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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

A FRESH LOOK AT DECISION MAKING IN INTERNATIONAL INVESTMENT CHOICES: FIRM INTERNATIONAL COHERENCE AND HOME-HOST COUNTRY RELATEDNESS

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF PHILOSOPHY

in

BUSINESS ADMINISTRATION

by

Sokol Celo

2011

To: Dean Joyce Elam
College of Business Administration

This dissertation, written by Sokol Celo, and entitled A Fresh Look at Decision Making in International Investment Choices: Firm International Coherence and Home-Host Country Relatedness, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

_____
William Newburry

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William D. Schneper

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Mihaela J. Pintea

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Stephen Tallman

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Aya Chacar, Major Professor

Date of Defense: March 30, 2011

The dissertation of Sokol Celo is approved.

_____
Dean Joyce Elam
College of Business Administration

_____
Interim Dean Kevin O'Shea
University Graduate School

Florida International University, 2011

DEDICATION

I dedicate this thesis to my wife Elda and my son Martin. They were the motivation for starting, the driving force for the process, and the reason for completion.

ACKNOWLEDGMENTS

I wish to thank the members of my committee for their support, patience, and professionalism. Their direction and understanding is highly appreciated. Dr. William Newburry and Dr. William Schneper have been always there to discuss with me and to give constructive feedback. Their support extended well beyond their role as Dissertation Committee members by shaping me as a researcher. Dr. Stephen Tallman has been there in the most crucial moments of the dissertation to give me direction and share with me highly interesting research ideas. Dr. Mihaela Pintea, the only member outside the area of management and international business, brought a much needed external view and through her comments since the beginning of the process helped shaping a better dissertation. But above all, I would like to thank my major professor, Dr. Aya Chacar. I feel extremely lucky and honored to have been her student. To describe her only as Chair of the committee would be insufficient. She has been also my teacher and my mentor. Her commitment to working with me, the extremely high scientific productivity, and the immense energy that she puts in every research project, have been determining factors for my career.

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ABSTRACT OF THE DISSERTATION

A FRESH LOOK AT DECISION MAKING IN INTERNATIONAL INVESTMENT CHOICES: FIRM INTERNATIONAL COHERENCE AND HOME-HOST COUNTRY RELATEDNESS

by

Sokol Celo

Florida International University, 2011

Miami, Florida

Professor Aya Chacar, Major Professor

Understanding how decisions for international investments are made and how this affects the overall pattern of investments and firm's performance is of particular importance both in strategy and international business research. This dissertation introduced first home-host country relatedness (HHCR) as the degree to which countries are efficiently combined within the investment portfolios of firms. It theorized and demonstrated that HHCR will vary with the motivation for investments along at least two key dimensions: the nature of foreign investments and the connectedness of potential host countries to the rest of the world.

Drawing on cognitive psychology and decision-making research, it developed a theory of strategic decision making proposing that strategic solutions are chosen close to a convenient anchor. Building on research on memory imprinting, it also proposed that managers tend to rely on older knowledge representation. In the context of international investment decisions, managers use their home countries as an anchor and are more likely to choose as a site for foreign investments host countries that are 'close' to the home

country. These decisions are also likely to rely more strongly on closeness to time invariant country factors of historic and geographic nature rather than time-variant institutions. Empirical tests using comprehensive investments data by all public multinational companies (MNC) worldwide, or over 15,000 MNCs with over half a million subsidiaries, support the claims.

Finally, the dissertation introduced the concept of International Coherence (IC) defined as the degree to which an MNE's network comprises countries that are related. It was hypothesized that maintaining a high level of coherence is important for firm performance and will enhance it. Also, the presence of international coherence mitigates some of the negative effects of unrelated product diversification. Empirical tests using data on foreign investments of over 20,000 public firms, while also developing a home-host country relatedness index for up to 24,300 home-host pairs, provided support for the theory advanced.

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I. INTRODUCTION

At the core of most dominant theories of foreign investment is the view of the Multinational Enterprise (MNE) as a complex structure that capitalizes on the imperfections of markets for intermediate products through market internalization (Buckley & Casson, 1976; Hennart, 2007). While successful in explaining the existence of the MNE, and the analysis of alternative modes of foreign market entry (Buckley & Casson, 2009), these theories of foreign investment assume rationality in decision making and mostly ignore the cognitive limitations of the managers that ultimately make the decisions (Aharoni, 2010). This is a particularly important point in the context of international investment location decisions, which are characterized by a very high level of complexity and a large degree of information processing requirement (e.g., Bouquet, Morrison & Birkinshaw, 2009). This dissertation looks at the decision making for such investments from cognitive perspective and argues that cognitive limitations of managers and heuristics they employ are, at least partly, responsible for the inter-country pattern of investments that we observe. This pattern, in turn, when used to describe firm-level international investment decision, helps explain the performance of MNEs. In Chapter 2 of the dissertation a reconceptualization of the notion of country relatedness is proposed and it is argued that this novel approach is a superior way to describe the aggregate pattern of international investments. In Chapter 3, the different heuristics and cognitive limitations in operation during the decision making process for international investments are examined, theory is built, and empirical tests are conducted on the role that such limitations have for the observed pattern of country relatedness. Finally, in Chapter 4

country relatedness is applied to the firm level and the question is examined whether it is beneficial for the firm to operate in related countries.

Country Relatedness

Contrary to the impression created by predictions of a "borderless world" (Ohmae, 1990) and "the end of nationality" (Reich, 1990), there is evidence that national borders still matter and that the importance of geography and history has not disappeared (Ghemawat, 2001; Jones, 2006a; Subramanian & Lawrence, 1999). An investigation of trade and investment flows suggests that international business can be described more as regionalized than globalized (e.g., Rugman, 2000). Ghemawat (2003: 139) also argues that cross-border integration is far from complete and describes instead a semi-globalized world in which the barriers to market integration while not high enough to insulate countries completely do also not allow complete integration. This intermediate level of globalization calls for attention to locational differences and gives international business strategy its distinctive content (e.g., Ricart, Enright, Ghemawat, Hart, & Khanna, 2004).

However, describing the differences or similarities among countries is not an easy task in the light of the multitude of approaches and dimensions that exist and can be used. In fact, research in economics, sociology, ethnography, and political science, to mention a few, has enlightened our understanding and provided different approaches to describing country differences. However, when applied in the context of international investments, these approaches seem to have several commonalities and make similar assumptions. First, country differences are combined to create an all encompassing, one-dimensional construct, which mostly uses the metaphor of 'country distance'. Second, country

distances are part of an exogenously determined background and firms and their managers passive players that take these differences as given and not-negotiable. And finally, from a methodological point of view, all the approaches confront the researcher with the same type of unresolved questions, such as using objective vs. subjective or macro vs. micro measures, and whether certain properties inherent to the 'distance' construct, such as symmetry can be extended to country distance concept.

Recent research has already started to question many of these assumptions and to challenge the way how country differences are conceptualized and used. For instance, despite offering a comfortable way to deal with complex problems (e.g., Hofstede, 1996) one-dimensional indices of distance do not allow for the investigation of differential effects that various components might have on firm strategy and performance (Xu & Shenkar, 2002). Also, conceptualizations of country distance that do not involve the decisions made by real managers are not able to reproduce the dynamic interaction of MNEs with their host country environments (e.g., Shenkar, Luo, & Yeheskel, 2008) and disregard the fact that strategies are formulated by managers based on their perceptions of markets and the fit with their firm specific resources (Tallman, 1992). Finally, as many authors have argued, and empirical evidence has demonstrated, several of the assumptions made in the research on country distance are violated in the real world (e.g., Brock, Shenkar, Shoham, & Siscovick, 2008; Chapman, Gajewska-De Mattos, Clegg, & Buckley, 2008; Luo, Shenkar, & Nyaw, 2001; Selmer, Chiu, & Shenkar, 2007; Shenkar, 2001).

In Chapter 2 of this dissertation, an attempt is made to address several of the concerns mentioned earlier by offering a fundamentally new way of conceptualizing and

measuring country differences. It shifts the focus from country distance to home-host country relatedness (HHCR), defined as the degree to which countries are efficiently combined within the investment portfolios of real firms. As such, it explicitly acknowledges that country relatedness is the result of the interaction between factors external to the firm, including national factors and competition, and the managers who make and implement international investment decisions (e.g., Bryce & Winter, 2009). In Chapter 2, the properties of HHCR are examined by building theory and testing empirically the claims that HHCR is asymmetric, it differs for Foreign Direct Investments (FDI) vs. Foreign Portfolio Investments (FPI), and that country relatedness, while inherently a characteristic of a home-host country pair, is influenced by the relatedness of the host country to the rest of the world.

What explains the pattern of Country Relatedness

In Chapter 2 it is argued that the best way to describe how countries differ, or are related in the context of international investments, is by observing what real firms do. The logical question that follows is why do we observe a certain pattern of HHCR? This question is addressed in Chapter 3 and is part of a broader question, 'Why do countries differ?' and this is, or ought to be, the fundamental question in international business strategy (Ghemawat, 2001; Ricart et al., 2004).

As noted earlier there are many dimensions along which countries may differ. Previous research has expressed the need for integrative and comprehensive frameworks (Berry, Guillen, & Zhou, 2010; Dow & Karunaratna, 2006; Ghemawat, 2001), but also

pointed out that the choice should be driven by the research question in hand (Kostova, 1996; Ricart et al., 2004). This research helps identify different relevant dimensions of country differences as antecedents of HHCR. However, in order to predict which countries are chosen more frequently and which criteria are used to make the choices, I turn the attention to the decision making process and the cognitive constraints of managers that are responsible for those decisions (Aharoni, 2010; Hambrick & Mason, 1984). While the presence of such cognitive constraints for humans in general and managers in particular has been long demonstrated (Tversky & Kahneman, 1974; Dutton & Jackson, 1987), how they translate into certain patterns of decision making in the context of international investments is less investigated. In Chapter 3 research in cognitive psychology, as well as on memory imprinting, is built upon to investigate the role of bounded rationality and the systematic reliance on heuristics and biases on decision making for international investments. More precisely, it is first asked whether or not managers are biased towards choosing, as investment locations, host countries that are close to a convenient anchor and it is put forth that the home country is such an anchor. Next, an investigation of the factors that are used to determine 'closeness' between home and host country is conducted that distinguishes between two groups of factors: i) historical and time invariant factors, such as geographic distance or colonial ties, and ii) time varying institutional factors, typically changing frequently. It makes the prediction that time invariant factors, or differences among countries in terms of such factors, will be more salient in the minds of the managers and hence more important in predicting their choices.

How do country differences matter for MN-performance?

While in Chapter 2 and 3 descriptions and explanations of the pattern of relatedness between countries in the context of international investments are made, in Chapter 4 a focus on the implications of country relatedness for MNE-performance. Just as strategy research distinguishes between related and unrelated industry diversification, an MNE can have operations in countries that are related or unrelated. This degree of relatedness among different locations results in a certain degree of location-specificity, which should be balanced against other types of specificity such as that related to knowledge or technology (e.g., Ghemawat, 2003). In Chapter 4 the concept of International Coherence, the degree to which an MNE operates in related countries, is introduced as a way to capture the location-specificity associated with the network of an MNE and how it influences MNEs' performance is investigated. Different from previous research on multinationality and performance that focuses on the impact of internal resources configurations, such as scope, degree on performance (e.g., Contractor, Kundu, & Hsu, 2003; Hitt, Hoskisson, & Kim, 1997; Tallman & Li, 1996), International Coherence describes the fit between the resources and the external environment. This type of coherence, or an emphasis on "operations across multiple locations that are distinct from, but not entirely independent of, each other" (Ghemawat, 2003: 147), makes research in international business distinct from mainstream strategy research (Ricart et al., 2004). The concept of International Coherence is built on the concept of country relatedness described in Chapter 2. As such, it is distinct from the concept of institutional complexity (e.g., Goerzen & Beamish, 2003) in that it accommodates both fundamental

types of value-adding international diversification strategies: exploiting the similarities across countries and arbitraging, or exploiting differences among countries (e.g., Ghemawat, 2003).

In Chapter 4 it is proposed that MNEs capitalize on their unique, rare, and valuable resources (Barney, 1991; Rumelt, 1979) by developing over time the resources and capabilities that best fit their current external environment. For an MNE, the reutilization of existing resources and capabilities in a new environment (Penrose, 1959) is more likely to lead to superior performance when the new environment is somewhat related to the firms' current external environment. Hence a high level of International Coherence facilitates the transfer of firms' location-specific resources and capabilities from one specific location to others within the MNEs network and leads to competitive advantage for MNEs (Goerzen & Beamish, 2003).

II. HOME-HOST COUNTRY RELATEDNESS

Introduction

"Similarity plays a fundamental role in theories of knowledge and behavior. It serves as an organizing principle by which individuals classify objects, form concepts, and make generalizations" (Tversky, 1977: 327).

The international business literature has seen a growing interest in the concept of country distance fueled in part by a renewed interest in location (Dunning, 1980, 1998; Porter, 1990). Country distance is generally defined by single drivers that are external to the firm such as culture (e.g., Jensen & Szulanski, 2004) or geography (e.g. Kang & Kim, 2010), or sets of drivers such as national institutions (e.g., Kostova, 1996; Xu & Shenkar, 2002). Much research has examined distance and its consequences from gravity models to institutional theory and research on cultural distance, although several scholars note that the question of how to determine country distance is underexplored (e.g., Verbeke & Brugman, 2009).

In this study, we shift the focus to country relatedness, rather than distance, which we define as the degree to which countries are efficiently combined within the investment portfolios of real firms. While the distance studied in past work may be determined in an objective fashion and independent of firm actions, country relatedness on the other hand is not. Unlike past research, we argue that just as industry relatedness cannot be determined independently of firm actions (Teece, Rumelt, Dosi, & Winter, 1994), country relatedness cannot be considered as exogenous to firms. Our conceptualization of country relatedness explicitly acknowledges the relationship between factors external to the firm, including national factors and competitive interaction, and the managers who

make and implement international investment decisions with resources at hand (Bryce & Winter, 2009). Hence, country relatedness is best revealed by the actual patterns of international investments made by multinational firms between any two countries.

We do not speculate as to the underlying nature of the attraction among countries but rather rely on the fact that firms from one home country, rightly or wrongly, make investments in particular host countries. Subsequently, the survival principle (e.g., Alchian, 1950; Stigler, 1958; Teece et al., 1994) suggests that competitive forces and strategic realignments within firms will lead some to remain in those countries and others to withdraw. Ultimately, the observed pattern of investments from any one home to any one host country represents what has 'survived' over time, or country relatedness.

We also hypothesize that country relatedness is asymmetric, in line with some growing voices within the country distance research (Dow & Karunaratna, 2006; Drogendijk & Zander, 2010; Håkanson & Ambos, 2010; Shenkar, 2001; Tung & Verbeke, 2010). We specifically argue that such an asymmetry is likely due to differing home nation economic factors, informal and formal institutions, and ensuing path dependencies. We hence label the concept proposed home-host country relatedness (HHCR).

We next propose that HHCR, even in the narrow context of international investments, is not an absolute measure but will vary with the investment motivations of firms. These motivations are likely to differ at least along two essential dimensions: the nature of the investments made and the connectedness of the host country. First, investments can be of a portfolio-type or foreign direct investment (FDI). While the motives of FDI include obtaining return through both the financial contribution and

transfer of intangible assets by maintaining control, the motives of foreign portfolio investment (FPI) are financial returns with no intent for influence or control (e.g., Wilkins, 1999). These differences translate into differing managerial and other resource requirements, and risk levels, which we propose lead to differing levels of HHCR. Second, countries with higher levels of connectedness may be more attractive as host sites and could serve as potential bridges to other international business investments (Neumayer & Plümper, 2010). Hence, we hypothesize that HHCR is likely greater for host countries with greater levels of connectedness to other countries, which we define as the degree to which a country – as a home country – is related to other countries in terms of international investments.

Following our theoretical review below of research relevant to country relatedness, and our conceptual development, we present the details of our study and our results. The results obtained support our hypotheses. We believe that the home-host country relatedness concept, focused on efficient combinations of countries within actual firms, provides a novel way to examine the attractiveness of countries for international investments, albeit borrowed from work on industry relatedness (Bryce & Winter, 2009; Lien & Klein, 2009; Teece et al., 1994). Through the required empirical work, we also ultimately provide several outcome-based measures of HHCR that complement current indices of country distance and expand their coverage, allowing for truly global research (Franke & Richie, 2010; Tung & Verbeke, 2010).

Literature Review

Country Distance and MNC Investments

Environmental conditions external to MNCs' operations are extremely crucial to their success (e.g., Byé, 1958; Chacar, Newburry, & Vissa, 2010). More specifically, the distance from a home to a host country is seen as an important element adding complexity to MNC operations. For example, Buckley and Casson (1976) highlighted that social and linguistic dissimilarities among regions increase the costs of resource transfer while in contrast, a low cultural, administrative, geographic and economic distance (Ghemawat, 2001), despite reducing arbitraging and network externality benefits, may facilitate knowledge transfer and absorption in practice (Rugman & Verbeke, 2004). Three research streams are concerned with explaining foreign investments and firms' international activities in relationship to country distance, namely gravity models, cultural and psychic distance research, and institutional theory of international business. This research, reviewed below, has proposed in one way or another that greater distance will decrease these investments and activities, along with their success.

Gravity Models on Country Relatedness

Gravity models (e.g., Anderson, 1979; Tinbergen, 1962) seek to explain international trade and foreign direct investment patterns at the home-host country level, by examining time invariant elements of a historical and geographic nature, such as language, country size, and geographic distances among countries. They trace back to the

Heckscher-Ohlin model of trade theory (e.g., Leamer, 1995) and subsequent formal horizontal (Markusen, 1984) and vertical (Helpman, 1984) models of FDI. These models posit that, like the gravity law in physics, the economic interaction between any two countries, a concept similar to country relatedness, is positively related to their economic 'mass' and negatively to their 'distance' (e.g., Ricart et al., 2004).

In this work, trade flows among countries are primarily a function of each country's GDP (economic mass) and of the geographic distance among them. In addition, this research stream emphasizes the distance among time-invariant or slowly changing institutional elements including skilled labor endowments, trade and investment costs, and language (e.g., Bénassy-Quéré, Coupet, & Mayer, 2007). More recent research in this area has attended to membership in regional political and economic agreements (e.g., Baltagi, Egger, & Pfaffermayr, 2008), and spatial dependence (when choices made in a unit of analysis depend on the choices made in other units) (e.g., Blonigen, Davies, Waddell, & Naughton, 2007; Neumayer & Plümper, 2010), as additional gravity elements.

Gravity models have found empirical support in research aiming to explain the drivers of bilateral FDI between pairs of countries (Ricart et al., 2004) and have given a robust empirical description of international investment patterns (Bénassy-Quéré et al., 2007). Their success indicates that the elements driving gravity may also underlie home-host country relatedness.

Cultural and Psychic Distance on Country Relatedness

Cultural or *psychic distance* research has suggested that operating in culturally distant countries may result in differences in organizational characteristics (Kogut & Singh, 1988), higher costs of doing business abroad (Hymer, 1976), or increased liabilities of foreignness (Zaheer, 1995). Entry mode choices for international investments may reflect attempts to minimize cultural distance between parent and host countries (e.g., Kogut & Singh, 1988). Further, once those choices are made, cultural distance is expected to influence factors such as FDI performance (e.g., Tihanyi, Griffith, & Russell, 2005) and knowledge transfer (e.g., Reus & Lamont, 2009; Sarala & Vaara, 2010).

Paralleling cultural distance studies, Beckerman (1956: 38) argued that: "it is probable that the manner in which the purchases of raw materials by a firm are distributed geographically will depend partly on the extent to which foreign sources have been personally contacted and cultivated." This emphasis on "non-economic" cost factors, or psychic distance was echoed in Johanson and Wiedersheim-Paul (1975: 308) and beyond. This research strand argues that MNCs seize expansion opportunities in the neighborhood of their existing knowledge base(s) by choosing countries that are 'psychically' close, suggesting that psychic and cultural distance may be additional elements that drive country relatedness.

Hofstede's work (1980) on quantifying culture and the Kogut and Singh (1988) index played instrumental roles in these two research traditions, albeit offering contradicting theoretical predictions regarding the role of culture (see Tihanyi et al., 2005 for a review). The ever growing body of research in this area indicates its traction and

popularity, albeit researchers have critiqued the definitions and subjective interpretations of the cultural and psychic distance concepts and their measurement (e.g., Drogendijk & Zander, 2010; Håkanson & Ambos, 2007; Tung & Verbeke, 2010).

Institutional Theory on Country Relatedness

Institutional theory has been used to pinpoint how differences between the institutions of two countries impact important firm outcomes (e.g., Kostova, 1999). Equating the institutional environment to national boundaries and drawing on North (1990) and Scott's (1995) work on institutions, international business scholars have highlighted the need to bridge across institutions for MNC success (e.g., Berry et al, 2010; Mudambi & Navarra, 2002; Westney & Zaheer, 2001). Kostova's (1996) main proposition, consistent with the research stream that followed, is that a large institutional distance increases MNC difficulties in understanding host environments and their legitimacy requirements and the need to adapt organizational practices and capabilities to host country conditions (Kostova, 1999; Kostova & Zaheer, 1999; Xu & Shenkar, 2002).

This school brings one of the most theoretically comprehensive approaches to identifying elements relevant to country relatedness, while adding a 'dose' of non-efficiency thinking to this concept (Xu & Shenkar, 2002). Unlike gravity models, it is hard to identify "stylized facts" based on the growing empirical research available (e.g., Barkema, Bell, & Pennings, 1996; Dikova, Sahib, & van Witteloostuijn, 2010). Issues such as whether all pillars are considered and what indicators are used to capture them are generally left to researchers' discretion, making comparison across studies problematic. Research also indicates that overall institutional distance might be less

appropriate to describe country relatedness, since each institutional dimension can influence firm behavior differently (e.g., Estrin, Hanousek, Kočenda, & Svejnar, 2009; Gaur & Lu, 2007; Xu & Shenkar, 2002).

Theory Development

Country Relatedness in Use

While at first hand, relatedness may seem like the inverse of distance, the term is carefully chosen to emphasize differences in the attributes of these concepts. We define country relatedness as the degree to which countries are efficiently combined *within the investments of real firms*. Three important features should be noted here. First, we follow Kostova's (1996: 98) suggestion of conceptualizing and operationalizing country relatedness in a single context which can help increase 'its explanatory and predictive power'. In our work, country relatedness is used and studied in the context of firms' international investment decisions, while country distance is generally perceived as context-free. Second, we build our definition by focusing on country relatedness as an outcome of international investments while distance is viewed as a driver for these investments. We also do not speculate as to the underlying nature of the attraction between two countries but rather rely on the fact that firms from one home country, rightly or wrongly, make investments in particular host countries. Specifically, we argue that country relatedness is best revealed by the actual pattern of investments between any two countries. Even if some of these investments are imperfect or subject to agency concerns, the survivor principle (e.g., Alchian, 1950; Stigler, 1958; Teece et al., 1994)

suggests that they ultimately face competitive forces that lead to their modifications (Lien & Klein, 2009). Ultimately, the observed pattern of investments from any one home to host country represents what has 'survived' over time, or country relatedness.

Finally, in line with several country distance researchers (e.g., Dow & Karunaratna, 2006; Håkanson & Ambos, 2010; Shenkar, 2001; Tung & Verbeke, 2010; Tversky, 1977), we maintain that country relatedness is asymmetric, considering that influencing factors likely differ with home nation factors. We hence label the concept we propose home-host country relatedness (HHCR). We formally hypothesize and test the asymmetric nature of HHCR. This hypothesis is further developed below, along with three others that examine the impact of investment motivation on HHCR.

Relatedness Depends on the Vantage Point

While countries' physical distance is clearly symmetrical, the actual overall relatedness between two countries, when it comes to international investments, may not be. International investment choices are driven by firm and managerial actions. These are often impacted by differing national factors including national economic factors, informal and formal institutions, and ensuing path dependencies. For example, country wealth and size are two of many factors that may alter international investment behavior with firms from smaller countries, for example, internationalizing at times faster in their search for markets and economies of scale (Hennart, 2007). National culture, one of many informal norms, has been noted as a key driver of strategic behavior and choice since it influences "the nature of the relationship of an organization with its environment as well as relationships among people within an organization" (Schneider, 1989: 149). National

informal institutions also likely impact individual risk preferences and decision making styles, which ultimately may affect the likelihood of foreign investment success (Luo et al., 2001). Finally, formal national institutions and history may lead to many differences, such as in firm strategies (e.g., Chapman et al., 2008; Flores & Aguilera, 2007). Ultimately, these differences give managers different vantage points and different preferences for a host environment (Luo et al., 2001).

In country distance research, Shenkar (2001) calls cultural distance symmetry an "illusion" and demonstrates empirically that the effects of culture on expatriate deployment and adjustment are asymmetric (Brock et al., 2008; Selmer et al., 2007). Luo et al. (2001) argue that parent firms from different countries have vantage points with different starting home institutional strengths and familiarity levels with the host environment. More supporting evidence comes from Håkanson and Ambos (2010) who demonstrate that a country's wealth impacts its perceived distance from a home country. Anecdotal evidence also shows that Chinese FDI into Africa differs from FDI patterns of other countries that seem to be equally 'distant' (Braga de Macedo, Pereira & Lopes, 2009).

Hence, differing national factors are likely to be reflected in differing patterns of foreign investments and also in differing success rates, ultimately leading to asymmetry in country relatedness. Formally:

Hypothesis 1: The relatedness of Country A to Country B can differ from the relatedness of Country B to Country A.

Relatedness Depends on the Investment Type: Portfolio or Direct

We propose that HHCR is likely to differ with the investment level undertaken in a host country, considering that motivation for these investments may vary. Theories of international investment commonly divide overseas investment into two categories – direct investment which involves "a strategic long-term relationship … to ensure a significant degree of influence by the direct investor in the management of the direct investment enterprise" and portfolio investment, in which "investors do not generally expect to influence the management of the enterprise" (OECD, 2008: 10). This is an important distinction considering foreign investments are often part of a business strategy (FDI) while FPI motives are more likely to be financial returns with no intent for influence or control (Wilkins, 1999). FDI and FPI also differ substantially (Dunning & Dilyard, 1999), because "(i) FDI includes the transfer of non-financial, as well as financial assets; (ii) FDI involves continuing control, while FPI does not; (iii) FDI is usually more lumpy and indivisible than FPI; and (iv) FPI tends to be prompted by financial returns that are higher abroad than those at home, while motivations for individual FDI projects are far broader" (Wilkins, 1999: 56-57). Parent involvement designed to give the parent a controlling interest in a foreign subsidiary requires at the very least significant time investments from the parent's top management team towards the redeployment and development of significant resources and capabilities into the new subsidiary (e.g., Buckley & Casson, 1976; Chen, Park & Newburry, 2009; Dunning, 1980; Hymer, 1976; Rugman, 1975). Hence, the motivations for these investments often differ as well as the managerial and other resource requirement, ultimately leading to differing levels of country relatedness. In addition, they differ in how they interact with

the business environment with FPI being highly volatile and sensitive to macroeconomic changes (such as GDP/capita) and shocks compared to FDI (Busse & Hefeker, 2007; Guerin, 2006). We thus propose the following:

Hypothesis 2: HHCR for FDI is different than for FPI.

Connectedness of the Host Country to the Rest of the World Matters for Relatedness

Motivation for investing in a host country is also likely to differ with the connectedness of the host country to the rest of the world, defined as the degree to which the country is related to the rest of the world in terms of foreign investment. Host countries with higher connectedness can be used as a bridge for further international investments by MNCs. For example, Hong Kong has long been known as a gateway to investing in mainland China in addition to much of south-east Asia (e.g., Kruthanawat, 2010). Similarly, with the rise of trade agreements and broader associations among groups of countries, firms often use a single country as an initial access point. Thus, firms wishing to develop a larger presence in the European Union may first invest in Germany or the United Kingdom as a bulkhead before proceeding to invest more broadly (e.g., Filippaios & Papanastassiou, 2008). Finally, locations with higher levels of connectedness can also be in and of themselves attractive investment locations. For example, England, and especially the city of London, is where banks from around the world can conduct 'international' banking business on location. Hence, we propose that an MNC's decision to invest in a host country is, therefore, not made in isolation and

independent from the position that the target host country occupies relative to the rest of the world.

This dependency of relations formed within a dyad on the relations with other dyads (Neumayer & Plümper, 2010) is called spatial dependence, and has been used to explain patterns of diffusion of bilateral investment treaties (Elkins, Guzman, & Simmons, 2006; Neumayer & Plümper, 2010), corporate environmental standards (Perkins & Neumayer, 2010), preferential trade agreements (Manger, 2006), and bilateral alliance formation (Gartzke & Gleditsch, 2006). We hence expect the connectedness of a potential host country to drive HHCR. Formally:

> **Hypothesis 3:** All else being equal, HHCR is positively associated with the connectedness of the host country to the rest of the world.

As a corollary, we suggest that an investing firm may pursue a non-direct path when investing in a third country, which is not presently highlighted. The concept of betweenness in network theory (e.g., Krackhardt, 1990; Wasserman & Faust, 1994) suggests that the shortest path from a home to a host country may very well be via one of the investments that the firm has made in another host country rather than via the parent. Subsidiaries indeed can and do function as bridges (Granovetter, 1973), helping firms in their internationalization processes by establishing a foothold in a region and assisting firms in developing capabilities (e.g., Buckley & Gauri, 2004; Parada, Alemany & Planellas, 2009). More formally:

Hypothesis 4: The shortest distance to a host from a home country can be via a third country.

Methods

Inferring Country Relatedness from Firm Actions

To complete this study, we obtained data from the OSIRIS-database of Bureau van Dijk, retrieved in 2009. This database provides information on investments by nearly all public companies worldwide and on the level of direct and total ownership (total ownership includes direct ownership plus ownership through intermediate firms). We extracted from this database the complete set of international investments made by public firms, with a foreign investment defined as ownership in a company that is headquartered in another country, called the Full Sample. We also created two subsamples: the FDI-Sample and FPI-Sample. We defined FDI as investments involving an equity stake of 10% or more (OECD, 2008). This definition is employed by international and national accounting standards (including United States Department of Commerce), the World Bank, and the International Monetary Fund (Razin & Sadka, 2007; Wilkins, 1999). For a robustness check, we also used the stricter 50% ownership cut-off for FDI redefined (Dunning & Dilyard, 1999) which is considered the ultimate indication of control (Goldstein & Razin, 2006), albeit the number of investments with ownership levels between 10% and 50% is relatively small. In both cases, the difference between the Full and FDI Samples is the FPI Sample. These samples characteristics are summarized in Table 1.

Table 1: HHCR Measures Used and Sample Characteristics

Sample Characteristics	Full Sample	FDI-Sample (cutoff 10%)	FPI-Sample (cutoff 10%)	FDI-Sample (cutoff 50%)	FPI-Sample (cutoff 50%)
Number of firms	20,051	18,948	2,465	18,145	5,495
Host countries	204	204	134	204	184
Home countries	118	114	88	108	105
Number of investments	422,877	231,664	181,551	213,686	199,529
Number of home-host pairs	24,352	23,133	11,687	21,915	19,197
HHCR Mean	-.79	-.80	-.85	-.80	-.84
HHCR Std Deviation	.49	.48	.44	.48	.46
# HHCR at Max (>=.99)	137	82	106	84	152
# HHCR at Min (-1)	19,692	18,702	10,133	17,737	16,729
# of home-host pairs excluding HHCR=-1:	4,660	4,431	1,554	4,178	2,468

To create the Full Sample, we started with 44,891 public companies from 134 home countries with more than one million subsidiaries in 206 host countries. After removing subsidiaries without country information (17,214) and subsidiaries in the home country (566,143 subsidiaries), this sample contained 422,877 foreign investment data of 20,051 MNCs from 118 home countries and 204 host countries. To obtain the FDI and Portfolio Investments samples, we used only investments for which ownership data was available (413,215 or about 98% of the Full Sample). We then used 10% ownership as the cut-off between the FPI and FDI Samples, with ownership computed as the percentage of direct or total ownership, whichever was available, or their maximum when both were available. The FDI-Sample consisted of 231,664 investments (average ownership 78.6%) by 18,948 MNCs from 114 home countries in 204 host countries and the FPI-Sample of 181,551 investments (average ownership 1.12%) by 2,465 firms from 88 home countries in 134 host countries.

Measures

Home-Host Country Relatedness: $HHCR_{ij}$(Full), $HHCR_{ij}$(FDI), and $HHCR_{ij}$(FPI) are computed each within its sample in two steps. First, we calculate $hhcr_{ij}$, the ratio of the actual percentage of investments of firms from the home country *i* in the host country *j,* compared to the expected percentage when considering investments from the rest of the world (see Equation 1 below). $hhcr_{ij}$ equals 0 if there are no such investments, 1 if the percentage equals that from the rest of the world, and greater than 1 when the first proportion exceeds the worldwide proportion.

$$hhcr_{ij} = \frac{\frac{INV_{ij}}{INV_{i.}}}{\frac{INV_{.j} - INV_{ij}}{INV_{..} - INV_{i.}}} = \frac{INV_{ij} * (INV_{..} - INV_{i.})}{INV_{i.} * (INV_{.j} - INV_{ij})}$$

Equation 1: Formula for $hhcr_{ij}$

where:

- INV_{ij} is the number of foreign investments by firms from country *i* in country *j*,
- $INV_{i\bullet}$ is the total number of foreign investments from country *i*,
- $INV_{\bullet j}$ is the number foreign investments in host country *j*,
- $INV_{\bullet\bullet}$ is the overall number of investments worldwide

In a second step, we transform $hhcr_{ij}$ into $HHCR_{ij}$ using the formula proposed by Iapadre, 2001 (Equation 2), considering $hhcr_{ij}$ ranges from 1 to infinity for pairs of countries that are similar, but only from 0 to 1 for dissimilar countries (Dalum, Laursen, & Villumsen, 1998). Such transformation removes the undesirable *mathematical*

asymmetry which can create problems when such an index is used in certain econometric specifications so that $HHCR_{ij}$ that takes values between -1 and 0 for unrelated or weakly related countries and from 0 to 1 for highly related countries. Appendix 1 describes this measure and all others used for the analyses.

$$HHCR_{ij} = \frac{hhcr_{ij} - 1}{hhcr_{ij} + 1}$$

Equation 2: Transformation of $hhcr_{ij}$

This index is a variant of the 'index of revealed comparative advantages' proposed by Balassa (1965: 99) and used in the context of specialized trade patterns (Li & Guisinger, 1992; Porter, 1990; Proudman & Redding, 2000). It captures relatedness by examining the observed pattern of firms' international investment decisions from a home to a host country, after market selection, compared to the frequency that would result under the random hypothesis. This comparison is based on the survivor-principle (Lien & Klein, 2009; Teece et al., 1994), which suggests that host countries that are more frequently chosen by actual firms are more closely related to home countries than countries that are rarely selected.

Let us illustrate this measure with an actual example. There are 83,509 U.S. foreign investments in the sample, out of which 2,224 are located in Mexico (approx. 2.6%). In comparison, out of a total of 339,368 non-US foreign investments worldwide, 3,369 are located in Mexico, or around 1%, which indicates that even after selection by competition, U.S. firms have proportionately more investments in Mexico than the rest of

the world. This leads to a value of 2.68 for hhcr between the US as the home and Mexico as the host country, or .46 for HHCR (Equation 3). Appendix 2 presents HHCR for each pair of OECD countries (home countries in rows and host countries in columns).

$$hhcr(Full)_{US,Mexico} = \frac{\frac{2,224}{83,509}}{\frac{5,593 - 2,224}{422,877 - 83,509}} = 2.68$$

Equation 3: Example of $hhcr_{ij}$ calculation

Host Country Connectedness HCC_i: is the sum of weighted $HHCR_{ij}$ for all host countries j (Equation 4). This measure weighs the third countries by their potential importance for investments in order to capture the predicted connectedness effects (whereas the $HHCR_{ij}$ measure controls for the size of the country). For instance, the relatedness between Austria and Slovakia is higher than that of Austria and Germany (which means that the pattern of investments of Austrian firms deviates more from the expected pattern in Slovakia than Germany). However, from the point of view of an investor who is going to use Austria as a bridge, the link to Germany is likely to play a more important role. For this reason, we use as weights inward FDI-flows expressed as a percentage of worldwide FDI. For example, in 2006, Germany attracted 3.9% of world FDI-flows compared to 0.3% for Slovakia; in terms of FDI-stock, the percentages were 4.77 and 0.27 respectively. HCC_i(FDI), HCC_i(FPI) and HCC_i(Full) are each calculated within their respective samples.

$$HCC_j = \sum_{k \neq j} w_k * HHCR_{jk}$$

Equation 4: Calculation of HCC_j

Where HCC_j is the Host Country Connectedness for country j, $HHCR_{jk}$ is the Home-Host Country Relatedness of home country j to host country k, and w_k is the weight associated to country k.

Bridge to Host Country Relatedness ($BHCR_{ij}$): For each home country i, host country j, and an intermediate country k, we define the relatedness of the path i→k→j as the Min ($HHCR_{ik}$, $HHCR_{kj}$) and Bridge to Host Country Relatedness ($BHCR_{ij}$) as the maximum relatedness considering all the paths connecting the home with the host country (Equation 5; see also Neffke & Svensson Henning, 2008). In other words, to use an intermediate country k as a bridge, both the relatedness of home i to host k and the relatedness of home k to host j should be greater that the relatedness of home i to host j. This measure is conservative compared to other potential measures, such as the average of $HHCR_{ik}$ and $HHCR_{kj}$ as the relatedness measure for the path i→k→j.

$$BHCR_{ij} = Max_{k \neq i,j}\{Min(HHCR_{ik}, HHCR_{kj})\}$$

Equation 5: Calculation of $BHCR_{ij}$

Control variables: We use for controls throughout home and host country dummies and for hypothesis 3, we add the elements of psychic distance proposed by Dow and Karunaratna (2006), and described in Appendix 1.

Statistical Methods

We test H1, H2, and H4 using paired mean t-tests and partial correlation analysis to control for the fact that observations are not independent of home and host country factors. To test H3, we run a specific target contagion model (Neumayer & Plümper, 2010) with some modifications to address our specific research question. In contrast to models offered by Neumayer & Plümper (2010), the model used here (Equation 6) takes into consideration the fact that what is a 'target' country in the main relationship (our dependent variable) becomes a 'source' on the explanatory side. The model is:

$$HHCR_{ij} = \beta_0 + \beta_1 * HCC_j + \sum \beta_{ij} * D_{ij} + \epsilon_{ij}$$

Equation 6: Statistical model for $HHCR_{ij}$

where $HHCR_{ij}$ is the relatedness of home country i to host country j, HCC_j is the connectedness of host country j, and D_{ij} are different types of distances of home country i to host country j, used as control variables. As in other analyses, we control for home and host countries.

A large number of HHCR are at the minimum or -1 (around 80% of observations for Full-Sample, 81% for FDI-Sample, and 87% for FPI-Sample), as the investments observed from the home to the host are minimal compared to the rest of the world's firms' investments in that same host country. For instance, $HHCR_{Zimbabwe,Albania}$=$HHCR_{Albania,Zimbabwe}$=-1. Since these observations might be driving the relationships observed, we report also the results for the "corrected samples" where such observations have been removed.

Summary Statistics

We are able to calculate $HHCR_{ij}$ for 24,352/23,133/11,686 country pairs for the Full/FDI/FPI Sample respectively. Since many observations have the minimum value of -1, the mean HHCR is very low: around -.8 for the Full and FDI samples, and -.84 for FPI. In the corrected samples, when observations with minimum value are removed, the mean HHCR becomes .16/.063/.076 for the Full/FDI/FPI Sample respectively. In comparison, HHCR is over .99 in few cases: 137/82/106 for the Full/FDI/FPI Sample respectively.

$HHCR_{ij}$(Full) is highly correlated with $HHCR_{ij}$(FDI) and $HHCR_{ij}$(FPI) (at .96 and .53). The correlation between $HHCR_{ij}$(FDI) and $HHCR_{ij}$(FPI) is .43. The correlations of all three (direct) measures with the $BHCR_{ij}$ are lower (between 18% and 33%).

While it is impossible to report all the $HHCR_{ij}$ calculated, Table 3 presents the results for the OECD countries (home countries in rows and host countries in columns) for the Full Sample. France and Luxembourg have the highest number of OECD-host countries with which they have a positive relatedness (20 countries for each). On the other extreme, Chile, as a home country, has a positive relatedness to a single OECD-host country (Mexico). Calculating the maximum for each row (respectively column) provides information about the OECD-host (respectively home) country a particular country is closest to. For instance, Japan, as a home country, is the closest to host country Republic of Korea. However, as a host country, Japan is the closest to home country U.S.

Results

We test the hypotheses proposed and then conduct a series of robustness checks using alternative HHCR measures and/or different subsamples. Our results support the hypotheses made as detailed below.

Home Host Country Relatedness is Asymmetric

To test our asymmetry hypothesis, we first examine partial correlations, after controlling for home and host country, between $HHCR_{ij}$ and $HHCR_{ji}$ for all country pairs for which both measures are available. $HHCR_{ij}$ and $HHCR_{ji}$ are available in both directions for 7,140/6441/3484/ pairs of countries for the Full/FDI/FPI Samples respectively and their partial correlations are .32/.27/.32 respectively. These correlations drop in the corrected sample to .12/.15/-.05 in the corrected samples with 2,763/2565/1044 country pairs.

We then test more formally for asymmetry using paired t-tests of means (reported in Table 2). The t-tests for $HHCR_{ij}$(Full) vs. $HHCR_{ji}$(Full) and $HHCR_{ij}$(FDI) vs. $HHCR_{ji}$-(FDI) are significant both in uncorrected and corrected samples, while no significance is found for the test $HHCR_{ij}$(FPI) vs. $HHCR_{ji}$(FPI). These results show that albeit $HHCR_{ij}$ and $HHCR_{ij}$ are correlated, their correlations are low and their means significantly different, supporting H1 or country relatedness asymmetry for the Full and FDI Samples.

Table 2: Paired Two-tailed t-tests for the Asymmetry Hypothesis (H1)

Difference	Uncorrected Samples				Corrected Samples			
	Mean $HHCR_{ij}$	Mean $HHCR_{ji}$	t-value*)	Obs.	Mean $HHCR_{ij}$	Mean $HHCR_{ji}$	t-value*)	Obs.
$HHCR_{ij}$(Full) – $HHCR_{ji}$ (Full)	-.71	-.74	3.012**	7,140	-2618	-.3181	3.015**	2,763
$HHCR_{ij}$(FDI) – $HHCR_{ji}$ (FDI)	-.71	-.74	3.686**	6,441	-.27	-.34	3.6914**	2,565
$HHCR_{ij}$(FPI) – $HHCR_{ji}$ (FPI)	-.77	-.78	1.2371†	3,484	-.23	-.27	1.2373†	1,044

* Ha: mean (diff)≠0

HHCR Differs for FDI vs. Portfolio Investments

To test H2, we also compare partial correlations of $HHCR_{ij}$(FDI) with $HHCR_{ij}$(FPI), after controlling for home and host country. This correlation is .31 (significant at less than 1%) with 11,154 matched home-host pairs but drops to .19 in the corrected sample with 3,839 pairs. We then test more formally for differences between FDI and FPI using a paired mean t-test, which finds the differences in these measures to be significant at less than 1%. The results, shown in Table 3, support H2 indicating $HHCR_{ij}$(FDI) is significantly different than $HHCR_{ij}$(FPI).

Table 3: Paired Two-tailed t-tests for the FDI vs. Portfolio Investments Hypothesis

Difference	Uncorrected Samples				Corrected Samples			
	Mean (1)	Mean (2)	t-value	Obs.	Mean (1)	Mean (2)	t-value	Obs.
$HHCR_{ij}$(FDI) – $HHCR_{ij}$(FPI)	-.6690	-.8389	32.6	11,154	-.0384	-.5319	36.08	3,839
$HHCR_{ij}$ (FDI) – $HHCR_{ij}$ (Full)	-.7964	-.7840	-13.04	23,133	.0125	.0742	-13.23	4,652
$HHCR_{ij}$ (FPI) – $HHCR_{ij}$ (Full)	-.8455	-.6616	-39.5	11,687	-.5377	.0126	-46.09	3,905

* Ha: mean (diff)≠0; All tests significant at less than 1%.

HHCR is Impacted by Host Country Connectedness (HCC) to the Rest of the World

To test H3, we run OLS regressions using the model described in Equation 2, with the dependent variable being $HHCR_{ij}$ for the Full, FDI, and FPI Samples. To allow for comparisons across the models, we used balanced datasets, keeping only observations where data for all variables was available. As shown in Table 4, Models M1 and M2 demonstrate that host country connectedness (measured by HCC_i) was positive and highly significant for all three samples, after controlling for home and host country effects. HCC_i explained approximately an additional 3 to 4% of the variance in $HHCR_{ij}$. In models M3 to M5, we added the scales of psychic distance (Dow & Karunaratna, 2006) as control variables, which reduced our samples to 6,407, 6,229, and 4,434 for the Full/FDI/FPI Samples respectively. The estimated coefficients of connectedness however remained positive and highly significant. Moreover, Wald-tests were highly significant, suggesting that removing HHC_i from the models substantially harms their fit. These results support H3, demonstrating that the degree to which a host country is connected with other countries positively affects the decisions of MNCs to invest in that country.

Table 4: Explaining HHCR by Host Country Connectedness

	$HHCR_{ij}$(Full)					$HHCR_{ij}$(FDI)					$HHCR_{ij}$(FPI)				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
HCC_j		0.31**			0.19**		0.3**			0.19**		0.32**			0.25**
Diff. in religion				-0.06**	-0.07**				-0.05**	-0.06**				-0.03†	-0.04**
Diff. in education				-0.11**	-0.11**				-0.1**	-0.11**				-0.1**	-0.1**
Diff. in industr. develop.				-0.09*	-0.03				-0.1*	-0.03				-0.05	-0.02
Diff. in languages				-0.14**	-0.14**				-0.14**	-0.14**				-0.1**	-0.08**
Diff. in POLCON				0.02	0.07				0.02	0.09				-0.28**	-0.2*
Diff in POLITY IV				-0.01	-0.008				-0.01	-0.01				-0.01	0.002
Diff. in the Political Rights				-0.0006	-0.0005				0.007	0.005				-0.007	-0.01
Diff. in the Civil Liberties				0.07*	0.07*				0.07*	0.06*				0.05†	0.05**
Diff. in Political Ideology				0.005	0.02				0.004	0.02				-0.08*	-0.02
Constant	-0.79**	-0.87**	-0.64**	-0.64**	-0.72**	-0.8**	-.87**	-0.64**	-0.64**	-0.73**	-0.85**	-0.91**	-0.76**	-0.74**	-0.83**
Observations	24352	24352	6407	6407	6407	23133	23133	6229	6229	6229	11687	11687	4434	4434	4434
Adj. R-Squared	0.1733	0.2063	0.2583	0.3505	0.3547	0.1838	0.2165	0.2723	0.3654	0.3697	0.1498	0.1880	0.2373	0.3004	0.33089
F-test		152.1**			7.18**		146.3**			7.72**		169.1**			17.22**
Home countries	120	120	72	72	72	114	114	70	70	70	88	88	60	60	60
Host countries	204	204	90	90	90	204	204	90	90	90	134	134	75	75	75

† significant at 0.1, * significant at 0.05, **significant at 0.01

Finally, to test H4, we compare $HHCR_{ij}$ to $BHCR_{ij}$. Reasoning that a firm can use an existing FDI as a bridge or an existing portfolio investment as a bridge (although possibly less likely), we also compare $HHCR_{ij}$(FDI) and $BHCR_{ij}$(FPI), and $HHCR_{ij}$(FPI) and $BHCR_{ij}$(FDI). The correlations between $HHCR_{ij}$ to $BHCR_{ii}$ for the uncorrected samples are not high but significant, with values of .17/.19/.14 when both measures being compared are based on Full/FDI/FPI Samples. The correlations for the pairs $HHCR_{ij}$(FDI)/$BHCR_{ij}$(FPI) and $HHCR_{ij}$(FPI)/$BHCR_{ij}$(FDI) were .21/.15 for the uncorrected samples and .07/.17 for the corrected ones.

We then test more formally for asymmetry using one-tailed paired mean t-tests, i.e. testing whether $HHCR_{ij}<BHCR_{ij}$ as the alternative hypothesis. As shown in Table 5, all the t-tests are significant ($p<.01$) indicating that $HHCR_{ij}$ is smaller than $BHCR_{ij}$. The mean $HHCR_{ij}$ for the 24,352 observations is -.79, while the mean $BHCR_{ij}$ is .03. Put differently, $BHCR_{ij}$ relatedness is greater than $HHCR_{ij}$ for 79.1% of all home-host country pairs, is equal in 16.52% of the cases, and is lower for 4.4% of observations. Using corrected samples, we get very similar results. We also conduct more conservative tests, in which we omit all observations for which the direct measure was equal to -1 and had the same results. These results support H4 indicating that relatedness via a bridging country is often greater than the relatedness from the home to a host country.

Table 5: Paired One-tailed t-tests for the Bridge Hypothesis

Difference	Uncorrected samples				Corrected samples			
	Mean HCR_{ij}	Mean $BHCR_{ij}$	t-value	Obs. #	Mean DM	Mean IM	t-value	Obs. #
$HHCR_{ij}$(Full) – $BHCR_{ij}$(Full)	-.79	.03	-200	24,352	-.75	.23	-250	20,330
$HHCR_{ij}$(FDI) – $BHCR_{ij}$(FDI)	-.80	0.02	-200	23,133	-.76	.21	-250	19,384
$HHCR_{ij}$(FPI) – $BHCR_{ij}$(FPI)	-.84	-.33	-80.96	11,503	-.72	.21	-110	6,388
$HHCR_{ij}$(FDI) – $BHCR_{ij}$(FPI)	-.67	-.31	-53.3	11,173	-.46	.14	-58.3	6,804
$HHCR_{ij}$(FPI) – $BHCR_{ij}$(FDI)	-.84	.21	-200	11,154	-.83	.27	-240	10,700

All tests significant at less than .01

Post-Hoc Analyses and Robustness Checks

We conducted several post-hoc analyses and robustness checks of our hypotheses using different versions of the measures and/or different subsamples.

In our main measure of relatedness, we count investments made by firms from country i in host country j. A possible drawback of this measure is that some firms tend to consolidate their subsidiaries in a particular country into one, so differences may only represent firm administrative differences rather than actual country relatedness. Therefore, we examined two alternative measures.

The first measure, like our main measure, is based on counting. However, it calculates home-host country relatedness using a count of MNCs rather than a count of investments. In this case, we counted the number of MNCs from country *i* that have at least one investment in country *j* regardless of the level of involvement in that country. A potential drawback of this measure is that counting MNCs might bias the results against

country pairs that have a big market as a host country, since in such countries it would be expected that MNCs operate with multiple subsidiaries.

The second resembles the main measure in that it is calculated based on investments rather than MNCs. But unlike the main measure, it takes into account the level of ownership and calculates the weighted number of investments using the percentages of ownership as weights. The problem with this measure is that it assumes a linear relationship between the percentage ownership and importance. Moreover, ownership data are harder to obtain and maintaining the same standards of reliability worldwide is difficult.

The three alternative measures (base plus two robustness measures) were used for the Full sample, FDI sample, and Portfolio Investments sample. The correlations between the measures were high (above .9 for the FDI sample; above .7 for the Portfolio Investments sample; and above .8 for the Full sample) even when we used the corrected samples. Together with the significant differences between FDI- and FPI-based measures reported earlier, these results suggest that our measures have both convergent and discriminant validity.

Using different measures of relatedness for the asymmetry hypothesis produced similar correlations between $HHCS_{ij}$ and $HHCS_{ji}$ (around .31). The results were also confirmed when we applied different measures to the FDI or FPI uncorrected (correlations between .26 and .28) or corrected samples (the correlations are all less than .1). Results of the t-tests did not change.

Our finding that country relatedness depends on the type of investment (FDI vs. Portfolio Investment) is also robust across different measures of country relatedness. In

all potential combinations of measures of $HHCR_{ij}$(FDI) with measures of $HHCR_{ij}$(FPI) the correlations remain from .4 to .42 (uncorrected samples) and from .06 to .14 (corrected samples). Results also are confirmed in t-tests. In addition, we checked whether the results were sensitive to the operational definition of FDI and FPI investments, by using alternative cut-off points for the percentage of ownership (40% and 20%). Considering that the ownership level for most investments was below 20% (45% of the investments) or above 50% (around 52% of all investments), the measures were not strongly affected. The correlation analysis and t-tests using measures based on the alternative FDI- and FPI-samples confirmed our original results.

In terms of H3, we run the same models using different measures of the dependent variable and the results were the same. We considered also two different operational definitions for HCR, one that takes the FDI-stocks as a percentage of the world as weights and another where host countries were given the same weight. The results were consistent with the ones reported. Besides using Dow and Karunaratna (2006) scales of psychic distance, we included also geographic distance and contiguity, legal systems distance, previous colonial links and whether the countries in the dyad had been part of the same country in the past. The models explain between 45% and 46% of the variance in $HHCR_{ij}$ for the Full and FDI samples, and around 35% for the FPI sample. The connectedness effects remained positive and significant in all samples (p-value <.05 for the Full sample and <.01 for the other two samples).

With regard to H4, our findings remained unchanged when we used the alternative measures of HHCR and applied them to different samples.

Discussion and Conclusion

We defined in this study home-host country relatedness for international investments as the degree to which countries are efficiently combined within the investment portfolios of real firms run by actual managers. This conceptualization departs from past work in four ways. First, it focuses on revealed relatedness rather than its elements such as culture (e.g., Kogut & Singh, 1988). Second, it does not make the assumption that country relatedness is independent of firms, their resource bundles, and competitive interaction. Third, our concept is value neutral allowing for differences among countries to function as impediments and/or drivers of complementary combinations (see Drogendijk & Zander, 2010: 192). Finally, it takes a dyadic approach that emphasizes the previously made asymmetry assumption (see Shenkar, 2001). By giving firms a central role in the conceptualization of relatedness, we follow the footsteps of Shenkar et al. (2008) who propose a shift from "distance" to "friction" in intercultural research, or Tallman (1992: 465) who emphasizes the notion that strategies, in this case international investments, are chosen 'by all-too-human managers to fit certain FSRs (Firm Specific Resources) to a perceived market.'

We also demonstrated that HHCR is asymmetric since differing national factors, including formal and informal institutions, economic factors, and national path dependencies, lead to numerous differences in firms and individuals such as differing perceptions, motivations, and preferences. These differences are ultimately likely to be reflected in differing strategies and patterns of foreign investments by firms between any pair of countries and also in differing success rates. Our theoretical arguments are in line

with previous scholars who noted problems with symmetry in general (e.g., Tversky, 1977) and specifically with respect to cultural distance (e.g., Chapman et al., 2008; Shenkar, 2001; Tung & Verbeke, 2010). The empirical results are also consistent with observed asymmetries in various functional areas of MNC-management such as expatriate deployment (Brock et al., 2008) and adjustment (Selmer et al., 2007), control modes of cooperation (Lee, Shenkar, & Li, 2008), and joint venture control and performance (Luo et al., 2001). Our results also argue for the need to truly consider both country distance and country relatedness as asymmetric in international business research.

We also proposed that country relatedness varies with the type of investments made and the connectedness of the host country to the rest of the world, because of the differing motivations behind such investments. Our results are in line with existing research which argues that despite the co-existence of FDI and FPI and their common features (Dilyard, 2001; Dunning & Dilyard, 1999), substantial differences exist among them (Buckley & Casson, 1976; Busse & Hefeker, 2007; Dunning, 1980; Guerin, 2006; Hymer, 1976; Rugman, 1975; Wilkins, 1999: 99-100).

Finally, we demonstrated that home-host country relatedness is positively associated with the connectedness of the host country, and the degree to which it potentially serves as a bridge to other countries. These results are consistent with Hedlund's (1986) discussion of the heterarchical MNC rather than traditional views of the MNC (e.g., Egelhoff, 1988; Stopford & Wells, 1972) which underlie current views of country relatedness. In this view, the parent serves as a hub and the only center with investments, knowledge and control flowing through the spokes to the subsidiaries. This

view still holds partially true considering the control maintained by the parent (Egelhoff, 1988; Newburry & Zeira, 1999); however, we now understand that the modern MNC may not have a single center or hub and that the connections among the subsidiaries are much more complex (Ambos, Andersson & Birkinshaw, 2010; Birkinshaw, Hood & Jonsson, 1998). Recent research has highlighted the fact that subsidiaries play roles that involve various degrees of centrality within MNC networks (Monteiro, Arvidsson, & Birkinshaw, 2004; Newburry, 2000), which vary with their host country.

These findings are also in line with research on 'betweenness' in network theory (e.g., Krackhardt, 1990; Wasserman & Faust, 1994). Subsidiaries indeed can and do function as a bridge (Granovetter, 1973), helping firms in their internationalization process by establishing a foothold in a region and assisting firms in developing capabilities (e.g., Parada et al., 2009). In fact, we demonstrate that the shortest distance between two countries is often via a bridging third country, which is in line with our observations of MNCs using particular countries as a launch pad for expansion in a particular region (Buckley & Gauri, 2004).

In addition to these theoretical contributions, we propose an index of home-host country relatedness that is complementary to current input-based indices of country distance. Developments in research and data availability allow us to provide a method for capturing country relatedness that incorporates the judgment and knowledge of the firms which make international investment decisions. The indices and methods for their calculation make a significant empirical contribution to the country relatedness research, allowing comprehensive examination of home-host country relatedness, using a large sample of countries, which is a key strategy for improving IB research generalization

(Franke & Richey, 2010). The study offers indices of relatedness for up to 24,592 home-country pairs involving more than 200 countries, compared for example to distance studies using the 56 countries for which Hofstede's dimensions are available or the 62 societies within the GLOBE study.

The indices presented capture a multidimensional concept (Pehrsson 2006, Stimpert & Duhaime 1997), but are free of researchers' bias since they will not require combining different elements of relatedness into an index with predefined weights (Lien & Klein, 2009). The indices proposed however are not context free. They build on actual international investments made by firms, following Kostova's (1996) suggestion of focusing on a particular context, which allows for better measurement, albeit limiting generalizability.

We propose in this study to examine country relatedness in addition to country distance. Considering that country relatedness is multidimensional and complex, we proposed in this study that it is best observed in use. This conceptualization is novel (focusing on the outcome of country relatedness rather than its drivers) and takes into account the asymmetric nature of country relatedness. We also argued that even when focusing on international investments, HHCR is likely to vary with firms' motivations, which are likely to differ for FDI and FPI. Countries that are more connected to the rest of the world will be more attractive as hosts.

While resource requirements often vary for FPI and FDI leading to a differing HHCR, they also vary in a number of other instances. For example, FDI for the purpose of R&D may require a different resource redeployment than FDI for the purpose of sales or manufacturing, an issue that we leave for future research. Moreover, our focus is on

international investments made by firms. As suggested by Shenkar (2001), home-host country relatedness for expatriate movement may be different. Future research needs to also explore how input-driven measures of country distance drive our home-host country relatedness, which is clearly output-based. For example, does psychic distance drive relatedness or for which sets of country pairs is psychic distance an important driver of home-host country relatedness?

In addition to the theoretical contributions highlighted above, we propose an index of home-host country relatedness that is complementary to current input-based indices, allowing comparison across a large number of countries. Our methodology recognizes that relatedness is subject to change and allows for a systematic updating. The methodology proposed also offers the possibility for replication in other contexts, such as relatedness for international country relations or trade. Both would be fascinating areas for future research. Albeit our study has not addressed home-host country relatedness in all contexts it will potentially benefit future international business research by allowing for comparisons across countries around the globe. It may also help practitioners determine the likelihood of their international investments' success, keeping in mind that competitive factors may change the level of the indices proposed in the future.

III. COUNTRY EMBEDDEDNESS, MANAGERIAL BIASES AND INTERNATIONAL INVESTMENT DECISIONS

Introduction

While most researchers acknowledge economic factors as key drivers of international investment decisions, models of strategic decisions and especially the standard internalization model tend to be hyper-rational, indicating directly or indirectly that firm decisions are driven by the state of relevant decision factors (Aharoni, 2010; Buckley, Devinney & Louviere, 2007). In contrast, decision-making research has emphasized the bounded rationality of decision makers and their systematic reliance on heuristics and biases that are often universal or shared among country nationals (Jones & Wadhwani, 2007; Schneider & De Meyer, 1991). To bridge this gap, we build on current research in cognitive psychology to propose a decision-making theory that we apply in the context of international investments.

We first propose that international investment decisions, as all other decisions, are generally made close to convenient anchors, and that a key anchor for international investment decisions, and the focus of this study, is firms' home country factors with host countries chosen to be 'close' to the home country. We draw on past work to identify country factors that may determine closeness in addition to economic factors. We group these factors into two categories: i) historical and time invariant factors, such as geographic distance or colonial ties, which are likely to remain static over time, and typically have not changed in the last fifty years, and ii) time varying institutional factors, typically changing on a yearly basis and likely to have changed in the last ten years. Time

invariant factors include the geographic location as well as relatively stable country characteristics related among others to language, religion, colonial history, and legal systems. Time-variant institutions are primarily regulatory in their nature and can be changed more frequently, including institutions of property rights protection, contracting, and those that regulate corporate governance. Building on further research on memory imprinting from psychology, we then propose that managers tend to rely on older knowledge representation and hence international investment decisions are likely to rely more strongly on time-invariant institutional factors.

Drawing on a database of over half a million investments by most public MNEs worldwide, or over 15,000 firms, we find support for our claims. Country factors are indeed a shared anchor that drives investment decisions by firms from any particular home country to any particular host country. Alternatively, firms select international investments sites that that are 'close' to their home country. These findings are in line with the work of Ghemawat (2001, 2003) on "semi-globalization" and Rugman's on "regionalization" (Rugman &Verbeke, 2004; Rugman, 2005) suggesting that, despite the hype, globalization may not be as prevalent as perceived. We also find that closeness of time-variant institutions have little explanatory power in comparison to closeness to time invariant factors, in explaining the overall pattern of home-host international investment decisions. This finding confirms the role of ancient history to current decisions (Acemoglu & Johnson, 2005, Acemoglu, Johnson, & Robinson, 2001), and more generally, the importance of time invariant factors (Blonigen, Davies, Waddell, & Naughton, 2007), such as geography, which have mostly fallen out of favor in strategy and international business research. More generally, our findings calls for further

inclusion of managerial cognition research into strategy and international business (IB) research.

Literature Review

Local Search, Anchoring and Decision Making

Research on bounded rationality (March & Simon, 1958; Nelson, 2008; Simon, 1955, 1976), cognitive limitations, biases, and heuristics (Tversky & Kahneman, 1973, 1974) and further applications of these concepts suggests that both individuals and firms choose solutions that are proximate to their anchors, which in turn are chosen based on easily available information (e.g., Corner, Kinicki, & Keats, 1994; Olie & Iterson, 2004). Further details are given below.

Humans are hence boundedly rational (Halford, Wilson, Guo, Gayler, Wiles, & Stewart, 1994; Simon, 1957) and they use simplifying heuristics, which "reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations" (Tversky & Kahneman, 1974: 1124). Tversky and colleagues demonstrated the systematic presence of the 'availability and anchoring' heuristics, which lead to solutions close to the initial position, which also has found support from neuroimaging research (Tamir& Mitchell, 2010). Anchors themselves are chosen based on the information available with individuals relying heavily on information that is easily recalled when making frequency or probability assessments (Tversky & Kahneman, 1974). Subsequent adjustments are then biased toward the initial values (Chapman & Johnson, 2002; Epley & Gilovich, 2006; Kahneman, 2003; Schwenk, 1984; Tversky &

Kahneman, 1974). Evidence of anchoring has been found in numerous setting such as risk perception (Keller, Siegrist, & Gutscher, 2006) and doctors' decisions about diagnosis and prescribing (Klein, 2005). In a more market-like context, anchoring effects have been demonstrated in auction/negotiation situations (Galinsky, Ku, & Mussweiler, 2009), entrepreneurial market entry decisions (Moore, Oesch, & Zietsma, 2007), and other.

Local search is not just a characteristic of individuals, but also organizations, which "(1) search in the neighborhood of the problem symptom and (2) search in the neighborhood of the current alternative" (e.g., Cyert & March, 1963: 121; Gavetti & Levinthal, 2000) and begin their search by examining the data most readily available (Moore et al., 2007). Firms resort to local search in the development of organizational routines and more broadly organizational learning (e.g., Levitt & March, 1988; March, 1991; Nelson & Winter, 1982; Simon, 1991). Research in the 'upper echelons' tradition (e.g., Carpenter, Geletkanycz, & Sanders, 2004; Hambrick & Mason, 1984) has also demonstrated that top managers' background, experiences, and values influence strategic decisions including corporate change (Goodstein, Gautam, & Boeker, 1994), product diversification (Farjoun & Lai, 1997; Pehrsson, 2006; Stimpert & Duhaime, 1997), international diversification (Tihanyi, Ellstrand, Daily, & Dalton, 2000), and product innovation (Tripsas & Gavetti, 2000).

Theory Development

Country Embeddedness, Local Search and Country Anchoring

Focusing on international investment decisions, we propose that a key environmental anchor for international investment decisions will be the firm's home country and firms will choose for international investments countries which are 'close' to their own home country. As detailed below, two considerations drive this proposition. First, firms' top executives are still primarily drawn from firms' home countries (e.g., Jones, 2006) and country nationals are proven to share numerous decision-making traits (e.g., Schneider & De Meyer, 1991). Second, executives' knowledge of the firm's external environment constitutes an important source of available information (Bouquet, Morrison, & Birkinshaw, 2009; Prahalad & Bettis, 1986), with the country being a common anchor in the context of international investment decisions (e.g., Kogut, 1993).

Despite tremendous internationalization by firms over the last decades, boards of directors, top management teams and especially CEOs still originate from the firm's home country with countable exceptions (e.g., Heijltjes, Olie, & Glunk, 2003; Jones, 2006, 2006a). For example, our own of the Fortune 250 U.S. companies showed that only seven of them had a non-American national at the helm in 2005. Even at the board of directors level, or that level which is most international, many studies demonstrate, the number of non-nationals is larger (e.g., Ruigrok, Peck, & Tacheva, 2007) but is still relatively small and changing very slowly (Gillies & Dickinson, 1999; Staples, 2007).

Differences in national cultures have been shown to lead to different styles of processing information (Schneider 1989) and different interpretations and responses to

similar strategic issues (Schneider & De Meyer 1991). These differences also lead to the use of different criteria and weightings in making strategic decision (Hitt, Dacin, Tyler, & Park, 1997). Executives' knowledge of the firm's external environment constitutes an important source of available information (Bouquet, Morrison, & Birkinshaw, 2009; Prahalad & Bettis, 1986), with firms manned by executive that share the same nationality likely to rely on similar information and similar anchors.

In addition, research has shown that the country is likely to be a common anchor in the context of international investment decisions. Firms are embedded in a larger institutional context that serves as a powerful influence on strategic decisions (Hitt et al., 1997) and strategic orientation (Chung & Lee, 1989). Dunning speaks about MNC's "ownership advantages" that are in part home nation-specific (1977) and Kogut stresses that "countries differ in their underlying 'organizing principles' of work" so firms within a country "share common heuristics" which "embodies the know-how defining a country's capabilities" (Kogut, 1991: 33). National institutional factors are also found to lead to diversification patterns that are "country-specific" (Kogut, Walker, & Anand, 2002). Additionally, we observe significant differences in international entry decisions, operation and management of international subsidiaries in the case of multinational firms (Gupta & Govindarajan, 1991). In fact, a review by business historian Geoffrey Jones (2006, 2006a) concludes that firms' nationality has become more important in the recent decades compared to the end of nineteenth century.

Considering that firms manned by executive that share the same nationality are likely to rely on similar information and similar anchors, we propose that this anchor is

less likely to be firm or industry specific but rather country-specific. More formally, we propose the following:

Proposition 1a: A key environmental anchor for international investment decisions will be the firm's home country.

Considering also that top executives' attention is in short supply, they cannot attend to all the signals that matter (Bouquet et al., 2009), so the solutions chosen are likely to be chosen close to a firm's current position. We hence propose that firms are likely to choose host countries that are 'close' to their home country. Firms from any one country are likely to use heuristics that are shared with other firms in that country, or national collective heuristics, leading to similar decisions across firms from any one country. Ultimately, the aggregated investment decisions of individual firms at the country level indicate that the choice of host countries is driven by similarity/closeness to the home country. More formally:

Proposition 1b: Firms are more likely to choose countries that are similar/close to their home country in making international investment locational decisions.

Older Versus Recent Information and Decision Making

Going back to research on decision-making, we also find solid evidence for systematic memory imprinting in addition to anchoring in decision making. Recent research in this area indicates that in making decisions (Bjork, 2001), individuals are more likely to rely on historical and time invariant rather than current information. Cognitive psychology research is slowly documenting the biology and mechanisms of the brain, suggesting that earlier memory representations and learning become more

available over time. Information and learning acquired early on in life is more likely to be stored in long-term memory and more likely to be used (Suprenant & Heath, 2009) suggesting that managerial decisions, especially those by the more senior upper echelons members, are more likely to rely on relevant historical information. "(O)ver time, access to competing memory representations regresses toward the older of those representations" (Bjork, 2001: 222).

A multitude of experiments point to a shift from recency to primacy in the ease of access to memory representations corresponding to events or items as time passes, be it for remembering lists of items (Knoedler, Hellwig, & Neath, 1999) or recalling events from different periods (Conway & Pleydell-Pearce, 2000). In a more market-like situation, finance research on stock market reactions has revealed a tendency toward under-reaction among investors to newly released information (Della Vigna, 2009; Huberman & Regev, 2001).

In addition to the reliance on older memory representation, individuals are more likely to recall information that is consistent with the categories in use (Nisbett & Ross, 1980; Dutton & Jackson, 1987). Solidified values and mental frames are used not only for data collection, but also for analysis (Kiesler & Sproull, 1982: 557). Judgments made once on the grounds of historical information might also be used as a basis for later judgments, independent of the information on which the judgments were originally based (e.g., Kiesler & Sproull, 1982; Lingle & Ostrom, 1979). Data from these judgments gets incorporated into the strategy, systems, values, and expectations, and reinforced behavior of the organization (Bettis & Prahalad, 1995: 7). This phenomena is likely to be exacerbated considering i) the limited number of cues or pieces of information that can be

used in decision making (e.g., Tyler & Steensma, 1995: 61), ii) the greater level of experience of top management teams and hence a greater likelihood of deeply set mental models (Musteen, Barker, & Baeten, 2006). In this same vein, Prahalad and Bettis (1986) emphasized the relevance of historical factors as antecedents of the managerial dominant logic.

Ultimately, the mental representations which managers use are more likely to based on historical information (Kiesler & Sproull, 1982: 557). We draw on this research, described below, to propose that firms are more likely to use historical and time-invariant factors in determining closeness and ultimately international investment locational choices. Formally:

Proposition 2: Firms are more likely to use historical / time invariant information in making decisions.

Country Anchoring and International Investment Decisions

If country closeness is a key determinant of international investment decisions, what exactly determines closeness? Moreover, which would be the time variant versus time invariant factors that are likely to influence firms' decision? While economic factors have been emphasized by all as important, different authors and different streams of research have focused on the importance of different additional national elements. While we highlight briefly some of these different approaches below, we chose to follow the CAGE-framework (Ghemawat, 2001) which stands for culture, administration, geography and economic and straddles both macroeconomic and international business, highlighting the importance of both time-invariant factors and national institutions.

Macroeconomic research has paid close attention to numerous country specific factors that are primarily of time-invariant nature, including geographic proximity and contiguity, similarity in religion, historical colonial ties, shared language, and common legal roots (e.g., Bénassy-Quéré, Coupet, & Mayer 2007; Hu, 1995; Nicita & Olarreaga, 2007; Martin, Mayer, & Thoenig, 2008). The gravity models in which these factors are studied (e.g., Anderson, 1979; Tinbergen, 1962) trace back to the Heckscher-Ohlin model of trade theory (e.g., Leamer, 1995) and subsequent formal horizontal (Markusen, 1984) and vertical (Helpman, 1984) models of FDI. These models posit that, like the gravity law in physics, the economic interaction between any two countries is positively related to their economic 'mass' and negatively to the 'distance' between two countries in the factors below (e.g., Ricart et al., 2004). While these models seek to explain inter-country patterns and do not speak about the managers making individual firm decisions, we believe they identify the time-invariant country factors that are likely to be key anchors in the mind of managers as they make international investment decisions.

Within international business research has increasingly paid attention to national factors (e.g., Chacar & Vissa, 2005) with different streams of literature emphasizing different national factor. For example, one classification has used the product, financial and labor market institutions (e.g., Chacar, Newbury & Vissa, 2010; Khanna & Palepu, 1997). Guillén and Suárez (2005) identify five main approaches to the study of institutional context of multinational activity: cross-cultural (Hofstede, 1980, 1991; Kogut & Singh, 1988), comparative authority and business systems (Whitley, 1992; Zaheer & Zaheer, 1997), political economy of FDI (Gereffi, 1989, 1990), comparative corporate legal traditions (Aguilera, Filatotchev, Gospel, & Jackson, 2008; Capron &

Guillén, 2009; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998; La Porta, Lopez-de-Silanes, Shleifer, 1999), and political and contractual hazards (Delios & Henisz, 2000; Henisz & Williamson, 1999; Henisz, 2000, 2000a). Other authors emphasize the importance of combining different dimensions (Berry et al., 2010; Dow & Karunaratna, 2006). Others have focused on the three pillars highlighted by Scott (1995), regulative, normative and cognitive (e.g., Kostova, 1996, 1999; Kostova and Zaheer, 1999). Within that approach much of the attention has focused on the regulative aspects with much attention being paid to the political hazards and comparative corporate legal traditions (Cantwell, Dunning, & Lundan, 2010; Capron & Guillén, 2009). These literatures suggest that firms are more likely to seek foreign investments in countries with similar contracting institutions, because of institution specific-capabilities developed within the firm and the MNE's ability to transfer best practices to the new institutional regimes (Guillén & Suárez, 2005).

We have tried to be comprehensive in our coverage and use the factors highlighted in past research, but grouped the factors differently into two categories in line with our theory i) historical and time invariant factors, such as geographic distance or colonial ties, which are likely to remain static over time, and typically have not changed in the last fifty years, and ii) time varying institutional factors, typically changing on a yearly basis and likely to have changed in the last ten years. We expand on the specifics of these factors' relationships to international investments below.

Historical and Time Invariant Factors and International Investment Decisions

We classified under time invariant factors, the geographic proximity and contiguity as well as historical and cultural factors such as language, religion, colonial relationships, and legal systems.

Geographic proximity. Both geographic proximity and geographic contiguity can increase the likelihood of international investments for several different reasons. These factors can foster communication (e.g., Frankel, Stein, & Wei, 1997) and reduce transportation and communication costs (e.g., Chandler, 1977, 2000; Dunning & Lundan, 2008; Krugman, 1991; Yates, 2000). Moreover, neighboring and proximate countries are likely to be more salient in the minds of managers (Sjöholm, 1996; Wanta, Golan, & Lee, 2004).

Common language. Language is a highly time-invariant informal norm (North, 1990; Williamson, 2000) that seems to be an important attractor for investors and for business success, even in the case of trade, which is expected to be less influenced by language (Ghemawat, 2001).

Colonial relationships. Historical country relationships are often the source of formal and informal institutions that remain into the present (Acemoglu & Johnson, 2005), leading to otherwise unexpected patterns such as high levels of intra-Commonwealth trade and investment not explainable by regional trade agreements or geographical proximity (Lundan & Jones, 2001).

Same Country Historically. Countries that were in the past part of the same country, such as the former Soviet Union, present numerous historical and institutional similarities (Luong, 2002: 2).

Legal system origins. Legal system origins lead to significant differences in business and consumer related regulations and in the extent to which they provide shareholder and creditor protection and preserve the property rights (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002, 2003; La Porta et al., 1998, La Porta et al., 1999). Hence, common legal origins facilitate inter-country transactions (Flores & Aguilera, 2007; Globerman & Shapiro, 2003).

Religion. Differences in religion have the potential to disrupt the flow of information for international business (eg. Dolansky & Alon, 2008; Dow & Karunaratna, 2006), because religion and values affect individual cognition and influence the development of capitalism (Weber, 1930).

Based on the above, we propose that the following time-invariant country factors will serve as anchors for international investments:

Hypothesis 1: Contiguous countries to the firm's home country are more likely to be chosen as foreign investment locations.

Hypothesis 2: Geographically distant countries from the firm's home country are less likely to chosen as foreign investment locations.

Hypothesis 3: Countries that share the same language as the firm's home country are more likely to be chosen as foreign investment locations.

Hypothesis 4: Countries that have historical colonial links to their firm's home country are more likely to be chosen as foreign investment locations.

Hypothesis 5: Countries that were part of a firm's home country in the past are more likely to be chosen as foreign investment locations.

Hypothesis 6: Countries that have similar legal systems to their firm's home country are more likely to be chosen as foreign investment locations.

Hypothesis 7: Countries that have similar religions to their firm's home country are more likely to be selected as foreign investment locations.

Current and Time-Varying Institutions and International Investment Decisions

We classified under time-varying institutions those responsible for the protection of property rights and contracting, institutions of corporate governance related to the protection of shareholder and labor rights, and common membership in regional agreements.

Property rights institutions. Property rights institutions are defined as "the rules and regulations protecting citizens against the power of the government and elites" (Acemoglu & Johnson, 2005: 955). These institutions may alter or control opportunistic behavior and can help mitigate the public expropriation hazards (Delios & Henisz, 2000; Henisz & Williamson, 1999). Considering the cost of dealing with differing property rights regimes, firms are likely to prefer investing in countries with similar property rights.

Contracting institutions. Contracting institutions are defined as "the rules and regulations governing contracting between ordinary citizens" (Acemoglu & Johnson, 2005: 955). These institutions are essential in mitigating the risk of private expropriation (Acemoglu & Johnson, 2005; Delios & Henisz, 2000; Henisz & Williamson, 1999). Considering these institutions influence the cost of doing business, firms are more likely to seek countries with similar contracting institutions.

Shareholders' rights institutions. The degree to which shareholders' rights are legally protected varies significantly across countries (La Porta et al., 1998; La Porta et al., 1999). These institutions affect the ability of a firm to utilize its capabilities and the acceptance of its practices in countries with differing shareholder rights (Capron & Guillén, 2009: 807).

Labor rights institutions. A similar argument can be made in the case of protection of labor rights, which include the employment law, collective relations law, and social security law (Botero, Djankov, La Porta, Lopez-De-Silanes, & Shleifer, 2004: 1339). Labor force adjustments are harder to implement in countries with strict protection of labor rights, increasing the costs of post-acquisition reorganization (Botero et al., 2004; Capron & Guillén, 2009).

Common membership in regional agreements (CMRA). The foundation of European Union (EU), North American Free Trade Agreement (NAFTA), and other major regional agreements, has resulted in the reduction of tariffs and other trade costs which is expected to encourage investments among partner countries (e.g., Baltagi et al., 2008; Brenton, 1996; Fratianni & Oh, 2009).

Based on the above, we propose that the following time-variant country factors will serve as anchors for international investments:

Hypothesis 8: Countries with greater distance in property rights institutions from the firm's home country are less likely to be chosen as foreign investment locations.

Hypothesis 9: Countries with greater contracting institutions distance from the firm's home country are less likely to be chosen as foreign investment locations.

Hypothesis 10: Countries with greater distance in shareholder protection from the firm's home country are less likely to be chosen as foreign investment locations.

Hypothesis 11: Countries with greater distance in labor protection from the firm's home country are less likely to be chosen as foreign investment locations.

Hypothesis 12: Countries which share membership in a regional agreement with the firm's home country are more likely to be chosen as foreign investment locations.

Country Embeddedness, Memory Imprinting and International Investment Decisions

In line with our proposition 2 above, early international research and a large strand of research in macroeconomics and political science have emphasized the importance of historical and geographical factors to country relations, foreign direct investments and trade (e.g., Dunning & Lundan, 2008). We argue that they will also be of great importance in the context of international investment decisions.

The choice of location requires making judgments about similarities across countries (e.g., Tallman & Shenkar, 1994). Such judgments are generally ambiguous in nature (Farjoun & Lai, 1997), subject to cognitive biases in managerial perceptions (Barnes, 1984; Schwenk, 1984) and are based on simplifications of complex information, or categorizations (Dutton & Jackson, 1987). Such categories are likely to be based on early acquisition of information which is often on time invariant historical and geographic factors, such as neighbor countries, language, and religion, the elements taught in the school and that individuals are exposed to during their whole life. Along these lines, Jones and Wadhwani (2007) find that linguistic and historical ties affecting

entrepreneurial cognition with international investments of Spanish firms, even from the 1980s and onward, being disproportionately located in Latin America. Categorizations and framing also influence the perceptions of opportunities and threats. Tversky and Kahneman (1981) and subsequent work (e.g., Dutton & Jackson, 1987; Kahneman, 2003) showed that risk taking behaviors change depending on a situation's framing. Along these lines, Toral (2001) analyzes the investments of Spanish multinationals in Latin America and points out that the perceptions in those instances were of greater opportunities and lesser risks less than other regions or countries while the opposite was true for U.S. multinationals. As a result there are relatively fewer investments by U.S. multinationals in Latin America, despite the fact that they are better endowed than Spanish multinationals (Toral, 2001: 171) and entry into the promising Latin American market would make economic sense.

Ultimately, while many historic and geographic factors have fallen into disfavor in the IB literature, we believe that these factors are likely to be the more salient in managers' minds. Our review suggests that in making international locational choices for international diversification, just as in product diversification moves (Prahalad & Bettis, 1986), the choice of the target country is likely to be heavily influenced by historic-geographic or time invariant institutional knowledge rather than by current or time varying institutional factors. As such, we propose that historic and geographic factors will have the greater influence on internationalization decisions. More formally:

Hypothesis 13: Historical / time invariant country distance information is likely to explain more of the variance in home host country international investment decisions than distance of time variant institutions.

Methods

Data used to test our hypotheses is already described in Chapter 1 (see Table 1 for the full sample). In addition, we collected data on different national factors and institutions. Because of missing country-level data and the fact that we used a balanced dataset to run all models, we were left with 1,705 observations/country pairs with 56 home and 58 host countries represented.

Dependent Variable: Home-Host International Investments

We measured international investments as the relative level of firms' investment between a home and a host country, at the country dyad, which they also term Home-Host Country Relatedness ($HHCR_{ij}$) with i representing home country i and j host country. This measure is based on the survivor-principle (SP) (Teece et al., 1994) that assumes that countries that are frequently chosen or combined within actual firms are more closely related than countries that are rarely combined, after making certain adjustments. The aggregation of firms' decisions in an overall measure seems appropriate, considering that in our case the measurement of absolute properties of members gives rise to collective properties (Schneider & Andelmar, 1993). Unlike typical aggregate measures however this measure incorporates the judgment and knowledge of the firms which make international investment decisions and is more suitable to test theory on international investment decisions than similar measures based on bilateral FDI-flows, since it's not sensitive to the size of investments. The technical

details of the calculation of this measure were described in Chapter I (see Equations 1 and 2).

Statistical Model

We used ordinary least squares methodology to test our Hypotheses 1 to 12 using the model below and variance decomposition techniques to test for H13. We estimate $HHCR_{ij}$, as follows:

$HHCR_{ij} = \alpha + \beta_1 * (\text{Economic Factors})_{ij} + \beta_2 * (\text{Time Invariant Factors})_{ij} + \beta 3 *$ (Time Variant Factors)ij+ controls

Equation 7: Statistical model for $HHCR_{ij}$

where β_1 represents the effects of economic factors as controls,

β_2 is a vector of coefficients capturing the effects of the various time invariant factors,

β_3 is a vector of coefficients capturing the effects of current factors.

Considering the dyadic nature of data, we assumed that the error within a country is correlated and hence clustered the data by both the home and host country.

Independent Variables

All independent variables are at the country-pair level. They either represent a distance, such as the difference in Distance in Shareholder Rights for a home and host country, or a descriptor, such as the Geographic Distance between the two countries (see

Appendix 3 for a full description of all variables). These measures used for time invariant data have been commonly used in macro-economic research (e.g., Bénassy-Quéré, Coupet, & Mayer 2007; Martin, Mayer, & Thoenig, 2008; Nicita & Olarreaga, 2007). The measures for the time-variant factors were obtained from various sources from the IB literature.

Control Variables

We controlled for fixed home and host country effects. We also used several controls for economic factors that may influence international investments. We controlled for the Combined Size of the home and host countries measures as the log of the sum of home and host countries GDP or $G=GDP_i+GDP_j$ and home host Size similarity measured by $S=1-(GDP_i/G)^2-(GDP_j/G)^2$. We also controlled for Combined Purchasing Power measured by the log of the sum of home and host GDP per capita or $Gcapita=GDPcapita_i+GDPcapita_j$ and Similarity in Purchasing Power measured by $S=1-(GDPcapita_i/Gcapita)^2-(GDPcapita_j/Gcapita)^2$. Additional controls are also made for Human Capital Endowment Distance measured by the absolute value of the difference in secondary school enrollment. This data was obtained from the World Development Indicators. Finally, we control for the fact that one or more countries in the pairs is an island with Island=2 for pairs of islands, 1 for one island country in pair, and 0 otherwise, a factor that may interfere with geographic distance calculations.

Results

Table 6 presents the summary statistics for our measures. The full correlation matrix (See Table 7) shows several correlation indices above 0.3 among the independent variables, albeit some of these are not surprising. We ran collinearity diagnostics, computing the mean variance inflation factor (VIF) for all models estimated and it stood at 1.51. All the individual VIFs were less than 4 with the maximum at 2.15, indicating low collinearity (Netter, Wasserman & Kutner, 1996).

Table 6: Descriptive Statistics

Variables	Mean	St. Dev.	Min.	Max.
$HHCR_{ij}$	-0.51	0.58	-1	1
Combined Size	26.8	1.29	23.5	30.43
Size similarity	0.28	0.16	0.001	0.5
Distance in Work Force Quality	0.85	0.75	0	4.42
Combined GDP/capita	10.31	0.64	7.7	11.42
GDP/capita similarity	0.36	0.13	0.04	0.5
Island	0.31	0.5	0	2
Contiguous Countries	0.04	0.19	0	1
Geographic distance (100 km)	74.2	47.75	1.11	197.7
Common Official Language	0.11	0.31	0	1
Colonial Relations	0.06	0.24	0	1
Same Country	0.009	0.09	0	1
Distance in Legal Systems	0.69	0.72	0	2
Distance in Religion	-0.3	0.94	-1.55	1.53
Distance in Property Rights Protection	0.2	0.21	0	0.89
Distance in Contracting Institutions	1.07	0.8	0	4.09
Distance in Shareholder Rights	1.1	0.83	0	3.54
Distance in Labor Protection	0.85	0.63	0	3.05
Common Membership in Reg. Agreements	0.13	0.33	0	1

Table 7: Correlations Matrix

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	$HHCR_{ij}$	1											
(2)	Contiguous countries	0.33*	1										
(3)	Geographic Distance	-0.38*	-0.26*	1									
(4)	Common Official Language	0.17*	0.15*	0.02	1								
(5)	Colonial Relations	0.13*	0.14*	-0.07*	0.35*	1							
(6)	Same Country	0.16*	0.35*	-0.11*	0.19*	0.05*	1						
(7)	Distance in Legal Systems	-0.20*	-0.17*	0.19*	-0.15*	-0.12*	-0.08*	1					
(8)	Distance in Religion	-0.16*	-0.13*	0.08*	-0.1*	0.07*	-0.09*	0.1*	1				
(9)	Distance in Property Rights Protection	-0.09*	-0.04	0.14*	0.03	0.03	-0.01	-0.004	-0.04	1			
(10)	Distance in Shareholder Rights	-0.02	-0.03	0.06*	-0.07*	0.02	-0.02	0.08*	0.01	-0.05	1		
(11)	Distance in Labor Protection	-0.15*	-0.11*	0.04*	-0.15*	-0.09*	-0.09*	0.5*	0.07*	0.02	-0.01	1	
(12)	Distance in Contracting Institutions	-0.12*	-0.08*	0.3*	-0.11*	-0.14*	-0.04	0.24*	-0.14*	0.09*	0.13*	0.07*	1
(13)	CMRA	0.3*	0.23*	-0.49*	-0.05*	-0.07*	0.09*	-0.18*	-0.25*	-0.26*	-0.01	-0.15*	-0.12*

* significant at 5% or less

Table 8 shows the test results explaining $HHCR_{ij}$ for both TI and TV, or H1 to H12. M0 represents the base model with the control variables and fixed home and host country effects. Model M1 tests hypotheses related to TI, i.e. H1 to H7, while model M2 tests hypotheses H8 to H12, which are related to TV. M3 is the full model. As an illustration, the estimated coefficient for Geographic Distance is 0.003 (M1 in Table 8). Therefore, a reduction of distance of one unit (100 km) causes an increase of $HHCR_{ij}$, by

.003. This in turn translates (for a pair of countries that have $HHCR_{ij}$ = .5) in an increase of 2% of the number of investments in the host country.

We find highly significant effects and in the predicted direction for almost all geographic and historical factors (H1 to H7) except Same Country (when entered individually also Same Country has a significant positive). Countries have a higher level of relative investments, or 'are more related', if they are contiguous or close geographically, have had colonial relations, and are similar in terms of religion, legal systems, and language.

We have more mixed results for time varying institutions (M2). Distance in Property Rights Protection (H8) has a positive rather the expected negative effect $HHCR_{ij}$ albeit that effect is near marginal in the full model. Distance in Contracting Institutions (H9) has a negative and significant effect on $HHCR_{ij}$ but loses significance in the full model. Distance in Shareholder Rights (H10) has a positive coefficient on $HHCR_{ij}$ that becomes significant and positive in the full model, which is contrary to our predictions. Distance in Labor Protection (H11) has a negative and significant effect on $HHCR_{ij}$ but loses significance in the full model. Common Membership in Regional Agreements (CMRA) (H12) has as expected a positive effect $HHCR_{ij}$ albeit that effect is non-significant in the full model.

Table 8: OLS Results Explaining $HHCR_{ij}$: M1: Time Invariant; M2: Time Varying

	M0	M1	M2	M3
Combined size	.03(1.67)†	.05(2.34)*	.05(2.04)*	0.05(2.61)*
Size similarity	.16(1.34)	.21(1.9)†	.18(1.44)	.22(2.23)*
Distance in Work Force Quality	-.06(-1.31)	-.07(-1.73)†	-.41(-.92)	-.07(-1.88)*
Combined GDP/capita	-.02(-.31)	-.23(-0.44)	-.05(-1)	-.01(-0.25)†
GDP/capita similarity	.38(1.7)†	-.08(-.5)	.14(.64)	-.08(-.05)
Island		.02(.43)		.02(0.51)
Contiguous Countries (H1)		.06(6.06)***		.58(5.86)***
Geographic distance (H2)		0.003(-9.43)***		-.004(-8.08)***
Common Official Language (H3)		.19(3.53)***		.21(3.65)**
Colonial Relations (H4)		.18(2.73)***		.18(3.04)**
Same Country (H5)		.22(1.11)		.24(1.17)
Distance in Legal Systems (H6)		-.07(-4.43)***		-.06(-3.11)**
Distance in Religion (H7)		-.06(-3.42)***		-.05(-2.85)**
Distance in Proper. Rights (H8)			.2(2.82)***	.15(2.33)*
Distance in Contracting Inst. (H9)			-.05(-2.47)*	.03(1.45)
Distance in Shareh. Rights (H10)			.01(.69)	.04(2.29)*
Distance in Labor Protection (H11)			-.09(-4.44)***	-.01(-.35)
CMRA (H12)			.37(4.35)***	.06(.8)
_cons	-1.38(-2.07)*	-1.25(-2.42)*	-1.24(-1.8)†	-1.54(-2.95)**
Observations	1705	1705	1705	1705
Adj. R-Squared	0.3081	0.5017	0.3550	0.5072

Robust t statistics in parentheses; † significant at 10%; * significant at 5%; ** significant at 1%, *** significant at 0.1%

Table 9 shows the tests results for the relative importance of time invariant (TI) versus time variant (TV) factors in explaining the variance in $HHCR_{ij}$ or the tests for H13. We follow a standard variance decomposition technique, which is sensitive to the order of entry into the model. In the base model (M1) we include all control variables, that is the fixed country effects and economic control factors (EF). This model explains around 31% of the variance of $HHCR_{ij}$. Model 2 adds TI, which explain an additional 19.4% of the variance. Model 3 adds TV to the base model and explains an additional 4.7% of the variance. Model 4 adds both TI and CI the base model. When we compare

M4 to M2, TV explain an additional 0.55% of the variance. When we compare M4 to M3, TI explain an additional 15.2% of the variance. This shows that the maximum and minimum estimates for TI (and TV respectively) are [19.4%, 19.9%] ([0.55%, 4.7%]). The final Wald-tests for adding TV to M2 is also only marginally explanatory power (p-value=0.054). These results support H13 and Proposition 2.

Table 9: $HHCR_{ij}$ Variance Decomposition: Time Invariant vs. Time Varying Factors

	Model	R-Square	Adj. R-Square	Compared against	Added Adj. R-Square (%)	Wald-Test (Prob> F)
1.	CE + EF (M1)	0.3102	0.3081			
2.	CE + EF + TI (M2)	0.5055	0.5017	M1	19.36	<0.001
3.	CE + EF + CI (M3)	0.3588	0.3550	M1	4.69	<0.001
4.	CE + EF + TI + CI (M4)	0.5124	0.5072	M1	19.91	<0.001
5.	CE + EF + CI + TI (M4)	0.5124	0.5072	M3	15.22	<0.001
6.	CE + EF + TI + CI (M4)	0.5124	0.5072	M2	0.55	0.0535

Abbreviations:
CE: Home and Host Country Effects, EF: Economic Factors, TI: Time Invariant Factors, CI: Current Institutions

Robustness Checks, Post-Hoc Analysis and Limitations

To check the robustness of our results we conducted several additional tests. We estimated additional models using different measures of current institutions. We first used Kogut and Singh (1988) to compute 'cultural distance' between the home and host country, as an alternate instead of our measures of common language and religion. We then added to the time invariant factors the Psychic Distance measure developed by Håkanson and Ambos (2010). In both cases, the results obtained in regard to the relative explanatory power of time invariant vs. time varying institutions remain. In both cases the sample was drastically reduced, considering cultural distance is symmetric and available for only 67 countries and psychic distance for 261 observations/country pairs.

In the models with cultural distance several time invariant factors, including cultural distance, are significant in this model albeit not in the full model. The time invariant distance that consistently remains significant is that for Legal Systems Origin. In the models with psychic distance, Psychic Distance remains significant across all models, but in its presence the colonial relations, common language, and distance in religion become insignificant. This suggests that using psychic distance would allow for more parsimonious models, albeit it is limited to a smaller set of countries.

In addition, to exclude the possibility of time invariant factors' effects being driven by geographic distance alone, we ran separate Wald-tests for the historical and geographic factors. Both tests were highly significant. Historical factors explain 3.6% of the variance in $HHCR_{ij}$ beyond that explained by the base model and geographic factors, while geographic factors explain an additional 10% beyond the base model and historical factors.

We conducted additional tests to try and disentangle, albeit limitedly so, the effects of geographic closeness saliency and lowered transportation costs associated with smaller geographic distance. To do so, we capitalize on the observation that saliency should be evident for proximate countries only while transportation costs should apply to all countries. As a result, the overall effects of distance should be more pronounced for closer countries. An added squared distance term in the model had a positive and significant coefficient at 5% supporting our conjecture. Further splitting the data into close vs. distant pairs and running separate regressions lead to significantly different coefficients of distance in both samples with the coefficient for close countries several times larger than that for distant countries. The results were robust to different

specifications of 'closeness' (we first defined close countries as those who were contiguous, then we considered as 'close' also countries less than 1,000 km distant). These tests hint to the existence of a saliency effect in addition to cost effects.

Finally, we reran our models using another asymmetric measure of country relatedness based on home-host country exports rather than count of investments by firms between countries as the dependent measure. The results were mostly unchanged, albeit the portion of variance explained by country effects is lower (about 18%). Absolute comparisons between the models are difficult, since the samples size obtained is much smaller. Economic factors add around 2.5% to country effects. In contrast to Country Relatedness, there is more variance explained both by time invariant factors (24%) and current factors (8%).

Discussion and Conclusion

The results obtained in this study support our general theory, which proposes that decisions are chosen close to a convenient anchor. We also find support for the idea that older knowledge representations are likely used in strategic decision-making. Our findings support the idea that strategic moves are influenced by managerial mental models and managerial values which become more rigid over time and hard to change and may exert stronger influence on decision than current environmental forces (Kiesler & Sproull, 1982). While past research has also suggested that managerial mental models can become rigid over time (Wiersema & Bantel, 1992), this is the first study to demonstrate the relative importance of history and geography over current institutional

factors in high level strategic decision making in the international business arena. The finding is of great importance to academics and managers alike. On the managerial side, we come to question once again the rationality of decision-making and the need to address in some fashion the bounded rationality of managers and the use of heuristics (Hutzschenreuter & Kleindienst, 2006), which are likely to translate into suboptimal strategic decisions. However, we are not arguing that managers necessarily make the wrong decisions. As Tversky and Kahneman (1974: 1124) argued, these heuristics are quite useful, albeit they sometimes lead to severe and systematic errors. Indeed as Bouquet et al. (2009) find, beyond a certain threshold, international attention, that is, the time and effort dedicated to scanning the global marketplace, may come at the expense of other strategic imperatives and harm firm performance. Bingham, Eisenhardt, & Furr (2007) find also evidence of the positive effects of heuristics in decision-making processes and performance.

In the context of international investments, we demonstrate more specifically home country is a key anchor in international investment decisions and that historical and time invariant information is more likely to be used in these decisions. Firms are more likely to choose host countries that are similar/close to their home country rather than distant countries. Specifically, we find that geographic distance has a negative influence on international investments in line with previous research (e.g., Egger & Pfaffermayr, 2004). In addition, contiguity of two countries positively influences international investments. Moreover, we found evidence that the effects of distance likely go beyond just the increase in transportation costs (also see Frankel et al., 1997: 71). This result

shows that geographic distance sill matters even with dramatically reduced transportation and communication (Buch, Kleinert, & Toubal, 2003).

Common language and past colonial relationships are also found to drive international investments. In line with our findings, past research has shown the disproportionate investments by Spanish multinationals in Latin America (Toral, 2001) and by Portuguese multinationals in Brazil and Portuguese-speaking Africa (Nunes, Bastien, & Valerio, 2008). Distance in religion is found to negatively affects international investments in line with empirical evidence suggesting that religion affects the level of FDI (Dolansky & Alon, 2008) and corporate disclosure (Archambault & Archambault, 2003), and that religion is an important factor in predicting variation in creditor right (Stulz & Williamson, 2002).

Finally, dissimilarity in legal systems origins is associated with reduced foreign investments in line with past research showing that countries with the same legal system are more likely to be the recipients of foreign direct investment (FDI) (Globerman & Shapiro, 2003) and investments by US firms (Flores & Aguilera, 2007). The finding highlights legal origin differences as a handicap for international business (Djankov et al., 2003; La Porta et al., 1998; La Porta et al., 1999).

When historical and time invariant factors are excluded, time-variant institutional distance is found to lead to decreased international investments in line with past research stressing their importance (e.g., Delios & Henisz, 2000). Firms are less likely to make international investments in countries with greater distance in property rights institutions. Firms are also less likely to make international investments in countries with greater distance in contracting institutions. This result is in line with past research showing that

contracting institutions influence the choice of entry mode (Anderson & Gatignon, 1986) and that their improvement reduces the governance costs of market leading to more exports and less wholly owned subsidiaries (Henisz & Williamson, 1999).

Firms are also found to be less likely to make international investments in countries with greater distance in shareholder and labor protection. These results are line with past research showing that the degree of investor protection (La Porta et al., 1998, La Porta et al., 1999) and labor rights (Aguilera & Jackson, 2003; Botero et al., 2004; Capron & Guillén, 2009) in a country influence the patterns of ownership, governance and financing (Guillén & Suárez, 2005). Finally, firms are more likely to choose as foreign investment locations countries with which they share membership in a regional agreement. Indeed, the foundation of European Union (EU), North American Free Trade Agreement (NAFTA), and other major regional agreements, resulted in a significant increase in bilateral trade volumes among the member countries (Baier & Bergstrand, 2007; Glick & Rose, 2002). However, results on bilateral FDI have not been conclusive, considering the reduction of tariffs and other trade costs is expected to encourage vertical investments, in which firms split up the stages of production and engage in trade, but not necessarily horizontal investments (Baltagi et al., 2008). Empirical results reflect this issue with some finding positive effects between regional agreements and bilateral FDI (Brenton, 1996; Brenton, Di Mauro, & Lücke, 1999; Levy Yeyati et al., 2002, 2002a) and others finding no such effects (Blomström & Kokko, 1997).

It is very important to note, however, that in comparison to historical and time invariant factors current institutions have limited explanatory power, albeit some are significant. We demonstrated that international investments between countries are driven

primarily by time invariant factors of historic and geographic nature and time-variant institutions, in addition to the economic and country-specific factors. Much of normative research emphasizes the importance of examining current external conditions when making important strategic decisions such as internationalization moves. Similarly, much of IB research emphasizes the importance of time varying national institutions in making internationalization and trade decisions. This research finds quite a distance between these normative prescriptions and actual managerial practice. Our work shows that the present is important but the past matters more for internationalization decisions. The explanatory strength of geographic and historical factors provides additional evidence in favor for arguments by Ghemawat (2001, 2003) on "semi-globalization" and Rugman on "regionalization" (Fratianni & Oh, 2009; Rugman & Verbeke, 2004; Rugman, 2005). It also provides more evidence about the importance of history to current developments (see also Acemoglu & Johnson, 2005; Acemoglu et al., 2001; Jones, 2006, 2006a). The results obtained are hence consistent with macro level research within international economics and gravity-models examining drivers of foreign direct investment and trade (Blonigen, 2005), the Uppsala model of internationalization processes (Johansson & Vahlne, 1977, 1990) with its emphasis on 'psychic distance' (Johanson & Vahlne, 1977) and 'cultural distance' (Kogut & Singh, 1988) between the home and host country, and recent suggestions that 'distance' along these cultural, administrative, and economic dimensions can affect the attractiveness of foreign markets (Ghemawat, 2001, 2003, 2007).

It is important to note that our finding does not mean that these time-variant institutional factors are unimportant. Two possible and at time overlapping explanations for this finding need to be disentangled in future research. Firstly, time-varying

institutions are likely to have their roots in the geographic and historical institutions that provide us with possibly better overall or more parsimonious explanations (North, 1991). As Acemoglu et al. (2001) point out, the relationship between national institutions and performance of the countries might not account for potential endogeneity and differences in colonial experience could be a source of exogenous differences in institutions. This would call for a rethinking of the drivers of decisions making in general, be it historical of current information and is in line with research in population ecology highlighting initial imprinting (Boeker, 1989; Marquis, 2003). This also calls for a rethinking of which institutions matter in general or under which conditions the institutions of interest in IB research are more relevant. Secondly, managers may be making decisions with the 'fundamentals' in mind. Considering that current institutional conditions are, by definition, in flux, firms may be focusing on perennial factors that are likely to stand the passage of time. Further studies are needed to assess this possibility. After entry decisions are made, based primarily on time-invariant factors, the state of current institutions and the ability of the firm to cope with institutional idiosyncrasies (Henisz, 2003) are likely to become a very important source of performance heterogeneity among the multinationals (Meyer, Mudambi, & Narula, 2011).

Regardless, this study calls into question our primary focus within IB research on time-varying factors while historic-geographic factors are nowadays considered to be much less relevant. Managers are subject to bounded rationality in addition to being constrained by the idiosyncratic resources of the firm and its worldwide strategy (Tallman & Shenkar, 1994), and we need to understand further the impact of these biases on strategic decisions. Other future research that may be needed is the examination of

embeddedness at all levels on decision-making n general and international investments in specific. We recognize that in addition to being embedded in their home country, managers are embedded also in the context of their own firm and in their own individual characteristics. How do these three level of embeddedness jointly influence firms' international decisions is unclear. More generally, it is important that future research further includes managerial cognition into the study of strategic decisions.

IV. THE IMPACT OF INTERNATIONAL COHERENCE ON MULTINATIONAL ENTERPRISE PERFORMANCE

Introduction

Starting with the work of Chandler (1962) and Andrews (1971), strategy research has highlighted the importance of fit between the firms' resources and its external environment. In this vein, research on multinationality has examined the impact of internal resources configurations, such as scope, degree, and institutional diversity, on performance (e.g., Contractor et al., 2003; Goerzen & Beamish, 2003; Hitt et al., 1997; Tallman & Li, 1996; Thomas & Eden, 2004). Other research has also examined the impact of the external environment, including the institutional environment on multinational firm performance (e.g., Chacar, Newburry, & Vissa, 2010). However, the fit between the resources and the external environment is rarely explored in the international arena (for an exception see De la Torre, Esperança, & Martinez, 2010). We propose in this study to tackle this issue of fit.

More specifically, we propose that firms, over time, develop the resource and capabilities that are best suited to deal with their current external environment. Considering the importance of capitalizing on firms' unique rare and valuable resources (Barney, 1991; Rumelt, 1979), firms are likely to have a superior performance if they are able to reuse and capitalize on their fungible or expandable resources and capabilities in a new environment (Penrose, 1959). Such an exploitation strategy is more likely to succeed when the current resources and capabilities are also valuable in the new environment, hence, when the new environment is somewhat similar or close to the

firms' current external environment. Focusing on the national environment, we propose that firms that operate in sets of countries that are 'related' are likely to have a superior performance to those that do not. We coin the term international coherence, defined as the degree to which a Multinational Enterprise's (MNE) network comprises countries that are related, to describe these firms. A high level of international coherence allows for the transfer of firms' country-specific resources and capabilities from one specific country to others within the MNEs network, which is a key potential source of competitive advantage for MNEs (Goerzen & Beamish, 2003).

We test the theory proposed using a sample of over 1,000 U.S. multinational enterprises (MNEs), and find support for the theory presented. It should be also noted that these results hold, even after controlling for the numerous dimensions of multinationality identified in past literature.

The remainder of this paper is organized as follows. We review first the relevant literature on the relationship between multinationality and firm performance, describing the evolution of the concept of multinationality. We also shortly review the past research on and the role of external institutional environment for MNEs' performance. Then we introduce the concept of international coherence and develop the study's hypothesis. The next section describes the methodology, measures and sample followed by a description of the empirical results and our conclusions. It is important to note that our approach likely addresses a key concern that has been raised on research on the relationship between multinationality and performance, namely the need to account for relatedness among countries within an MNE's network (Goerzen & Beamish, 2003; Vachani, 1991; Verbeke & Brugman, 2009; Verbeke, Li, & Goerzen, 2009).

Literature Review

External Environment Fit and MNE Performance

The concept of "fit" originating in population ecology and contingency theory (Van de Ven, 1979; Venkatraman, 1989) is considered fundamental to strategic management (Schendel & Hofer, 1979; Venkatraman & Camillus, 1984), where it is conceptualized as the alignment of organizational competencies and resources with the opportunities and threats in the external environmental (Andrews, 1971; Chandler, 1962; Rumelt, 1974). In a purely domestic context, the research on fit has in general provided evidence that the match of internal resources with the requirements of the external environment is beneficial for the organization (e.g., Venkatraman & Prescott, 1990; Zajac, Kraatz, & Bresser, 2000).

In the field of international business, the need for fit prominently appears in the Integration-Responsiveness (I/R) framework proposed by Prahalad (1975) and Doz (1976). According to this framework and through their multi-country activity, MNEs should be able to exploit market imperfections and capitalize on their worldwide competitive advantage (Roth & Morrison, 1990), while being responsive to the institutional environment in each location (Bartlett & Ghoshal, 1989; Kostova, 1999; Kostova & Zaheer, 1999; Prahalad & Doz, 1987).

While the I/R framework emphasizes the importance of considering the fit of an MNE's strategy with the institutional context within each of the host countries, it doesn't address how companies adapt to a variety of varying local contexts simultaneously (Meyer, Mudambi, & Narula, 2011). Moreover, much of the current research on

multinationality ignores the issue of fit and rather focuses on the configuration of an MNEs' international resources across the geographic space and its relationship with performance with more recent work focusing on the relationship between the external environment and performance, as reviewed below.

MNE Internal Resources and Configuration and Performance

While firm resources and capabilities are essential to success in both a domestic and an international context, IB research has highlighted the impact of two related sets of resources that apply only in the context of an MNE. The first set is centers around the 'ownership' advantage. The second set is multinationality as a resources and internal configuration across the geographic space. As discussed below, both of these are generally explored without regard to fit with the external environment.

The transfer of MNE's resources in the form of firm-specific advantages (Hymer, 1976) or "ownership advantages" (Dunning, 1977) has been at the root of most prominent FDI-theories. In fact, the ability to transfer, recombine, and exploit these resources across multiple contexts is considered the rationale for the existence of the MNE (Meyer et al., 2011). The resources considered in descriptions of the ownership advantage are mostly different types of knowledge underlying technology, production, marketing, or other activities (e.g. Kogut & Zander, 1993). Several studies highlight the role that such intangible resources together with MNE's experience play in improving MNE's performance (Delios & Beamish, 1999; Fang, Wade, Delios, & Beamish, 2007; Gao, Pan, Lu, & Tao, 2008; Tallman & Chacar, 2011).

As the ownership advantage emerged into the limelight, multinationality, as a resource also became the focus of study. Researchers initially contrasted multinational companies to purely domestic firms (Hymer, 1975; Stopford & Wells, 1972; Vernon, 1971). In this research, multinationality itself is viewed as a resource (and at times a liability). The conceptual logic underlying the investigation of the multinationality-performance relationship mostly rests on the comparison of the incremental benefits and costs of internationalization (Ruigrok, Amman, & Wagner, 2007). On the benefits side, multinationality is expected to help exploit scale economies, engage in price discrimination and arbitrage knowledge acquisition, and have better and more flexible resources (Contractor et al., 2003; Hitt et al., 1997; Kim, Hwang, & Burgers, 1993). In addition, MNEs can exploit differences in government regulations and increase their bargaining power due to increased size (Thomas & Eden, 2004). Tallman and Li (1986) also emphasized the importance of the ability to manage extensive networks of international subsidiaries at low transactional costs, because multinationality creates opportunities to leverage strategic resources while simultaneously diversifying market risks, thus raising its performance (Kim et al., 1993).

On the cost side, with increased presence in foreign countries, MNEs are more exposed to foreign exchange risks, to legitimacy issues due to multiple levels of authority, and greater cultural diversity, which is expected to increase the costs of operations (Kostova & Zaheer, 1999; Thomas & Eden, 2004; Zaheer, 1995).

After some earlier attempts to account for the dispersion of multinational activities across dissimilar geographic regions (Buhner, 1987; Grant, 1987; Kim, Hwang, & Burgers, 1989), research moved beyond a comparison of domestic firms to MNEs,

researchers emphasized the multidimensional nature of the multinationality construct (Tallman & Li, 1996; Thomas & Eden, 2004; Sullivan, 1994) with researchers exploring the impact of international scope, degree, and institutional diversity, on MNE performance and a number of parallels drawn to product diversification theories (e.g., Contractor et al., 2003; Goerzen & Beamish, 2003; Hitt et al., 1997; Makino, Isobe, & Chan, 2004; Tallman & Li, 1996; Thomas & Eden, 2004; Tong, Alessandri, Reuer, & Chintakananda, 2008). A distinction was established between degree and scope of international diversification, defined as the geographic range or breadth of the firm's foreign presence (Goerzen & Beamish, 2003; Tallman and Li, 1996; Wiersema & Bowen, 2008). The potential for arbitrage was also presented as a means to superior performance with the MNEs presumed to leverage location-specific advantages across their countries of operations (Kogut, 1985; Tallman & Li, 1996). Others presented a power argument highlighting the potential for multipoint competition (Karnani & Wernerfelt, 1985). Following Vachani (1991), further distinction was made between related and unrelated international geographic diversification (e.g., Gomez-Mejia & Palich 1997; Zahra, Ireland, & Hitt, 2000) with authors using different country categorizations (e.g., Hofstede, 1980; Ronen and Shenkar, 1985) to account for the diversity of investment locations of MNEs.

External MNE Environment and Performance

As in the broader management research, the IB field has highlighted the role of the external environment to firm performance with one major difference in emphasis. While the influence of the ''environment'' has long been investigated (e.g., Lawrence &

Lorsch, 1969), the emphasis has been on the task environment with the institutional environment mostly in the ‘‘background’’ (Peng, Wang, & Jiang, 2008). IB research has demonstrated that institutional frameworks differ substantially across countries (e.g., Bartlett & Ghoshal, 1989; Kostova, 1999; Kostova & Zaheer, 1999; Prahalad and Doz, 1987) and that this heterogeneity leads to context-specific industry structures and performance (Khanna & Palepu, 2000; Khanna & Rivkin, 2001; Ricart et al., 2004). Again, this research has been essential of our understandings of the impact of the MNE environment on its performance but has not explored the concept of fit.

Compared to some factors of production that are increasingly mobile, formal and informal institutions “represent the major immobile factors in a globalized market” (Mudambi & Navarra, 2002: 636) and the costs and benefits of adapting MNE’s organization and governance to these conditions are important in determining the attractiveness of a location (Meyer et al., 2011). As Ingram and Silverman (2002: 20) put it: ‘‘institutions directly determine what arrows a firm has in its quiver as it struggles to formulate and implement strategy and to create competitive advantage.’’

Scott and Meyer (1983: 140, 149) defined task or technical environments as "those within which a product or service is exchanged in a market such that organizations are rewarded for effective and efficient control of the work process," in contrast to institutional environments that "are characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy from the environment.” In a frequently used definition, institutions are the ‘‘rules of the game’’, or more formally ‘‘the humanly devised constraints that structure human interaction’’ (North, 1990: 3).

Research on emerging economies, which differ substantially from developed economies in terms of institutions, has provided very valuable insights and empirical evidence demonstrating the importance of institutional factors in addition to industry- and resource-based factors (e.g., Chacar, Newburry, & Vissa, 2010; Chacar & Vissa, 2005; Doh, Teegen, & Mudambi, 2004; McMillan, 2007). For example, Makino et al. (2004) found that country effects were as strong as industry effects, following affiliate and corporate effects, and that country effects were more salient in developing countries. Chacar and Vissa (2005) investigated manufacturing firms in the United States and India and demonstrated that poor firm performance persists longer in emerging economies than in developed ones. Chacar et al. (2010) in their recent longitudinal study of over 10,000 firms from 33 countries, provided further evidence of the importance of formal institutions in the product, financial, and labor markets on firm performance persistence. Finally, Kim, Kim, and Hoskisson (2010) found that the stage of market-oriented institutional changes affects the relationship between international diversification and firm performance.

All these studies and many others more point to the importance of the external environment for MNE-activity and that the heterogeneity in host countries' institutional environments may influence the applicability of resource-based advantages (Brouthers, Brouthers, & Werner, 2008).

Theory Development

The Role of International Coherence

Previous research on the effects of multinationality on performance has focused almost exclusively on the extent of foreign investment or its dispersion among the countries without explicitly considering the MNEs' resources or the diversity of the MNEs' environment. By doing so, researchers have implicitly assumed that firm resources would be equally adapted to any foreign country, alternatively, the assumption is that national institutional environments outside of the home country are homogeneous. One exception is the study of Goerzen & Beamish (2003), in which the authors specifically point to the importance of considering country environment diversity and find evidence that this type of diversity is negatively associated with performance.

We coined in this study the term international coherence, defined as the degree to which a Multinational Enterprise's (MNE) network comprises countries that are related, to describe these firms. This term is inspired by Teece et al. (1994) concept of corporate coherence, describing firms that operate in relatively close technological and product market spaces, a concept that is distinct from product diversification. In a similar vein, International Coherence is distinct of geographic or international diversification. MNEs might have a high level of international diversity but operate in countries that are relatively similar. Conversely, even at low levels of diversification operating in dissimilar environments increases environmental and internal governance complexity at the corporate level (Hutzschenreuter, Voll, & Verbeke, 2011; Kostova & Zaheer, 1999) and makes it more difficult to respond appropriately to local demands (Goerzen & Beamish,

2003). The knowledge that is created in distant countries will only marginally overlap with the existing knowledge making it more difficult for companies to learn from their local experience (Cohen & Levinthal, 1990).

We argue in this study that through selection and learning (Levinthal & March, 1993) firms select resources and develop capabilities that are fit with their current environment. This prediction is in line with Pennings, Barkema, and Douma (1994: 610) who argued that expansions are more likely to succeed if they are similar and related to what a firm has done before. These resources and capabilities are an essential element to the success of firms, superior performance and a sustained competitive advantage (Barney, 1986, 1991; Wernerfelt, 1984). Changing these resources and capability is difficult (Teece, Pisano, & Shuen, 1997) and incremental at best. As such firms that can capitalize on their current resources and capabilities may perform better than other firms (Cohen & Levinthal, 1990).

Firms may also be able to enhance their performance by reutilizing their resources in new arenas, be it new product markets or new geographic markets (Penrose, 1959) and an MNE's international expansion into new local contexts is one specific type of Penrosean growth (Hutzschenreuter et al., 2011; Pitelis & Verbeke, 2007). This resource-based view of a firm would suggest that a good approach to internationalization should entail expansion into countries which environment is somewhat similar to that of a firm's current external environment. By definition, firms that operate in related countries have high levels of international coherence. Hence, firms with high international coherence should be able to reuse and capitalize on their existing resources and competencies better than those who don't and achieve scope economies in resources usage. As a firm moves

to ‘neighboring’ country, it may also adapt its resources and improve of the experiential knowledge collected through previous expansions. Relatedness of countries of expansion allows MNEs not only to improve and refine their existing knowledge and routines (Barkema & Drogendijk, 2007) but also to apply existing concepts and linkages between them (Cohen & Levinthal, 1990). Following such adaptation, MNEs resources will become more readily transferable to the third countries or the neighboring countries to its neighbor countries and hence also likely to be more profitable. In fact, experience in the host country, or similar countries, is shown to positively affect the performance and the survival rate of foreign subsidiaries (Barkema & Drogendijk, 2007; Luo & Peng, 1999; Shaver, Mitchell, & Yeung, 1997). Our theory is mostly consistent with a strategy of exploitation (March, 1991) which is likely to present lower risk levels and superior shorter-term performance. Exploration is made possible also with resource adaptation allowing subsequent expansions and hence ensuring potentially long term performance.

We hence propose that international coherence will lead to superior performance, or more formally:

Hypothesis 1: All else being equal, International Coherence of an MNE is positively related to its performance.

Methods

Empirical Setting and Analytical Approach

The primary source of data used in this study was OSIRIS, a product of Bureau van Dijk. OSIRIS collects data on all publicly traded companies worldwide. The data

includes financial as well as ownership information on all domestic and foreign investments. In particular this study focused on industrial U.S. MNEs that have investments abroad. After removing subsidiaries without host country information, we had an initial sample of 1,989 U.S. MNEs. In addition, for the companies in the sample, the data was complemented by financial information available through Compustat North America as well as segments data from Compustat Segments. As a result of missing data, we ended up with 1,001 firms that have been used in all empirical tests.

Variable description and measurement

Firm Performance. We measured firm performance using the Return on Assets (ROA) defined as Income Before Extraordinary Items divided by the sum of Total Assets and Depreciation, Depletion, and Amortization. ROA is often used in studies that investigate the relationship between different dimensions of multinationality and performance (e.g., Contractor et al., 2003; Geringer et al., 1989; Gomes & Ramaswamy, 1999; Gomez-Meija & Palich, 1997; Hitt et al., 1997). As Hitt et al. (1997) argue, ROA together with Return on Sales (ROS) are more appropriate than Return on Equity (ROE), because they are less sensitive to differing capital structures. Between ROA and ROS, again in line with Hitt et al., (1997) we choose ROA, because some of our control variables are dependent on sales.

International Coherence. The construction of our International Coherence measure (IC) went through several steps. In the first step we attach a value of relatedness to each pair of countries in which an MNE operates. Within the MNE's network we distinguish between the MNE's home country and host countries. The way in which we

capture the Home-Host Country Relatedness was demonstrated earlier (see Equations 1 and 2 in Chapter I). In order to calculate the relatedness between two host countries we use another measure that is symmetrical, albeit both follow the survivor principle (Stigler, 1968; Teece et al., 1994).

In line with Teece et al. (1994) we find first the number of MNEs that have operations in both host country i and k. We compare this number with the number that would result if international diversification would be random, that is countries would be chosen randomly. If there are N MNEs worldwide, out of which ci have investments in country i and ck in country k, the number x_{ik} of firms that would, under the random choice hypothesis, invest in both countries follows a hypergeometric distribution. That is,

$$Pr[X_{ik} = x] = f_{HG}(x, N, c_i, c_k) = \frac{\binom{c_i}{x}\binom{N - c_i}{c_k - x}}{\binom{N}{c_k}}$$

Equation 8: Hypergeometric distribution

The mean for this distribution is:

$$\mu_{ik} = \frac{c_i c_k}{N}$$

and the variance:

$$\sigma_{ik}^2 = \frac{c_i c_k (N - c_i)(N - c_k)}{N^2 (N - 1)}$$

Equation 9: Mean and standard deviation of hypergeometric distribution

If the observed number M_{ik} of firms that invest in both countries i and k substantially exceeds μ_{ik}, then we say that the two countries are strongly related. More precisely, the measure of relatedness is:

$$SCR_{ik} = \frac{M_{ik} - \mu_{ik}}{\sigma_{ik}}$$

Equation 10: Formula for SCR_{ik}

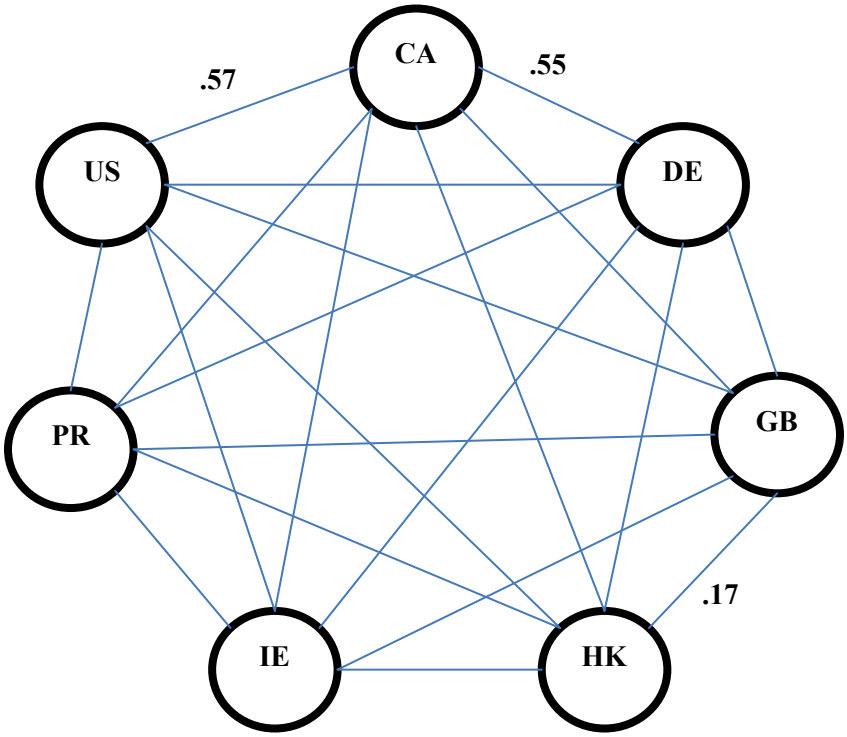
As in the case of HHCRij, the symmetric measure is appropriately transformed to range from -1 to +1.

In the second step we use this measure to build a Relatedness Matrix for each MNE. As an illustration, in Table 10 we present the Relatedness Matrix for TJX COMPANIES INC., an MNE that has operations in seven countries, including the U.S., its home country.

Table 10: Relatedness matrix for TJX COMPANIES INC.

	CA	DE	GB	HK	IE	PR	US
CA		0.55	0.59	0.41	0.62	0.35	0.57
DE	0.55		0.57	0.27	0.56	0.27	0.04
GB	0.59	0.57		0.17	0.54	0.2	0.28
HK	0.41	0.27	0.17		0.45	0.32	-0.41
IE	0.62	0.56	0.54	0.45		0.42	0.28
PR	0.35	0.27	0.2	0.32	0.42		0.72
US	0.57	0.04	0.28	-0.41	0.28	0.72	

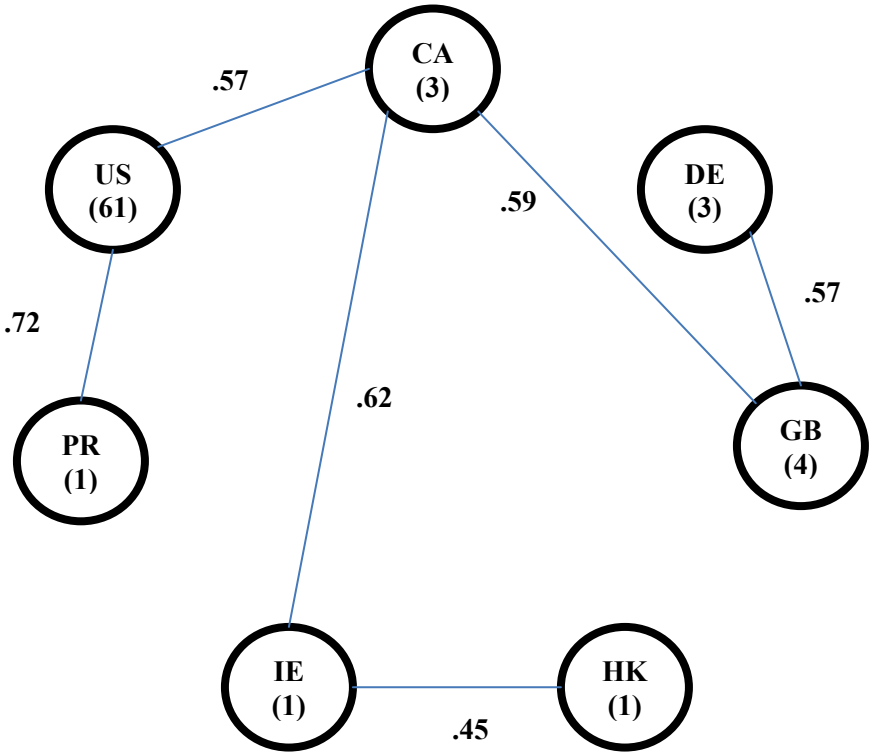
Figure 1: Countries' Network for TJX COMPANIES INC



Abbreviations: CA - Canada, DE - Germany, GB - United Kingdom, HK - Hong Kong, IE - Ireland, PR - Puerto Rico, US - United States of America

For an MNE that has investments in n countries there are n(n-1)/2 pairs of relatedness measures among countries. In the case of TJX COMPANIES INC., there are 21 links (see Figure 1; the relatedness measures are shown only for a couple of links in that Figure). However, a subset of only n - 1 links among countries can create a connected graph that includes them all. If this subset has the property that the sum of the relatedness measures on each link is largest, it is called the *maximum spanning tree* (MST). The MST for TJX COMPANIES INC. has 6 links (shown in Figure 2).

Figure 2: Maximum Spanning Tree for TJX COMPANIES INC.



Abbreviations: CA - Canada, DE - Germany, GB - United Kingdom, HK - Hong Kong, IE - Ireland, PR - Puerto Rico, US - United States of America

The last step is to use the MST to calculate an overall measure of IC. First, we weigh each of the countries in terms of importance they have for the MNE. While MNE's sales by country, or the actual size of investments in each of the countries would be preferable as weights, they are not systematically available (Delios, Xu, & Beamish, 2008). Instead, we consider the count of an MNE's investments weighted by the percentage ownership in each country as a measure of size and the percentage to the total number of MNE's investments as weight (e.g., Delios et al., 2008; Sullivan, 1994). In Figure 2, we have included the number of subsidiaries next to each country code. For instance, TJX COMPANIES INC. has 3 subsidiaries in Germany, only one in Puerto

Rico, and 61 in the U.S. For each of the countries in the network, we calculate the average relatedness across the links that are part of the MST. Finally, denoting w_i the weight and r_i the relatedness of country c_i, the IC for a given MNE would be:

$$IC = \sum_{i=1}^{n} w_i * r_i$$

Equation 11: Formula for IC

Control Variables. We controlled for several firm and industry characteristics that might also affect performance.

To control for *firm effects*, we included in our models Firm Size which we measured by firm sales (SALES). A firm's size can potentially increase its market power and its ability to dominate its industry and generate larger profits (Chang & Thomas, 1989). We also corrected for firm age (AGE), which we measured to the year 2007. Age has been hypothesized to affect firm's performance (Nelson & Winter, 1982; Sørensen & Stuart, 2000). We also corrected for innovation using R&D-intensity, measured as the ratio of R&D-expenditure ratio to total sales (RDINT), as a resource factor that can increase the firm's product differentiation vis-à-vis its competitors and hence a firm's profitability. In cases where firms didn't report R&D-expenditures or reported insignificant amounts we considered the values to be zero, but added also a dummy variable (RDDUM), which takes a value of 1 when there are no R&D-expenditures and 0 otherwise. In order to control for the overall importance of foreign operations, we

included also the degree of internationalization, which we measured using the ratio of foreign sales to total sales (FSTS). This measure has been widely used in the research on the effects of multinationality on performance (e.g., Gomes & Ramaswamy, 1999; Grant, Jammine, & Thomas, 1988; Tallman & Li, 1996; Thomas & Eden, 2004; Wiersema and Bowen, 2008). Finally, we controlled for firm's previous performance, using ROA for year 2007 (ROA-1), a method that helps control for fixed firm effects in cross-sectional data.

The extent of *industry* competition is also likely to affect firms' performance (e.g., Andrews, 1971; Bain, 1951; Porter, 1980). To account for this important factor, we controlled for industry concentration using the Herfindahl-index (HERF) (Herfindahl, 1950; Hirschman, 1945), computed as the sum of the squared firm's sales as a fraction of total industry sales (4-digit SIC code). In addition we controlled for industry profitability (INDPROF) defined as Income Before Extraordinary Items divided by Sales (net), calculated at 4-digit level of SIC-code. For both measures we used the full Compustat data set for the year 2007.

Model

We use OLS regression to examine the relationship between international coherence and firm performance using the following model:

$$ROA = \beta_0 + \beta_1 * INDPROF + \beta_2 * HERF + \beta_3 * AGE + \beta_4 * SALES + \beta_5 * RDINT + \beta_6 * RDDUM + \beta_7 * ROA\text{-}1 + \beta_8 * FSTS + \varepsilon$$

Equation 12: Statistical model 1 for ROA

All the control and independent measures are measured for the year 2007 while ROA is measured in the year 2008.

Results

Table 11 shows descriptive statistics as well as the correlations for the variables used in our model. ROA is positively and significantly correlated with IC as well as with AGE and the two industry variables: INDPROF and HERF, albeit the correlations are low. Not surprisingly, the correlation between ROA and ROA-1 is significant and relatively high (0.57). However, the correlation between ROA and RDINT is negative and significant (-0.4).

Table 11: Descriptive statistics and correlation matrix

		Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1)	ROA	0.31	17.4	1							
(2)	INDPROF	6.3	6.6	0.08*	1						
(3)	HERF	0.28	0.23	0.07*	-0.06	1					
(4)	AGE	42.74	37.01	0.12*	-0.06*	0.09*	1				
(5)	SALES	6.33	18.78	0.06	0.004	0.006	0.12*	1			
(6)	RDINT	0.92	24.15	-0.4*	0.04	-0.03	-0.03	-0.01	1		
(7)	ROA-1	4.01	10.2	0.57*	0.1*	0.1*	0.09*	0.06	-0.44*	1	
(8)	FSTS	0.34	0.27	0.02	0.12*	-0.08*	0.05	0.01	-0.04	0.03	1
(9)	IC	0.57	0.17	0.11*	0.05	0.01	0.1*	0.09*	-0.04	0.11*	0.29*

* significant at 0.05

Table 12 shows the results of OLS regressions predicting ROA. For all the models we used a balanced dataset of 1,001 observations for which data on all variables were available. M1 is the base model not including ROA-1 and FSTS. M2 adds FSTS to M1,

while M3 and M4 add our main independent variable IC to M1 and M2, respectively. Models M5 to M8 are built in a similar way, but they all include in addition also ROA-1 as a control.

Robustness Checks. To test for the robustness of our results, we conducted several additional tests. We tested models M1 to M4 replacing FSTS, first with the number of countries where an MNE operates as a proxy for the scope of diversification, and then with an entropy measure of product diversification, which we calculated using business segment data (Hoskisson, Hitt, Johnson, & Moesel, 1993; Jacquemin & Berry, 1979). In both cases IC remained significant. The results didn't change even when we used the related or unrelated components of product diversification (following Hoskisson et al. (1993: 222), we defined related diversification as "the diversification arising from operating in four-digit segments within a two-digit industry group" and unrelated diversification as "the diversification arising from operating between two-digit industry groups", with total firm sales as the sales reference in both cases).

In addition to our main measure of IC, we use an alternative one, in which we used the simple (not weighted) count of subsidiaries in a country as measure of size. While the first measure provides a more accurate picture, data on ownership is not always available and the reporting not always standardized. The two measures were highly correlated (above 0.98) and the results changed very little (although, there was a slight drop in significance for models M7 and M8).

Table 12: Explaining MNE performance with International Coherence

	M1	M2	M3	M4	M5	M6	M7	M8
INDPROF	0.3(3.1)***	0.3(3)***	0.3(2.9)***	0.3(2.9)***	0.1(1.2)	0.1(1.2)	0.1(1.2)	0.1(1.2)
HERF	4.5(2.6)***	4.4(2.5)*	4.5(2.6)**	4.3(2.4)*	1.4(1)	1.3(0.9)	1.4(1)	1.3(0.9)
AGE	0.1(5.1)***	0.05(5.2)***	0.05(5)***	0.05(5)***	0.04(4.1)***	0.04(4.1)***	0.03(3.9)***	0.03(4)***
SALES	0.04(3)***	0.04(3)***	0.04(2.8)***	0.04(2.8)***	0.02(2.1)*	0.02(2.1)*	0.02(1.9)†	0.02(1.9)†
RDINT	-0.3(-7.6)***	-0.3(-7.5)***	-0.3(-7.6)***	-0.3(-7.6)***	-0.1(-3.7)***	-0.1(-3.6)***	-0.1(-3.7)***	-0.1(-3.7)***
RDDUM	0.6(0.7)	0.58(0.58)	1.03(1.03)	0.8(0.8)	0.08(0.09)	0.02(-0.02)	0.3(0.3)	0.1(0.1)
ROA-1					0.8(4.7)***	0.8(4.7)***	0.8(4.7)***	0.8(4.7)***
FSTS		-0.3(-0.1)		-1.8(-0.6)		-0.7(-0.3)		-1.5(-0.6)
IC			8(2.34)*	8.7(2.51)*			4.2(1.71)†	4.8(1.8)†
_cons	-5.1(-3.9)***	-5(-2.9)***	-9.5(-3.6)***	-9.3(-3.4)***	-5.5(-4.8)***	-5.3(-3.7)***	-7.5(-3.9)***	-7.7(-3.8)***
F-value	15.57	13.38	13.51	11.88	17.99	15.82	15.8	14.15
Prob > F	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
R-squared	0.1876	0.1876	0.1938	0.1944	0.3565	0.3566	0.3582	0.3586

† significant at 0.1, * significant at 0.05, **significant at 0.01, ***significant at 0.001

Discussion and Conclusion

Our tests demonstrate that international coherence, as a way of capturing the MNEs' overall fit with its multiple host country environments, is an important construct for international business. We found evidence that maintaining a high level of international coherence is beneficial for the MNEs. Firms that are characterized by high levels of international coherence are able to capitalize on their existing resources and competencies better than those who don't and achieve scope economies in resources usage. In addition, MNEs that operate in related countries both improve their existing knowledge base (Barkema & Drogendijk, 2007) and apply existing concepts and linkages between them (Cohen & Levinthal, 1990). Hence resources will become more readily transferable to the third countries.

Our finding that firms characterized by high levels of IC remain close to their knowledge base in their international expansion moves, which allows them to exploit their existing knowledge and routines, is also in line with previous research in organizational learning (Levinthal & March, 1993; Pennings, Barkema, & Douma, 1994).

The results obtained are similar to the study by Goerzen and Beamish (2003) that found that country environment diversity is negatively associated with performance, albeit we capture the combination of diversity as they name it, and fit. The results are also in line with other studies that contend that doing business in heterogeneous countries leads to lower performance for MNEs (e.g., Li and Guisinger, 1992; Chang, 1995) or their subsidiaries (Barkema, Bell, & Pennings, 1996; Fang, Wade, Delios, & Beamish, 2007).

While other studies have found no such effects (e.g., Brouthers, Brouthers, & Werner, 2008), or even that dissimilarity was associated with lower rate of joint venture dissolution (Park & Ungson, 1997), the inconsistent findings maybe, at least in part, a result of conceptual and/or methodological issues related to the construct of country similarities (Shenkar, 2001). In fact, what construct is used to capture similarity (e.g., cultural distance, psychic distance, institutional distance) and what dimensions are used, remains largely at the discretion of the researcher. This, in turn, is translated into non-comparable approaches to conceptualization and measurement of country diversity, or heterogeneity at firm level. Our conceptualization of international coherence provides a more researcher-independent approach due to its reliance on the concept of country relatedness, which is revealed by the actual patterns of international investments made by multinational firms between any two countries. In addition, our conceptualization of country relatedness doesn't require that related countries be similar. Certain countries might be often combined because of complementarities, rather than similarities. Here, we agree with other authors that managing MNEs is not about creating homogeneity, but about 'managing differences' (Ghemawat, 2007; Meyer et al., 2011).

In Chapter II we argued that managers use heuristics for their international investment decisions and that these heuristics led the MNEs invest close to the home country. While this describes the behavior of the average firm, specific firms might take different paths depending on their specific bundles of resources. The empirical evidence we found in this paper, namely that maintaining a high level of IC has a positive effect on performance of the MNEs, shows that the heuristics used by managers can be beneficial, in line with previous research (Tversky & Kahneman, 1974: 1124; Bingham, Eisenhardt,

& Furr, 2007). The fact that firms that remain close to their knowledge base succeed, together with the finding of the previous chapter that managers are cognitively driven to search locally, provides evidence that superior performance is the result of "superior ability to manage the cognitive processes underlying the intelligence of local action" (Gavetti, 2009: 3; Gavetti et al., 2005).

Finally, our study brings also a methodological contribution by introducing a new measure of international coherence that is based on the survivor measure of country relatedness. As such it is more appropriate for the needs of international business research and is free from researcher's bias.

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APPENDICES

Appendix 1: Variable Definitions and Sources (Chapter I)

Variable	Description	Source
$HHCR_{ij}$	Home Host Country Relatedness	1
HCC_j	Host Country Connectedness	1
$BHCR_{ij}$	Bridge to Host Country Relatedness	1
Diff. in religion	Differences in religion	2
Diff. in education	Differences in education	2
Diff. in industrial development	Differences in industrial development	2
Diff. in languages	Differences in languages	2
Diff. in POLCON	Differences in political constraints (POLCON V)	3
Diff in POLITY IV	Difference in the Modified POLITY IV	4
Diff. in the FHPR	Difference in the Freedom House Political Rights	5
Diff. in the FHCL	Difference in the Freedom House Civil Liberties	5
Diff. in Political Ideology	Difference in Beck's Political Ideology	6
Colonial Relations	Dummy: 1 if one of the countries was colony of the other or they had the same colonizer; 0 otherwise	7
Same Country	Dummy: 1 if the countries have been part of the same country; 0 otherwise	7
Distance in Legal Systems	Distance in legal systems	8
Contiguous countries	Dummy: 1 if countries are contiguous; 0 otherwise	7
Geographic distance	Geographic Distance as an weighted average considering main cities	7

1: Author's calculations based on data from Bureau van Dijk/Osiris
2: Dow & Karunaratna (2006)
3: POLCON (Henisz, 2000)
4: Gleditsch, K. S. (2008)
5: Freedom House
6: Beck, T., Clarke, G., et al. (2001)
7: CEPII database on bilateral distances
8: Author's calculation based on JuriGlobe project of the University of Ottawa

Appendix 2: Home Host Country Relatedness for OECD Countries

	AT	AU	BE	CA	CH	CL	CZ	DE	DK	ES	FI	FR	GB	GR	HU	IE	IS	IT	JP	KR	LU	MX	NL	NO	NZ	PL	PT	SE	SI	SK	TR	US
AT		-0.5	-0.5	-0.8	0.2	-0.6	0.9	0.7	-0.2	-0.5	-0.6	-0.4	-0.5	-0.7	0.9	-0.9	-1.0	0.0	-0.7	-0.2	-0.1	-0.8	-0.1	-0.6	-0.5	0.6	-0.7	-0.3	0.9	0.9	0.6	-0.7
AU	-0.9		-0.6	0.1	-0.4	0.0	-0.6	-0.3	-0.7	-0.6	-0.7	-0.5	0.2	-0.7	-0.5	-0.4	0.0	-0.5	-0.6	-0.1	-0.4	-0.4	-0.4	-0.7	1.0	-0.8	-0.9	-0.5	-0.8	-0.5	-0.5	0.0
BE	0.0	-0.5		-0.5	0.1	-0.3	0.3	0.3	0.1	0.3	0.1	0.6	-0.1	0.4	0.1	0.1	-1.0	0.2	-0.6	-0.3	0.7	-0.3	0.6	-0.2	-0.8	0.2	0.2	-0.1	0.2	0.3	0.1	-0.2
CA	-0.7	-0.1	-0.7		-0.3	-0.2	-0.9	-0.5	-0.6	-0.7	-0.7	-0.4	0.1	-0.5	-0.5	-0.2	-0.1	-0.7	-0.3	-0.5	-0.6	-0.2	-0.5	-0.5	-0.8	-0.9	-0.8	-0.6	-1.0	-0.9	-0.7	0.5
CH	0.1	-0.1	-0.2	-0.1		-0.3	-0.3	0.2	-0.2	-0.1	-0.2	-0.1	0.2	-0.2	-0.2	-0.2	-0.6	0.1	-0.1	-0.3	-0.1	-0.4	-0.3	-0.4	-0.4	0.1	-0.3	-0.3	-0.2	-0.4	-0.4	0.3
CL	-1.0	-1.0	-1.0	-0.8	-1.0		-1.0	-0.2	-0.3	-0.7	-1.0	-0.6	-0.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.7	-0.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-0.5
CZ	0.5	-1.0	0.1	-1.0	-1.0	-1.0		0.2	-1.0	-1.0	-1.0	-0.4	-0.6	-1.0	0.8	-1.0	1.0	-0.1	-1.0	-1.0	-1.0	-1.0	0.6	-0.1	-1.0	0.7	-1.0	-1.0	0.9	1.0	0.4	-0.9
DE	0.6	-0.3	0.0	-0.3	0.3	-0.3	0.3		-0.1	0.2	0.0	0.2	0.0	0.2	0.3	-0.2	-0.4	0.2	-0.3	0.0	0.1	-0.2	0.1	-0.1	-0.5	0.3	0.0	0.0	0.4	0.4	0.2	0.2
DK	0.2	-0.4	0.0	-0.5	0.0	-0.3	0.2	0.3		-0.1	0.8	0.0	-0.2	0.2	0.3	-0.5	0.8	0.0	-0.6	-0.4	-0.1	-0.3	0.1	0.8	-0.2	0.5	0.0	0.7	0.6	0.2	0.4	-0.6
ES	0.3	-0.7	-0.2	-0.4	-0.3	0.9	0.2	-0.2	-0.8		-0.9	0.0	0.2	0.5	0.0	0.0	-1.0	0.2	-0.9	-0.9	0.2	0.7	0.1	-0.7	-0.9	-0.3	0.9	-0.8	-0.1	0.2	-0.4	-0.3
FI	0.2	-0.3	0.2	-0.3	-0.1	-0.2	0.4	0.3	0.4	0.0		0.2	-0.3	-0.2	0.5	-0.1	0.4	-0.1	-0.6	-0.5	-0.5	-0.3	0.2	0.7	-0.6	0.2	0.0	0.9	0.5	0.3	-0.3	-0.5
FR	-0.1	-0.2	0.5	-0.3	0.1	-0.2	0.1	0.1	-0.1	0.3	0.0		0.2	0.3	0.0	-0.1	-0.1	0.4	0.3	0.0	0.2	-0.2	0.0	0.0	-0.3	0.0	0.2	0.1	0.1	0.1	0.1	0.1
GB	-0.1	0.3	-0.1	0.1	0.0	0.0	-0.3	0.0	0.0	0.0	-0.1	0.2		0.0	-0.3	0.3	-0.3	-0.1	0.3	0.2	-0.1	-0.2	0.1	-0.2	-0.2	-0.3	-0.2	0.1	-0.7	-0.4	0.1	0.3
GR	0.1	-0.9	-1.0	-0.9	-0.6	-0.7	-0.3	-0.2	-1.0	-0.6	-1.0	-0.4	-0.1		0.0	0.0	-1.0	-0.2	-1.0	-0.7	0.4	-1.0	-0.2	-0.3	-0.7	0.0	-1.0	-0.9	0.2	0.0	0.8	-0.7
HU	0.6	-1.0	-1.0	-1.0	-0.5	-1.0	0.9	0.1	-1.0	-0.3	-1.0	-0.5	-0.3	0.4		-1.0	-1.0	-0.1	-0.5	-1.0	0.0	-1.0	0.4	-1.0	-1.0	0.7	-1.0	-1.0	0.7	0.9	0.4	-0.9
IE	-0.8	-0.5	0.1	-0.3	0.0	-0.4	-0.2	-0.2	0.1	0.1	-0.3	-0.1	0.5	-0.8	-0.4		-1.0	-0.5	-0.8	-0.8	-0.2	-0.5	0.3	-0.6	-0.4	0.1	-0.5	-0.4	-1.0	-0.2	-0.6	0.3
IS	-1.0	-0.6	-0.4	0.0	-0.5	0.0	0.3	0.0	0.9	-0.1	0.7	0.1	0.5	-1.0	-1.0	0.5		-0.3	-0.6	-0.4	0.3	-1.0	0.4	0.8	-1.0	-1.0	-1.0	0.3	-1.0	0.6	0.3	-0.5
IT	0.4	-0.3	0.0	-0.4	0.4	-0.4	-0.2	0.2	-0.2	0.3	0.0	0.4	-0.1	0.4	0.0	0.0	-0.1		0.2	0.0	0.5	-0.3	0.1	-0.3	-0.5	0.5	0.2	-0.1	0.5	-0.2	0.3	0.0
JP	-0.6	0.0	-0.2	-0.1	-0.5	-0.2	-0.2	0.1	-0.5	-0.2	-0.6	-0.1	-0.1	-0.7	-0.1	-0.5	-1.0	-0.3		0.4	-0.7	-0.1	-0.2	-0.8	-0.2	-0.6	-0.5	-0.5	-0.3	-0.5	-0.4	0.2
KR	-0.2	0.0	-0.4	0.0	-0.4	-0.1	0.1	0.3	-1.0	-0.5	-1.0	-0.4	-0.3	-0.5	0.0	-0.2	-1.0	-0.4	-0.3		-0.8	0.1	-0.2	-0.3	-0.6	0.1	-0.2	-0.4	0.5	0.7	-0.2	0.1
LU	0.0	-0.5	0.7	-0.2	0.2	0.2	0.7	0.2	0.0	0.6	-0.1	0.7	-0.4	0.1	0.4	-0.3	-1.0	0.1	-0.8	-0.5		0.0	0.3	0.1	-1.0	0.2	0.8	0.0	0.0	0.5	0.1	-0.6
MX	-1.0	-0.2	-1.0	-0.4	-1.0	0.4	-0.2	-0.7	-1.0	0.7	-1.0	-1.0	-0.8	-1.0	0.1	-0.2	-1.0	-1.0	-1.0	-1.0	-0.1		-0.2	-1.0	-1.0	-1.0	0.4	-1.0	-1.0	-1.0	-1.0	0.3
NL	0.1	-0.1	0.5	-0.1	0.2	0.0	0.2	0.2	0.1	0.1	-0.1	0.2	-0.1	0.2	0.2	0.1	-0.1	0.2	-0.4	-0.3	-0.3	-0.1		-0.1	-0.3	0.4	-0.1	0.2	0.1	0.1	0.0	0.2
NO	-0.3	-0.2	-0.2	0.0	-0.3	0.2	-0.3	0.0	0.8	0.0	0.4	0.0	0.0	-0.3	-0.4	0.1	0.8	-0.3	-0.6	-0.2	-0.1	-0.4	0.0		-0.5	-0.3	-0.3	0.9	-0.4	-0.1	-0.8	-0.2
NZ	-1.0	0.9	-0.1	0.0	-1.0	-0.1	-1.0	-0.5	0.2	-0.6	-0.2	-0.7	0.0	-1.0	-1.0	-0.5	-1.0	-0.6	-0.8	-1.0	-0.4	-0.5	-0.3	-1.0		-1.0	-1.0	-0.5	-1.0	-1.0	-0.5	-0.2
PL	0.5	-1.0	-1.0	-0.4	-0.4	-1.0	0.8	0.6	0.0	0.2	-1.0	-0.1	-0.1	-1.0	0.8	-1.0	-1.0	-0.4	-1.0	-1.0	0.8	-1.0	0.6	-0.1	-1.0		-1.0	0.1	-1.0	0.8	-1.0	-0.8
PT	-0.4	-0.9	-0.4	-0.4	-0.5	-1.0	0.2	-0.3	-0.6	0.9	-1.0	0.2	-0.6	0.6	0.1	0.0	-1.0	-0.1	-0.9	-1.0	0.3	-0.9	0.3	-1.0	-1.0	0.8		-0.8	-1.0	0.4	-0.2	-0.5
SE	0.3	-0.5	0.1	-0.5	0.2	-0.4	0.2	0.2	0.8	0.0	0.9	0.1	0.0	0.3	0.2	-0.1	0.2	0.0	-0.5	-0.1	0.0	-0.3	0.1	0.9	-0.6	0.5	-0.3		0.4	0.2	0.5	-0.4
SI	0.7	0.3	-1.0	0.7	-1.0	-1.0	0.6	0.2	-1.0	-1.0	-1.0	-0.5	-0.4	-1.0	0.2	-0.1	-1.0	-1.0	-0.4	-1.0	-1.0	-1.0	-0.2	-1.0	-1.0	0.3	-1.0	-1.0		0.8	-1.0	-0.5
SK	0.9	-1.0	-1.0	-1.0	-1.0	0.7	1.0	-1.0	-1.0	0.3	-1.0	-1.0	-0.3	-1.0	0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.7	-1.0	-1.0	-1.0		-1.0	-1.0
TR	0.5	-0.8	-1.0	-1.0	0.0	-1.0	0.3	0.4	-0.3	-0.1	-0.1	-0.6	-0.5	-1.0	0.6	0.3	-1.0	0.0	-1.0	-1.0	-0.5	-1.0	0.7	-0.4	-0.5	-0.6	-0.1	-0.5	0.6	0.4		-0.8
US	-0.2	0.2	-0.1	0.6	0.2	0.0	-0.3	0.0	0.0	-0.1	-0.1	0.1	0.3	-0.1	-0.3	0.3	0.5	0.0	0.4	0.3	0.1	0.5	0.2	-0.1	-0.1	-0.3	-0.3	0.0	-0.3	-0.3	0.0	

Abbreviations: AT-Austria, AU-Australia, BE-Belgium, CA-Canada, CH-Switzerland, CL-Chile, CZ-Czech Republic, DE-Germany, DK-Denmark, ES-Estonia, FI-Finland, FR-France, GB-United Kingdom, GR-Greece, HU-Hungary, IE-Ireland, IS-Island, IT-Italy, JP-Japan, KR-South Korea, LU-Luxembourg, MX-Mexico, NL-Netherlands, NO-Norway, NZ-New Zealand, PL-Poland, PT-Portugal, SE-Sweden, SI-Slovenia, SK-Slovakia, TR-Turkey, US-United States of America

Appendix 3: Variable Definitions and Sources (Chapter II)

Variable	Measure	Source
Contiguous Countries	Dummy =1 for contiguous pairs of countries and 0 otherwise	1
Geographic Distance	The weighted average distance between the main cities of the home and host country (unit = 100 km).	1
Common Official Language	Dummy=1 if the two countries have the same official language.	1
Colonial Relations	Dummy=1 if the two countries ever had a colonial ink or a common colonizer and 0 otherwise.	1
Same Country	Dummy=1 if the two countries were part of the same country and 0 otherwise.	1
Distance in Legal Systems	Sum of squared differences on 4 legal systems dummies corresponding to Civil, Common, Customary, and Muslim Law. In case of countries with mixed systems, equal weights were assigned to all relevant systems.	2
Distance in Religion	Difference between the dominant religions in the countries in the pair as well as the incidence of each country's dominant religion in the other country	3
Distance in Property Rights Protection	Absolute value of difference of countries' standardized POLCON scores	4
Distance in Contracting Institutions	Absolute value of difference of countries' standardized 'Index of procedural formalism based on check collection' score	5
Distance in Shareholder Rights	Absolute value of difference of countries' standardized scores of the 'Anti-self-dealing index'. It describes the strength of minority shareholder protection against self-dealing by the controlling shareholder	6
Distance in Labor Protection	Absolute value difference in countries' standardized average of 'Employment Laws Index', 'Collective Relations Laws Index', and 'Social Security Laws Index' scores	7
CMRA	Dummy=1 if both countries are part of any common Regional Agreement (EU, NAFTA, ASEAN, MERCOSUR, ANDEAN, and CARICOM) and 0 otherwise.	8

1. CEPII database on bilateral distances.
2. JuriGlobe project of the University of Ottawa
3. Dow and Karunaratna (2006).
4. Henisz (2000).
5. Djankov et al. (2003).
6. Djankov et al. (2008)
7. Botero et al. (2004).
8. Authors' calculation based on data from World Trade Organisation.

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