independent Variables: Number of Cs, ADs, and NADs
Dependent Variable: Age at Initial International Entry

Model 1: Commonalities				Model 2: Alignable Differences				Model 3: Nonalignable Differences			
	B		SE		B		SE		B		SE
Constant	23.282	***	7.133	Constant	23.017	***	7.216	Constant	22.618	***	7.118
Firm Sales (ln)	0.366		0.857	Firm Sales (ln)	0.201		0.831	Firm Sales (ln)	0.415		0.845
ROA	-1.145		1.910	ROA	-1.181		1.916	ROA	-1.058		1.905
IND_Ag	-12.823		13.650	IND_Ag	-11.513		13.576	IND_Ag	-13.296		13.564
IND_Trade	-6.590		7.320	IND_Trade	-7.066		7.378	IND_Trade	-7.014		7.262
IND_Services	-14.764	*	7.793	IND_Services	-14.379	*	7.821	IND_Services	-14.617	*	7.741
KnowIntensity	0.593		0.752	KnowIntensity	0.560		0.753	KnowIntensity	0.664		0.755
Age	-4.474		3.969	Age	-4.774		3.957	Age	-4.303		3.954
Gender	3.860		7.863	Gender	4.198		8.093	Gender	5.292		7.958
Education	1.157		2.200	Education	1.048		2.208	Education	1.126		2.186
Work Exp	2.132		3.821	Work Exp	2.580		3.818	Work Exp	2.210		3.765
Country Born	-16.545		10.170	Country Born	-16.530		10.270	Country Born	-17.702	*	10.222
Entry Mode	-1.355		1.507	Entry Mode	-1.472		1.502	Entry Mode	-1.291		1.501
PercSim	-1.977		1.612	PercSim	-2.202		1.676	PercSim	-2.259		1.589
Cs	-0.609		1.006	ADs	-0.186		1.408	NADs	1.193		1.303
R^2	0.227			R^2	0.222			R^2	0.234		
Adjusted R^2	0.006			Adjusted R^2	0.000			Adjusted R^2	0.016		
F	1.029			F	0.997			F	1.072		
df	63			df	63			df	63		
ΔR^2	0.006			ΔR^2	0.001			ΔR^2	0.013		

*** p≤.01

** p≤.05

* p≤.10

Table 5.2.5: Multivariate Multiple Regression Results – Multivariate Tests
Independent Variables: Number of Cs, ADs, and NADs; Attractiveness of ADs and NADs
Dependent Variables: Year of Firm Founding, Year of First International Entry

	Value ¹	Sig.	F	H df	Error df		Value ¹	Sig.	F	H df	Error df
Constant	0.000	***	1.176E6	2.000	51.000	Constant	0.000	***	1.298E6	2.000	53.000
Firm Sales (ln)	0.977		0.613	2.000	51.000	Firm Sales (ln)	0.971		0.800	2.000	53.000
ROA	0.997		0.072	2.000	51.000	ROA	0.994		0.158	2.000	53.000
KnowIntensity	0.989		0.273	2.000	51.000	KnowIntensity	0.984		0.433	2.000	53.000
Age	0.995		0.131	2.000	51.000	Age	0.988		0.326	2.000	53.000
Education	0.993		0.173	2.000	51.000	Education	0.998		0.052	2.000	53.000
Work Exp	0.976		0.625	2.000	51.000	Work Exp	0.987		0.358	2.000	53.000
Entry Mode	0.997		0.079	2.000	51.000	Entry Mode	0.997		0.080	2.000	53.000
PercSim	0.962		1.013	2.000	51.000	PercSim	0.980		0.550	2.000	53.000
Cs	1.000		-	0.000	51.500	Attractive ADs	0.991		0.230	2.000	53.000
ADs	1.000		-	0.000	51.500	Attractive NADs	0.924		2.183	2.000	53.000
NADs	1.000		-	0.000	51.500						
PK	0.989		0.293	2.000	51.000	PK	1.000		-	0.000	53.500
PK*C	0.999		0.034	2.000	51.000						
PK*AD	0.999		0.034	2.000	51.000	PK*attAD	1.000		-	0.000	53.500
PK*NAD	0.999		0.034	2.000	51.000	PK*attNAD	1.000		-	0.000	53.500

*** p<.01 ** p<.05

* p<.10

¹ Wilks' Lambda

**Table 5.2.6: Multivariate Multiple Regression Results – Tests of Between Subject Effects
Independent Variables: Number of Cs, ADs, and NADs; Attractiveness of ADs and NADs
Dependent Variables: Year of Firm Founding, Year of First International Entry**

	Year Founded		Year of First International Entry			Year Founded		Year of First International Entry	
	Mean Square	Sig.	Mean Square	Sig.		Mean Square	Sig.	Mean Square	Sig.
Model	547.812		73.659		Model	765.695		67.918	
Constant	2.213E8	***	2.264E8	***	Constant	2.465E8	***	2.522E8	***
Firm Sales (ln)	926.312		20.609		Firm Sales (ln)	1585.28		0.045	
ROA	156.188		0.908		ROA	297.700		0.243	
KnowIntensity	28.744		53.310		KnowIntensity	62.336		84.915	
Age	212.668		3.310		Age	349.823		18.410	
Education	162.275		13.853		Education	96.433		0.127	
Work Exp	249.540		113.146		Work Exp	185.464		63.100	
Entry Mode	148.401		4.198		Entry Mode	161.271		1.381	
PercSim	1989.90		5.117		PercSim	975.870		3.345	
Cs	0.000		0.000		Attractive ADs	483.709		8.846	
ADs	0.000		0.000		AttractiveNADs	1483.84		204.611	
NADs	0.000		0.000						
PK	484.405		22.539		PK	0.000		0.000	
PK*C	32.243		4.768						
PK*AD	32.254		4.747		PK*attAD	0.000		0.000	
PK*NAD	32.269		4.763		PK*attNAD	0.000		0.000	

*** p≤.01

** p≤.05

* p≤.10

Table 5.2.7: Hierarchical Regression Analysis – Effects of Individual IVs
Independent Variables: Attractiveness of ADs and NADs
Dependent Variable: Likelihood of International Opportunity Selection (not transformed)

Model 1: Control Variables				Model 2: Independent Variables				Model 3: Moderator Variables			
	B		SE		B		SE		B		SE
Constant	0.091	***	0.023	Constant	0.098	***	0.020	Constant	0.097	***	0.020
Firm Age	0.000		0.000	Firm Age	0.000		0.000	Firm Age	0.000		0.000
FirmSales(ln)	0.000		0.003	FirmSales(ln)	-0.003		0.002	FirmSales(ln)	-0.003		0.002
ROA	-0.001		0.006	ROA	-0.002		0.005	ROA	-0.002		0.005
IND_Ag	0.001		0.044	IND_Ag	0.034		0.038	IND_Ag	0.026		0.041
IND_Trade	0.008		0.024	IND_Trade	0.024		0.020	IND_Trade	0.022		0.021
IND_Service	0.013		0.026	IND_Service	0.007		0.021	IND_Service	0.010		0.022
KnowIntens.	0.000		0.002	KnowIntens.	0.000		0.002	KnowIntens.	0.000		0.002
Age	-0.014		0.013	Age	-0.012		0.010	Age	-0.010		0.011
Gender	-0.016		0.026	Gender	-0.022		0.021	Gender	-0.020		0.022
Education	0.000		0.007	Education	0.005		0.006	Education	0.004		0.007
Work Exp	0.012		0.012	Work Exp	0.014		0.010	Work Exp	0.013		0.010
Country Born	0.006		0.034	Country Born	-0.009		0.028	Country Born	-0.009		0.030
Entry Mode	0.004		0.005	Entry Mode	0.005		0.004	Entry Mode	0.005		0.004
PercSim	0.005		0.005	PercSim	-0.003		0.005	PercSim	-0.003		0.005
				Attractive ADs	-0.010	***	0.002	Attractive ADs	-0.010	***	0.002
				Attractive NADs	0.001		0.001	Attractive NADs	0.001		0.001
								PK	-0.002		0.007
								PK*AttAD	0.000		0.000
								PK*AttNAD	0.000		0.001
R^2	0.086			R^2	0.437			R^2	0.432		
Adjusted R^2	-0.176			Adjusted R^2	0.245			Adjusted R^2	0.200		
F	0.328			F	2.280	**		F	1.860	**	
df	63			df	63			df	62		
ΔR^2				ΔR^2	0.351			ΔR^2	0.000		

*** p≤01

** p≤05

* p≤10

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