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Moving beyond the internationalization-performance relationship: Emerging complexity, institutional asymmetries and regional dyads

Abstract

By combining the regionalization and institutional perspectives we examine emerging inter-regional linkages in the context of internationalizing strategies of MNEs. Using a multi-level approach, we show that a MNE's home country and home region have a significant impact on the returns from operations in specific host regions. Further, the returns from regional operations are positively associated with greater levels of asymmetry in economic institutions between the home and the host regions. Our analysis uncovers a complex set of uni-directional relationships between different supra-national regions, which shows that the internationalization-performance (I-P) relationship is a multifaceted phenomenon. We propose a regional dyadic approach as being more suitable for capturing the complexity in the I-P relationship, with implications for MNEs' internationalizing strategies.

INTRODUCTION

The internationalization-performance (I-P) relationship has been well explored in the literature, but findings have been contradictory and diverse. These include linear positive and negative findings as well as non-linear findings, such as U-shapes, inverted U-shapes (Hitt et.al., 1997; Gomes and Ramaswamy, 1999) and S-shapes (Lu and Beamish, 2004; Rugman and Oh, 2010). The multiplicity of shapes in the relationship have been justified using a host of factors, ranging from the temporal and consequent "learning" aspects of international operations (Qian et.al., 2008), to scale and scope economies of international expansion (Narula and Verbeke, 2015), to the costs and liabilities of

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operating in foreign environments (Xu and Shenkar, 2002; Zaheer, 1995). Another strand of the I-P literature has addressed the diversity of these relationships through the impact of moderators, including product diversity (Hitt et.al., 1997), intangible assets (Kirca et.al., 2011), previous experience (Clarke et.al., 2013), speed of expansion (Mohr et.al., 2014) etc. However, there is little convergence of opinion, except an acknowledgement that more in-depth research is required to better uncover the nature of this relationship (Marano et.al., 2016). While it is generally accepted that the relationship is non-linear, discrepancies remain on the nature of the non-linearity and on the factors which give rise to the non-linear relationship. In fact, very little (apart from data and methodology related issues) is known about why these discrepancies arise in the first place (Marano et.al., 2016; Nguyen, 2017).

A further strand of literature has explored the global versus local nature of MNEs, with increasing recognition that the "region" – which lies between the global and local outlook, is an important strategic focus among MNEs (Mahnke et.al., 2012; Schotter et.al., 2017). MNEs are seen to be largely regional players, with a strong affinity to operate within their home region (Rugman and Verbeke, 2007; Rugman and Verbeke, 2008). Studies have also shown that the regional characterization of MNEs does not contradict the non-linear nature of the I-P relationship (Qian et.al., 2008; 2013; Ral-Trebacz and Eckert, 2016).

This paper takes a step forward in unpacking the true nature of this relationship by utilizing the regional perspective in a nuanced manner. Instead of looking for a universal relationship (positive, negative, or non-linear) between international operations and performance, we attempt to unravel the underlying complexities from two directions simultaneously. First, by recognizing that MNEs imbibe a significant amount of their practices, philosophies, and modes of operations from their home country and home region experience, particularly from their interactions with the established economic and political/legal institutions (Elango and Sethi, 2007; Peng et.al, 2008). Second, by recognizing that supra-national host regions are inherently heterogeneous, reflected in the variety of institutions in their member nations, very specific in the advantages (and disadvantages) they confer to firms, and hence compelling the MNE to apply region specific strategies while operating in these

regions (Arregle et.al., 2013; Oh and Contractor, 2014). Combined, these two perspectives shed new theoretical and empirical insights on how MNEs from one region will perform in another. We show that both the home country as well as the home region matters for a firm operating in a foreign host region, and that depending on the origins, its exploitation of region specific advantages may vary from one host region to another.

Using a multilevel empirical approach, we show that seeking a universal relationship between internationalization and performance ignores the complexities of inter-regional and inter-country institutional differences. Rather, we highlight the importance of asymmetries that exist between home country/region and the host region institutions and show that MNE performance depends on a set of *dyadic* interactions that exist between the home and various host regions. In the process, we contribute to multiple strands of literature. First, we move beyond the traditional I-P debate using the regional perspective, highlighting the role of inter-regional connections and emergent complexity. Second, we introduce the institutional perspective into the regionalization literature, and address the question of whether institutions matter when the region and not the country is the locus of MNE strategy. Third, we add to the growing literature on the impact of origins on firm performance by exploring the role of specific asymmetries in home and host institutions, and the impact that such asymmetries may have on returns from foreign operations.

Our central argument is as follows. As firms incubate their operations in the home country, they build up resources and capabilities in the form of firm specific advantages (FSAs) which are usually conditioned by experience within the home country markets and institutions (Marano et.al., 2016; Tan and Chintakananda, 2016). Subsequent expansion into countries in the home region results in *recombination* of these FSAs with specific home region advantages that are characteristic of the region – expanded markets, greater diversity in tastes and preferences, alternative institutional arrangements, etc. (Rugman et.al., 2011; Narula and Verbeke, 2015). Home country experience and institutions generally condition the *nature* of this recombination. At the same time, the *degree* of recombination is expected to be small, given that the home region's institutional distance from that of the home country is low (Ghemawat, 2001). However, expansion further afield requires additional

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adaptation, depending not only on the nature of the foreign market, but also on the institutional distance between the firm's origin and the target region (Oh and Contractor, 2012; Zaheer and Mosakowski, 1997). The degree of these adaptations and recombinations is expected to be large, given the greater institutional distance between the home and host region. We argue that the larger institutional distance between a firm's home country and host region can confer specific advantages to the internationalizing firm.

We explore the direct role of home country and home region differences on host region performance and show that this performance depends on the particular home-host pair under consideration. We show that the asymmetries in specific institutional characteristics between the home and the host are key to conceptualizing the complex nature of I-P relationships. Finally, we also show that the nature of the effect of institutional asymmetries depends on whether economic or political/legal institutions are being considered.

BACKGROUND AND HYPOTHESES

Firm strategy and regional boundaries

The regional perspective of MNE internationalization strategy has been discussed and debated extensively in the literature following Rugman (2005) and Rugman and Verbeke (2004). While alternative points of view have also been explored (Mudambi and Puck, 2016; Dunning et.al., 2007; Osegowitsch and Sammartino, 2008), the empirical evidence vindicates the regional nature of MNEs quite comprehensively (Mahnke et.al., 2012; Rugman and Verbeke, 2008; Rugman and Oh, 2013). On one hand, a regional strategy helps MNEs to reap greater economies of scale and scope than country specific strategies, and on the other, helps overcome the managerial bounded rationality and reliability constraints arising from strategizing globally (Verbeke and Kenworthy, 2008; Lasserre, 1996; Verbeke and Asmussen, 2016). The extant literature so far has largely focused on the importance of the home region over host regions, and the MNE's preference for operations within the former over the latter (Rugman and Verbeke, 2008; Rugman and Oh, 2013). However, this home region focus may

have been overemphasized, with the role of "competing" host regions being equally important for internationalizing firms (Mudambi and Puck, 2016).

A region in the international business literature is defined as a collection of countries in relatively close geographic proximity of each other (Arregle et.al., 2013; Rugman and Verbeke, 2004). This proximity implies a degree of homogeneity between countries within the regional boundary, as compared to those outside the boundary. This homogeneity has been theorized as discontinuous, and often compounded, and leads to a "spike" in "distance" *across* regional boundaries (Beugelsdijk and Mudambi, 2013; Verbeke and Asmussen, 2016), whereas the equivalent distance between countries *within* a region is assumed to be low and continuous (Flores et.al., 2013; Rugman et.al., 2011). Many factors lead to this discontinuity, primary among them are differences in geography (Chen and Tan, 2012; Arregle et.al., 2009; Stein and Daude, 2007), economic (Chen and Tan, 2012; Verbeke and Kano, 2012) and other institutional factors (Qian et.al., 2008), all of which lead to the spike in distance between two regions.

From a resource based perspective, differences between regions implies alternative strategic approaches by the MNE in its effort to recombine extant FSAs with the region-specific advantages in order to exploit regional scale and scope economies (Rugman and Verbeke, 2005; Verbeke, van Tulder and Voinea, 2012). From the transaction costs perspective, differences between regions implies that the true costs of operating in a particular region are a function of its distance from the home country, where once again, the distance incorporates differences in geographic, cultural, and institutional factors (Ghemawat, 2011). These costs may arise from various sources, including the complexity of operating in an unfamiliar environment (Williamson, 1985), the associated risks and uncertainty (Oh and Contractor, 2012), coordination problems and conflicts between learning strategies adapted within the organization (Asmussen, Larsen and Pedersen, 2016). Overall, there is a net addition to the liability of foreignness for the MNE when operating in distant regions as compared to the more familiar ones in closer proximity (Zaheer and Mosakowski, 1997).

Thus, the liability of foreignness for the MNE operating in a host region is expected to be higher than operating within its own home region (Qian et.al., 2016; Rugman and Oh, 2010; Rugman and Verbeke, 2004). This has led to several studies exploring the *within*-home versus *outside*-home region dichotomy, implications of how operations outside the host region impact performance, the generic shape and nature of this relationship, and other firm level factors which may moderate it. While it is apparent that operations within the home region are generally preferable to MNEs, a very large number of them also venture outside, into both upstream and downstream activities. Crucially, regional strategizing need not be restricted to the home region only, and MNEs may also retain their regional focus outside the home region. However, there is very little understanding of the variation between host regions themselves, and more importantly, how this variation impacts performance of the MNE operating across multiple regions.

It is essential to note that operations across multiple host regions does not necessarily imply a global strategy focus for a firm. Just as MNEs can "upgrade" their FSAs to exploit the larger scale and scope economies offered by a region over a country (Rugman et.al., 2011b), those with a multi-region footprint are also able to "fine tune" their FSAs to engage in various forms of regional responsiveness strategies (Verbeke and Asmussen, 2016). In effect, a regional focus provides MNEs with the flexibility to overcome context specificity of host countries within a host region, while at the same time utilizing the opportunities provided by a larger geographic footprint. In fact, examining international operations at the country level ignores the potential for significant cross border synergies within a region. These synergies may arise for a number of reasons, such as, formation of regional clusters and "strategic coupling" of MNEs with regional networks within the value chain (Young, Hood and Peters, 1994; Yeung, 2009), lower cost of intra-region cross border trade due to absence of trade barriers (Rugman and Verbeke, 2004), better chances of arbitrage and cross subsidization, and the ability to spread overhead costs (Qian et.al., 2008), and similarity in institutional characteristics across countries within the region (Moreno et.al., 2005).

Here we focus on the variability across regions arising from differences in economic and political/legal institutions among MNE origins and hosts. Of particular importance are the

asymmetries between a host region and the home country/region in terms of institutional strengths. These asymmetries may act as both an enabler and a barrier to a firm's operations within the host region, and consequently impact performance in unknown ways.

Impact of MNE origins

Home country characteristics, in particular institutions, are seen to influence returns from internationalization for MNEs (Harzing and Sorge, 2003; Marano et.al., 2016; Tan and Chintakananda, 2016). Institutions, defined as a collection of "rules" governing society (North, 1990), provide structure and order in the society, guide the actions of individuals and organizations (Scott, 1995), and reduce uncertainty and enhance resource acquisition by providing ready frameworks and boundaries to operate within (Meyer et.al., 2009).

Certeris paribus, home country institutions are critical for a MNE as they confer distinct resources, embedding processes and practices involving interaction with other firms and players in the market (Tan and Chintakananda, 2016). This perspective has been explored to explain the performance of MNEs from nations having strong institutional frameworks (Bausch and Krist, 2007; McGahan and Victor, 2010), as well as those from weaker institutional setups (Chakrabarti et.al., 2007; Luo and Wang, 2012), particularly those which face political and institutional risks (Cuervo-Cazurra et.al., 2017) or have varying degrees of government support (Lu et.al., 2014; Vanacker et.al., 2017). Other home country specific factors explored in the literature include the nature of industry competition (Yiu et.al., 2007), legal and business environments, political systems (Holmes et.al., 2013; Li and Yue, 2008) as well as informal institutions such as culture and norms (Wan and Hoskisson, 2003; Kramer and Lewicki, 2010).

We extend the above argument by connecting the home country characteristics of the firm to its performance in specific host regions. Our argument is twofold. First, the major world regions (such as the Americas, EU, Africa, Asia.) are essentially different from each other across the economic (Kose et.al., 2003), political (Zysman, 1996), and cultural spectra (Ronen and Shenkar, 2013). Thus, the context within which the MNE operates will vastly differ from host region to host region (Arregle

et.al., 2013). Second, the *response* of the MNE to such varying contexts would naturally be a function of its own FSAs, and its capacity to upgrade and deploy them in environments different from its own country of origin (Rugman and Verbeke, 2005). Tan and Chintakananda (2016) show that "origins matter", that is, the institutional environment of the MNE's home country helps to shape its ability to implement its geographic diversification strategy. Thus, the degree to which home country institutional setups enable the MNE to deploy its FSAs in a specific geographic setting, is expected to depend on local characteristics. Conversely, this implies that home country differences will very likely influence the MNE's returns from its operations within a given host region – as firms use different strategies to recombine their internal and home country resources with those provided by the host (Marano et.al., 2016; Oh and Contractor, 2014).

In effect, this means that the link between internationalization and performance is more complex than has been conceptualized previously in the literature, whether from the perspective of operations outside the home country or the home region. The variations between host regions themselves, as well as their differences with the home region, need to be accounted for when exploring the internationalization-performance (I-P) relationship . This is expressed in our first hypothesis, which connects the MNE's home *country* to its returns from operations in specific foreign regions.

> Hypothesis 1. *The impact of the MNE's region-specific operations on its performance varies by its home country, that is, otherwise identical MNEs from different home countries will experience different returns from operations in the same foreign region.*

Given that MNEs prefer expanding into their home region as a first step in internationalization (Rugman and Verbeke, 2004; Rugman, 2005), this home region experience and "learning by doing" becomes critical for future expansion outside the home region. Such learning is a "path dependent" activity and can take different trajectories based on previous internationalization experience (García-García et.al., 2017). While this learning will also depend on the background and characteristics of the MNE, such as ownership structure (Banalieva and Eddleston, 2011), technological assets and institutional diversity (Banalieva and Dhanaraj, 2013), it will also depend on the characteristics of the

region, such as wage differentials across countries in the region and regional knowledge infrastructure (Demirbag and Glaister, 2010). The path dependence in learning from expansion within the home region is then expected to result in the development of a unique set of capabilities and assets for the MNE, which impacts its performance once it ventures outside the home region. Hence, our next hypothesis connects the MNE's home *region* to its returns from operations in foreign regions.

> Hypothesis 2. *The impact of the MNE's region-specific operations on its performance varies by its home region, that is, otherwise identical MNEs from different home regions will experience different returns from operations in the same foreign region.*

Asymmetric economic and political/legal institutions

The discussion above considered the home country or region as a single homogeneous entity. An individual country is characterized by the strength of its institutions, which to a large extent, determine the nature of FSAs that MNEs based in the country develop over time. However, institutions are a multi-dimensional phenomenon, and hence need further unbundling in order to assess their true impact on MNEs (Acemoglu and Johnson, 2005; Taussig and Delios, 2015). To begin with, institutions may be categorized as formal or informal (Holmes et.al., 2013). Formal institutions reflect a system of codified and explicit rules and standards, implemented through political and regulatory structures (North, 1990; Scott, 2008). These have been established as important determinants of firm behaviour and performance (Chacar et.al., 2010; McGahan and Victer, 2010; van Essen et.al., 2012; Wan and Hoskisson, 2003). Informal institutions, such as culture, norms, narratives, etc., are also seen to be important in the context of firm behaviour (Schneider and De Meyer, 1991; Harzing and Sorge, 2003) as well as performance (Wan and Hoskisson, 2003; Marano et.al., 2016). Here we focus on the role of formal institutions, in particular the economic and political/legal institutions, which provide the foundations on which organizations operate, consequently, informal institutions are outside the context of this study.

The strength of economic institutions in a country or region may exert significant influence on a domestic firm's performance (Martin, 2014). A stable and conducive business environment within a

country is generally underpinned by strong economic institutions (Autio and Fu, 2015), such as bankruptcy laws (Lee et.al., 2007), financial organizations and regulations (La Porta et.al., 2006), minority shareholder protection (Guillén and Capron, 2016), etc. Such formal economic institutions regulate the viability of transactions of various kinds, thus reducing transaction costs and risks associated with economic activities of citizens and organizations (North, 1990).

MNEs originating from countries with strong economic institutions typically enjoy better access to both financial and non-financial resources (Wan and Hoskisson, 2003). However, it has been argued that those firms which originate in countries with weaker economic institutions, such as emerging nations, are able to develop sophisticated coping skills and capabilities, which can then be harnessed in foreign operations (Cuervo-Cazurra et.al., 2017; Madhok and Keyhani, 2012). Thus, weaker and more uncertain business environments lead them to become more entrepreneurial (Madhok and Keyhani, 2012), agile and resilient (Ciravegna and Brenes, 2016), enabling them to employ their FSAs more effectively under difficult or challenging conditions.

On the other hand, countries with strong economic institutions provide the critical infrastructure and environment for both domestic *and* foreign firms to flourish (Taussig and Delios, 2015). For instance, economic institutions reflecting strong contract enforcement, financial strength and flexibility in the host country have been seen to positively influence economic growth (Acemoglu and Johnson, 2005), foreign investments (Delios and Henisz, 2000) and profit reinvestment (Laeven and Woodruff, 2007). It is expected that firms operating within an environment of strong economic institutions would have relatively lower transaction costs compared to those operating in weaker economic environments (Williamson, 1985).

The above discussion implies that MNEs that are used to operating in countries with weak economic institutions face a double advantage when operating in economically advanced host countries – they come better prepared to deal with the liability of foreignness and also enjoy the benefits of a stable economic environment. Further, firms originating in strong economic environments (such as developed countries) but operating within a weaker economic environment, will also have certain

advantages over domestic rivals, such as being relatively asset rich and technologically advanced (Bartlett and Ghoshal, 2000; Wells, 1983, Lall, 1983), being more experienced in internationalization (Bartlett and Ghoshal, 2000), and potentially enjoying positive reputation effects (Bilkey and Nes, 1982). Thus, operating across asymmetric institutional environments can be advantageous to firms from both strong and weak economic frameworks.

Such asymmetries between home and host *country* environments have been shown to be important for internationalization strategies of MNEs, particularly in the context of emerging market multinationals (Cuervo-Cazzura and Genc, 2008, Madhok and Keyhani, 2012). However, very little is known about the impact of the host *region* in this context. This point becomes relevant given the increasing evidence of country level economic characteristics spilling across national borders through cross-border networks, such as through trans-national socio-economic exchanges or through trans-national ideological coalitions (Blatter, 2004; Perkmann, 2003). In fact, the regionalization or the semi-globalization literature implicitly points to such cross-border homogenization of institutions, given its recognition of the increase in operational complexity of inter-regional diversification compared to intra-regional diversification (Hennart, 2007; Verbeke and Goerzen., 2009). If a region, rather than a country, is considered to the be locus of MNE strategy, such economic asymmetries are expected to continue to be crucial. This leads us to present the following hypotheses, which highlight the importance of economic asymmetries from a regionalization perspective.

> Hypothesis 3a. *MNEs from home countries with relatively weak economic institutions, can better exploit specific advantages in regions with relatively strong economic institutions, compared to their counterparts from home countries with relatively strong economic institutions.*

> Hypothesis 3b. *MNEs from home countries with relatively strong economic institutions, can better exploit specific advantages in regions with relatively weak economic institutions, compared to their counterparts from home countries with relatively weak economic institutions.*

As well as economic institutions, political/legal institutions have also been shown to have a major impact on business activity (Aldashev, 2009; Roy and Oliver, 2009). The "political" aspect

encompasses both the framework as well as the actors within it, who create, apply and enforce social and economic policies (Tan and Chintakananda, 2016; Holburn and Zelner, 2010; North, 1990). The "legal" aspect includes rule of law, regulatory structures and the ability to enforce contracts and property rights (Autio and Acs, 2010; Tan and Chintakananda, 2016). While 'political stability' is a key indicator of the strength of the former, 'regulatory effectiveness' is seen to be reflective of the strength of the latter.

A number of studies have stressed the importance of strong political/legal institutions in home countries, leading to better performance overall and from internationalization. A strong political/legal environment in the home country helps to develop resources and capabilities which makes MNEs internationally competitive (Chacar et.al., 2010; Kirca et.al., 2012; Marano et.al., 2016). Political stability and regulatory effectiveness, both lead to the creation of "quiet rooms", which allows information asymmetries to be reduced through a more conducive learning environment, development of supporting firms and infrastructure, and overall better planning and allocation of MNE resources devoted to geographic diversification (Tan and Chintakananda, 2016). Operating in foreign environments is a complex exercise, involving reconfiguration of *internal* resources and capabilities (Hitt et.al., 1997; Sethi and Guisinger, 2002) while facing *external* uncertainties and unfamiliar systems and processes (Larsen et.al., 2013). A stable home political environment not only allows the MNE to focus on these challenges, but in fact enhances the net impact of the "quiet room" itself (Tan and Chintakananda, 2016), leading to enhanced performance in the foreign location. Politically unstable or weaker host locations, by their very nature, are likely to put up more barriers to operations of foreign firms, such as, market accessibility, information constraints, less developed infrastructure, difficulty in obtaining local resources, etc. Thus, MNEs originating in home countries with stronger political/legal institutions would be better equipped to navigate such barriers more effectively than those originating in weaker political/legal climates.

Conversely, low levels of political stability and regulatory effectiveness can make firms more proficient in the use of their own resources and capabilities to create and monopolize markets (Bowman and Hurry, 1983), leading to price premiums and new product options (Chintakananda and

McIntyre, 2014). MNEs originating in countries with high levels of political risk and corruption are also able to develop internal capabilities of managing risks and challenges of internationalization (Martin, 2014). These capabilities make them more resilient and capable of operating in foreign markets, particularly *outside their home region* (Cuervo-Cazurra et.al., 2018). While the home region may be subject to a similar unstable political and legal environment, operating outside the home region and in potentially more stable environments, can bring additional benefits to the MNE. In line with our previous argument regarding firms from weaker economic environments, in this case, firms originating in unstable political/legal climates face a double advantage when operating in regions with stable political and legal institutions. This leads us to the following hypotheses, which once again posit the positive impact of asymmetry in political/legal environment between the home country and the host region on the MNE's return from internationalization.

Hypothesis 4a. *MNEs from home countries with relatively strong political/legal institutions, can better exploit region specific advantages in regions with relatively weak political/legal institutions, compared to their counterparts from home countries with relatively weak political institutions.*

Hypothesis 4b. *MNEs from home countries with relatively weak political/legal institutions, can better exploit region specific advantages in regions with relatively strong political/legal institutions, compared to their counterparts from home countries with relatively strong political institutions.*

RESEARCH METHODS

Firm level data was obtained from the Osiris database available from the Bureau van Dijk, containing detailed information on listed and major unlisted companies globally. The data covers firms and all their subsidiaries from nine countries, covering the years 1996 to 2005. The countries included and the number of firms in the sample from each country are presented in Table 1. For each firm, we collected four sets of information for each year: domestic sales, international sales by region, sales by product variant, and firm level performance. The database provides detailed information of operations

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at both the country and supra-national levels. Given the focus of this paper, we aggregate operations of each firm to a regional level, where the regions are classified as: home country only (Region 1); Europe defined as EU and other countries within continental Europe (Region 2), the Americas (Region 3), Asia-Pacific including mainland Asia and the Pacific rim (Region 4), and Africa and the Rest of the World (Region 5).

For each firm in our sample, we collected the following information from the database for the period of 1996 to 2005 – annual domestic sales within the home country, annual international sales by region, annual sales by product variant and annual performance. For each firm, we estimate a region level index of operations for each year t, given by, $I_k(t) = \frac{GeoSales_k(t)}{TotalSales(t)}$, where $k = 1,2,3,4,5$. An average of the *first 5 years* (1996 to 2000) is computed to arrive at the average index of regional operations $avgI_k$ for a firm in region k. We also calculate the yearly Herfindahl product diversification index for the firm, $pd(t) = 1 - \sum_d \left(\frac{Sales(d,t)}{TotalSales(t)} \right)^2$ given all variants d and its 5-year average ($avgPD$) for the first 5 years in the data. Finally, firm performance is measured through annual percentage profit margin Π_t, and we compute the 5-year average $avg\Pi$ using the *last 5 years* in the data, that is from 2001 to 2005.

Insert Table 1 here

Country specific institutional features were obtained from the World Development Indicators (WDI) and the World Governance Indicators (WGI) databases available from the World Bank. Strength of economic institutions was measured using the following indicators from the WGI: GDP (at 2010 prices), annualized GDP growth rate, annual *net* cost to export (export cost minus import cost per container), and annual cost of business start-up procedures (per cent of per capita gross national income), annual *net* intellectual property (I-P) receipts as a proxy for innovativeness of the economy (I-P receipts minus I-P payments), and the index of minority shareholder protection index developed in Guillen and Capron (2016). The strength of political/legal institutions was measured using the following indices from the WGI: corruption control, government effectiveness, political stability, regulatory quality, rule of law and accountability. The economic indicators were all measured on

separate scales and hence were included directly as independent country level covariates. The political/legal covariates on the other hand, were all measured on the same scale (0, 1) and were found to be highly collinear, making it difficult to include them individually. Hence, we use the mean of these as one aggregate measure of political/legal institutional strength. The country level indicators were averaged over all available values between 1996 to 2005 for inclusion in the models.

The dependent variable in our model is performance ($avg\Pi$) and independent variables are the indices of a MNE's region-specific operation $avgI_k$, $k = 2,3,4,5$ and the economic and political/legal country level covariates defined above. To account for firm level heterogeneity, we include the following as control variables: $avgI_1$ measuring the MNE's scale of home country operations, $avgPD$ measuring the diversity of product offerings, number of subsidiaries operating worldwide and total assets indicating scale of operations.

We employ a multi-level (also known as hierarchical) modelling approach to estimate the impact of firm level regional operations on a MNE's performance and the role of country level controls as moderators in this relationship. The multi-level approach is suitable here given that we are examining the impact of firm level factors (first level), where firms can be grouped in countries (second level), and countries into regions (third level). While we do not include regional variables in the analysis explicitly for the third level regional aggregation, regional impact is measured by running the estimations on regional sub-samples. This method is adopted given the inherent difficulties of obtaining reliable region level measures of institutional strength.

We estimate both Fixed Effects (FE) and the Random Effects (RE) specifications of the models, presented below in equations (1), (2) and (3). The FE model, shown in (1), assumes that each country in the data has a systematic impact on the variance in firm performance, which may be estimated either by incorporating country specific dummies or country level covariates. The RE specification is more generic and assumes that the selection of countries in the data are drawn as a random sample from the population of countries, implying that the overall variance of the country effect may be estimated but not the specific effect of each country. We adopt the random coefficients (also called

random slope) specification in the RE model, where coefficients of the firm level independent variables are assumed to depend on country level covariates, as shown in (2).

The full model specification that is estimated is the following:

$$avg\Pi = \alpha + \sum_{j=2}^{5} \beta_j \, avgI_j + \sum_k \gamma_k C_k + z_1 avgI_1 + z_2 avgPD + z_3 avgAssets + z_4 subs + \epsilon \quad (1)$$

$$\alpha = \bar{\alpha} + \delta_j, \quad and \quad \beta_j = \beta_j^0 + \sum_k \beta_j^k C_k + u_j \ \ for \ j = 2, \dots, 5 \quad (2)$$

In equation (1), C_k represents the country level covariates (which might be either dummies or the other variables), $avgI_{2,\dots,5}$ are the firm level covariates, and the rest are the firm level controls and the overall regression error ϵ. The intercept α in (1) includes a fixed component $\bar{\alpha}$ (which can be estimated) and random group component δ_j (whose variance can only be estimated), as shown in the first part of (2). The coefficients of $avgI_j$ in (1) are β_j, which are assumed to depend on the characteristics of the home country of the representative firm. Hence, as shown in the second part of (2), β_j depends on C_k alongside a constant (β_j^0) and a random component (u_j). Once (1) and (2) are combined, we get the full specification of the model that we estimate, given as:

$$avg\Pi = \alpha + \sum_{j=2}^{5} \beta_j^0 \, avgI_j + \sum_{j=2}^{5} \sum_k \beta_j^k \left(avgI_j * C_k \right) + \sum_{j=2}^{5} u_j avgI_j + \sum_k \gamma_k C_k + z_1 avgI_1$$

$$+ z_2 avgPD + z_3 avgAssets + z_4 subs + \delta_j + \epsilon \quad (3)$$

While all terms in (1), (2) and (3) are subscripted by firm and country specific identifiers, we exclude these for notational convenience. Note that the right-hand side of (3) represents time lagged firm level covariates compared to the left side dependent variable. Also, note that C_k not only enters as a direct covariate determining a firm's profitability alongside the regional indices, but also acts as a moderator in the relation between $avgI_j$ and $avg\Pi$, through the interaction term $avgI_j * C_k$ in (3).

The FE models are estimated using Generalized Least Squares (GLS), which can account for complex covariance structures for regression errors. In particular, we allow for between-group differences in

the error variances (while assuming constant variance within the group). This implies that the error variances can vary *between* countries but not *within* a country, thus allowing for heteroscedasticity across countries but not within one. The Restricted Maximum Likelihood (REML) estimator is then used to estimate the variance components of the RE model.

FINDINGS

Here we present the main findings of our analysis. FE estimates of the model excluding the interaction effects are presented in Table 2, followed by the RE estimates of the same in Table 3. Table 4 presents the FE results incorporating the interaction terms, where each column presents the moderation analysis of a country level variable. In Tables 2 and 3, the intercept only Null model (labelled Model 0) accounts for the country level differences in means only. Model 1 introduces the firm level controls and covariates. For the FE estimates in Table 2, impact of the home country is introduced through country specific dummies in Model 2a, and through specific country level institutional indicators in Model 2b. We also estimate the model on home region specific sub-samples, shown under Models 3a, 3b and 3c. Model 3a presents estimates for firms of European origin only, 3b for firms from the Americas (from US and Canada in our sample) and 3c for firms from the Asia-Pacific. Models 3a-c include the country dummies instead of the institutional indicators for the respective FE models to ensure non-singular numerical solutions in the estimates, which otherwise appear due to high correlation among the country covariates within each sub-sample.

Insert Tables 2 and 3 here

Impact of MNE origins

Clearly, country level differences impact overall profitability, as seen in Table 2. This is indicated in the estimated intercept in Models 0 (p = 0), 2a and 2b (p = 0), the coefficients of the country dummies in Model 2a (p = 0) and those of the institutional indicators in Model 2b (p ~ 0.05 or less except for net exports and national debt). However, the impact of host region specific operations is provided by the coefficients of $avgI_k$ for $k = 2, ..., 5$ in Models 2a and 2b, where country level variation is accounted for. The high p-values for the coefficients of $avgI_k$ indicate that when country level

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differences are included, the *average* impact (across all firms) of regional operations is not detectable in the FE models. However, this changes in the RE estimates (Table 3), where the mean impact of $avgI_3$ and $avgI_5$ are both positive (p = 0.06 and 0.04 respectively). At the same time, all the random coefficients of $avgI_2, \dots, avgI_5$ have high variance components indicating large variability across countries. Thus, the incremental impact of operations in a host region is conditioned on the home country being considered, and that otherwise identical firms from two randomly chosen home countries will experience different returns from operations in the same host region. This supports Hypothesis 1.

In Models 3a, b and c, the models are estimated on sub-samples of firms from among regions 2 (Europe), 3 (Americas) and 4 (Asia-Pacific) respectively. We find that the incremental impact of specific regional operations is conditioned on the home region of the firm in both FE and RE models. Thus, European firms on average have gained positively from expansion within Europe (p = 0.01) and in the Americas (p = 0.08). American firms in contrast, have gained from expansion in the Americas (p = 0.00), Asia-Pacific (p = 0.00) and Africa (p = 0.00), with the biggest impact from growth in the Asia-Pacific. The pattern is almost similar in the RE estimates, with the only exception being the coefficient of $avgI_3$, which is positive but has a p-value of 0.13. For firms from the Asia-Pacific, none of the region-specific coefficients are significant (both FE and RE).

Thus, the average incremental effect of operations in each host region on performance is not the same for two otherwise identical firms originating in different home regions. Figure 1 maps the "mean" relationships between home and host regions, where arrows go from a representative MNE 's home region to the respective host region and the '+' indicates a confirmation of a positive mean impact of its operations of relatively moderate size, and a '++' indicates the same but of relatively larger effect size. Interestingly, we find that the relationships are not bi-directional, at least within the scope of the dataset used. If we include home *countries* in the picture by incorporating the random effects variance components of each mean relationship, the complexity of the map increases exponentially.

Insert Figure 1 here

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Overall, the incremental impact of operating in a host region is conditional on the home region being considered, and that all else being equal, two firms from two different home regions will experience different returns from operations in the same host region. This supports Hypothesis 2.

Impact of economic and political/legal institutions

Here we unpack the impact of country level covariates in further detail. The direct impact of institutional indicators can be seen from the FE results in Table 2 (Model 2b), while the moderating impact of each is presented in Table 4. Among economic institutional indicators, GDP and GDP growth rates in home countries are both directly associated with higher overall performance among MNEs, while Net IP receipts, business set up costs, minority shareholder protection and stronger political and legal institutions are directly associated with lower performance (Table 3).

Insert Table 4 here

From Table 4, we also see that a selection of institutional indicators, particularly economic ones, moderate the link between host region operations and performance. The GDP growth rate negatively moderates the link between Region 2 operations ($avgI_2$) and performance, that is, firms from countries with low GDP growth enjoy positive marginal returns from operations in Europe, while their counterparts from higher GDP growth countries face negative marginal returns (Figure 2). The same GDP growth rate positively moderates the link between Region 5 operations and performance, in the sense that, firms from low growth countries do not see any significant return from operating in Region 5 while the return is *positive* for firms from high growth countries (Figure 3). The latter is also true for national debt, where low levels of national debt are associated with positive returns from Region 5 operations but slightly negative returns when the firm is from a country with high national debt (Figure 4). Finally, Net IP receipts, like GDP growth rate, enhances the impact of Region 5 operations (Figure 5) but reduces the impact of operations in Region 2 (Figure 6).

Insert Figures 2, 3, 4, 5, 6 here

Region 2 (Europe) can be classed as a region with overall stronger economic institutions than Region 5 (mostly African and other smaller economies). This is particularly true for the period 1996 – 2005, when European economies witnessed a period of growth and stability, while the African economies were relatively weak and, in some cases, unstable. At the same time, high growth, lower debt, higher levels of innovativeness are all indicators of economic strength. Thus, our findings show that while firms from stronger economies extracted relatively higher incremental returns from Region 5 operations, those from weaker economies benefitted from Region 2. For slightly relaxed confidence levels (p = 0.14 and 0.15), we also find that GDP growth and Net IP receipts positively moderate the performance link with $avgI_3$ and $avgI_4$ respectively, in line with above findings. Hence overall, we find support for Hypotheses 3a and 3b from a subset of economic indicators and regions.

Political and legal institutional indicators, while themselves being directly relevant for firm profitability, do not appear to moderate the regional operations performance link given the high p-values. Hence, we are not able to confirm Hypotheses 4a and 4b.

DISCUSSION AND CONCLUSION

The literature on the I-P relationship has generally assumed that a MNE's geographic expansion can be captured through a single continuous measure, which then relates primarily non-linearly with various measures of performance (Nguyen, 2017). Performance measures used in prior literature include the ratio of foreign sales to all sales (Hennart, 2011), some form of ratio of foreign production/assets to total production/assets, the number of countries a firm operates in (Rugman and Oh, 2011), and entropy based indices indicating the degree of geographic expansion (Hitt et.al., 1997; Qian et.al., 2008). In all cases, internationalization has been conceived as a homogenous phenomenon, which can be captured through a unidimensional continuous measure.

However, the regionalization literature indicates that geographic expansion is a granular phenomenon, where the basis of foreign expansion is not a country, but a collection of countries represented by a region (Rugman and Verbeke, 2005). This granular regional perspective throws up the possibility of a more complex picture of the nature of the I-P relationship. It raises questions such as: does the nature

of this relationship vary within a region versus across regions (Qian et.al., 2010; Ral-Trebacz and Eckert, 2016), does it vary for expansion within a home region versus within host regions (Rugman and Oh, 2013; Oh and Contractor, 2014), and most importantly, does the host region itself determine the nature of this relationship and is this conditioned by the MNE's origins? Previous literature has examined the first two questions in some detail, and this study delves into the last two questions and shows that the answer to both is a resounding positive. We show that the MNE's origins – both its home country (Hypothesis 1) and its home region (Hypothesis 2) – matter in its ability to upgrade and combine extant FSAs with region-specific advantages, and that the source of this linkage can be traced to the asymmetric nature of institutional characteristics of the origin with respect to the host. We show that home country characteristics representing the strength of its economic institutions act as a key enabler in determining whether the MNE is able to extract value from regional operations, and that asymmetries in both directions provide the MNE with specific advantages (Hypotheses 3a and 3b).

The fact that *both* Hypotheses 3a and 3b are verified in our study points towards noteworthy theoretical implications. The literature has largely focused on unidirectional asymmetries, where MNEs originating in weaker economies were shown to benefit from expanding into stronger economies, such as emerging economy firms moving into advanced economies (Cuervo-Cazurra et.al., 2017; Madhok and Keyhani, 2012). Such MNEs were generally considered agile and flexible, and as a result were easily able to adapt to advanced economy conditions (Ciravegna and Brenes, 2016). However, from a resource-based perspective, MNEs originating in advanced economies can generate non-location bound FSAs, either through prior experience of internationalization and brand building or with the support of the superior infrastructure and resources available to them in their home country (Wan and Hoskisson, 2003). These can then be translated into superior performance in regions which are weaker institutionally.

In our analysis, the impact of institutional asymmetries is seen most starkly in the case of operations within Regions 4 (Asia-Pacific) and 5 (Africa and rest of the world), in which firms from Region 2 (Europe) and 3 (US and Canadian firms) would face radically different institutional environments

than they are used to at home. Region 2 firms operating within Region 3 also see a positive impact of expanding operations. While the adopted regional definitions are important in driving the empirical results, the primary lesson is that MNEs can benefit from expanding operations within a host region with strong institutional asymmetries with its orgins. We return to the empirical role of regional definitions later in the discussion.

Our analysis directly reveals that the I-P relationship is inherently complex and multidimensional. While this has been previously indicated in the literature (Powell, 2014; Verbeke et.al., 2009), a direct representation of the complex interrelationships between regions emerges from our study (Figure 1). The I-P linkage is conceptualized here as a map from a set of regional *dyads* to performance, whereas traditionally, mapping was from a set of ever expanding geographic *scopes* to performance (Nguyen, 2017). The dyads themselves are not comparable in terms of performance, as they arise within entirely different contexts, driven by specific institutional asymmetries. However, in the traditional model, the scopes themselves were comparable based on performance, even if it meant that the actual results of this comparison varied across studies. The difference between the two approaches is shown in Figure 7.

Insert Figure 7 Here

Figures 1 and 7 together provide a glimpse of the complexity in the I-P relationship and show why a single homogenous measure of internationalization is unable to capture its multidimensional nature. Viewing the MNE's international expansion as a set of dyadic relationships between the home and the host uncovers the I-P relationship in far greater detail. Note that the non-linear S and U/inverted U-shaped relationships found in the extant literature could still be valid within specific regional dyads. Within a dyadic home-host pair, the MNE's geographic expansion within the host can result in any one of the various linear or non-linear patterns examined in the prior literature. Thus, our analysis does not negate the previous research on the topic of the I-P relationship, but enriches it and embeds it within a multidimensional region to region map.

The regional perspective plays a central role in the arguments made above. It is possible to make similar arguments based on dyadic pairs of countries rather than regions. However, from the point of the view of the regional MNE, the impact of operations within a host country generally has spillover effects into countries within relative proximity (Beugelsdijk and Mudambi, 2013; Verbeke and Asmussen, 2016). Examining international operations at the country level is unduly restrictive as it ignores the potential for greater economies of scale and scope across national borders (Qian et.al., 2008; Rugman and Verbeke, 2004). At the same time, considering dyadic pairs of countries in this context implies a heavy burden on the assumptions of rationality and reliability of MNEs and their management from a strategic point of view. It also makes the modelling of multiple dyadic interactions simultaneously extremely complex.

This brings us to the role of specific regional definitions. The results suggest that for home-host region pairs where asymmetries in institutional environments are significant, MNEs would benefit from expanding operations within the relevant host region. In some cases, we did not observe this effect (such as for US and Canadian firms operating in Europe or Asian firms in the Americas), and in all of these, either one of the regions was institutionally heterogenous, thus diffusing any possible asymmetry between the home and the host. We also see that the political/legal factors, while directly relevant for firm profitability, did not appear as significant moderators in the I-P relationship.

One implication of the above is that future research could help shape the supra-national regional boundaries where the positive impact of a certain type of institutional asymmetry is at its *optimum*. From an MNE's perspective, this would imply a world view of a set of concentric, intersecting and overlapping supra-national regions, each having its own set of advantages and disadvantages arising out of specific institutional characteristics. Ideally, one may test the presence of optimal regional boundaries by using alternative regional grouping schemes, both for model exploration and validation purposes as suggested by Flores et al. (2013), although restrictions on how the firm level geographic operations were coded in the dataset prevented us from doing so. An even more interesting direction would be to explore the temporal shifts in these regional groupings by contrasting previous "optimal" regional boundaries with those arising from more recent data, particularly from the post 2005 period.

Emerging market MNEs have developed as major players in the intervening period, and thus the impact of institutional asymmetry may be more visible through a similar multilevel analysis incorporating MNEs from more emerging countries.

Despite the empirical limitations highlighted above, this study offers a new perspective to the I-P relationship conundrum, from the context of institutional differences between the home and the host geography. In doing so, it re-explores the regional view of MNEs and conceptualizes the complexity in the relationship through dyadic interactions between regions. The multiplicity of independent dyadic interactions show why previous research may have found it difficult to agree on the exact nature of a generic I-P relationship.

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Tables

Table 1: Sample size and mean index of operations in home country and host regions of firms from sampled countries

Country	N	Domestic (D)	Europe (*avgI1*)	Americas (*avgI2*)	Asia-Pacific (*avgI34*)	Africa and Middle East (*avgI4*)
Australia	459	0.472	0.00973	0.0152	0.0278	0.00851
Canada	606	0.433	0.0261	0.117	0.0119	0.0369
France	436	0.432	0.0949	0.0403	0.0146	0.123
Germany	781	0.398	0.0822	0.0287	0.00903	0.0715
India	276	0.344	0	0	0.000029	0.0142
Japan	299	0.427	0.0155	0.0309	0.0131	0.0435
Netherlands	120	0.405	0.271	0.0688	0.0182	0.0517
UK	1833	0.539	0.0704	0.0582	0.0163	0.0295
USA	970	0.489	0.0751	0.016	0.03	0.0715

Table 2: Fixed Effects Estimates (p-values)

	Model 0 (Null model)	Model 1 (Level 1 covariates)	Model 2a (Level 1 & Country dummies)	Model 2b (Level 1 & Level 2 covariates)	Model 3a (Europe, Level 1 & Country dummies)	Model 3b (N. America, Level 1 & Country dummies)	Model 3c (Asia-Pacific, Level 1 & Country dummies)
Firm Level Controls							
Intercept	-11.94 (0.04)	-0.28 (0.88)	-57.07 (0.00)	498.39 (0.00)	-6.64 (0.38)	-65.34 (0.00)	-55.80 (0.00)
Domestic operations		2.97 (0.09)	6.46 (0.00)	6.46 (0.00)	38.56 (0.00)	87.46 (0.00)	1.41 (0.45)
assets		9.82 (0.21)	-6.14 (0.42)	-6.14 (0.42)	-9.98 (0.81)	43.67 (0.42)	4.32 (0.59)
subsidiaries		17.99 (0.23)	22.11 (0.13)	22.11 (0.13)	22.67 (0.39)	82.21 (0.06)	-15.79 (0.44)
Product divers.		-1.17 (0.52)	-3.77 (0.04)	-3.77 (0.04)	15.27 (0.02)	22.96 (0.02)	-5.16 (0.00)
Regional Operations							
Europe		-19.90 (0.00)	1.69 (0.83)	1.69 (0.82)	23.61 (0.01)	-15.18 (0.49)	11.05 (0.54)
Americas		4.49 (0.57)	6.65 (0.40)	6.65 (0.40)	24.81 (0.08)	85.72 (0.00)	1.72 (0.88)
Asia-Pacific		3.32 (0.78)	2.98 (0.80)	2.98 (0.80)	-3.64 (0.89)	109.35 (0.00)	3.11 (0.84)
Africa & Middle East		6.57 (0.25)	6.29 (0.27)	6.29 (0.27)	16.98 (0.13)	86.41 (0.00)	9.92 (0.17)
Country Level Factors							
d_Canada			27.73 (0.00)			*Reference category*	
d_France			53.38 (0.00)		*Reference category*		
d_Germany			41.18 (0.00)		-9.58 (0.01)		
d_India			51.70 (0.00)				50.74 (0.00)
d_Japan			55.70 (0.00)				55.71 (0.00)
d_Netherlands			51.54 (0.00)		-5.69 (0.25)		
d_UK			28.98 (0.00)		-27.27 (0.00)		
d_USA			35.29 (0.00)			8.99 (0.14)	
D_Australia			*Reference category*				*Reference category*
GDP				33.11 (0.05)			

	Model 0 (Null model)	**Model 1** (Level 1 covariates)	**Model 2a** (Level 1 & Country dummies)	**Model 2b** (Level 1 & Level 2 covariates)	**Model 3a** (Europe, Level 1 & Country dummies)	**Model 3b** (N. America, Level 1 & Country dummies)	**Model 3c** (Asia-Pacific, Level 1 & Country dummies)
GDP growth rate				89.67 (0.06)			
National debt				-48.07 (0.21)			
Net IP receipts				-185.33 (0.03)			
Net Export costs				0.02 (0.18)			
Business costs				-369.15 (0.00)			
Minority shareholder protection				-113.94 (0.00)			
Political/legal institutions				-483.37 (0.00)			
	AIC: 50684.56 Residual SE: 83.41 on 4337 DoF	AIC: 51666.21 Residual SE: 143.35 on 4578 DoF	AIC: 51392.22 Residual SE: 143.35 on 4578 DoF	AIC: 51392.17 Residual SE: 133.77 on 4577 DoF	AIC: 26210.41 Residual SE: 56.54 on 2324 DoF	AIC: 15636.21 Residual SE: 101.18 on 1347 DoF	AIC: 9310.333 Residual SE: 134.14 on 923 DoF

Table 3: Random Effects Estimates (p-values) and inter-country variance (standard deviation) components

	Model 0 (Null model)	Model 1 (All Countries)	Model 3a (Europe)	Model 3b (N. America)	Model 3c (Asia-Pacific)
Intercept	-11.94 (0.00)	-30.87 (0.00)	-19.35 (0.08)	-61.48 (0.00)	-13.90 (0.57)
Europe		19.64 (0.22)	27.39 (0.04)	31.78 (0.62)	55.09 (0.45)
Americas		34.11 (0.06)	22.54 (0.13)	95.14 (0.00)	-72.35 (0.25)
Asia-Pacific		23.04 (0.34)	-2.54 (0.92)	101.56 (0.00)	11.89 (0.85)
Africa & Middle East		37.72 (0.04)	23.68 (0.15)	81.11 (0.00)	67.85 (0.46)
Domestic		57.68 (0.00)	52.10 (0.00)	87.74 (0.00)	44.77 (0.00)
assets		-4.62 (0.89)	-29.32 (0.54)	52.71 (0.38)	-45.66 (0.56)
subsidiaries		73.08 (0.00)	59.73 (0.07)	82.96 (0.08)	99.39 (0.46)
Product diversity		17.33 (0.00)	22.54 (0.00)	22.38 (0.03)	-23.62 (0.12)
Variance Components					
Intercept	298.30 (17.27)	488.757 (22.107)	208.429 (14.437)	31.787 (5.637)	1182.448 (34.386)
Europe		976.613 (31.251)	164.385 (12.821)	6977.244 (83.529)	127.671 (11.299)
Americas		933.124 (30.547)	0.001 (0.031)	1343.880 (36.658)	959.957 (30.983)
Asia-Pacific		2078.215 (45.587)	0.007 (0.083)	404.077 (20.101)	5842.819 (76.438)
Africa & Middle East		1924.242 (43.866)	333.948 (18.274)	321.316 (17.925)	16573.172 (128.736)
Residual Variance	6502.35	6234.147	5282.080	7005.941	7434.741

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Table 4: Fixed Effect – Moderation by country level variables

	Moderator: GDP	Moderator: GDP growth	Moderator: National debt	Moderator: Net IP receipts	Moderator: Net Export costs	Moderator: Business costs	Moderator: Minor. Share. Pro.	Moderator: Pol./legal institutions
Controls								
Intercept	499.27 (0.00)	478.82 (0.00)	456.70 (0.00)	473.81 (0.00)	496.22 (0.00)	507.34 (0.00)	503.31 (0.00)	485.80 (0.00)
avgI1	6.52 (0.00)	7.48 (0.00)	7.63 (0.00)	7.79 (0.00)	6.30 (0.00)	6.54 (0.00)	6.94 (0.00)	6.92 (0.00)
assets	-6.10 (0.42)	-5.72 (0.46)	-5.63 (0.46)	-5.76 (0.46)	-5.98 (0.43)	-6.17 (0.42)	-5.72 (0.45)	-5.69 (0.46)
subsidiaries	22.60 (0.12)	20.41 (0.16)	23.37 (0.11)	21.93 (0.14)	22.08 (0.13)	22.17 (0.13)	22.34 (0.13)	23.31 (0.11)
Product divers.	-3.69 (0.04)	-3.09 (0.09)	-3.31 (0.07)	-2.94 (0.11)	-3.91 (0.03)	-3.71 (0.04)	-3.69 (0.04)	-3.76 (0.04)
Firm Level Regional Sales								
Europe	1.46 (0.85)	29.85 (0.02)	3.68 (0.84)	-20.52 (0.21)	-16.50 (0.59)	-4.33 (0.71)	6.61 (0.66)	-30.41 (0.66)
Americas	5.19 (0.53)	-5.31 (0.62)	24.36 (0.25)	35.49 (0.12)	5.67 (0.83)	12.45 (0.35)	38.72 (0.14)	-64.10 (0.30)
Asia-Pacific	3.10 (0.79)	-10.57 (0.47)	20.27 (0.54)	37.50 (0.18)	31.76 (0.48)	9.02 (0.67)	9.02 (0.89)	-5.49 (0.96)
Africa & Middle East	6.20 (0.28)	-1.96 (0.76)	47.08 (0.00)	48.45 (0.00)	20.65 (0.35)	4.30 (0.61)	44.45 (0.11)	-15.20 (0.73)
Country level Factors								
GDP	29.45 (0.09)	29.22 (0.08)	29.73 (0.08)	31.66 (0.06)	32.85 (0.05)	33.40 (0.05)	34.26 (0.04)	30.68 (0.07)
GDP growth rate	89.92 (0.06)	90.52 (0.07)	81.06 (0.09)	82.59 (0.09)	87.18 (0.07)	89.80 (0.06)	88.91 (0.06)	80.66 (0.10)
National debt	-48.26 (0.20)	-42.43 (0.26)	-38.54 (0.31)	-48.82 (0.20)	-46.91 (0.22)	-50.44 (0.19)	-51.76 (0.18)	-44.55 (0.24)
Net IP receipts	-185.84 (0.02)	-182.34 (0.03)	-170.77 (0.04)	-186.76 (0.02)	181.79 (0.03)	-187.92 (0.02)	-188.49 (0.02)	-174.65 (0.04)
Net Export costs	0.02 (0.18)	0.02 (0.19)	0.02 (0.23)	0.02 (0.16)	0.02 (0.22)	0.02 (0.17)	0.02 (0.17)	0.02 (0.21)
Business costs	-369.80 (0.00)	-357.90 (0.00)	-338.89 (0.00)	-348.01 (0.00)	-367.05 (0.00)	-375.35 (0.00)	-373.84 (0.00)	-357.62 (0.00)
Minority shareholder protection	-114.16 (0.00)	-112.39 (0.00)	-106.30 (0.00)	-105.80 (0.00)	114.02 (0.00)	-114.05 (0.00)	-108.89 (0.00)	-109.92 (0.00)
Political/legal institutions	-484.16 (0.00)	-466.46 (0.00)	-448.25 (0.00)	-462.77 (0.00)	-481.46 (0.00)	-491.80 (0.00)	-492.29 (0.00)	-473.54 (0.00)
Interaction Terms								
Europe*mod.	51.88 (0.44)	-200.02 (0.01)	-2.97 (0.92)	-89.47 (0.10)	-0.01 (0.55)	72.29 (0.48)	-7.88 (0.69)	37.55 (0.63)
Americas*mod.	13.70	109.49	-20.99	81.01	-0.001	-61.76	-35.03	88.90

	Moderator: GDP	Moderator: GDP growth	Moderator: National debt	Moderator: Net IP receipts	Moderator: Net Export costs	Moderator: Business costs	Moderator: Minor. Share. Pro.	Moderator: Pol./legal institutions
	(0.60)	(0.14)	(0.45)	(0.19)	(0.96)	(0.57)	(0.22)	(0.24)
Asia-Pacific *mod.	11.74 (0.88)	115.34 (0.29)	-20.80 (0.61)	107.20 (0.15)	0.03 (0.52)	-63.43 (0.71)	-5.44 (0.93)	13.92 (0.92)
Africa and Middle East *mod.	9.88 (0.82)	146.41 (0.00)	-50.06 (0.01)	119.56 (0.00)	0.01 (0.35)	16.41 (0.75)	-40.93 (0.17)	29.47 (0.61)

Figures

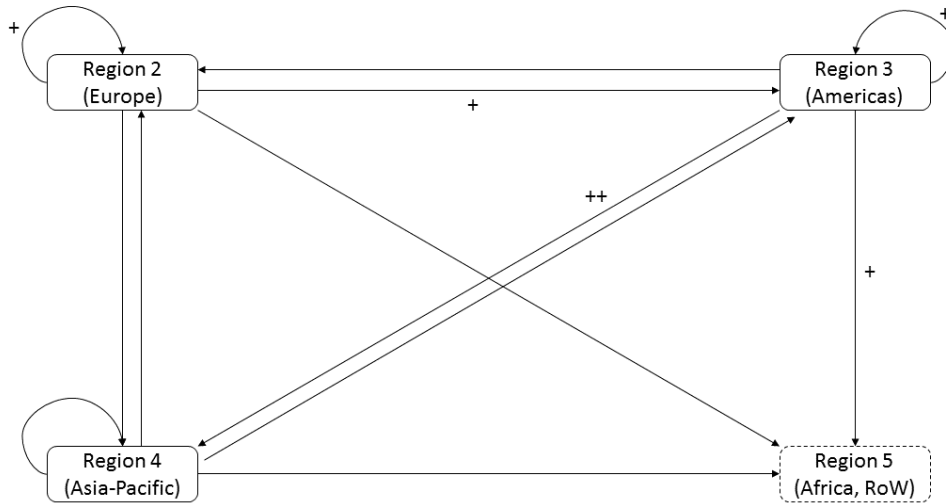Figure 1: Inter and intra-regional linkages between regions

Figure 2: Negative moderation of GDP growth on $avgI_2$ – performance link
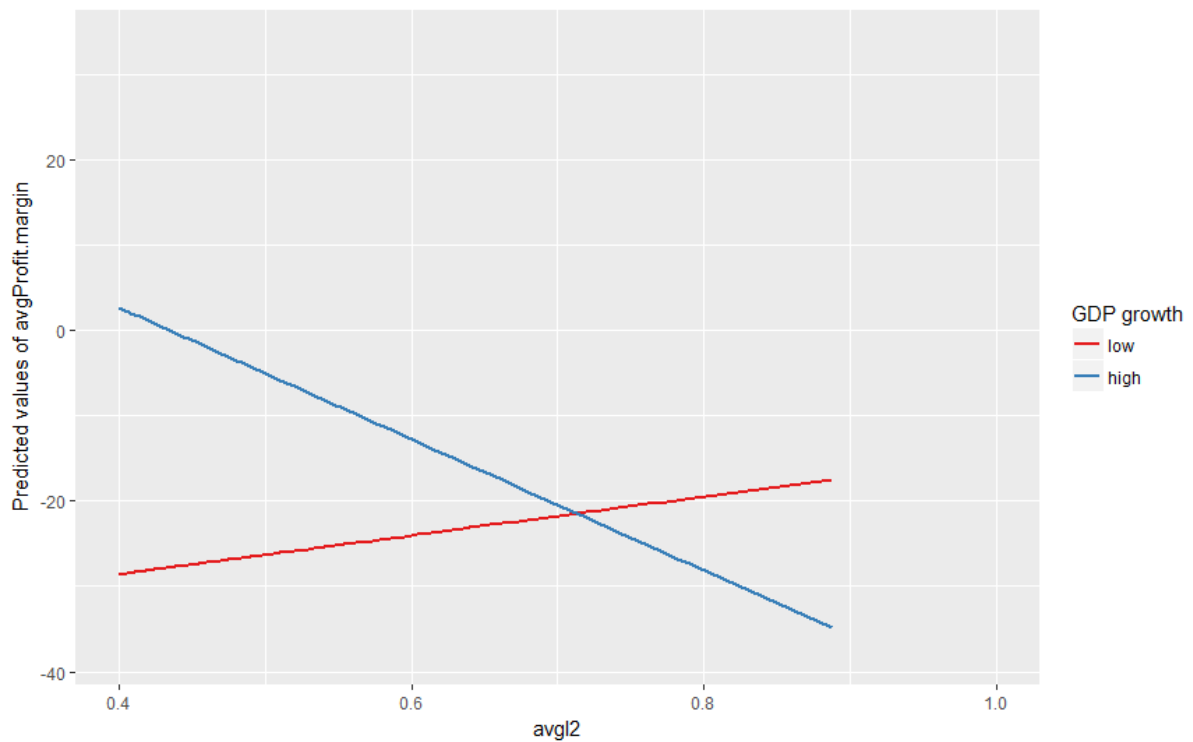
Figure 3: Positive moderation of GDP growth on $avgI_5$ − performance link
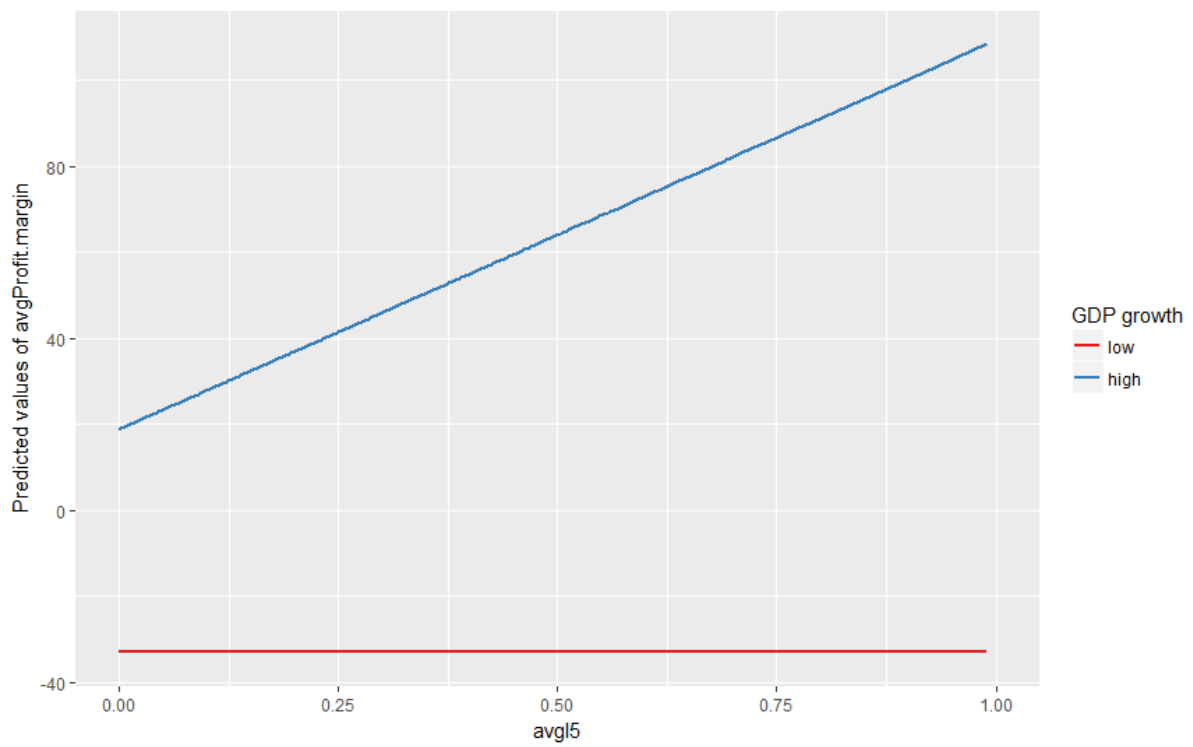

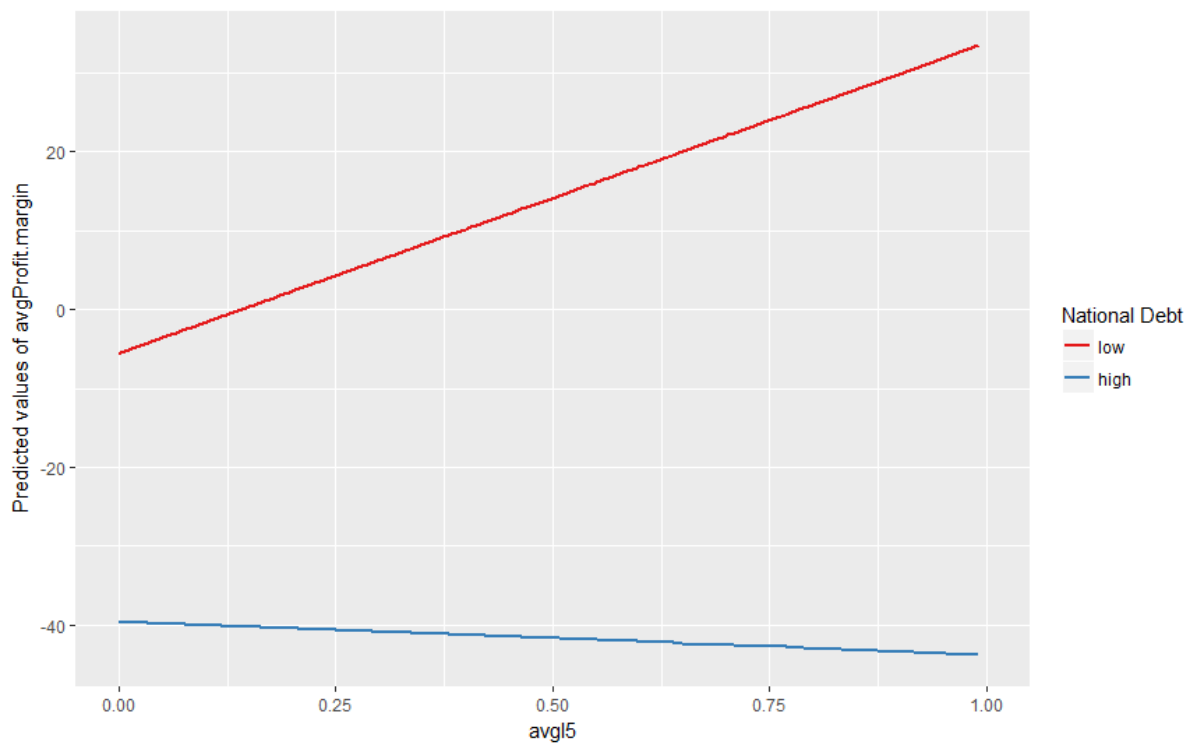Figure 4: Negative moderation of national debt on $avgI_5$ − performance link

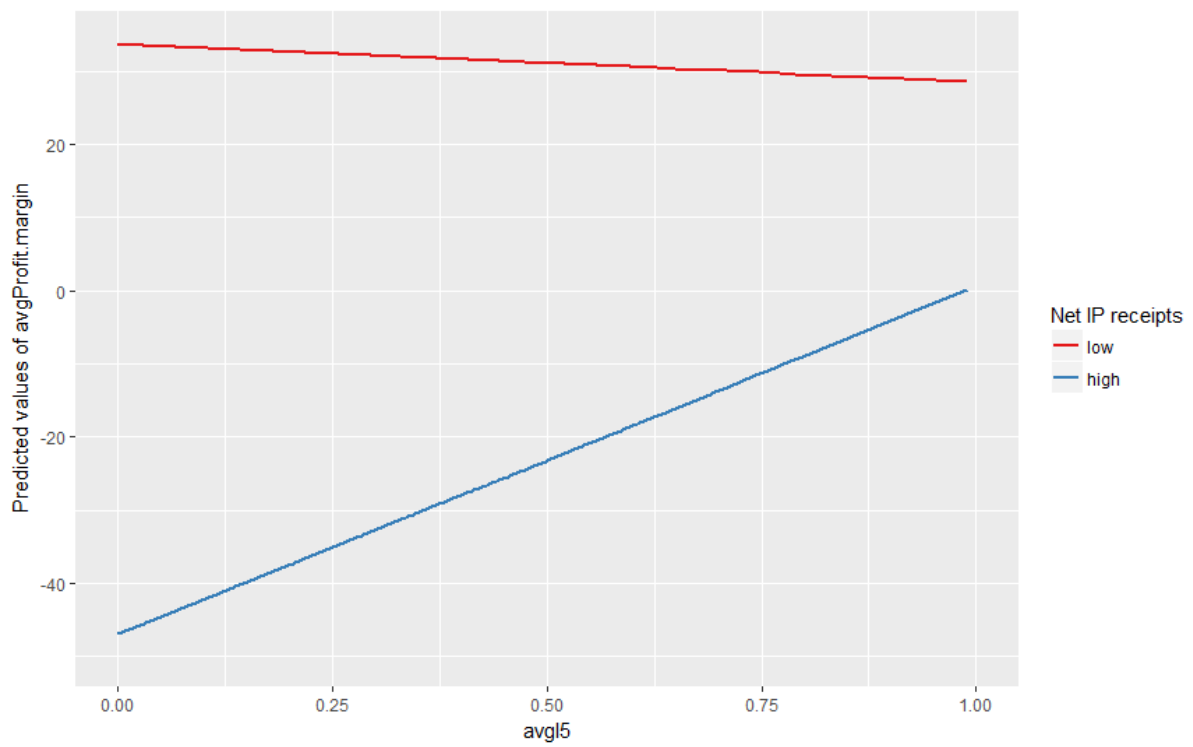Figure 5: Positive moderation of Net IP receipts on $avgI_5$ – performance link

Figure 6: Negative moderation of Net IP receipts on $avgI_2$ – performance link
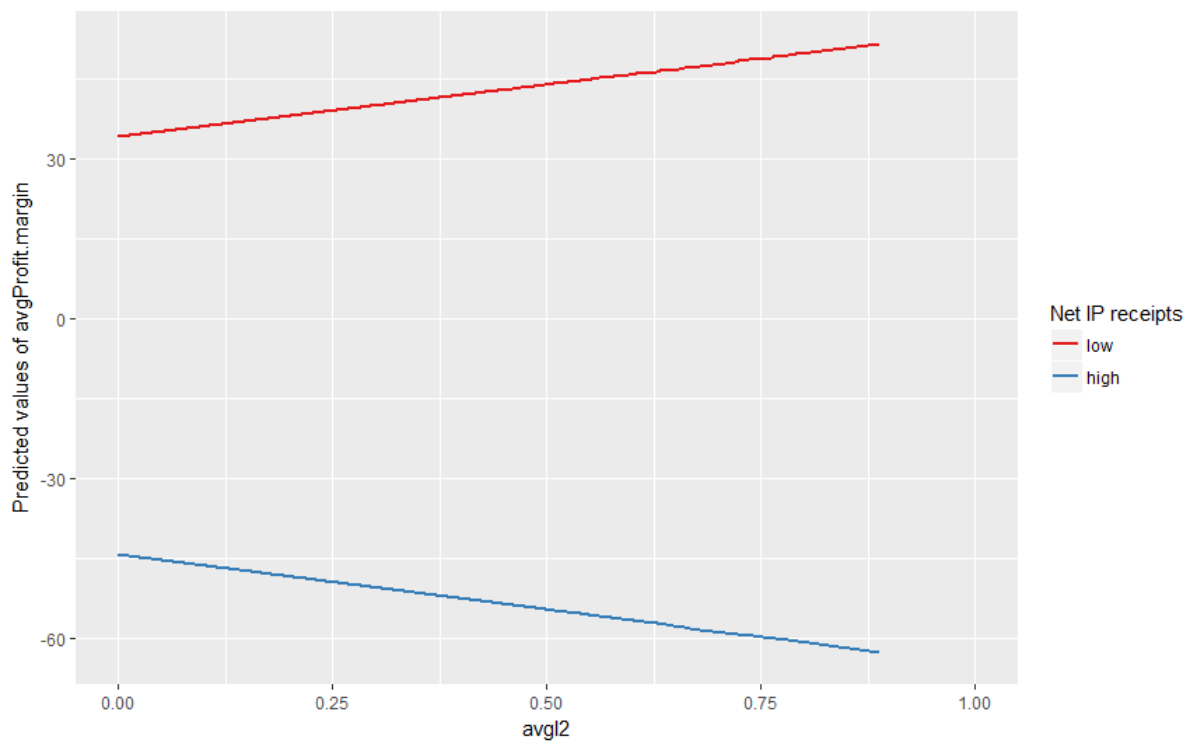
Figure 7: Traditional versus the dyadic approach to exploring a generic I-P linkage

Traditional View of IP Linkage

Geographic Scope   *Performance*   *Potential IP Relationships*

Home $\longrightarrow$ Π_1

Home + Region A $\longrightarrow$ Π_2

Home + Region A + Region B $\longrightarrow$ Π_3

...

Home + Region A + Region B + ...+ Region K $\longrightarrow$ Π_K

$\Pi_1 \leq \Pi_2 \leq \Pi_3 \leq \Pi_4$ +ve linear

$\Pi_1 \geq \Pi_2 \geq \Pi_3 \geq \Pi_4$ -ve linear

$\Pi_1 > \Pi_2 \sim \Pi_3 < \Pi_4$ U - shape

$\Pi_1 < \Pi_2 \sim \Pi_3 > \Pi_4$ Inverted U

$\Pi_1 \sim \Pi_2 > \Pi_3 \sim \Pi_4$ S - shape

Dyadic View of IP Linkage

Regional Dyads   *Performance*   *Potential IP Relationships*

Home $\longrightarrow$ Π_1

Home + Region A $\longrightarrow$ Institutions $\dashrightarrow$ Π'_2

Home + Region B $\longrightarrow$ Institutions $\dashrightarrow$ Π'_3

...

Home + Region K $\longrightarrow$ Institutions $\dashrightarrow$ Π'_K

$\Pi_1 \lessgtr \{\Pi'_2 , \Pi'_3 , \Pi'_4\}$

Context driven dyadic relationships