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Leveraging the benefits of location decisions into performance: A global view from matched MNEs

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Leveraging the benefits of location decisions into performance: A global view from matched MNEs*

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Abstract

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1. Introduction

Multinational enterprises (MNEs) face a dilemma when deciding whether to invest in developed or developing country locations. The literature on foreign direct investment (FDI) motivation would suggest that these two investment decisions would present different benefits. The former is presumed to generate productivity growth as a result of accessing new knowledge (Jensen & Pedersen 2011) while the latter yields profit growths because of low-cost production and potentially technological advantages over local firms (Driffield, Love & Yang 2014). However, the literature has paid limited attention to how firms can effectively convert productivity improvement, and the understanding of resource deployment is under-theorised. Thus, we build on recent literature (e.g., Driffield, Jun & Song 2021; Leung & Sharma 2021), and contrast the resources controlled by developed and developing country MNEs.

As the call for this special issue notes, the ability of firms to allocate resources is crucial when they operate in foreign markets, whether this concerns their abilities to absorb superior knowledge of developed countries, or to maximize the benefit of developing country markets. We contrast insights from the knowledge based view (KBV) and the resource based view (RBV). In their review study, Pereira & Bamel (2021) emphasize the ability and endeavour of firms to deploy firm resources in sustaining firm competitiveness. We extend this by exploring the role of firm resources in the context of internationalisation. Both approaches have been used to explore both motivations for FDI and the potential returns. Peng (2001) for example explores in detail the applicability of the RBV to international business, while Wright et al (2005) demonstrate its applicability to understanding strategy in different settings and across international borders, arguing that in terms of understanding the variation in returns to internationalisation, this offers greater insight in terms of capturing the benefits of international knowledge transfer. Similarly, Eisend & Schmidt (2014) explore the use of the KBV in international research, while Yoo & Reimann (2017) explore its employability to understanding FDI in its institutional context, arguing that latter offers greater insight in terms of resource deployment, and the speed with which firms leverage new knowledge into profits growth.

Paul & Feliciano-Cestero (2021) argue that there is a need for research in this area to be more generalizable, and to provide better insights for decision makers. We seek to address this, using firm level analysis to explore not only the importance of the nature of investment decisions, in terms for example of location, but also the expected returns from these investments, and the necessary resources. We extend this line of resource-based view by analyzing how a firm's resource management capabilities can link to, and more importantly can potentially accelerate the speed for a firm to reap the returns from FDI. Narula et al (2019) essentially provide a "call to arms" to better understand the nature and the role of firm's specific assets in understanding the mechanisms through which internationalisation can improve firm performance, while Nguen & Kim (2020) apply the lens of the FSA / CSA distinction to explore the multinationality – performance relationship.

Our research makes several contributions. First, we expand the body of literature on the FDI returns, by emphasizing the importance for a MNE to leverage their FDI location benefits into performance. In doing so, we integrate insights from KBV and RBV. Second, we expand the literature on the internationalisation of boardroom (e.g., Miletkov et al 2017) by linking it to FDI location choices. This also offers an important practical insight for MNEs for considering their board governance, as well as international experience in the boardroom when considering internationalisation. Third, we seek to develop the literature on emerging market research by contrasting between developed country MNEs and developing country MNEs in terms of their effectiveness in leveraging FDI location benefits into profit growths[1]. Fourth, we contribute to the empirical FDI literature not only using MNEs from a wide set of country but also addressing the endogeneity issue in the modelling. A debate has recently surfaced in the international business and strategic management literatures, concerning the need to address the issue of endogeneity (Certo, Busenbark, Woo & Semadeni 2016; Wolfolds & Siegel 2019), particularly in the context of the impact of firm level decisions on performance (Meyer, Witteloostuijn & Beugelsdijk 2017). Using the propensity score matching methodology (Rosenbaum & Rubin 1983), we address the possible

[1] We are very grateful for one of the reviewers for suggesting the source country effect by contrasting between developed and developing country MNEs.

endogeneity issue by using a rigorous matching exercise on many observable characteristics of a large sample to provide a global view of FDI returns (Cumming & Zhang 2019).

The remainder of our paper is organized as follows. We start in section two with a review of the related literature, and we build our hypotheses. Section three describes our research methods as well as the data sources. Section four presents our results. Section five offers a discussion and concludes.

2. Theory and hypotheses development

2.1 Different FDI returns from developed and developing countries

The FDI motive literature distinguishes between knowledge-seeking and efficiency-seeking. Building upon this distinction, we develop a few sets of hypotheses, followed by a conceptual framework, illustrating how MNEs leverage their resources, based on their location decisions, to maximise the returns on these investments and ensure effective knowledge flows.

While the RBV has long recognized that the MNEs diversify internationally in order to benefit from exploiting their unique resources and capabilities, the KBV of the firm (Kogut & Zander 1992), its various critiques and extensions (Håkanson 2010; Szulanski 1996; Driffield et al., 2014, 2016) has at its heart the premise that one of the inherent advantages that the multinational firm has is to transfer technology within the firm, but across national boundaries. As such, analysis of the returns to FDI is couched in terms of how effectively this is done, and what this means for the overall performance of the parent company.

2.2. Hypotheses

We hypothesize how firms should strategically leverage location choices, coupled with firm resources, into profits growth. In hypotheses one and two, we propose strategies to transfer productivity growth as a result from knowledge sourcing in developed countries into profitability, and in hypothesis three we propose how to deal with complexity to yield a higher return from FDI in developing countries. In hypothesis four we propose the role of firm resources for developing country firms to benefit from

FDI decisions.

2.2.1 The importance of continued productivity improvement

Elia et al (2020) compare insights from the knowledge-based view and resource dependency theory. They argue that the ability of a firm to access technological knowledge is dependent on capability developed through R&D. From the perspective of KBV, MNEs are regarded as the repository for sourcing, collecting and assimilating knowledge across different countries (Kogut & Zander 1992), while the benefit from using these knowledge may not be realised immediately and can require arduous efforts (Szulanski 1996; Szulanski, Ringov & Jensen 2016). As Song (2014) outlines, much of the focus in the knowledge sourcing literature is on the mechanisms by which firms seek to internationalise in order to engage in knowledge sourcing. However, building on Berry (2017) or Monteiro (2015), such gains are not automatic, but rather require a number of strategic decisions by the firm. The technological capabilities and knowledge of foreign subsidiaries in developed countries, once improved, must be transferred to parent companies or sibling subsidiaries, leading to MNE productivity improvement subsequently (Mudambi & Navara 2004; Driffield, Love & Yang 2016). This however is dependent on effective knowledge management and transfer by its affiliate. Lee et al (2020) extend this argument to explore the importance of the nature and context of subsidiary roles in knowledge transfer, and we seek in part to extend this by understanding the mechanisms by which firms translate productivity growth into profits growth.

Understanding best practice for facilitating knowledge transfer is not trivial, as is well established in the literature (Szulanski, 1996; Simonin 1999, Song, Almeida & Wu 2003, Szulanski, Ringov & Jensen 2016). Nadayama (2019) highlights the frictions that exist in knowledge transfer, which we seek to extend to an understanding of how this translates into financial performance. Taken together, this leads to the conclusion that effective knowledge sourcing requires further investment in continued improvement. We therefore propose that:

Hypothesis 1: In order to achieve greater financial returns from investing in developed countries, firms require continued productivity growth.

2.2.2 The importance of continued investment in firm-specific assets

Tan et al (2020) provide a review of the literature concerning multinational growth, highlighting the importance of firm specific knowledge, not merely in a static sense, but also in terms of the firm's ability to learn. From the perspective of resource-based view, the firm has a bundle of resources (Wernerfelt 1984; Barney 1986) which are crucial to the successful delivery of its (internationalisation) strategy. A fundamental premise of the literature on MNEs is that firms are heterogeneous in terms of their resources and capabilities. This includes access to firm-specific assets and managerial capabilities, and the ability to deploy these is seen as central to understanding affiliate performance (Chang, Chung & Moon 2013 and Miletkov, Poulsen & Wintoki 2017). Hereafter, we explore to what extent the capability of firms to deploy resources affects FDI returns.

As Li, Qian & Yao (2015) demonstrate, firms vary greatly in their capacity for learning, and the ability to assimilate knowledge. Leung & Sharma (2021) explore the relationships between innovation, internationalisation and financial performance, and highlight the importance of inter-temporal considerations, specifically arguing that innovation boosts internationalisation but not financial performance. In a similar vein, Ferraris et al (2021) highlight the importance of firm resources, as well as the importance of location, in terms of exposure to different innovation ecosystems. However, we seek to extend this, focussing not on the assets required to facilitate knowledge sourcing, but on the nature of the assets required to translate knowledge sourcing into firm level profitability.

In seeking to explore how a firm translates the productivity growth resulting from investing in developed country into profitability, one needs to focus specifically on the role of firm specific assets, and on R&D particularly. We seek effectively to combine the insights from the knowledge sourcing literature with the wider literature that focusses on investment in R&D. Absorptive capability underpins the ability of MNEs to recognise the value of new knowledge and apply it for commercial ends, and investment in R&D has been the main contributor for building up the firm's absorptive capability (Cohen & Levinthal 1990). Bahl et al (2021) make a similar argument, focussing on the role of different types of firm-specific assets in explaining the nature of the relationship between internationalisation and innovation. We continue to develop this argument that continued investment in R&D is required to

make technology sourcing FDI a success. The economic literature (see for example the survey paper by Wagner (2007) treats this essentially as simply a feature of absorptive capacity, while we argue that the IB literature needs to view this as part of a more substantive issue, of how not merely to create FSA, but how to leverage this into profits growth. Sirmon & Hitt (2009), for example, argue that a "fit" between resource investments such as capital investments, and deployment decisions (the "how much" and "when" of investment) have a complementary effect on performance outcomes. A similar finding of the environmental contingencies of firm resources and capabilities is also evidenced in Kor & Leblebici (2005). We seek to link this literature to that on FDI decisions and knowledge transfer.

Hypothesis 2a: High investments in R&D assets accelerate a firm's speed of converting productivity improvement to financial returns.

Translating productivity growth into profits growth in this setting therefore requires a combination of absorptive capacity, further investment firm-specific assets, and location. On one level, one may consider this to be a problem of (spatial) resource allocation (Dellestrand & Kappen, 2012), with the first order problem for the firm being how to combine its ownership advantages and subsequent development of them in a spatial setting. Sun et al (2019) for example explore this in terms of a specific form of FSA, but we seek a more general approach. The firm has to take into account both its ability to generate productivity growth and its ability, through continued investment in ownership advantages, to amplify this into profitability. The timing and integration of these investments drive productivity, which in turn accelerates the speed with which financial returns from these new technological capabilities are realised. This argument relates however to more than R&D, and focusses on firm specific assets or knowledge and competence advantages more generally (Filatotchev & Piesse 2009; Contractor, Yang & Gaur 2016). We propose that firms with a high-level of investment in intangible assets can successfully leverage this, and assimilate crucial knowledge, leading to greater financial returns. We therefore propose that:

Hypothesis 2b: High investments in intangible assets accelerate a firm's speed of converting productivity improvement to financial returns.

2.2.3. The importance of firm experience:

Sirmon, Gove & Hitt (2008) argue that the extent of managers' skills in effectively deploying resources augments the positive outcome of the capabilities-performance relationship. Similarly, Aguilera et al (2019) explore the role of corporate governance in explaining MNE performance, focussing on board composition. Developing this argument, we seek to build on Ellis et al (2017) who focus on the portability of governance, and its applicability to different contexts, with an emphasis on board international experience (Masulis, Wang & Xie 2012; Miletkov, Poulsen & Wintoki 2017). The international experience of board members matters for MNEs to manage complexities when they invest in developing country location. Some domestic directors, who have overseas experience from their previous working or studying, can bring an important insight about the foreign market institution context (Giannetti, Liao & Yu 2015).

Standard analysis within international business highlights the cultural and institutional distances than engender liability of foreignness in firms from developed countries (Johanson & Vahlne 1977). In addition to a need to overcome risks due to, for example, developing country political instability the cultural unfamiliarity increases transactions costs and potentially increases the moral hazard problem between parent and affiliate (Bouquet & Birkinsahaw 2008). Ronen and Shenkar (1985, 2013) characterize the problem in terms of psychic zones, with which psychic and cultural distances are limited, and a certain commonality of cultural and social norms prevail. More recently, Li et al (2020) explore the importance of the different aspects of distance, and highlight the role that firm resources play in overcoming this. This builds on the literature that sees top management experience as a crucial element of firm specific advantage. Conyon et al (2019) for example explore this in terms of CEO experience and the returns to their human capital, while Buckley et al (2018) highlight the importance of experience within a wider set of firm specific advantages.

Belderbos et al (2020) explore the importance of experience for leveraging internationalisation into better performance, highlighting the role that diversity plays in aligning experience and nationality. In a similar vein, Miletkov et al (2017) explore how firm directors offer a conduit for the dispersion of governance practices, but also how directors can help firms understand

and mitigate cultural distance. To reduce cultural distance, a firm therefore can hire directors who are in the same psychic zone as the host countries where the firm operates. Foreign directors, who come from the same global or regional cluster as their foreign subsidiaries will be better placed to overcome liability of foreignness, and, particularly in the context of developing countries, navigate institutional voids. The standard CAGE framework of Ghemawat (2001) points strongly to the importance of such knowledge, and as a result such experience will facilitate such firms becoming more embedded, and better placed to leverage such investments into firm profitability. In addition, such directors will be more au fait with local practices, but also better able to identify problems in the affiliate first hand (Schotte & Beamish 2013). They are also better able to participate directly in the decision-making process. Appointing these foreign directors will enhance overall competence and knowledge of boardroom to deal with the complexity of investing in developing country location. Taken all these together, we therefore propose that

Hypothesis 3: Profits growth as a result from investing in developing countries increases with the number of foreign directors from the same cluster as the firm's foreign subsidiaries.

2.2.4. Source country effects

Of our final contribution is to address the source country effect by contrasting between developed country MNEs and developing country MNEs. Inspired by an exponential growth of FDI from developing countries since the early 2000, there is an escalating increase in scholarly interest in these developing country firms (Berry 2017; Pereira, Temouri, Budhwar & Tarba 2021). Much of scholarly attention is devoted to developing theoretical reasoning to explain the motivations and characteristics of these developing country firms when they invest abroad (Tung & Luo 2007). Our study follows this line of research by contrasting FDI returns between developed and developing country MNEs.

It has been widely considered that developing country firms do not possess strong ownership advantages, and are farther from the technology frontier than their developed country counterparts. potentially therefore, the benefit from learning abroad is stronger. Yang & Mallick (2014), for example, found that developing country firms have stronger learning benefits from the exporting

market, as compared to their developed country counterparts. This learning capacity is augmented when developing country firms upgrade their absorptive capability via investing in R&D and intangible assets, which helps them to assimilate these technologies, leading to higher financial returns. We therefore propose that

Hypothesis 4a: Developing country firms are faster than developed country firms in converting productivity improvement to financial returns when they invest in R&D assets.

Hypothesis 4b: Developing country firms are faster than developed country firms in converting productivity improvement to financial returns when they invest in intangible assets.

Unlike developed country firms who have strong brand reputation, as well as international experience and other ownership advantages that help them to overcome the liabilities of foreignness and newness, developing country firms often face an adverse problem. These developing country firms are typically lack of international experience (Yang, Martins & Driffield 2013; Wei & Nguyen 2020), and it is therefore not inconceivable that hiring directors who come from the same global or regional cluster as their foreign subsidiaries is particularly crucial for developing country MNEs to overcome LOF and complexities of doing business abroad (Simon 1962). We therefore propose that

Hypothesis 4c: Developing country firms have higher profit growths than developed country firms when they increase the number of foreign directors from the same cluster as the firm's foreign subsidiaries.

Taken together therefore, our conceptual framework is illustrated by figure 1. The firm initially makes a choice between investing a developed country or a developing one. In the case of the former, it is with a view to generating productivity growth and subsequently profits growth, through a combination of acquisition and development of firm specific advantage. In contrast, investing in a developing country, the firm seeks a more immediate return. In this case however, this is achieved more effectively when the firm has experience in operating in such locations among its top management. This in turn highlights the contrast between the emphasis placed of different aspects of

the process of leveraging internationalisation into firm performance by the RBV and KBV. The former highlights the role of managerial resources, and the ability to effectively time investment decisions to maximise profits, while the latter emphasises the ability to manage knowledge flows in the firm. We are therefore able to identify the importance of these different factors in explaining profits growth from FDI. In addition to this, we also consider the source of foreign direct investment in our analytical framework.

[Figure 1 goes about here]

3. Methods

3.1 Propensity score matching

The premise of this paper is to explore the returns from FDI decisions. In order to do this, it is necessary to remove the inherent bias resulting from the potential endogeneity of location choice or FDI motives. Although Heckman two-step approach[2] (Heckman 1976, 1979) can address selection bias arising from regressions using non-random samples (Certo, Busenbark, Woo & Semadeni 2016). However, it relies on a strong distributional assumption to the effect that error terms in the FDI decision (treatment) and outcome specifications are jointly normally distributed, with zero means and constant variances (Greene, 2000).

In our analysis, we engage in a matching process that allows for observable differences in firm characteristics, allowing an adequate `like-for-like' comparison (Rosenbaum & Rubin 1983; Heckman, Ichimura & Todd 1997; Chang, Chung & Moon 2013; Wolfolds & Siegel 2019). Propensity score matching (PSM), unlike the well-known two-step Heckman and instrumental variable (IV) estimations, does not have the constraint of the normal distributional assumption of errors inherent in the two-step Heckman estimator (Greene 2000), nor the reliance on potentially poor instruments in instrumental variable approach (Heckman & Li 2004).

[2.] An alternative approach is to use a more standard instrumental variable estimator (e.g., Driffield, love &Yang 2014; Berry & Kaul 2016), though this has well known drawbacks, most notably that in practice either the potential instruments are not significantly correlated with the endogenous variable, or they are correlated with unobservable effects and are consequently invalid, thus generating biased estimates (Carneiro & Heckman, 2002; Heckman & Li, 2004).

The principle of the counterfactual framework is to determine the outcome of treatment (investing more in developed countries) on an MNE compared with if it had not been treated. In order to do so, we carry out the matching exercise to find an untreated MNE for each treated MNE, and the MNEs in each matched pair have fairly similar values in a range of firm characteristics but are different in terms of their FDI location choices. Our baseline assumption – investing in developed countries improves productivity and investing in developing countries generates greater profitability – will be tested by propensity score matching PSM estimation (Chang, Chung & Moon 2013). During our matching exercises, matched samples will be generated by PSM approach, and then we use the matched samples to test our four hypotheses.

3.2. Data

Our analysis draws on Orbis, a data set that includes detailed accounting and financial information of companies. The data are collected and made available by Bureau van Dijk[3]. The records of each company include information on whether the company has ownership stakes in its subsidiaries (defined as a minimum 25.01% shares control over its overseas subsidiary) and the subsidiary location. The financial and operational information of the firms in our data is generally available for the period 2008-2016. (see summary statistics Table 1 of 19,096 MNEs from 90 countries.). We consider firms that have information available on sales, employees, capital, intermediate inputs, total assets, intangible assets, debt to equity ratio, firm age, return on sales, the number of subsidiaries (including overseas subsidiaries) and industry classifications. Firms without at least one of these variables are excluded from our sample, as these variables are used in our matching process. Each MNE appears 4.3 years with a standard deviation of 2.6, which allows the longitudinal analysis. Appendix A gives a list of countries in which our samples are concentrated, and presents the characteristics of some key variables used in our analysis.

3.3. Key variables

3. See Ribeiro, Menghinello & Backer (2010) for more information on the Orbis data set and Bhaumik, Driffield & Pal (2010) and Contractor, Yang and Gaur (2016) for other papers that use this data set.

The main variables considered in this study are as follows:

Measurement of firm performance: We use (consolidated) return on sales (ROS) and total factor productivity. We employ the measure of total factor productivity developed by Levinsohn & Petrin (2003). Return on sales (ROS) is an accounting-based variable defined as after-tax profits divided by total sales. We employ return on sales, following the arguments of Hitt & Brynjolfsson (1996) and Foster, Haltiwanger & Syverson (2008). Return on sales, being the ability of a firm to generate a profit, is linked by these authors to the strategy that a firm employs across its various markets.

Multinationality: Our paper uses one common multinationality measurement: the ratio of the number of overseas subsidiaries in relation to all subsidiaries (OSTS)[4]. We exploit the availability in our dataset of information on whether the company has an ownership stake in its subsidiaries. Moreover, we draw on information about the subsidiary location to separate domestic from overseas subsidiaries.

Location choices: We divide the locations of investment in terms of developed and developing countries (Berry 2006; Pantzalis 2001; Berry 2006; Demirbag & Glaister 2010; Yang, Martins & Driffield 2013; Berry 2017), with reference to the latest World Bank definition. We then measure the level of multinationality of each firm in three ways: the ratio of the number of overseas subsidiaries in relation to the firm's total subsidiaries (OSTS); the ratio of the number of subsidiaries in developed countries in relation to the firm's total subsidiaries ($OSTS^{D'ed}$); and the ratio of the number of subsidiaries in developing countries in relation to the firm's total subsidiaries ($OSTS^{D'ing}$).

Firm-specific assets: we use two indicators to measure firm-specific assets. First, investments in research and development enable the firm to develop superior technological capabilities which are firm-specific, thus differentiating them from competitors (Dierickx & Cool 1989; Delios & Beamish 2001). Second, intangible assets have been widely used to measure the firm's specific knowledge (Filatotchev & Piesse 2009; Contractor, Yang & Gaur 2016), and we calculate the growth of intangible assets as the measure of increments in firm-specific knowledge. Orbis dataset reports

4 The list of multinationality measures in previous literature is listed in a few surveys (Sullivan 1994, Annavarjula & Beldona 2000, Li 2007, and Yang & Driffield 2012)

companies' intangible assets based on the International Accounting Standard IAS 38. Intangible assets include, for example, patented technology, computer software, trademarks, licensing, royalty and standstill agreements (IAS 38), and this measure of intangible assets has been used in a number of studies such as Denicolai, Zucchella, & Strange (2014) and Contractor, Yang & Gaur (2016). Most companies in Orbis data report their intangible assets, while many companies report missing information on R&D.

Board internationalisation: This captures the international experience, and location specific experience of the board of directors. Following the standard practice, we generate the board cluster measure based on the clustering maps of Ronen & Shenkar (2013). First, for each firm we calculate the percentage of its foreign subsidiaries which locate in the same "global" cluster as one of its board member's home country, in relation its total number of foreign subsidiaries. We then use the same approach to calculate board experience in "regional" or "local" clusters.

Other controls:

Firm size represents the physical and financial resources of a firm, and this is frequently used as the ability of the firm to deal with complexity (Li, Zhang & Shi 2020).

Firm age is measured as the actual duration of existence of a firm since the starting year of its operations (Qian, Li, Li & Qian 2008).

We regard country and industry effects as needing to be controlled in our matching process. However instead of controlling for country effect, we control for the effect of economic income group, which creates more pairs of matched MNEs.

4. Results

4.1 Descriptive statistics

Table 1 presents key summary statistics regarding 19,096 MNEs corresponding to 82,226 observations in our data set. On average, the MNE's productivity is around 5.67 and their profitability is around 0.06. MNEs have on average $701 million turnover, $262 million capital and over 2000 employees. Each MNE has on average 3 subsidiaries in foreign markets, and most (2.54) of

these subsidiaries are in advanced economies. Table 1 also reports other characteristics of these MNEs. These MNEs have on average $ 52 million R&D investment and $ 98 million intangible assets. These firms are on average 33 years old. Most of these MNEs come from developed economies. On average, 38% of foreign subsidiaries locate in the same global cluster as their MNE board members' home countries. 35% of foreign subsidiaries are in the same reginal cluster and 24% of them are in the same local cluster. These are based on the 70 country clustering map in Ronen & Shenkar (2013).

[Table 1 goes about here]

To offer a better feel for the data, we present a distribution of average of $OSTS^{D'ed}$ and $OSTS^{D'ing}$ by the multinational parent's home country (Figure 2), and the size of circle is proportional to the number of MNEs in each country. There seems to be a pattern that most of the countries included in our paper are located above the 45° line, and some countries are below the line, suggesting that there is a trade-off between developed and developing country locations. This is partly because investing in developing countries accrues high sunk costs and involves greater commitment of resources than investing in developed countries.

[Figure 2 goes about here]

4.2 Propensity score process exercises

Rather than regressing firm performance on FDI location for the whole sample, we calculate the average effects of FDI decisions on firm performance in the matched samples; this is also known as the 'average treatment on treated effect' (ATT). It is argued by Heckman & Robb (1985) and Heckman, Ichimura & Todd (1997) that PSM is a more appropriate approach in the presence of such sample selection effects. However, to be effective, a large population is required from which to extract the matched and non-matched samples. Hence it is important to make firms as analogous as possible prior to uncovering the average estimate.

We carry out the standard matching exercise to identify MNEs who are similar in a range of firm characteristics but different in their preferences of location choices using Eq. 1.

$$\rho = \Pr(D = 1|X) \qquad (1)$$

where D is a dummy taking value one for the MNEs whose overseas subsidiaries are largely in developed countries and taking value zero for the MNEs that locate most overseas subsidiaries in developing countries across all years. ρ is the probability of being the former type (*i.e.* a MNE whose overseas subsidiaries are largely in developed countries), based on the given firm characteristics X. The number of samples included in the matching process is 19,096, which is certainly comparable to other papers using matching techniques in this area – see for example Girma & Gorg (2007), Chang, Chung & Moon (2013) and Contractor, Yang & Gaur (2016). The idea of the matching is that, for each MNE that largely invests in developed countries, we find a fairly similar MNE that invests mostly in developing countries[5]. In terms of the matching quality, we find that all (19 out of 19) variables included in the matching process are balanced between the matched MNEs after matching exercises, indicating a very good matching quality (please see Table 2 for the matching quality). In addition, we require that MNEs in each matched pair share the same two-digit industry code and are from the same economic income group.

[Table 2 goes about here]

Three different matching methods are used in our paper, including kernel matching, radius and caliper matching, and nearest neighbours matching. Our benchmark results are based on kernel matching. This approach attaches greater weight to control observations that are closer in terms of the propensity score of a treated individual, and less weight to more distant observations (Caliendo & Kopeinig 2008). We also conduct a novel ATT bias test to test the validity and the performance of different matching estimators. Our findings suggest that care should be taken when matching quality is low: the kernel matching estimator is more appropriate than the nearest neighbour estimator when matching quality is poor because it attaches more weight to control observations that are closer in terms of propensity score. Further, it prevents bias due to bad matches dominating good matches when calculating the ATT[6]. Apart from kernel matching approach, we also use radius and caliper matching,

[5] Common support is included in the matching process to avoid the matching bias and improve the matching quality, which drops some observations where the treatment observations' propensity scores are higher than the maximum, or lower than the minimum, of the propensity score of the untreated group.

6 These additional tests are available on request.

and nearest neighbours matching as robustness checks[7].

4.3. Average treatment effect on the treated ATT

After the matching process, we conduct "like-for-like" comparisons to estimate the magnitude of performance differences (*i.e.* productivity and profitability) between the matched MNEs using the following equation:

$$\Delta Y_{it} = E[Y_{it}|\rho, D = 1] - E[Y_{it}|\rho, D = 0] \quad (2)$$

ΔY_{it} refers to the average difference in performance (Y_{it}) between the matched MNEs. We observe a significant difference in returns from different FDI location choices as shown in Table 3. More specifically, in the first half of Table 3 we find that while firms investing more in developed countries tend to have 7% higher productivity than the firms investing largely in developing countries, the latter firm type has on average 41.5% higher profitability. During our matching process, MNEs are matched based on their characteristics in the first available year (t0). The longitudinal nature of data allows us to compare MNEs' performances after year t0. We find that our baseline results are largely unchanged, apart from that profit returns from investing in developing countries are insignificant from t+2 onward. Overall, as expected, investing in rich, well developed markets improves multinational firms' internal efficiency, with knowledge transfer and absorptive capacity leading to higher productivity. Gains in profits from investments in developing countries are independent of any internal efficiency but are rather linked to successful market.

[Table 3 goes about here]

In order to verify our baseline test as to whether investing in developed countries enhances firm productivity, we did an additional robustness exercise. We compare firms only investing in developing countries with firms only investing in developed countries (we report these in the second half of Table three). This approach improves the precision with which we can determine the actual performance gains from investment in either developed or developing countries, rather than by merely comparing firms who invest more in developing countries with firms who invest more in developed

7 We employ the caliper and radius methods to exclude any "matched" firms that are too far away from their partners. see Caliendo & Kopeinig (2008). Nearest neighbor matching is also conducted in our analysis as a robustness check. See the similar approach conducted in Greenaway & Kneller (2008).

countries. Our results show that productivity captures internal efficiency, whether this is achieved through, inter alia, learning, knowledge sourcing, or technology transfer, and these effects are much greater for investments in developing countries. In terms of a comparison of financial returns between investing in developed countries and investing in developing countries, we find the latter is bigger overall but at the insignificance level. Apart from the kernel matching method, we also use nearest matching and radius matching approaches as robustness exercises, and we find results from different matching estimations are very robust. We report the results from nearest matching approach in Appendix B, and the results from radius matching approach are robust and available upon the request.

4.4. Converting Productivity growth to profitability

Having established results showing that investment in developed countries improves efficiency but does not necessarily lead to a profitability increase, we build a simple model to test if the continued productivity growth, as a result from investing in developed country location, will lead to profitability improvement using the following equation based on the matched samples.

$$\Delta ROS_{it} = \beta_1 \Delta TFP_{it} + \beta_2 X_{it} + \gamma_t + a_i + e_{it} \quad (3)$$

where the key variables are ΔROS_{it}, profitability increase of multinational parent *i* in year t when investing more in developed countries, relative to a matched MNE investing more in developing countries, and ΔTFP_{it}, productivity improvement of the same parent *i* in the same year t when investing more in developed countries, relative to a matched MNE investing more in developing countries. The calculated ΔROS_{it} (ΔTFP_{it}) refers to the extent of profitability (productivity) change seen when an MNE shifts its focus from developing to developed country locations. The equation also includes control variables X_{it} (capital per worker, firm age, total assets and the debt-to-equity ratio) as well as year effects (γ_t) and firm fixed effects (a_i). The key parameter is β_1, which indicates MNE's profitability changes as a result of the continued productivity improvement. We report our results in table 4.

[Table 4 goes about here]

In columns 1-6, ΔROS_{it} and ΔTFP_{it} are the performance difference between the multinational parent investing more in developed countries, relative to the matched MNE investing more in

developing countries. Column 1 shows that productivity gains play a positive and significant role in profitability improvements, suggesting that in order to improve financial returns from investing in developed countries, foreign subsidiaries need to achieve continued productivity growth. Our hypothesis one is therefore supported. We further split our MNE samples into high-tech and low-tech companies, and re-ran the regression for an interesting comparison. Columns 2 and 3 show the estimate is higher (4.166 vs. 3.281) for high-tech sectors, suggesting that the continued productivity enhancement has a bigger impact on firm profitability in sectors with a greater degree of technological sophistication. We extend the analysis to examine the existence of nonlinearities by including the squared terms of productivity gains, and we re-ran the estimations. We find evidence of an inverted U shape relationship between productivity improvement and profitability increase in all sectors (column 4), high-tech sectors (column 5) and low-tech sectors (column 6). In columns 7-12, we re-ran the analysis by using the performance difference between the multinational parent investing *only* in developed countries, as compared to the matched MNE investing *only* in developing countries. We found our results are largely unchanged.

In addition, we present the plotted inverted U shape in Figure 3, and note that the importance of productivity gains for profitability improvement is bigger and occurs over a longer period of time for high-tech sector MNEs relative to low-tech sector MNEs. This adds an interesting nuance to the testing of the first hypothesis. The figure illustrates the hitherto unexplored relationship between productivity and profitability in the context of firm internationalisation. As well as highlighting the differences between sectors, it provides support for the premise of this paper, which is that the first challenge for firms seeking to generate profitability growth through internationalisation is to harness productivity growth at home or abroad, and then leverage that into financial performance. Clearly this occurs (and decays) at different rates for different firms, and this is at least in part dependent on the nature of firm specific assets. This therefore extends the existing work in this area (see, for example, Bouquet & Birkinshaw (2008), or Rabbiosi & Santangelo (2013)) since we are able to determine the nature of investments that generates both productivity growth and profits growth in the context of affiliate development. In turn, we offer a more detailed interpretation of Mudambi and Navara (2004)

and Driffield et al (2016) concerning intra-firm knowledge transfer, arguing that the timing of the investment is also crucial for firms wanting to reap the rewards from internationalisation.

[Figure 3 goes about here]

4.5. The role of firm specific assets

Our next interesting test is to explore whether investment in firm-specific assets can expediate the speed of converting productivity growth to rent generation. We add the interaction between productivity improvement and firm-specific assets in Eq. 4. All other variables have the same interpretations as in Eq. 3. In Eq. 4, firm specific assets have two measurements including the expenditure of research and development, and intangible assets growth.

$$\Delta ROS_{it} = \beta_1 \Delta TFP_{it} * FSA_{it} + \beta_2 \Delta TFP_{it} + \beta_3 FSA_{it} + \beta_4 X_{it} + a_i + \gamma_t + e_{it} \quad (4)$$

Table five reports our results. In Column one, we find that the interaction term between productivity gains and R&D investment is positive and at the significance level, suggesting that the ability of a firm to deploy resources through investing more R&D leads to more rent creation when the firm experiences technology upgrade and productivity improvement. We re-ran the analysis on firms in high-tech sectors (column two), and then on firms in low-tech sectors (column three). We find that R&D investments are more important for low-tech sectors to covert productivity to rent generation. In columns four to six, we use intangible assets as firm-specific assets and again found that the firm's investment in FSA can augment its ability to reap the rent from productivity improvement. Therefore, our hypotheses 2a and 2b are supported. In columns 7-12, we again re-ran the analysis by using the performance difference between the multinational parent investing only in developed countries, as compared to the matched MNE investing only in developing countries. We find our results are largely robust.

[Table 5 goes about here]

We offer an interesting extension to the work of Sirmon, Hitt, Ireland & Gilbert (2011). In their resource orchestration framework, they argue that a better understanding of knowledge flows is required, particularly in terms of the deployment of resources. As they note, the existing literature has to an extent focused on the timing of investments, but this has not been considered in conjunction

with resource allocation and knowledge sourcing[8].

4.6. The role of board international experience

Our next test is to explore whether the firm's board international experience, which is used to measure the firm's ability to deal with international complexity, affects financial returns from investing in developing countries using the following equation

$$\Delta ROS_{it} = \beta_1 Board\ internationalisation + \beta_2 X_{it} + a_i + \gamma_t + e_{it} \quad (5)$$

where ΔROS_{it} is profitability increase of multinational parent i in year t when investing more in developing countries, relative to a matched MNE investing more in developed countries. 'Board internationalisation' refers to board international experience based on the clustering maps of Ronen and Shenkar (2013). Our results are reported in table 6, Ronen and Shenkar (2013) include two clustering maps, one including 70 countries and the other including 94 countries. In columns one-three we present the effect of board international experience using the 70 country map, and in columns four-six we re-ran the analysis using the 94 country map. In columns one-three, we find that board experience in foreign subsidiaries' global clusters (column one) or regional clusters (column two), will yield higher financial returns from investing in developing country location. The results are largely similar when we use the 94 country map (columns 4-6). In columns 7-12, we again re-ran the analysis by using the profitability difference between the multinational parent investing only in developing countries, as compared to the matched MNE investing only in developed countries. The result is largely unchanged and our hypothesis 3 is therefore supported.

[Table 6 goes about here]

4.7 The source country effects

Our final set of tests is to distinguish between the developed and developing country status of the home country of these MNEs. This decomposition follows from an escalating interest in developing

[8] We also conduct a robustness exercise to define a firm as a treated company when its overseas subsidiaries in developed countries are twice as their overseas subsidiaries in developing countries. All our main findings are the same, we report these in Appendix D.

country MNEs, contrasting from developed country MNEs. We re-ran Eq. 3-5 and report them in Tables 7 and 8. Table 7 presents the results contrasting between developed country and developing country MNEs in terms of them converting productivity, as a result from investing in developed country location, to profitability growth. Columns 1-4 include developed country MNEs, and columns 5-8 include developing country MNEs. We find that although productivity can be converted to profitability for both developed country MNEs (columns 1-2) and developing country MNEs (columns 5-6), the moderating roles of R&D assets and intangible assets are bigger for developing country MNEs (columns 7-8) than developed country MNEs (columns 5-6), in terms of not only the size of coefficients but also the significance level. This means that developing country firms are faster than developed country firms in converting productivity improvement to financial returns when they invest in R&D assets and intangible assets. Our hypotheses 4a and 4b are therefore supported.

[Table 7 goes about here]

Next, Table 8 presents the results comparing developed country and developing country MNEs in regard to the role of board members' international experience when MNEs invest in developing countries. We find that developing country firms (columns 4-6) have higher profit growths than developed country firms (columns 1-3) when they increase the number of foreign directors from the same cluster as the firm's foreign subsidiaries. Our hypothesis 4c is therefore documented.

[Table 8 goes about here]

5. Discussion and Conclusion

5.1 Key Findings

Where to invest and how to maximize the returns to that investment have been core research questions for international business for some time. However, the extant literature has not explored the importance of the firm's ability to deploy resources to leverage the FDI location benefits to performance. We find that although investing in developed countries is associated with an immediate growth in productivity, but that further investment in innovation is required to generate profits growth. Similarly, while investing in developing countries is often associated with profits growth, we

find that an increase in the number of foreign directors with commensurate experience will boost this. Additionally, we present that the impact of resource deployment, e.g., investment in firm-specific assets or an increase in board member internationalisation, in leveraging FDI location benefits to profit growths is greater for developing country MNEs. As compared to developed country MNEs, developing country MNEs are a bit far from the technology fronter, but an improvement in their absorptive capability and international experience is likely associated with superior performance outcomes.

The literature on estimating the relationship between multinationality and multinational performance has generally disregarded some form of reverse causality. It ignores the fact that multinational firms self-select by choosing the location of FDI themselves. This paper contributes to multinationality-performance literature (to our best of knowledge, for the first time) by using the PSM approach to derive matched samples and produce a more precise estimate of the effect of FDI location on firm performance. To our knowledge, no prior study has used this matching approach to explore the link between multinationality and firm performance.

5.2 Theory implications

This paper offers some implications for the literature and theories on FDI, knowledge transfer and performance. First of all, by differentiating the benefits that a firm can obtain from investing in different locations, we are able to distinguish productivity increase from the returns to shareholders. This paper builds on the knowledge-based view and the resource-based view of the firm, by offering an understanding of the process by which knowledge transfer occurs, at the same time linking this to firm level outcomes. While previous synthesis of the knowledge-based view has focussed on the need for a multi-layered approach to knowledge transfer, we seek to nuance this, emphasising not merely the importance of absorptive capacity (Cohen & Levinthal 1990), but what is required to leverage knowledge transfer into productivity growth and subsequently profits growth. The paper hypothesizes and empirically demonstrates firstly that a firm can derive productivity enhancement from investing in a developed country. This we link to the knowledge-based view of knowledge transfer. Further however, insights from the RBV offer an understanding of how firms may speed up

this process. A faster rate of profits growth can be subsequently achieved if the firm can sustain its productivity improvement from knowledge seeking, and finally that investments in firm-specific assets can augment the speed of reaping the rent from knowledge seeking. The issue of technology sourcing has hitherto been ignored by the MP literature, even though it is likely that a significant proportion of FDI between developed countries may have a distinct technology sourcing element (Driffield et al 2014). This generates long term productivity growth, thus increasing competitiveness in both the host and source country. FDI to developing countries however is independent of productivity growth but is rather associated with offshoring/outsourcing type activities, or a desire to exploit an existing technology in new markets. As such, it generates profitability gains as long as the competitive advantage in these markets can be sustained.

Second, extending the KBV, not only does a firm need superior capability to effectively absorb and assimilate knowledge (Cohen & Levinthal 1990, Mudambi & Navarra 2004), but that it is crucial for the firm to correctly time the deployment or allocation of the necessary resources in order to reap higher rents. As a corollary, irrespective of how large a bundle of resources a firm may have, its ability to manage and deploy those resources is requisite for sustaining competitive advantages (Sirmon, Hitt, Ireland & Gilbert 2011). We extend the rich and burgeoning literature on knowledge transfer by emphasizing that the timing of resource deployment plays an important role for a firm wishing to reap the rent, especially when a firm is experiencing productivity advancement. Equally, we offer a wider interpretation to the results reported by Luo & Zheng (2018) who explore the market interpretation of FDI decisions in terms of equity market sentiment. We show here that not only is the timing of when to seek to reap the financial rewards from internationalisation important, but the mechanism by which this occurs can be better understood by external stakeholders. It is acknowledged that the absorptive capability of a firm is vital to an understanding of externally incoming knowledge (Gupta & Govindarajan, 2000; Minbaeva, Pedersen, Björkman, & Fey 2014), and that the degree of arduousness in the relationship between sources and recipients also determines the extent of knowledge transferred from a subsidiary to its parent company (Szulanski 1996; Szulanski, Ringov, & Jensen 2016). Nevertheless, we argue that absorptive capacity *per se* may not

effectively translate productivity to firm profitability, and it is essential for a firm to deploy the necessary resources (e.g., investment in firm-specific assets) to convert productivity gains to profitability increase. Taken together, our findings demonstrate, building on the analysis of Pereira & Bamel (2021) how the RBV and the KBV can be applied to the problem of understanding location choice and performance.

5.3 Managerial implications

This study also offers important practical implications which are of high relevance for policy-makers and the mangers of multinational enterprises. First, economic development of host country is detrimental for foreign investors. We evidence in this paper that, in general, investing in advanced country locations generates productivity enhancement, while investing in developing country locations leads to greater profitability (Pantzalis 2001; Demirbag & Glaister 2010; Berry 2017). Managers, when deciding where to invest, should be aware of the different performance outcomes from their investment decision.

Second, the benefits of FDI locations are not uniform across all firms. Despite with relatively low advantages as compared to developed country MNEs in terms of their capabilities and experiences, developing country MNEs benefit most from investing in ownership advantages when converting technology to profit growths. This feature should be considered by developing country MNE's managers when deciding where to invest and whether to invest in their ownership advantages, and considered by policy-makers of developing countries to assess the policy of promoting outward foreign investment as well as subsequent performance outcomes. Drawing on a large number of developing country firms, we show that these firms, once investing in their firm-specific assets or managerial experiences, can boost their ability to leverage FDI location benefits to profit growths. Thus, how to better support these developing country MNEs would be an important strategic task for the government.

Third, our findings also show if the conversion from productivity growth, as a result of investing in developed countries, into profits is affected by the sectoral affiliation, and high-tech sectors in particular. The effect is bigger and occurs over a longer period of time for high-tech sector

MNEs, who have superior firm-specific knowledge, relative to low-tech sector MNEs. These features should be considered by the managers of companies when deciding whether to diversify their products into high-tech sectors, and considered by policy-makers of the home country to assess the policy of promoting outward foreign investment relating to high-tech sectors.

5.4 Limitations and Future Development

This paper also has some limitations, which provide avenues for future development. Aside from R&D and intangible asset investment, there can be other firm capabilities that can accelerate the speed of translating productivity to profitability for a firm. Great scope remains for future research to explore the importance of other firm capabilities, such as the employee skills. Second, one might argue that it is not merely firm-specific resources but also the external environment that can accelerate the speed of rent generation from knowledge seeking FDI. Third, the internationalisation of boards at the affiliate company can be important in explaining affiliate company. Our focus is on the level of the firm rather than the affiliate. The future research can explore the role of the affiliate company boards in determining affiliate operations in the host country. Fourth, subsidiaries are heterogeneous in terms of size and strategic roles, so future research can re-run our analysis by using parent-subsidiary linkage data. Fifth, although our analysis builds on a large database, which allows us to estimate a model that directly relates the antecedent (FDI location decision) to the outcome (productivity and profitability), We, however, do not have detailed information about what specific mechanism or channels MNEs employ to transfer knowledge, and do not have information about the interaction between the parent and affiliate companies. More research in the future can be done to deepen our knowledge in this line of research. This would require more detailed information and would probably need a questionnaire survey. We regard our study as a small contribution to opening up a new fascinating line of research on how to deploy firm resources to maximize FDI location benefits.

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Figure 1: **Conceptual Framework**

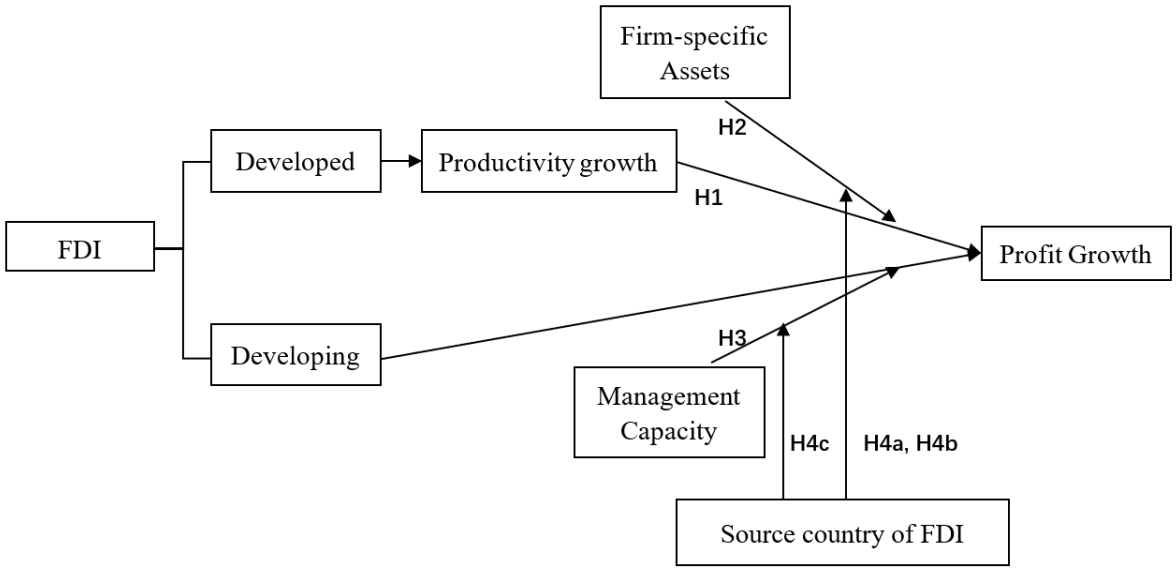
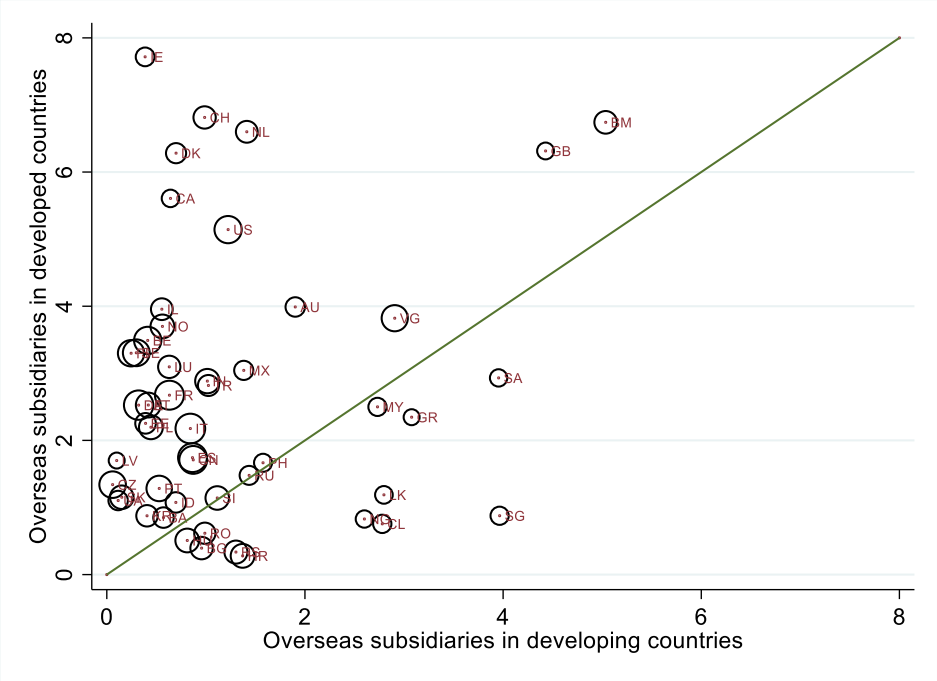
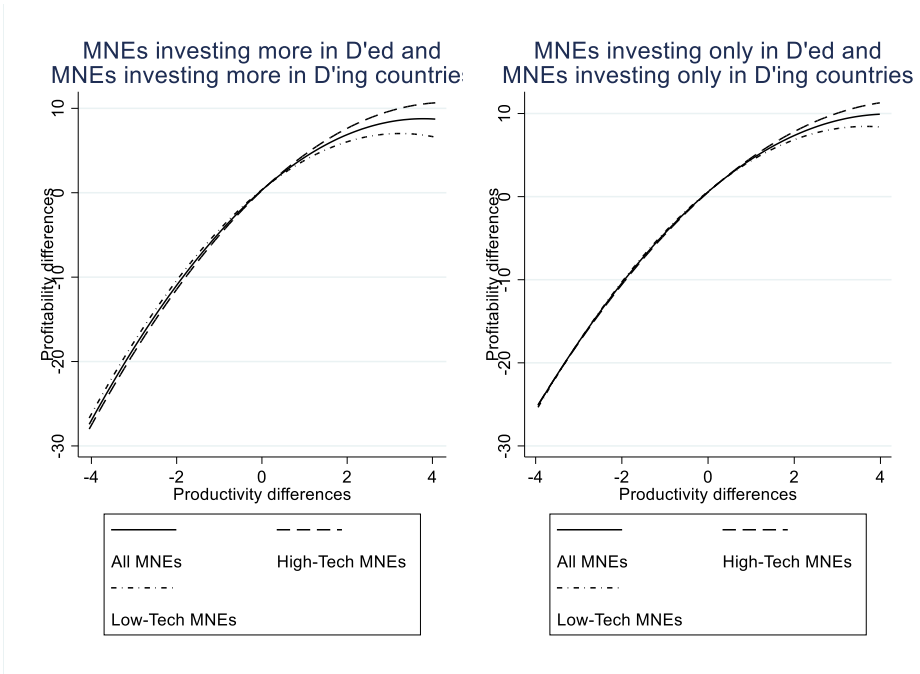


Figure 2: $OS^{D'ed}$ (average) and $OST^{D'ing}$ (average), by MNEs home country



Note: The above figure is the relationship between the number of overseas subsidiaries in developed countries and the number of overseas subsidiaries in developing countries, by multinational parents' home country. Size of circle is proportional to the number of MNEs in each country. The label in the circle is the country ISO two-digit code.

Figure 3: Productivity for financial returns



Note: 'Productivity difference (profitability)' refers to productivity (profitability) difference between the matched MNEs investing more in developed countries and the matched MNEs investing more in developing countries.

Table 1: Variables and Summary statistics

Variables	Variable descriptions	Mean	Std. Dev.	Obs
Performance measurements				
TFP	Total Factor Productivity using Levinsohn & Petrin (2003) measurement	5.67	0.78	82,226
†Turnover	Turnover (000,000)	700.95	5,155.41	82,226
†Capital	Capital (000,000)	261.92	2,274.63	82,226
†Employee number	Employee number	2,176	10,983	82,226
†Materials	Raw materials (000,000)	180.55	1,284.85	82,226
Profitability	Return on sales (%)	6.04	7.72	82,226
Overseas investments				
OS	The number of overseas subsidiaries	3.28	3.83	82,226
OS_D'ed	The number of overseas subsidiaries in developed countries	2.54	3.15	82,226
OS_D'ing	The number of overseas subsidiaries in developing countries	0.75	1.67	82,226
OS_D'ed>OS_D'ing	A dummy equal to one (zero) for MNEs investing *more* in developed (developing) countries	0.8	0.4	82,226
OS_D'ed only	A dummy equal to one (zero) for MNEs investing *only* in developed (developing) countries	0.61	0.49	82,226
OS_D'ing only	A dummy equal to one (zero) for MNEs investing *only* in developing (developed) countries	0.15	0.36	82,226
Other variables				
Capital per worker	Capital per worker (000)	98.61	328.75	82,226
Intangibles	Intangible assets (000,000)	98.06	826.17	82,226
Gearing	Debt to equity ratio (%)	99.76	120.66	82,226
Age	Firm age	33.29	27.26	82,226
R&D	Research and development expenditure (000,000)	51.61	239.88	11,001
Assets	Total assets (000,000)	796.69	4,600.83	82,226
Board global cluster	The ratio of foreign subsidiaries in the same "global" cluster as MNE board members' home countries, in the total number of foreign subsidiaries.	0.38	0.39	41,860
Board regional cluster	The ratio of foreign subsidiaries in the same "regional" cluster as MNE board members' home countries, in the total number of foreign subsidiaries.	0.35	0.38	41,860
Board local cluster	The ratio of foreign subsidiaries in the same "local" cluster as MNE board members' home countries, in the total number of foreign subsidiaries.	0.24	0.34	41,860
Developed	A dummy equal to one (zero) for MNEs from developed (developing) countries	0.9	0.3	82,226
High-tech sectors	A dummy equal to one (zero) for MNEs in high (low) technology sectors	0.45	0.5	82,226
Year	Survey year	2013	2.45	82,226

Notes: Variables with † are used to calculate total factor productivity.

Table 2: Matching quality

Variables	Group A	Group B	T-tests	P-value
*Matched MNEs investing **more** in D'ed countries (Group A) and MNEs investing **more** in D'ing countries*				
Propensity score	0.79	0.79	0.07	**0.95**
Capital	16.15	16.13	0.66	**0.51**
Capital per worker	10.36	10.35	0.71	**0.48**
Intangible	13.88	13.93	-1.38	**0.17**
Gearing	115.03	112.34	1.51	**0.13**
Age	27.28	26.99	1.06	**0.29**
Employees	5.79	5.78	0.29	**0.77**
Intangible*Gearing	1620.60	1579.30	1.60	**0.11**
Intangible*age	372.64	368.54	1.07	**0.29**
Intangible*Employees	82.94	83.16	-0.47	**0.64**
Capital squared	265.36	264.78	0.64	**0.53**
Capital per worker squared	109.30	109.11	0.52	**0.60**
Intangible squared	201.01	202.16	-1.10	**0.27**
Gearing squared	32732.00	31216.00	1.46	**0.14**
Age squared	1187.80	1169.80	0.60	**0.55**
Capital per worker cubic	1171.80	1169.70	0.35	**0.73**
Intangible cubic	3023.30	3039.80	-0.71	**0.48**
Gearing cubic	14000000	13000000	1.15	**0.25**
Age cubic	75218	75514	-0.07	**0.95**
Same sectors (2-digit)			0.00	**1.00**
Same Income group			0.00	**1.00**
*Matched MNEs investing **only** in D'ed countries (Group A) and MNEs investing **only** in D'ing countries*				
Propensity score	0.80	0.80	0.10	**0.92**
Capital	16.04	16.01	1.17	**0.24**
Capital per worker	10.35	10.34	0.34	**0.74**
Intangible	13.71	13.75	-1.09	**0.28**
Gearing	114.56	120.13	-2.98	**0.00**
Age	27.24	27.22	0.05	**0.96**
Employees	5.69	5.67	1.42	**0.16**
Intangible*Gearing	1596.80	1655.40	-2.18	**0.03**
Intangible*age	368.14	367.68	0.12	**0.91**
Intangible*Employees	80.49	80.22	0.59	**0.55**
Capital squared	261.83	260.67	1.27	**0.21**
Capital per worker squared	109.04	109.02	0.04	**0.97**
Intangible squared	196.21	197.00	-0.76	**0.45**
Gearing squared	32544.00	35383.00	-2.56	**0.01**
Age squared	1205.80	1194.90	0.32	**0.75**
Capital per worker cubic	1169.00	1170.00	-0.16	**0.87**
Intangible cubic	2918.50	2924.80	-0.27	**0.78**
Gearing cubic	14000000	16000000	-2.63	**0.01**
Age cubic	81236	80982	0.05	**0.96**
Same sectors (2-digit)			0.00	**1.00**
Same Income group			0.00	**1.00**

Notes: P-value >0.1 shows that the two matched MNE groups are not similar in a given characteristics. All firm characteristics are measured in logarithms during the matching process. Matched samples are required to be in the same two-digit industry and from the same economic income group. Also see propensity score histogram in Appendix C showing good quality of matching.

Table 3: Productivity and Profitability differences between the matched MNEs From t0 to t+5 years, matching method: kernel

Years	Differences	t-ratio	No. (Group A)	No. (Group B)
*MNEs investing **more** in developed (Group A) vs. MNEs investing **more** in developing countries (Group B)*				
Productivity differences				
t0	**0.070**	4.078	14743	4142
t+1	**0.061**	3.232	11118	3099
t+2	**0.079**	3.806	9299	2456
t+3	**0.087**	3.850	7943	1984
t+4	**0.083**	3.271	6557	1610
t+5	**0.090**	3.083	5553	1228
Profitability differences				
t0	**-0.415**	-2.317	14743	4142
t+1	**-0.366**	-1.891	11118	3099
t+2	**-0.116**	-0.538	9299	2456
t+3	**-0.324**	-1.310	7943	1984
t+4	**-0.276**	-1.027	6557	1610
t+5	**-0.396**	-1.234	5553	1228
*MNEs investing **only** in developed (Group A) vs. MNEs investing **only** in developing countries (Group B)*				
Productivity differences				
t0	**0.078**	4.309	13061	3645
t+1	**0.073**	3.688	9813	2711
t+2	**0.094**	4.350	8077	2135
t+3	**0.090**	3.821	6880	1732
t+4	**0.071**	2.602	5604	1387
t+5	**0.092**	2.997	4679	1059
Profitability differences				
t0	**-0.002**	-0.010	13061	3645
t+1	**-0.116**	-0.571	9813	2711
t+2	**0.175**	0.773	8077	2135
t+3	**-0.094**	-0.359	6880	1732
t+4	**-0.180**	-0.622	5604	1387
t+5	**-0.330**	-0.989	4679	1059

Notes: Column two calculates the average performance differences (productivity or profitability) between the matched MNEs investing more in developed countries and the matched MNEs investing more in developing countries. `t-ratio (ATT)' is the t-ratios of the average differences. The differences and significant levels are overall robust when using different methods in Appendix B.

Table 4: Productivity and financial returns, Linear and Nonlinear Effects

	MNEs investing more in Developed countries versus matched MNEs investing more in Developing countries						MNEs investing only in Developed countries versus matched MNEs investing only in Developing countries					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All sectors	**H-tech**	**L-tech**	**All**	**H-tech**	**L-tech**	**All sectors**	**H-tech**	**L-tech**	**All**	**H-tech**	**L-tech**
Productivity	**3.757**	**4.166**	**3.281**	**4.464**	**4.770**	**4.110**	**3.831**	**4.079**	**3.559**	**4.441**	**4.603**	**4.278**
	[0.000]	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**	**[0.000]**
Productivity squared				**-0.589**	**-0.545**	**-0.634**				**-0.526**	**-0.477**	**-0.585**
				[0.000]	**[0.000]**	**[0.000]**				**[0.000]**	**[0.000]**	**[0.000]**
Capital per worker	-0.473	-0.522	-0.414	-0.487	-0.536	-0.426	-0.481	-0.467	-0.478	-0.492	-0.473	-0.497
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total assets	1.716	2.036	1.398	1.669	2.007	1.330	1.574	1.846	1.346	1.518	1.802	1.274
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gearing ratio	-0.012	-0.014	-0.011	-0.012	-0.014	-0.011	-0.011	-0.012	-0.011	-0.011	-0.012	-0.011
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	-1.060	-0.964	-1.146	-1.102	-1.007	-1.180	-1.045	-0.933	-1.095	-1.063	-0.955	-1.110
	[0.000]	[0.004]	[0.001]	[0.000]	[0.003]	[0.000]	[0.000]	[0.018]	[0.002]	[0.000]	[0.016]	[0.001]
Obs.	57236	26542	30694	57236	26542	30694	46676	20522	26154	46676	20522	26154
F statistics	148	74.8	78.6	137	69.7	72.4	116	51.9	68.4	106	47.8	62.9
Adj R-squared	.843	.834	.852	.843	.835	.852	.838	.831	.845	.839	.832	.845

Note: The dependent variable in each regression is profitability difference for an MNE investing more in developed countries, relative to its matched MNE investing more in developing countries in columns 1-6. `Productivity' refers to productivity difference for an MNC investing more in developed countries, relative to its matched MNE investing more in developing countries in columns 1-6. In columns 7-12, we compare MNEs investing only in developed countries with matched MNEs investing only in developing countries. Capital per worker, total assets and firm age are in logs. Columns 1, 4, 7 and 10 include all MNEs, while columns 2, 5, 8 and 11 include MNEs in high technology sectors, and columns 3, 6, 9 and 12 include MNEs in low technology sectors. Values in parentheses are P-values.

Table 5: Productivity for financial returns, Moderating roles of R&D and Intangibles

	MNEs investing more in developed countries and MNEs investing more in developing countries						MNEs investing only in developed countries and MNEs investing only in developing countries					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	All sectors	H-tech	L-tech	All	H-tech	L-tech	All sectors	H-tech	L-tech	All	H-tech	L-tech
	Role of RD investment			Role of Intangibles			Role of RD investment			Role of Intangibles		
Productivity difference * R&D	0.245	0.035	0.507				0.330	0.321	0.377			
	[0.046]	[0.824]	[0.003]				[0.006]	[0.030]	[0.053]			
R&D	-0.921	-1.072	-0.748				-0.643	-0.800	-0.323			
	[0.000]	[0.000]	[0.005]				[0.000]	[0.001]	[0.236]			
Productivity difference * Intangibles				0.102	0.096	0.102				0.100	0.140	0.052
				[0.040]	[0.219]	[0.086]				[0.078]	[0.103]	[0.476]
intangibles				0.073	0.090	0.057				0.027	0.023	0.032
				[0.093]	[0.198]	[0.282]				[0.578]	[0.770]	[0.588]
Productivity dif.	-0.412	3.703	-6.230	4.051	4.455	3.569	-1.820	-0.998	-4.485	4.060	4.168	3.930
	[0.831]	[0.134]	[0.018]	[0.000]	[0.000]	[0.000]	[0.311]	[0.659]	[0.127]	[0.000]	[0.000]	[0.000]
Capital per worker	-2.084	-2.501	-1.097	-0.520	-0.586	-0.441	-2.439	-2.871	-1.206	-0.501	-0.458	-0.521
	[0.000]	[0.000]	[0.045]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.003]	[0.000]	[0.003]	[0.000]
Total assets	2.895	3.384	1.234	1.976	2.412	1.526	1.909	2.382	0.513	1.869	2.338	1.449
	[0.000]	[0.000]	[0.053]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.453]	[0.000]	[0.000]	[0.000]
Gearing ratio	-0.020	-0.023	-0.016	-0.014	-0.017	-0.012	-0.015	-0.015	-0.014	-0.013	-0.014	-0.012
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	-3.407	-3.790	-1.329	-1.633	-1.363	-1.968	-3.471	-3.135	-4.149	-1.225	-0.900	-1.515
	[0.001]	[0.001]	[0.598]	[0.000]	[0.007]	[0.000]	[0.007]	[0.039]	[0.077]	[0.004]	[0.142]	[0.011]
Obs.	6909	4989	1920	39658	18454	21204	4462	3124	1338	31558	13824	17734
F statistics	20.4	17.8	5.66	103	55.7	53.1	14.2	10.8	4.2	74.4	36.8	42.1
Adj R-squared	.821	.811	.859	.867	.861	.875	.818	.803	.861	.861	.857	.865

Note: The dependent variable in each regression is profitability difference for an MNE investing more in developed countries, relative to its matched MNE investing more in developing countries in columns 1-6. `Productivity difference' refers to productivity difference for an MNC investing more in developed countries, relative to its matched MNE investing more in developing countries in columns 1-6. In columns 7-12, we compare MNEs investing only in developed countries with matched MNEs investing only in developing countries. R&D, sales, capital per worker, total assets and firm age are in logs. 'Intangibles' is the growth of intangible assets as the measure of increments in firm-specific knowledge. Columns 1, 4, 7 and 10 include all MNEs, Columns 2, 5, 8 and 11 include MNEs in high technology sectors, and other columns include MNEs in low technology sectors. Values in parentheses are P-values.

Table 6: Board internationalisation and financial returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	MNEs investing **more** in developing countries						MNEs investing **all** in developing countries					
	The 70 country map			The 94 country map			The country 70 map			The 94 country map		
	Global cluster	Regional cluster	Local cluster	Global cluster	Regional cluster	Local cluster	Global cluster	Regional cluster	Local cluster	Global cluster	Regional cluster	Local cluster
Board internationalisation	**2.451**	**2.054**	**1.715**	**2.090**	**2.085**	**1.053**	**2.562**	**1.966**	**1.360**	**2.388**	**1.985**	**0.451**
	[0.023]	**[0.045]**	**[0.119]**	**[0.045]**	**[0.042]**	**[0.332]**	**[0.058]**	**[0.123]**	**[0.310]**	**[0.058]**	**[0.121]**	**[0.730]**
Capital per worker	-0.884	-0.892	-0.902	-0.809	-0.906	-0.914	-0.733	-0.739	-0.746	-0.675	-0.733	-0.735
	[0.004]	[0.004]	[0.004]	[0.005]	[0.004]	[0.004]	[0.045]	[0.044]	[0.042]	[0.051]	[0.047]	[0.047]
Total assets	1.793	1.816	1.806	1.743	1.834	1.836	1.962	1.990	1.986	1.858	2.015	2.032
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gearing ratio	-0.016	-0.016	-0.016	-0.015	-0.016	-0.016	-0.014	-0.014	-0.014	-0.014	-0.014	-0.014
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	-1.704	-1.725	-1.732	-1.679	-1.630	-1.632	-2.152	-2.190	-2.232	-1.946	-2.084	-2.104
	[0.229]	[0.222]	[0.220]	[0.229]	[0.250]	[0.246]	[0.188]	[0.177]	[0.167]	[0.224]	[0.201]	[0.190]
Obs.	5413	5411	5403	5828	5346	5338	4525	4523	4515	4864	4500	4492
F statistics	13.8	13.7	13.8	14.6	13.9	13.8	10.2	10.2	10.1	11	10.4	10.3
Adj R-squared	0.805	0.805	0.805	0.808	0.807	0.806	0.812	0.812	0.812	0.813	0.815	0.815

Note: P-values are reported in square brackets. The dependent variable in columns 1-6 is the profitability difference for an MNE investing more in developing countries, relative to its matched MNE investing more in developed countries. In columns 7-12 is the profitability difference for an MNE investing only in developing countries, relative to its matched MNE investing only in developed countries. Capital per worker, total assets and firm age are in logs. For each MNE we calculate the percentage of its foreign subsidiaries that locate in the same "global" cluster as one of its board members' home country, in relation its total number of foreign subsidiaries. Using a similar approach, we calculate regional cluster ratio and local cluster ratio. Ronen and Shenkar (2013) includes two clustering maps, one including 70 countries and the other including 94 countries. We run the analysis based on each map.

Table 7: Productivity for financial returns, Moderating roles of R&D and Intangibles

Developed country MNEs vs. developing country MNEs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Developed country MNEs				**Developing country MNEs**			
Productivity	4.324	5.118	1.846	4.675	1.931	2.203	-0.116	2.024
	[0.000]	[0.000]	[0.592]	[0.000]	[0.000]	[0.000]	[0.945]	[0.000]
Productivity squared		-0.655				-0.237		
		[0.000]				[0.088]		
Productivity * R&D			0.141				**0.190**	
			[0.507]				**[0.081]**	
R&D			-1.508				**-0.150**	
			[0.000]				**[0.506]**	
Productivity * Intangibles				0.085				**0.320**
				[0.106]				**[0.041]**
intangibles				0.048				**0.327**
				[0.272]				**[0.089]**
Capital per worker	-0.302	-0.319	-1.724	-0.358	-1.646	-1.641	-2.021	-1.712
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Total assets	1.888	1.845	3.605	2.220	2.056	2.033	2.779	2.302
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.002]
Gearing ratio	-0.012	-0.012	-0.017	-0.014	-0.021	-0.021	-0.028	-0.024
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	-0.769	-0.811	-1.767	-1.122	-9.465	-9.508	-10.342	-15.244
	[0.001]	[0.001]	[0.117]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	-27.244	-25.546	-22.381	-31.229	8.734	9.534	3.011	22.427
	[0.000]	[0.000]	[0.023]	[0.000]	[0.351]	[0.308]	[0.832]	[0.141]
Obs.	53371	53371	4595	37133	3865	3865	2314	2525
F statistics	141	129	14.7	99.9	14.9	13.9	9.46	9.28
Adj R-squared	.844	.845	.816	.87	.839	.839	.838	.847

Note: P-values are reported in square brackets. The dependent variable in each regression is the profitability difference for an MNE investing more in developed countries, relative to its matched MNE investing more in developing countries.

Table 8: Board internationalisation and financial returns

Developed country MNEs vs. developing country MNEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Developed country MNEs			**Developing country MNEs**		
	Global cluster	Regional cluster	Local cluster	Global cluster	Regional cluster	Local cluster
Board internationalisation	1.784	1.505	0.008	**4.095**	**5.315**	**5.441**
	[0.122]	[0.180]	[0.995]	**[0.086]**	**[0.024]**	**[0.020]**
Tangible asset per worker	-1.088	-1.304	-1.315	0.504	0.563	0.560
	[0.001]	[0.001]	[0.000]	[0.246]	[0.191]	[0.193]
Total assets	1.903	2.068	2.100	3.072	3.182	3.202
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Gearing ratio	-0.015	-0.015	-0.015	-0.038	-0.038	-0.038
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Firm age	-1.500	-1.562	-1.558	-11.277	-9.635	-9.720
	[0.299]	[0.286]	[0.282]	[0.006]	[0.014]	[0.014]
Constant	-16.045	-16.527	-16.702	-25.924	-34.758	-34.833
	[0.100]	[0.110]	[0.105]	[0.177]	[0.068]	[0.068]
Obs.	4749	4313	4305	1079	1033	1033
F statistics	12.3	11.7	11.6	6.7	7.23	7.25
Adj R-squared	.813	.81	.81	.8	.808	.808

Note: P-values are reported in square brackets. The dependent variable is the profitability difference for an MNE investing more in developing countries, relative to its matched MNE investing more in developed countries. In columns 1-3 are developed country MNEs. Column 4-6 include developing country MNEs.

APPENDIX

Appendix A: Country list and the characteristics of key variables, average by country – Top 30 countries with largest MNEs.

Countries	Number	TFP	ROS	OS_D'ed	OS_D'ing	RD	Sales
Austria	286	5.70	6.50	2.53	0.42		332.69
Belgium	934	5.65	4.80	3.49	0.41	17.93	367.48
Bermuda	107	6.15	7.94	6.74	5.04	8.29	966.01
Bulgaria	99	5.59	6.85	0.39	0.96	1.81	65.71
China	1236	5.98	9.32	1.71	0.87	32.26	2595.11
Croatia	177	4.92	5.25	0.28	1.37	0.50	104.90
Czech Republic	627	5.19	5.95	1.34	0.06		124.98
Finland	587	5.56	4.67	3.30	0.25	10.47	345.99
France	2168	5.83	5.78	2.67	0.63	49.46	427.35
Germany	2735	5.58	5.68	2.53	0.32	34.59	574.62
Hungary	171	5.20	5.78	0.51	0.81	1.85	204.31
India	230	5.10	9.21	2.88	1.01	12.15	1242.69
Israel	74	6.41	6.54	3.96	0.56	33.23	500.07
Italy	3173	5.61	5.02	2.18	0.84	39.56	219.03
Luxembourg	94	5.64	6.44	3.10	0.63	14.08	999.74
Netherlands	75	5.99	6.30	6.60	1.41	126.04	3837.72
Norway	175	5.73	8.27	3.70	0.56	72.19	1641.84
Poland	187	5.87	6.28	2.20	0.45	1.86	821.62
Portugal	382	5.30	5.05	1.28	0.53	5.03	271.67
Romania	62	5.00	5.96	0.62	0.99	0.00	337.36
Serbia	125	5.02	6.42	0.34	1.30		103.43
Slovakia	155	5.27	4.94	1.15	0.15	0.64	121.49
Slovenia	160	5.32	4.37	1.14	1.11	92.37	192.26
South Korea	66	5.30	5.77	0.88	0.41	5.00	194.20
Spain	2084	5.40	5.31	1.74	0.87	4.10	311.80
Sweden	705	5.67	5.41	3.31	0.30	28.34	337.63
Switzerland	94	5.77	7.02	6.81	0.99	25.62	1658.72
Turkey	56	6.07	8.02	2.82	1.03	7.18	882.55
United Kingdom	539	6.29	9.76	3.82	2.91	24.43	1003.38
United States of America	895	6.51	8.76	5.14	1.22	115.15	3216.07

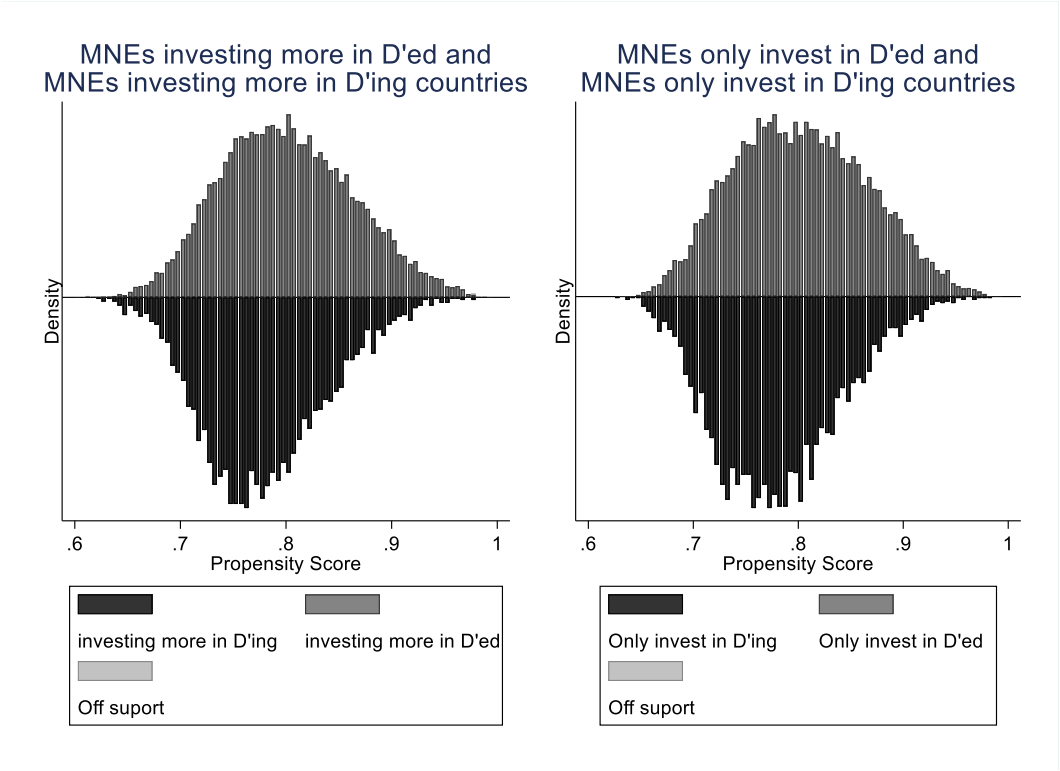
Notes: `OS_Ded (OS_Ding)' refers to the number of overseas subsidiaries in developed (developing countries). RD refers to the expenditure on research and development. `RD' and `Sales' are in millions of US dollars.

Appendix B: Productivity and Profitability differences between the matched MNEs matching method: nearest neighbour

Years	Differences	t-ratio	No. (Group A)	No. (Group B)
MNEs investing more in developed (Group A) vs. MNEs investing more in developing countries (Group B)				
Productivity differences				
t0	0.056	2.664	11994	4142
t+1	0.059	2.619	8633	3099
t+2	0.076	3.083	6891	2456
t+3	0.058	2.253	5684	1984
t+4	0.065	2.237	4551	1610
t+5	0.057	1.700	3571	1228
Profitability differences				
t0	-0.354	-1.613	11994	4142
t+1	-0.272	-1.137	8633	3099
t+2	0.150	0.565	6891	2456
t+3	-0.402	-1.325	5684	1984
t+4	-0.045	-0.137	4551	1610
t+5	-0.448	-1.176	3571	1228
MNEs investing only in developed (Group A) vs. MNEs investing only in developing countries (Group B)				
Productivity differences				
t0	0.071	3.305	10420	3645
t+1	0.041	1.764	7481	2711
t+2	0.082	3.293	5896	2135
t+3	0.064	2.339	4803	1732
t+4	0.061	1.946	3698	1387
t+5	0.072	2.110	2865	1059
Profitability differences				
t0	0.088	0.394	10420	3645
t+1	-0.081	-0.328	7481	2711
t+2	0.336	1.239	5896	2135
t+3	0.179	0.562	4803	1732
t+4	0.253	0.713	3698	1387
t+5	-0.160	-0.412	2865	1059

Notes: Column two calculates the average performance differences (productivity or profitability) between the MNEs investing more in developed countries and the matched MNEs investing more in developing countries. `t-ratio (ATT)' is the t-ratios of the average differences. This robust exercise in appendix B shows the consistency to Table 3.

Appendix C: The propensity score histogram



Notes: ` Off support' are those MNEs investing more in developed countries, who are out the range (between minimum and maximum) of propensity score of MNEs that invest more in developing countries. The propensity score histogram allows us to compare the quantity of matched treated and untreated firms, which are accumulated within a given number of intervals of the propensity score range. We find that there is a high rate of overlapped propensity scores between treated and untreated firms - particularly in the score range of 0.7 to 0.85. Overall, we demonstrate that the quality of matching is good by the using propensity score histogram analysis. Also see Table 2 showing a good quality of matching process.

Appendix D: Robust results when overseas subsidiaries in developed are twice as those in developing countries

	MNEs investing **mostly** in Ded vs MNEs investing mostly in Ding countries				MNEs invest **mostly** in Ding vs MNEs investing mostly in Ded		
					Global cluster	Regional cluster	Local cluster
Productivity	3.770 [0.000]	4.487 [0.000]	-0.974 [0.601]	4.055 [0.000]			
Productivity squared		-0.594 [0.000]					
Productivity * R&D			0.283 [0.016]				
R&D			-0.867 [0.000]				
Productivity * Intangibles				0.105 [0.037]			
intangibles				0.074 [0.090]			
Board internationalisation					2.090 [0.045]	2.085 [0.042]	1.053 [0.332]
Capital per worker	-0.487 [0.000]	-0.500 [0.000]	-2.082 [0.000]	-0.528 [0.000]	-0.809 [0.005]	-0.906 [0.004]	-0.914 [0.004]
Total assets	1.702 [0.000]	1.655 [0.000]	2.727 [0.000]	1.920 [0.000]	1.743 [0.000]	1.834 [0.000]	1.836 [0.000]
Gearing ratio	-0.012 [0.000]	-0.012 [0.000]	-0.021 [0.000]	-0.014 [0.000]	-0.015 [0.000]	-0.016 [0.000]	-0.016 [0.000]
Firm age	-1.124 [0.000]	-1.161 [0.000]	-3.593 [0.001]	-1.646 [0.000]	-1.679 [0.229]	-1.630 [0.250]	-1.632 [0.246]
Constant	-20.883 [0.000]	-19.216 [0.000]	-5.178 [0.514]	-22.427 [0.000]	-16.022 [0.063]	-16.816 [0.063]	-16.504 [0.068]
Obs.	56207	56207	6671	38863	5828	5346	5338
F statistics	146	135	19.5	99.5	14.6	13.9	13.8
Adj R-squared	.843	.844	.823	.868	.808	.807	.806

Note: The dependent variable in each regression is profitability difference. `Productivity' refers to productivity difference for an MNC investing mostly in developed countries, relative to its matched MNE investing mostly in developing countries in columns 1-4. P-values are reported in square brackets.

Leveraging the benefits of location decisions into performance: A global view from matched MNEs

Highlights

- Firms can leverage their resources, through FDI decisions into profit growths.
- Investing in firm-specific assets can augment the benefit of knowledge-seeking
- International experience in the boardroom has a crucial role
- Developing country firms, if deploying resources, benefit more from investments