Equity Ownership Strategy in Greenfield Investments: Influences of Host Country Infrastructure and MNE Resources in Emerging Markets

EQUITY OWNERSHIP STRATEGY IN GREENFIELD INVESTMENTS: INFLUENCES OF HOST COUNTRY PHYSICAL INFRASTRUCTURE AND MULTINATIONAL ENTERPRISES' RESOURCES IN EMERGING MARKETS

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ABTRACT:

This book chapter addresses equity ownership strategy in greenfield investments by multinational enterprises (MNEs) in the emerging markets (EMs). It one of few studies to hypothesize and analyze influences of host EM physical infrastructure in relation to investment decisions of MNEs. We use resource dependence theory (RDT) as a theoretical basis and test the moderating effects of firm resources like size and host country investment experience. Moreover, the current study assumes a more nuanced approach to studying equity ownership by analyzing wholly owned subsidiaries vs. joint ventures (JVs) and including majority vs. minority JVs in the analysis as well. The empirical results based on greenfield investments undertaken by Nordic (Danish, Finnish, Norwegian and Swedish) MNEs in EMs during 1990-2015 reveals the importance of host country physical infrastructure for high equity ownership strategy. Moreover, host country investment experience moderates the effect of physical infrastructure on equity ownership strategy. Finally, the analysis of a sub-sample of greenfield JVs reveals that determinants of equity ownership strategy differ somewhat between greenfield JV or greenfield WOS.

KEY WORDS: Equity Ownership, Emerging Markets, Greenfield Investments, MNE Size, MNE host country investment experience and Host Country Physical Infrastructure

1. INTRODUCTION

Foreign direct investment (FDI) establishment mode strategy is typically viewed as the multinational enterprises' (MNE) choice whether to acquire an existing local enterprise (acquisition) or to establish a start up from scratch (greenfield investment) (Dikova and van Witteloostuijn, 2007; Slangen and Hennart, 2008; Slangen, 2011; Arslan et al., 2015). Cross-border mergers and acquisitions (M&As), as a specific entry strategy have received increasing attention of IB researchers (see e.g. Chen, 2008; Contractor et al., 2014; Arslan and Dikova, 2015; Ahammad et al., 2017; Dikova et al., 2017). Despite their popularity, M&As are not always among the strategic options of MNEs especially when investing in emerging markets (EMs), where suitable acquisition targets often lack. Under such circumstances, MNEs must choose to establish presence

in EMs through greenfield investment. In fact, greenfield investments account for the majority of global FDI flows i.e. 63% (UNCTAD, 2015).

Earlier research has established that greenfields can offer specific investment advantages. For example, it is relatively easier to transfer MNE practices to greenfield subsidiaries compared to acquired ones, thereby, making their integration into MNE's global strategy relatively smooth **(**Meyer and Su, 2015; Ayden et al., 2017). Greenfield subsidiaries can also offer access to the sectors and industries, where the possibility to acquire local firms is limited due to certain restrictions (Chang et al., 2012; Lee et al., 2014; Arslan and Larimo, 2017). It therefore comes as a surprise that greenfield investments as a specific establishment mode, have received far less research attention compared to cross-border M&As. The specific ownership decisions taken in the context of greenfield investments have received even less research attention.

In this study, we investigate the role of local context on the equity ownership strategy in greenfield investments undertaken in EMs. Recently Arslan and Larimo (2017), considered the role of local context by analyzing the influences of institutional distance and international trade freedom on ownership strategy in greenfield investments. Local context however goes beyond institutional framework and often influences the extent of resource dependency of MNEs in EMs. Related research has found that physical infrastructure is a key determinant of FDI flows as access to utilities (electricity, gas, water), along with good transportation network and connectivity, make a location attractive to manufacturing FDI (e.g. Erdal and Tatoglu, 2002; Bellak et al., 2009; Blonigen and Piger, 2014; Tate et al., 2014; Lee et al., 2016). In case of greenfield investments, host country's physical infrastructure can be expected to significantly influence equity ownership strategy. As this aspect has not been addressed in earlier studies specifically, we aim to fill this gap in the literature.

We use resource dependency theory (RDT) which focuses on resource exchange and represents a political economy model of organizational and inter-organizational behavior. The primary focus of RDT is on the environment and organizational behavior is seen as a strategic reaction to perceived and potential constraints imposed by the environment. The main gist of our paper is the notion that because organizations differ in size and experience, they may be able to reduce the resource

dependence (Hutchinson et al., 2007; Leonidou et al., 2007). Hence, we argue that a relatively well developed local infrastructure can motivate foreign MNEs to commit higher equity ownership in their EM greenfield subsidiaries, even in cases when they are of relatively small size or lack host country specific investment experience. Furthermore, earlier research on greenfield investments has mostly analyzed equity ownership as a dichotomous/binary choice (full vs. partial ownership) (e.g. Arslan and Larimo, 2017). However, the IB literature has clearly established that management dynamics varies significantly in different partially owned subsidiaries—i.e., in cases of minority, or majority owned ventures (e.g., Liu et al., 2014; Dikova et al., 2017). We also incorporate this aspect in our empirical analysis by considering a wider range of equity options i.e. greenfield WOS vs. greenfield JV, and majority greenfield JV vs. minority greenfield JV.

The empirical sample is based on greenfield investments undertaken by the MNEs from open and highly internationalized Nordic economies (Denmark, Finland, Norway and Sweden) in selected EMs located in different geographical regions. The share of EMs is constantly increasing in international FDI flows, and reached to ca. 30% (UNCTAD, 2016). Although, EMs are generally viewed as being in process development of market economy institutions (e.g. Khanna and Palepu, 2010; Arslan and Dikova, 2015), their infrastructures have improved significantly in last twenty-five years, and now some rank quite high in the global rankings of infrastructure (World Bank, 2017; WEF, 2018). A key reason for this has been the prominence of certain EMs which by increasing their attraction as a location choice for manufacturing FDI achieved economic development and growth (e.g. Gorodnichenko et al., 2014; Lee et al., 2016). Therefore, we believe that our empirical setting offers an interesting context to test the study hypotheses.

The rest of paper is organized as follows. The next section offers theoretical discussion leading to study hypotheses development. After that, we briefly explain data sources and variable operationalization. The paper concludes with presentation of study findings, implications and future research directions.

2. THEORETICAL BACKGROUND

Traditionally services like telecommunications, supply and distribution of electricity and water, construction of roads, airports, ports and railways have been considered a public-sector responsibility. Shortages of clean water, electricity outages, traffic congestions, frequent breakdowns of telephone landlines and insufficient transport capacity for reliable trade are common features for most EMs (Sader, 2000). Regardless of the critical importance of infrastructure for economic advancement, only a limited strand of research examined the effect of infrastructure development on the inflow of FDI. Using annual data for Malaysia for the period from 1960 to 2005, Ang (2008) found that expansion of infrastructure expenditure increased the inflow of FDI into the host country. Analyzing data from 71 countries and the number of telephones per 1,000 inhabitants as a measure of infrastructure development, Asiedu (2002) found that, while a better infrastructure increased the flow of FDI to non-Sub-Saharan African countries, it had no significant impact on the FDI inflow to Sub-Saharan countries. Studying 293 foreign firms that invested in Turkey in 1995, Deichmann et al. (2003) found no evidence that infrastructure development attracted multinational firms to invest in Turkey. Nourzad, Greenwold and Yang (2014) added to this inconclusive research by reporting that the relationship between FDI and infrastructure depends on the size of the recipient's economy.

We build on this research but shift the focus away from FDI flows and focus on a specific type of foreign direct investments, namely greenfields or investments from scratch. We start from the widely accepted premise that greenfields are relatively risky establishment modes for several reasons. Greenfields are new firms and hence suffer from a liability of newness (Pennings et al., 1994), they entail resorting to unproven combinations of inputs and lack relationships with local stakeholders (Slangen and Hennart, 2008). Given the elevated risk of greenfields in general and specifically the risk pertaining to greenfields in EMs, we consider greenfield investment ownership stake assumed by foreign investors as a means of reducing investment risk. We use resource dependency theory (RDT) to explain possible links between infrastructure and greenfield investments.

According to RDT no organization is entirely self-sufficient hence inter-organizational exchange of resources is necessary (Pfeffer and Salancik, 2003). For any given organization, the need for resource acquisition creates dependencies between the organization and other organizations in its environment. Several factors would appear to exacerbate this dependence, e.g., the importance of the resource(s) in question to the focal organization, the relative scarcity of the resource(s), and the degree to which the resource is concentrated in the environment (Pfeffer, 2005). While an MNE making a greenfield investment is indeed able to mold the subsidiary by choosing its location and hiring its labor force (Hennart and Park, 1993), greenfield investments in EMs often suffer from implementation delays, contract cancellations, drawn-out legal disputes and lack of qualified labor. In addition, infrastructure in EMs may well add additional degree of investment risk. There is often dissatisfaction with the quality and quantity of infrastructure service provision by state-owned enterprises. While public utilities struggle to maintain inadequate infrastructure systems, demand pressures in EMs continue to build (Sader, 2000; Inderst and Stewart, 2014). Due to technology and innovation, an increasing number of EMs have opened these sectors to private and foreign investors. In telephony for example, cellular networks created a viable alternative to fixed-wire telephony without the technological need for monopolistic market structure (Sader, 2000). The extent of MNE's dependency on underdeveloped infrastructure systems in EM would determine the likelihood of the multinational involvement in the provision of infrastructure services.

RDT deals with strategies used by organizations to address and negotiate relationships of dependence. Given that MNEs seek to reduce the uncertainty surrounding the flow of needed resources in EMs, the intent of such strategies is to increase the certainty associated with this flow by linking the organization with exchange partners, competitors, and regulators. Although each strategy varies in terms of the strength and stability of the exchange relationship, several linking (bridging) strategies have been identified in the resource dependence literature (Snell, 1992; Pfeffer & Salancik, 2003). For example, organizations attempt to reduce dependence either partially through cooperation, i.e., via joint ventures, contracting, the movement of executives and other personnel across organizations, resource diversification, etc., or more completely through mergers, officer/directorate interlocks or co-optation. In this paper we consider greenfield joint ventures and a different types of shared-ownership greenfields as a means of reducing the uncertainty surrounding the flow of needed resources in EMs by tackling infrastructure deficiencies. It has

been established that organizations differ in size and modus operandi (Cavusgil, 1984; Katsikeas and Morgan, 1994). Because of these differences, some organizations may be able to reduce resource (host market) dependence (Hutchinson et al., 2007; Leonidou et al., 2007). In the next section, we develop our arguments on the relationships between host country infrastructure quality and greenfield ownership stake assumed by MNEs, considering the boundary effects of MNE size and experience.

3. STUDY HYPOTHESES

Host country physical infrastructure elements relevant to FDI decisions of MNEs, include transport, communication (including roads, rail network and telecommunication), energy production and transmission (e.g. Wheeler and Mody, 1992; Tate et al., 2014; Lee et al., 2016). Earlier studies have found significant correlation between amount of FDI flows received in manufacturing sectors in relation to above mentioned infrastructure elements (e.g. Wheeler and Mody, 1992, Gorodnichenko et al., 2014). Moreover, some researchers have analyzed individual elements of infrastructure including logistics like air, rail and road infrastructure (Deardorff, 2001; Tate et al., 2014; Lee et al., 2016), and telecommunications (e.g. Leibrecht and Riedl, 2010) in relation to FDI flows. Other studies have focused on aspects of energy availability and transmission (e.g. Bellak et al., 2007; Riedl, 2010; Malhotra, 2017), and their results also showed positive influences of these infrastructure elements on FDI inflows received in a specific country or region.

It is important to mention that even though greenfield FDIs may have different motivations (e.g. resource seeking or market seeking), they are affected by infrastructure conditions. For example, for resource-seeking FDIs, access to natural resources and transportation network (rail, road and air) are important. On the other hand, for market seeking greenfield FDIs are influenced by opportunity to establish useful manufacturing (retail) sites, and are influenced by infrastructure elements like electricity, gas, water as well as transportation network for transfer of manufactured goods. Earlier FDI studies have found all these infrastructure elements to influence choice and flow of FDIs (Leibrecht and Riedl, 2010; Kaur et al., 2016). In case of greenfield FDIs, many western MNEs invest in manufacturing sector in EMs to not only serve local market, but also export products to other international markets (e.g. Aggarwal, 2002; Mijiyawa, 2017). To assure

global competitiveness and well-functioning global value chain operations, MNEs often equip EM greenfields with the latest technology and machinery (which also requires training local labor accordingly). In manufacturing industries in particular, those of substantial investments that are likely protected by high-level (full) ownership. Earlier research shows that MNEs prefer control in local subsidiaries so that organizational practices and strategies can be easily transferred and implemented in the new units (e.g. Lin, 2014). Good local infrastructure can facilitate meeting the productivity potential of the operation and ensure higher profitability in the long run of that greenfield manufacturing unit, without further (immediate or future) resource commitment on the side of the MNE. Hence, availability of good infrastructure in host EM is likely linked to MNEs' higher equity ownership in the greenfield subsidiary. Based on this discussion, we hypothesize that.

Hypothesis 1: Host EM physical infrastructure is positively associated with high equity ownership strategy in EM greenfield investments by the Nordic MNEs.

We also established earlier that in order to assure global competitiveness and well-functioning global operations, MNEs often equip EM greenfields with the latest technology and machinery, which are in turn protected by high-level (full) ownership. We suggested that the availability of good local infrastructure can both facilitate meeting the productivity potential of the operation and ensure higher profitability in the long run of that greenfield manufacturing unit, without further (immediate or future) resource commitment on the side of the MNE. What happens in the case of infrastructure deficiency in the EM where the MNE considers establishing a (manufacturing) greenfield subsidiary? Many MNEs may choose to invest additional resources in developing the local infrastructure to the extent necessary for the smooth operation of their subsidiary. However, investment in infrastructure development is both costly and particularly risky in EM due to inadequate institutional development to guarantee the protection of MNE's investments and interests, local government corruption or mere asymmetric information concerning such projects, which may elevate initially committed resources and raise costs substantially. We argue that the key boundary condition in the context of the link between EM quality of infrastructure and desired (high/full) greenfield ownership is MNE size. MNE size has been referred to in earlier IB studies as a key indicator of the availability of both tangible and intangible organizational resources (e.g.,

Bloodgood, 2014). MNE size has been found to influence strategic decisions of MNEs including equity ownership in their foreign subsidiaries because it is directly linked with availability of financial resources associated with foreign market entry, which can be expensive in many cases (e.g. Ang et al., 2015; Dikova et al., 2017). In case of greenfield manufacturing investments in EMs with deficient local infrastructure, irreversibility of such investment (i.e. impossibility to divest manufacturing plant or unit without making big losses) means that investing MNE may need to commit even more financial resources than other modes under different circumstances. This would only be possible for large MNEs, while we expect MNEs of smaller size to opt for lesser equity ownership when the host EMs does not have a infrastructure of sufficient quality. Therefore, large MNE size can be expected to moderate the influences of host EM infrastructure on equity ownership strategy. Based on this discussion, we hypothesize that:

Hypothesis 2: MNE size moderates the relationship between greenfield equity ownership strategy and Host EM physical infrastructure, i.e. large MNEs are likely to choose high equity ownership even in host EMs with relatively low physical infrastructure quality while small MNEs are likely to choose lower equity ownership in host EMs with relatively low physical infrastructure quality.

Investment experience of MNEs has been referred as a major resource during internationalization by a number of IB researchers (e.g., Jung et al., 2010; Surdu and Mellahi, 2016). It is important to further mention that earlier studies analyzing influences of international investment experience of MNEs have yielded conflicting results. Some studies have found general international investment experience to results in choice of high equity ownership in some international markets (e.g., Desai et al., 2004; Jung et al., 2010). However, some studies have found general international experience to be a non-significant determinant for equity ownership especially in case of EMs (e.g., Li and Meyer, 2010; Arslan and Dikova, 2015). Such studies have argued that specificities of EMs make them significantly differ from developed markets and as a result generic international investment experience becomes ineffective while devising strategies fitting to that context (Li and Meyer, 2010; Dikova et al., 2017). Therefore, host country investment experience is significantly important for MNEs, as it enriches them with important knowledge of local institutional and market dynamics (Ascani et al., 2016; Powell and Rhee, 2016) as well as of key players and networks in the industrial sectors where they operate (Vance et al., 2014; Dikova et al., 2017). In many EMs, there is a lack of firm specific information due to variance in reporting standards and information disclosure

practices (e.g. Lattemann, 2014; Moumen et al., 2015). In such situations, host country investment experience can further offer useful information to investing MNEs about well-established and attractive local firms (e.g. Arslan and Dikova, 2015), which can be useful in situations of necessary investments in local infrastructure projects. In case of certain EMs of Africa, Asia and Latin America, several players in key sectors of economy are still state owned (e.g., Bruton et al., 2015; Estrin et al., 2016), and can yield significant economic and political influences. However, MNEs with host country experience can opt for high equity ownership as they can manage practical contingencies associated with greenfield start-up based on their prior knowledge of both formal and informal institutional dynamics (Powell and Rhee, 2016; Arslan and Larimo, 2017). MNEs with high host country experience can potentially offset some disadvantages associated with low quality physical infrastructure in certain host EMs based on their prior knowledge of good locations for manufacturing sites, as well as dealing with contingencies of energy connections and managing logistical network. Therefore, we expect host country experience to moderate the impacts of host EM physical infrastructure on equity ownership strategy in greenfield investments. Based on this discussion, we hypothesize that:

Hypothesis 3: MNE host country investment experience moderates the relationship between greenfield equity ownership strategy and Host EM physical infrastructure, i.e. host country experienced MNEs are likely to choose high equity ownership even in host EMs with relatively low physical infrastructure quality while inexperienced MNEs are likely to choose lower equity ownership in host EMs with relatively low physical infrastructure quality.

3. EMPIRICAL RESEARCH DESIGN AND METHODOLOGY

3.1. Data Sources

The study uses Nordic MNEs' manufacturing sector FDI database that has been developed and constantly updated in the course of ca. 30 years by one of the authors. It has been developed using company annual reports, corporate websites and stock release information, and articles from leading business magazines (e.g. Kauppalehti, Talouselämä, Dagens Industri, Veckans Affärer, and Borsen). Moreover, historical reports published by national investment agencies like FINNFUND, SWEDFUND, and IFU (Denmark) were used in compiling and updating the dataset. The data has further been supplemented with information drawn from the Thompson One database.

The database is unique and representative of the FDIs made by Nordic MNEs in the manufacturing sector**.**

This internal database is used for the dependent variables of the study i.e. *greenfield entry mode (i.e. greenfield JV vs. greenfield WOS and majority greenfield JV vs. minority greenfield JV)*, as well as independent variables of study include MNE size, and MNE host country investment experience. Moreover, the control variables of the study including industry R&D intensity, MNE international experience, and MNE product diversity, are also derived from the same internal database. Finally, the independent variable of EM physical infrastructure is operationalized using World Economic Forum's Global Competitiveness Reports, which is also a reliable data source, and used in many economics studies as explained later. The operationalization of study variables is presented in the following section.

3.2. Operationalization of Study Variables

3.2.1. Dependent Variable: The first dependent variable of the study is a greenfield entry mode, which is coded 0 for greenfield JVs (94% or less equity at time of investment) and 1 for greenfield WOSs (95% or more equity ownership at time of investment). As mentioned earlier, we aim to analyze equity ownership dynamics of greenfield investments in-depth, so we use other dependent variable greenfield JV for sub-sample analysis. This variable is coded 1 for majority greenfield JV (51% to 94% equity ownership at time of investment) and 0 for minority greenfield JV (50% or less equity ownership at time of investment). For the sake of simplicity in analysis, we consider 50-50 JVs as minority JVs, as there are rather few such cases.

3.2.2. Independent Variables:

Host EM Physical Infrastructure: We use the country scores from the Global Competitiveness Reports published by World Economic Form in second pillar of rating which is infrastructure (WEF, 2018). The scores in this pillar are based on both transport (road, rail and air) infrastructure and electricity/telephony; thereby appropriately incorporating aspects of physical infrastructure being analyzed in our study. Global Competitiveness Reports are a reliable data source, which has been extensively used in IB, economics and management studies, earlier.

MNE Size: We use natural log of global sales of the investing firms in the year preceding to the investment changed to Euros (e.g. Hennart and Park, 1993; Arslan et al., 2015).

MNE Host Country Experience: We operationalize host country experience using the number years of presence in host country calculated from the first manufacturing investment in that particular market (e.g. Hennart and Park, 1993; Dikova et al., 2017).

3.2.3. Control Variables: In line with past literature, the study uses a number of control variables at the country, industry and firm level, in order to enhance the validity of the study findings. We explain the operationalization of these control variables as follows.

*Investment unrelatedness***:** We use a dummy variable where 0 means that the greenfield investment is undertaken in a related industry (the 4-digit SIC code of the investment is the same as the industry where the firm already operates) and 1 which means that the greenfield investment was undertaken in an industry that is new for the firm i.e. unrelated investment (e.g. Contractor et al., 2014; Dikova et al., 2017)

Industry R&D Intensity: We use a classification of various 4-digit SIC industries into four categories (Low-Tech, Low-Medium Tech, Medium-Tech and High-Tech) based on value added figures of investing firms (e.g. Dikova et al., 2017).

MNE International Experience: We measured international experience of investing MNEs by the number of earlier investments undertaken by investing firms in different international markets, as done in several earlier studies (e.g. Kaynak et al., 2007; Dikova et al., 2017).

MNE Product Diversity: We use the number of 4-digit SIC codes of the products in which investing firm has been operating based on the annual reports and websites of the firms (Chung et al., 2013; Dikova et al., 2017).

Host Country Ownership Freedom: We operationalized host country ownership freedom based on country scores in item of foreign ownership/investment restrictions from economic freedom of the world annual reports (e.g. Arslan and Larimo 2017).

Host Country Economic Growth: We use % of GDP growth in host country of in the preceding the investment based on UCTAD data (e,g. Brouthers and Brouthers, 2001; Arslan et al., 2015).

Host Country Risk: We use Euromoney country risk ratings for this variable. It is operationalized by subtracting country score from 100, in the year of investment or nearest available year (e.g. Arslan et al., 2015; Dikova et al., 2017).

3.3 Sample Description

The study sample consists of 921 greenfield investments made only in the manufacturing sector by Nordic MNEs in EMs located in Africa, Asia, Europe (Central, and Eastern Europe), and Latin America during 1990-2015. The main aspects of study sample are summarized in following table 1.

Insert Table 1 Here

3.4 Statistical analysis method: The dependent variables of this study are dichotomous (i.e. greenfield JV vs. greenfield WOS and majority greenfield JV vs. minority greenfield JV). Therefore, we use binary logistic regression analysis to analyze the impact of the study variables on the equity ownership strategy of Nordic MNEs. Binary logistic regression has been used as a reliable statistical analysis technique in a number of past IB studies addressing different aspects of foreign market entry strategies of MNEs. The binomial logistic regression model is formally expressed as

$$P\ (yi=1) = 1/\ 1+ exp\ (-a-XiB)$$

Where *yi* is the dependent variable, *Xi* is the vector of independent variables for the ith observation, *a* is the intercept parameter and *B* is the vector of regression coefficients (Amemiya, 1981). The recent version of SPSS i.e. PASW 24 is used for the binomial regression analysis in this study.

4. STUDY RESULTS

Insert Table 2 Here

A bivariate correlation analysis was conducted before logistic regression tests (see Table 2) in order to detect any multicollinearity among the independent variables. Following Pallant (2007), additional multicollinearity diagnostic tests (tolerance and variance inflation factor (VIF)) were also conducted. According to Wetherill (1986), the VIF value should not exceed 10. In the current study, the VIF values are lower than 5 and consequently, the potential collinearity among variables is not expected to influence the results of logistic regression analysis.

Insert Table 3 Here

Table 3 displays the results of binomial regression analysis for the full sample of study, while table 4 presents binomial regression results for sub-sample of greenfield JVs. The explanatory power of all the statistical models of the study is good, as their chi-square (χ^2) values are significant at $p<0.01$ level. The results show that in high R&D intensity sectors, Nordic MNEs preferred high equity ownership strategy (i.e. greenfield WOSs in the full sample and majority greenfield JVs in the sub-sample analysis). Moreover, it is further visible from the result that highly diversified MNEs preferred low equity commitment at time of market entry (like minority JVs) as they lack product specific knowledge and insights from local partner are highly useful. Host country ownership freedom is positively associated with high equity ownership strategy, while firms tended to opt for low equity commitment in host countries representing high risk at the time of entry. An important aspect visible from the results concerns influence of general international experience. It is not significant for full sample analysis but becomes significant in the sub-sample of JVs. Therefore, it can be argued that general international experience of MNEs may not offer much benefits for choice of WOSs especially in EMs as discussed earlier as well. However, it can still be useful for making decisions concerning level of equity commitment in a JV (i.e. minority vs. majority JV).

Insert Table 4 Here

The study results show that host country infrastructure, MNE size and host country experience are all significant determinants of equity ownership strategy in full sample. Nordic MNEs tended to prefer greenfield WOSs in host EMs with relatively good physical infrastructure, and when they had large size and host country experience. Moreover, the results also show that host country experience moderates the influences of EM physical infrastructure on equity ownership strategy. Therefore, we get support for the hypotheses 1 and 3 in the full sample analysis. However, we do not get support for the hypothesis 2 concerning moderating influences of MNE size. The analysis of JVs sub-sample shows that key independent variable of investing MNE size is not significant determinant of equity ownership strategy of Nordic MNEs. We do not get support for both moderating hypotheses in sub-sample analysis. These findings can be explained by referring to specificities of JV equity ownership strategy, because in specific context of EMs, mere availability

of more financial resources (i.e. large MNE size) is not enough to motivate MNE for high equity ownership. Due to uncertainty caused by institutional and economic factors, investing MNEs may prefer low equity ownership strategy in greenfield investments in order to share significant costs associated with the start-up of greenfield manufacturing plant.

5. DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The findings of current study offer useful implications for both managerial and academic audience. A key theoretical implication of current book chapter relates to use of RDT (Pfeffer and Salancik, 2003; Pfeffer, 2005) in IB studies. Based on RDT, we hypothesized that use of shared-ownership greenfields (i.e. JVs) as a means of reducing the uncertainty surrounding the flow of needed resources in EMs with infrastructure deficiencies. This argument received support for both full and sub-sample analysis. Moreover, we further hypothesized that based on differences in investing MNEs size and experience, they may be able to reduce host country resource dependence including infrastructure. The results depicted partial support for boundary effects of MNE size and experience on the relationship between host country physical infrastructure and greenfield ownership strategy. The current study is one the first to perform such an analysis in context of greenfield investments, and future studies can build on it to further explore this research area using RDT as a theoretical basis.

The current study also established the importance of host EM physical infrastructure as an important determinant of equity ownership strategy of MNEs in their greenfield investments undertaken in EMs. This aspect needs attention from both managers of MNEs aspiring to internationalize to EMs, as the current debate mostly focuses on the role of institutional infrastructure, neglecting the fact that physical infrastructure is the key for establishing a successful manufacturing facility. Therefore, its different aspects including road and railways infrastructure, telecommunications, energy supply and access to required materials, should be carefully considered by the managers while deciding on an optimal site for their greenfield investment especially in EM context. The current study has further strengthened the argument presented by some earlier studies regarding the importance of host country specific investment experience for equity ownership strategy in EMs (e.g. Arslan and Dikova, 2015, Dikova et al., 2017). The results

showed that host country experience moderated the impact of physical infrastructure and was a significant determinant of equity ownership in the context of greenfield JV investments. MNE managers can rely on prior experience in host country while deciding on optimal equity ownership strategy for their greenfield investments. The current study showed interestingly that general international investment experience is significant determinant for equity ownership strategy in JVs sub-sample. It can be argued that general international investment experience may not offer much insights when MNEs opt for greenfield WOSs in EMs as that choice requires dealing with significant amount of resource commitment, as well as dealing with legal considerations concerning full ownership in a context where regulations have been developing slowly. However, for the choice between minority and majority JV, general international experience is useful, as prior dealing with JV partners in other international markets including EMs can equip investing MNEs with negotiation and management tools helpful to deal with complex JV relationships (e.g. Yan and Luo, 2016, Hollender et al., 2017). Therefore, MNE managers can use insights from their international investment experience while devising equity ownership strategy in a collaborative venture in EMs experiencing infrastructure deficiencies.

Our study has certain limitations as well. Firstly, we address host country physical infrastructure as a holistic construct in this study. However, different components of host country physical infrastructure like roads and railways, telecommunications, access to ports and raw materials etc, can influence equity ownership strategy differently. It would be interesting if future studies carry forward this aspect and delve more into detailed analysis concerning influences of different elements of physical infrastructure on greenfield investments undertaken by MNEs. Moreover, the current paper focused on physical infrastructure of EMs only. However, the statistics concerning physical infrastructure reveal that even in developed economies, it is not always in best shape as well as there are significant regional differences in this aspect in both developed and emerging markets. The current study did not address this regional variance. Future studies can enrich IB research by focusing on this regional variation within large countries, as well as addressing influences of physical infrastructure in developed economies on the greenfield investments. Finally, the type of greenfield investment being undertaken (i.e. resource seeking or market seeking) can potentially result in different types of physical infrastructure elements influencing equity ownership strategy. This also remains an avenue for future studies.

REFERENCES

Aggarwal, A. (2002). Liberalisation, multinational enterprises and export performance: evidence from Indian manufacturing. *Journal of Development Studies*, *38*(3), 119-137.

Aizenman, J., Jinjarak, Y., & Park, D. (2016). Fundamentals and sovereign risk of emerging markets. *Pacific Economic Review*, *21*(2), 151-177.

Amemiya, T. (1981). Qualitative response models: A survey. *Journal of Economic Literature,* 4(4), 1483–1536.

Ang, J. B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of policy modeling*, *30*(1), 185-189.

Ang, S. H., Benischke, M. H., & Doh, J. P. (2015). The interactions of institutions on foreign market entry mode. *Strategic Management Journal*, *36*(10), 1536-1553.

Arslan, A., & Larimo, J. (2017). Greenfield Entry Strategy of Multinational Enterprises in the Emerging Markets: Influences of Institutional Distance and International Trade Freedom. *Journal of East-West Business*, *23*(2), 140-170.

Arslan, A., Tarba, S.Y. & Larimo, J. (2015). FDI entry strategies and the impacts of economic freedom distance: evidence from Nordic FDIs in transitional periphery of CIS and SEE. *International Business Review*, 24(6), 997-1008.

Arslan, A., & Dikova, D. (2015). Influences of Institutional Distance and MNEs' Host Country Experience on the Ownership Strategy in Cross-Border M&As in Emerging Economies. *Journal of Transnational Management*, 20(4), 231-256.

Ascani, A., Crescenzi, R., & Iammarino, S. (2016). What drives European multinationals to the European Union neighbouring countries? A mixed-methods analysis of Italian investment strategies. *Environment and Planning C: Government and Policy*, *34*(4), 656-675.

Asiedu, E. (2002). On the determinants of foreign direct investment to developing countries: is Africa different?. *World development*, *30*(1), 107-119.

Beamish, P. (2013). *Multinational Joint Ventures in Developing Countries (RLE International Business)*. Oxford, UK: Routledge.

Bellak, C., Leibrecht, M., & Damijan, J. P. (2009). Infrastructure endowment and corporate income taxes as determinants of foreign direct investment in Central and Eastern European countries. *The World Economy*, 32(2), 267-290.

Blonigen, B. A., & Piger, J. (2014). Determinants of foreign direct investment. *Canadian Journal of Economics/Revue canadienne d'économique*, *47*(3), 775-812.

Bloodgood, J. (2014). Enhancing the resource-based view of the firm: Increasing the role of

awareness. *Strategic Management Review*, *8*(1), 61-75.

Chang, Y. C., Kao, M. S., Kuo, A., & Chiu, C. F. (2012). How cultural distance influences entry mode choice: The contingent role of host country's governance quality. *Journal of Business Research*, 65(8), 1160-1170.

Chen, S.-F. (2008). The motives for international acquisitions: capability procurements, strategic considerations, and the role of ownership structures. *Journal of International Business Studies*, 39 (3), 454-471.

Chi, T., & Zhao, Z. J. (2014). Equity structure of MNE affiliates and scope of their activities: distinguishing the incentive and control effects of ownership. *Global Strategy Journal*, *4*(4), 257-279.

Contractor, F.J., Lahiri, S., Elango, B. & Kundu, S.K. (2014). Institutional, cultural and industry related determinants of ownership choices in emerging market FDI acquisitions. *International Business Review*, 23(5), 931-941.

Deardorff, A. V. (2001). International provision of trade services, trade, and fragmentation. *Review of International Economics*, *9*(2), 233-248.

Deichmann, J., Karidis, S., & Sayek, S. (2003). Foreign direct investment in Turkey: regional determinants. *Applied Economics*, *35*(16), 1767-1778.

Desai, M. A., Foley, C. F., & Hines, J. R. (2004). A multinational perspective on capital structure choice and internal capital markets. *The Journal of Finance*, *59*(6), 2451-2487.

Dikova, D., Arslan, A., & Larimo, J. (2017b). "Equity Commitment in Cross-Border Acquisitions: the Influences of Distance and Organizational Resources" in A. Verbeke, J. Puck, & R. van Tulder (Eds*), Distance in International Business: Concept, Cost and Value* (Progress in International Business Research, Vol: 12), pp. 297-337.

Dikova, D., & Van Witteloostuijn, A. (2007). Foreign direct investment mode choice: entry and establishment modes in transition economies. *Journal of International Business Studies*, 38(6), 1013-1033.

Erdal, F., & Tatoglu, E. (2002). Locational determinants of foreign direct investment in an emerging market economy. *Multinational Business Review*, 10(1), 21-34.

Estrin, S., Meyer, K. E., Nielsen, B. B., & Nielsen, S. (2016). Home country institutions and the internationalization of state owned enterprises: A cross-country analysis. *Journal of World Business*, *51*(2), 294-307.

Gorodnichenko, Y., Svejnar, J., & Terrell, K. (2014). When does FDI have positive spillovers? Evidence from 17 transition market economies. *Journal of Comparative Economics*, *42*(4), 954-969.

Hennart, J. F., & Park, Y. R. (1993). Greenfield vs. acquisition: The strategy of Japanese investors in the United States. *Management science*, 39(9), 1054-1070.

Hennart, J. F., Sheng, H. H., & Pimenta, G. (2015). Local complementary inputs as drivers of entry mode choices: The case of US investments in Brazil. *International Business Review*, 24(3), 466-475.

Hollender, L., Zapkau, F. B., & Schwens, C. (2017). SME foreign market entry mode choice and foreign venture performance: The moderating effect of international experience and product adaptation. *International Business Review*, *26*(2), 250-263.

Hutchinson, K., Alexander, N., Quinn, B., & Doherty, A. M. (2007). Internationalization motives and facilitating factors: qualitative evidence from smaller specialist retailers. *Journal of International Marketing*, *15*(3), 96-122.

Jung, W., Han, S. H., Park, H., & Kim, D. Y. (2010). Empirical assessment of internationalization strategies for small and medium construction companies. *Journal of construction engineering and management*, *136*(12), 1306-1316.

Kaur, M., Khatua, A., & Yadav, S. S. (2016). Infrastructure Development and FDI Inflow to Developing Economies: Evidence from India. *Thunderbird International Business Review*, *58*(6), 555-563.

Kaynak, E., Demirbag, M., & Tatoglu, E. (2007). Determinants of ownership-based entry mode choice of MNEs: Evidence from Mongolia. *Management International Review*, *47*(4), 505-530.

Khanna, T., & Palepu, K. G. (2010). *Winning in emerging markets: A road map for strategy and execution*. Harvard Business Press: Harvard, MT.

Leonidou, L. C., Katsikeas, C. S., Palihawadana, D., & Spyropoulou, S. (2007). An analytical review of the factors stimulating smaller firms to export: Implications for policy-makers. *International Marketing Review*, *24*(6), 735-770.

Lattemann, C. (2014). On the convergence of corporate governance practices in emerging markets. *International Journal of Emerging Markets*, *9*(2), 316-332.

Lee, Y., Hemmert, M., & Kim, J. (2014). What drives the international ownership strategies of Chinese firms and quest; The role of distance and home-country institutional factors in outward acquisitions. *Asian Business and Management*, 13(3), 197-225.

Lee, I. H. I., Hong, E., & Makino, S. (2016). Location decisions of inward FDI in sub-national regions of a host country: Service versus manufacturing industries. *Asia Pacific Journal of Management*, *33*(2), 343-370.

Leibrecht, M., & Riedl, A. (2010). Taxes and infrastructure as determinants of foreign direct investment in Central and Eastern European countries revisited: New evidence from a spatially

augmented gravity model. *Discussion Papers SFB International Tax Coordination*, 42. WU Vienna University of Economics and Business, Vienna.

Lien, Y. C., & Filatotchev, I. (2015). Ownership characteristics as determinants of FDI location decisions in emerging economies. *Journal of World Business*, 50(4), 637-650.

Lin, L. H. (2014). Subsidiary performance: The contingency of multinational corporation's international strategy. *European Management Journal*, *32*(6), 928-937

Lo, F. Y. (2016). Factors leading to foreign subsidiary ownership: A multi-level perspective. *Journal of Business Research*, *69*(11), 5228-5234.

Meschi, P. X., & Riccio, E. L. (2008). Country risk, national cultural differences between partners and survival of international joint ventures in Brazil. *International Business Review*, *17*(3), 250-266.

Meyer, K. E., & Su, Y. S. (2015). Integration and responsiveness in subsidiaries in emerging economies. *Journal of World Business*, 50(1), 149-158.

Mijiyawa, A. G. (2017). Does Foreign Direct Investment Promote Exports? Evidence from African Countries. *The World Economy*, *40*(9), 1934-1957.

Moumen, N., Othman, H. B., & Hussainey, K. (2015). The value relevance of risk disclosure in annual reports: Evidence from MENA emerging markets. *Research in International Business and Finance*, *34*, 177-204.

Nourzad, F., Greenwold, D. N., & Yang, R. (2014). The interaction between FDI and infrastructure capital in the development process. *International Advances in Economic Research*, *20*(2), 203-212.

Pennings, J. M., Barkema, H., & Douma, S. (1994). Organizational learning and diversification. *Academy of Management Journal*, *37*(3), 608-640.

Pfeffer, J. (2005). "Developing resource dependence theory: how theory is affected by its environment". In K. Smith & M. Hitt (eds), *Great minds in management: the process of theory development. Oxford University Press, Oxford, UK*, pp. 436-459.

Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective*. Stanford University Press.

Powell, K. S., & Rhee, M. (2016). Experience in different institutional environments and foreign subsidiary ownership structure. *Journal of Management*, *42*(6), 1434-1461.

Puck, J., Hödl, M. K., Filatotchev, I., Wolff, H. G., & Bader, B. (2016). Ownership mode, cultural distance, and the extent of parent firms' strategic control over subsidiaries in the PRC. *Asia Pacific Journal of Management*, *33*(4), 1075-1105.

Raff, H., Ryan, M., & Stähler, F. (2009). The choice of market entry mode: Greenfield investment, M&A and joint venture. *International Review of Economics & Finance*, *18*(1), 3-10.

Riedl, A. (2010). Location factors of FDI and the growing services economy. *Economics of Transition*, *18*(4), 741-761.

Sader, F. (2000). Attracting Foreign direct investment into infrastructure, Foreign Investment Advisory Services occasional paper 12. *International Finance Corporation and World Bank*.

Shenkar, O. & Yan, A. (2002). Failure as a consequence of partner politics: Learning from the life and death of an international cooperative venture. *Human Relations*, *55*(5), 565-601.

Slangen, A. H. (2011). A communication-based theory of the choice between Greenfield and Acquisition Entry. *Journal of Management Studies*, 48(8), 1699-1726.

Slangen, A. H., & Hennart, J. F. (2008). Do multinationals really prefer to enter culturally distant countries through greenfields rather than through acquisitions? The role of parent experience and subsidiary autonomy. *Journal of International Business Studies*, 39(3), 472-490.

Snell, S. A. (1992). Control theory in strategic human resource management: The mediating effect of administrative information. *Academy of Management Journal*, *35*(2), 292-327.

Surdu, I., & Mellahi, K. (2016). Theoretical foundations of equity based foreign market entry decisions: A review of the literature and recommendations for future research. *International Business Review*, *25*(5), 1169-1184.

Tate, W. L., Ellram, L. M., Schoenherr, T., & Petersen, K. J. (2014). Global competitive conditions driving the manufacturing location decision. *Business Horizons*, *57*(3), 381-390.

UNCTAD (2015). *Reforming International Investment Governance.* Geneva: Switzerland

Wheeler, D., & Mody, A. (1992). International investment location decisions: The case of US firms. *Journal of international economics*, *33*(1-2), 57-76.

World Bank (2018). Logistics Performance Indicator, available online at https://lpi.worldbank.org/.

WEF (2018). *Global Competitiveness Report 2017-2018*. Available online at https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018.

Wetherill, G.B. (1986). *Regression Analysis with Applications*. London, Chapman and Hall.

Yan, A., & Luo, Y. (2016). *International joint ventures: Theory and practice*. New York, NY: Routledge.

Table 1: Sample Characteristics

Sample Characteristic	Description
Greenfield Investments	584 greenfield JVs (63.4%) and 337 greenfield WOSs (36.6%)
Host country experience of investing firms	Average: 5.68 years. Minimum: 0 years (No earlier experience in the host country). Maximum: 37 years.
R&D Intensity	Low Tech 286 investments (31.1%), Low-Medium Tech 215 investments (23.3%), Medium-Tech 331 investment (35.9%) and High Tech 89 investments (9.7%)
Major investment destinations	China 275 (29.9%); Poland 135 (14.7%), Russia 124 (13.5%); India 97 (10.5%), Malaysia 46 (5%); Brazil 35 (3.8%) and Mexico 34 (3.7%)
Timing of investment	1990s: 570 (61.9%), 2000s: 351 (38.1%)

Table 2: Descriptive Statistics and Pearson Correlations

***** Correlation is significant at the 0.01 level (2-tailed).

	Mean	**Std.dev**	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**
1. Industry - Unrelatedness	0.4	0.19	1										
2. R&D intensity	2.24	0.99	-0.078	1									
3. MNE International experience	36.01	42.15	-0.152*	0.086	1								
4. MNE Product Diversity	9.92	11.69	0.493*	-0.147*	-0.124*	1							
5. Host Country Ownership Freedom	6.02	1.32	-0.034	-0.028	-0.029	-0.015	1						
6. Host Country Economic Growth	5.73	5.48	-0.083	0.121*	0.072	-0.61	-0.063	1					
7. Host Country Risk	56.85	13.31	-0.030	0.065	0.054	-0.038	0.085	0.508*	1				
8. Host Country Infrastructure	3.73	0.52	-0.042	0.043	-0.050	0.020	0.046	0.126*	0.267*	1			
9. MNE Size	7.79	2.47	-0.359*	0.082	0.481*	-0.305*	-0.007	0.093	0.069	-0.067	1		
10. MNE Host Country Experience	5.68	6.83	-0.057	o.073	0.430*	-0.121*	0.065	0.027	0.062	0.056	0.519*	1	
11. Greenfield Ownership Mode	0.37	0.48	0.124*	0.069	0.101	-0.143*	0.026	-0.030	-0.062	0.083	0.108*	0.112*	1

Table 3: Binomial logistic regression estimates full sample (greenfield WOS=1)

Variable	Model 1: Control Variables	Model 2: Independent Variables	Model 3: Moderating Influences
Industry unrelatedness	-1.036	-0.909	-0.877
Industry R&D intensity	0.110**	0.100*	0.107*
MNE International experience	0.004	0.002	0.001
MNE Product Diversity	-0.024**	-0.025**	-0022**
Host Country Ownership Freedom	0.054*	0.060*	0.064**
Host Country Economic Growth	-0.006	-0.004	-0.005
Host Country Risk	-0.011*	-0.018***	-0.014**
Host Country Infrastructure		0.496***	
MNE Size		0.019*	
MNE Host Country Experience		0.023**	
MNE Size X Host Country			0.018
MNE Host Country Experience X Host Country Infrastructure			0.064**
N (greenfield WOS)	921 (337)	921 (337)	921 (337)
Model x^2	39.376***	54.765***	58.517***
–2 log likelihood	1170.341	1154.952	1151.201
Nagelkerke R^2	0.157	0.179	0.18
Correctly classified (%)	73.2%	74%	74.1%

Levels of Significance: *p≤ 0.1; **p≤ 0.05; ***p≤ 0.01

Table 4: Binomial logistic regression estimates sub-sample JVs (Majority greenfield JV=1)

Variable	Model 1: Control Variables	Model 2: Independent Variables	Model 3: Moderating Influences
Industry unrelatedness	-0.047	-0.231	-0.186
Industry R&D intensity	0.398***	0.403***	0.408***
MNE International experience	0.010**	0.013**	0.013**
MNE Product Diversity	-0.020*	-0.030**	-0.029**
Host Country Ownership Freedom	0.129*	0.132*	0.134*
Host Country Economic Growth	0.036	0.034	0.036
Host Country Risk	-0.012*	-0.012*	-0.014*
Host Country Infrastructure		0.030**	
MNE Size		-0.083	
MNE Host Country Experience		0.884**	
MNE Size X Host Country			-0.018
MNE Host Country Experience X Host Country Infrastructure			0.013
N (majority greenfield JV)	584(227)	584(227)	584(227)
Model x^2	72.545***	74.954***	75.854***
–2 log likelihood	707.689	704.460	704.359
Nagelkerke R^2	0.158	0.163	0.167
Correctly classified (%)	76.6%	76.8%	76.9%

Levels of Significance: *p≤ 0.1; **p≤ 0.05; ***p≤ 0.01