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Reverse Knowledge Transfer in Emerging Market Multinationals: The Indian Context

Abstract

This study examines knowledge acquisitions of Indian multinationals via overseas mergers and acquisitions. Specifically, the paper examines the effects of the perceived subsidiary capability, parent absorptive capacity, and the relevance of the target knowledge on reverse knowledge transfer. Using firm level data from a survey of Indian multinationals (with overseas acquisitions), we find that perceived subsidiary capability, knowledge relevance and absorptive capacity positively influence reverse knowledge transfer. The results also highlight the moderating role of knowledge relevance and the mediating effects of absorptive capacity.

Keywords: Reverse Knowledge Transfer, Emerging Market Multinationals, Indian MNEs, Knowledge Relevance, Subsidiary Capability, Absorptive Capacity

1. Introduction

Transferring knowledge to the headquarter represents a major objective of emerging markets multinational enterprises (EM-MNEs[i]) while setting up subsidiaries, especially in developed countries (Lou and Tung, 2007). Surprisingly however, few studies have explicitly focussed on reverse knowledge transfer (RKT) – knowledge flow from the subsidiary to the parent (Ambos et al., 2006), especially within EM-MNEs. Thus, recently scholars have called for more research on RKT in EM-MNEs (c.f. Mudambi et al., 2014; Rabbiosi and Santangelo, 2013). In contrast to the 'forward diffusion' (Thite et al., 2012) of knowledge in the context of multinationals from the developed world (DMNEs), the 'reverse diffusion' is more pertinent to EM-MNEs owing to their latecomer disadvantages and their constant attempts to overcome these disadvantages. These disadvantages and other liabilities associated with their home countries (Demirbag et al., 2010; Mellahi et al, 2010) prompt these latecomers to fall back on strategic alliances, JVs (Joint Ventures) and M&As (Mergers & Acquisitions) even with their global competitors (Bonaglia et al, 2007; Lou and Tung, 2007; Mathews, 2006) as a means of catching up rapidly and acquiring the vital competitive advantage required in global markets. Given the relevance of the catching up strategies displayed by EM-MNEs that could be attributed largely to RKT, and the lack of studies pertaining to RKT in the EM (emerging market) context, it is important to explore the same in EM-MNEs.

In this study, we attempt to draw theoretical perspectives from two streams of literature (i) on emerging markets viz. the springboard perspective (Luo and Tung, 2007) and [ii]Linkage-Leverage-Learning or LLLL framework (Mathews, 2006) and (ii) extant literature on RKT. The extant literature on knowledge flows typically draws from a plethora of theoretical perspectives (Minbaeva, 2007) like knowledge-based view (Grant, 1996), resource-based view (Barney, 1991), organisational learning (Nonaka and Takeuchi, 1995) and dynamic capabilities approach (Teece et al., 1997) where the focus is largely on the vital role of knowledge and competencies for a firm. While these perspectives equip scholars with the much needed theoretical lens to

explore RKT, the context of this study also warrants consideration of the nascent theoretical perspectives on EM-MNEs to determine the factors that are pertinent in emerging markets. This is because unlike DMNEs, EM-MNEs have a different set of motives and factors to consider when they establish international linkages (Bangara et al., 2012; Madhok and Keyhani, 2012). The springboard perspective (Luo and Tung, 2007) focusses on these differences and further discusses the propensity of EM-MNEs in seeking knowledge and capabilities residing with their more competent overseas subsidiaries, to overcome their own disadvantages and thus expedite their global ambitions. This suggests that EM-MNEs' decision to engage in RKT is largely driven by their desire to springboard and what prompts them to engage in RKT is very closely linked with what would help them springboard. Hence in this study, we focus on subsidiary capability and the relevance of the knowledge (held by subsidiary) as decisive factors that prompt them to engage in RKT and abet their attempts to springboard. In addition, for RKT to materialise, it is also crucial that the receiving parent unit focuses on its absorptive capacity, which reflects its ability to absorb this knowledge. Even though this direct effect has been analysed in prior studies (Ambos et al., 2006), how EM-MNEs develop their absorptive capacity remains largely unexplored. The LLL perspective has been used in this study to identify the factors that could potentially cater to the development of absorptive capacity in EM-MNEs. This perspective explores EM-MNEs' emphasis on cumulative learning when they establish their external linkages. A focussed learning environment with adequate infrastructure could potentially contribute to this cumulative ongoing learning in EM-MNEs, and improve their absorptive capacity. This enhancement of absorptive capacity further improves their attempts at engaging in RKT. One of the contributions from this study is this mediating role of absorptive capacity, which has not been accounted for by prior studies.

The importance of knowledge relevance for RKT has been explored by prior studies in the literature (Yang et al., 2008), where it was found to be more significant for RKT when compared to conventional knowledge flow. In conventional knowledge flow, the parent's aim is largely confined to transplanting the home-based knowledge in the subsidiary, whereas in RKT, the parent is often involved in a process of searching and siphoning the subsidiary knowledge that is potentially related to what they already possess (Yang et al., 2008). Hence it is crucial that the relevance of this knowledge as perceived by the recipient parent unit is accounted for. For

parents to better utilise their absorptive capacity to engage in RKT, they need to appreciate the connectedness of the target knowledge to their operations and business environment. Similarly, even when the knowledge targeted is from a highly competent subsidiary, for the parent to be interested in this knowledge, it needs to recognise the relevance of this knowledge in terms of its implications and potential benefits. Hence the relevance of the target knowledge for the EM-MNE could be very influential in determining the dynamics of RKT in terms of its moderating role on absorptive capacity and subsidiary competence. Although the extant literature has looked at the direct effects of knowledge relevance (Yang et al., 2008), this study makes a vital contribution by exploring this moderating role of knowledge relevance.

The relevance associated with knowledge could potentially have different implications for EM-MNEs when it comes to each of the different knowledge flows such as technological, marketing and general management know-how, which have been considered for this study. Relevance may be more decisive for certain knowledge flows such as marketing know-how when compared to technological know-how, since it is relatively more location bound and context-specific in nature. Although previous research has looked at the effects of knowledge relevance on RKT (c.f. Yang et al., 2008), it has not considered how the effect of knowledge relevance varies for different types of knowledge flows. An additional contribution of this study is that it explores this differential influence of knowledge relevance on the different types of knowledge flows.

2. Theory and Hypothesis Development

2.1 Perspectives on EM-MNEs

EM-MNEs have been grabbing the limelight due their accelerated international activities (Buckley et al., 2007; Cuervo-Cazurra, 2012; Hennart, 2012; Jormanainen and Koveshnikov, 2012; Lou and Tung, 2007; Mathews, 2006). Building brands, acquiring state-of-the-art technology and organisational capabilities as well as gaining legitimacy and global recognition have been the aspiration of most EM-MNEs (Demirbag et al., 2009). Several Indian MNEs are attempting to do the same in a short time span by way of their overseas acquisitions (Bangara et al., 2012; Elango and Pattnaik, 2011; Kedia et al., 2012). As latecomers to the international

scene, EM-MNEs have seen to be resorting to springboarding (Luo and Tung, 2007) and learning from their international linkages (Mathews, 2006). These perspectives stress on the aggressive and risk taking overseas acquisitions of EM-MNEs which is not strictly incremental but is recursive and much focussed on organisational learning. These EM-MNEs are more often seen to be taking a leap of faith when it comes to their international operations especially in the developed markets as they do not have the conventional advantages (reputed brand names, technological know-how, research and organisational capabilities) that many of their advanced competitors have. However, in this process they have also realised that they cannot compete in these markets on cost advantage alone and neither do they have the time nor the resources to build such advanced organisational capabilities from scratch. Hence their overseas ventures were deliberate efforts to rapidly acquire such strategic assets (intangibles) that will lend them the much needed legitimacy and competitive advantage in the global marketplace, which is often referred to as springboarding. These strategic assets are vital for EM-MNEs in competing with their global rivals in international as well as domestic markets. The LLL framework further draws our attention the significance of learning attached to the international linkages of EM-MNEs (Mathews, 2006). This cumulative learning materialises from repeatedly leveraging the resources from their international linkages. RKT thus plays a significant role in enhancing the ownership advantages of EM-MNEs by way of this cumulative learning from their overseas subsidiaries. Drawing from these theoretical frameworks viz. springboard perspective (Luo and Tung, 2007) and LLL framework (Mathews, 2006), it is evident that 'reverse diffusion' or RKT is likely to be more prominent in EM-MNEs than in DMNEs. In the context of EM-MNEs, Indian MNEs have been one of the active acquirers (viz. Tata, Reliance, Infosys and Birla) with a dominant presence in the developed markets (Sethi, 2009). Further, 78% of the Indian acquirers cite "learning new or advanced technology from the acquired company" as the top three reasons for their overseas acquisitions (Kale, 2009). Hence this study attempts to explore RKT in the context of Indian MNEs.

2.2 Reverse Knowledge Transfer & EM-MNEs

While a vast share of the extant literature is focussed on conventional knowledge flows, the attention conferred on RKT is sparse (Ambos et al., 2006; Hakanson and Nobel, 2001; Mudambi

et al., 2014; Najafi-Tavani et al., 2012; Rabbiosi, 2011**;** Yang et al., 2008). RKT in a cross border scenario could be defined as the extent of knowledge and skills that flow from the overseas subsidiaries to their parent units at home (Ambos et al., 2006; Gupta and Govindarajan, 2000). Most of the studies on RKT explored the effects of organisational mechanisms/characteristics like coordination, integration and socialisation and relational aspects like shared values. However, considering that this study is located in an EM context, the focus is largely on what the EM-MNEs are actively seeking through RKT viz. knowledge, competencies and capabilities.

In the context of RKT, the role of the parent as the knowledge receiver is crucial. The parent needs to first assess the subsidiary's competencies and gather information about the type, usefulness and location of this knowledge possessed by the subsidiary (Yang et al., 2008) to be able to engage effectively with RKT. Hence this study attempts to capture the parent's perspective of the subsidiary's capability and their knowledge. As per the springboard perspective discussed earlier, one of the main strategies behind EM-MNEs' acquisition is their aggressive pursuit of knowledge-based assets to springboard into the international arena. For successfully implementing this strategy, the subsidiary's capability and the relevance of their knowledge to their operations is vital. While the subsidiary capability and competencies provides the EM-MNE with the much needed competitive advantage that they lack, knowledge relevance lends the context that they require to relate to the incoming knowledge. Considering the fact that the units involved in the RKT could be from totally different contexts (emerging and developed), it is important for the parent EM-MNEs to consider the relevance of this target knowledge for their operations. The parent would be able to see potential benefits of the knowledge only if it is possible to see the connectedness and implications of this knowledge in their business and organisational environment. Thus knowledge relevance (Schulz, 2001; 2003) as perceived by the parent is equally a crucial factor that would potentially influence the parent's decision to engage in RKT. Prior studies (Yang et al., 2008) have established the vital role of knowledge relevance on RKT. Considering the prominent role of knowledge relevance in the context of this study, we further extend our understanding of RKT by exploring the moderating effects of knowledge relevance.

Moreover, in addition to subsidiary capability and knowledge relevance, it is also pertinent that headquarters have the capability to receive this knowledge and use it for their own benefit. This is where the absorptive capacity (Cohen and Levinthal, 1990, Lane and Lubatkin, 1998; Gupta and Govindarajan, 2000; Zahra and George, 2002) of the receiving unit, which in this case is the parent EM-MNE, comes into the picture. While prior studies have established the positive effects of parents unit's absorptive capacity on RKT (Ambos et al., 2006), it is also worthwhile to understand the how the EM-MNEs are in the process of continuously enhancing their absorptive capacity in their attempts to catch up. EM-MNEs are likely to have considerable knowledge gap with many of their advanced subsidiaries and hence it is pertinent that they develop their absorptive capacity to be able to take the full of advantage of the incoming knowledge. Thus we focus on parent level attributes that contribute to the development of absorptive capacity in EM-MNEs. Again drawing from the LLL perspective (Mathews, 2006), EM-MNEs have a steady focus on cumulative learning from their linkages with international networks. Having an organisational environment that encourages and rewards learning is crucial for EM-MNEs, since according to the LLL framework they are involved in recursive catching up attempts by acquiring strategic resources and learning from their international networks. Besides having a conducive learning environment, it is also pertinent that they also have the adequate tools and the knowledge infrastructure that will aid them in their learning. This includes collaborative tools that facilitate interactions between employees (who are geographically distant) and locate useful knowledge sources within the MNE network and experts in these areas (Alavi and Leidner, 2001; Gold et al., 2001). Hence this study also takes into account two factors at the parent level viz. learning environment and technical knowledge infrastructure that contributes to the development of absorptive capacity of the Indian parent and subsequently analyses this mediating effect.

In this study, we aim to extend the current understanding of RKT by bringing together these factors into a single framework. In addition to testing the direct links between these factors and RKT, we also examine the moderating effects of knowledge relevance within this framework, and the mediating effects of absorptive capacity taking into account the dearth of such studies in the RKT literature. With this background, the following sections discuss the key factors reported

to affect RKT in the EM context of India, namely knowledge relevance, absorptive capacity of the parent, and the perceived subsidiary capability on RKT.

2.3 Absorptive Capacity

Absorptive capacity and its vital role in the capability development of firms have been drawing the attention of academics since its inception. In simple terms, absorptive capacity is the ability of the recipient firm to understand and appreciate the importance of new external knowledge, assimilate it and apply it for commercial ends (Cohen and Levinthal, 1990, Lane et. al., 2001; Gupta and Govindarajan, 2000; Pak and Park, 2004). Gupta and Govindarajan (2000) have conceptualised this as a function of prior related knowledge that the unit possesses and their similarity in attributes like beliefs, education, social and cultural contexts. From a human resource perspective, Minbaeva et al. (2003) treat it as a combination of employee ability and motivation. Drawing on dynamic capability perspective, absorptive capacity has also been seen as constituting of organisational strategies and routines aimed at acquiring, assimilating, transforming and exploiting knowledge for value creation (Zahra and George, 2002). Absorptive capacity for this study was operationalised in terms of the capability to adopt new techniques and the availability of adequate resources to implement new ideas, based on Pak and Park (2004). In general, knowledge flow is found to be positively linked to the absorptive capacity of the recipient unit (Gupta and Govindarajan, 2000; Mahnke et al., 2005). Firms are also able to maximise their benefits from knowledge flows by means of improving their absorptive capacity (Liao et al., 2012). The issue of absorptive capacity of recipient unit becomes less crucial for knowledge flows when both parties involved are almost equally knowledge-rich (Cohen and Levinthal, 1990). The emergent perspectives on EM-MNEs discussed earlier suggest that they often lack the capabilities and competencies that could provide them with the much needed competitive advantage and to compete in international markets (Lou and Tung, 2007; Mathews, 2006). Hence there is bound to be considerable capability gap between the parent Indian MNEs and their overseas subsidiaries that are mostly from developed countries (indicating that they might not be equally knowledge-rich). With this existing knowledge gap and considering their efforts towards reducing this knowledge gap, absorptive capacity of the EM parent is likely to play a decisive role in their knowledge acquisition. The more they develop their absorptive

capacity, the more likely they are to foresee the potential of the subsidiary's knowledge and the more likely that they will engage in RKT. Hence we posit that the parent unit's absorptive capacity is strongly associated with RKT.

Hypothesis 1 (**H1**) – Reverse knowledge transfer from overseas subsidiary to the Indian parent will be positively related to the absorptive capacity of the parent.

Organisational units that have a greater focus on learning and better research orientation tend to allocate more resources for the same and as a result are more likely to develop higher absorptive capacities (Cohen and Levinthal, 1990; Lane et al., 2001; Pak and Park, 2004). Effective learning refers to the firm's "ability to transfer what one has learned to novel tasks that embody similar underlying principles" (Bereby-Meyer et al., 2004, p. 142). An effective learning environment facilitates the development of a corporate culture that allows flexibility towards learning, an organizational structure that allows both innovativeness and new insights (Fiol and Lyles, 1985). Such an environment contributes towards degree of openness in the firm's culture, flexibility in the organisation and the senior management's commitment to learning (Hamel, 1991) which in turn improves the receptivity to learning. The ability to learn and an environment that rewards learning are expected to cater to the recipient's ability to absorb the transferred knowledge (Cohen and Levinthal, 1990) which subsequently helps in the development of the firm's absorptive capacity. Based on the LLL framework (Mathews, 2006), MNEs from the EM of India look towards their overseas counterparts to learn and develop their absorptive capacity and for this it is necessary to have the right corporate environment that facilitates and encourages learning. Thus, we propose that:

Hypothesis 2 (**H2**) – Absorptive capacity of the Indian parent will be positively related to the presence of an effective learning environment.

Most MNEs face challenges when it comes to locating knowledge that they possess (Alavi and Leidner, 2001). Technical knowledge infrastructure encompasses a wide array of tools that cater to business intelligence, collaboration software, distributed learning and knowledge discovery and mapping that helps firms in locating and maintaining the knowledge-based resources embedded within the MNE network (Ambos and Ambos, 2009). IT initiatives such as having shared databases and communication software with users linked by company intranet (Almeida

et al., 2002) promotes collective learning (Hong et al., 2006) which in turn facilitates the development of the unit level absorptive capacity. Such an infrastructure also facilitates communication (Gold et al., 2001) and enables the different parties to collaborate effectively even when they are geographically dispersed (Demirbag and Glaister, 2010). In the case of MNEs from India, they are not only culturally dissimilar from their overseas subsidiaries, but are also geographically distant from their network of subsidiaries. ICT (Information and Communication Technology) has always played a crucial role in shrinking these distances and facilitating global operations of MNEs. This analysis suggests that technical infrastructure enhances collaboration and collective learning from their overseas subsidiaries and in the process aiding the development of the parent Indian MNEs' absorptive capacity. Thus, we propose that:

Hypothesis 3 (**H3**) – Absorptive capacity of the Indian parent will be positively related to the presence of an effective technical knowledge infrastructure.

2.4 Perceived Subsidiary Capability

MNEs are network of units with each unit performing its role and responsibilities (Almeida et al., 2002). Subsidiaries' contribution towards the MNE's stock of knowledge varies significantly (Gupta and Govindarajan, 1991). This is partly due to the role of the subsidiary. Subsidiaries that are strategically important for a MNE, are relatively more endowed with resources and more capable of producing new knowledge compared to less strategic subsidiaries (Harzing and Noorderhaven, 2006; Noorderhaven and Harzing, 2009). Generally, subsidiaries that engage in knowledge flows are found to rate themselves higher or are rated higher by others in the MNE's network (Monteiro et al., 2008). That is, in addition to the actual competency levels of the subsidiary, the perception of the subsidiary's competencies by the intended knowledge recipient, which in our case is the parent EM-MNE, is crucial for RKT. Beliefs and perceptions lead to attitudes which in turn affect behaviour (Fishbein and Ajzen, 1975). The perception of a superior capability for a focal subsidiary creates a positive attitude in the parent unit towards that subsidiary. This positive attitude is likely to lead to an intention to acquire knowledge from this subsidiary which subsequently results in RKT. Further, such subsidiaries that are held in high esteem by the parent are often seen as role models, which in turn aid the learning process for the parent MNE. According to social learning theory (Fox, 2000) new comers often learn from

incumbents. EM-MNEs are relatively newcomers compared to their often well established, highly competent and experienced subsidiaries in developed markets. Additionally, the capabilities possessed by these competent overseas subsidiaries could prove to be vital in their catching up efforts and their attempts at springboarding. Hence for the EM parent, if it perceives the subsidiary to have superior capabilities, it is likely to also associate this perception with the subsidiary possessing valuable knowledge, which could be potentially beneficial to the whole MNE. For MNEs from EM like India, such subsidiaries are considered the fountainhead of knowledge that could be vital in overcoming their weaknesses and third world image and also to provide them with a more level playing field with their global competitors. Thus, we posit:

Hypothesis 4 (**H4**) – Reverse knowledge transfer from the overseas subsidiary to the Indian parent will be positively related to the perceived subsidiary capability (as rated by the parent).

2.5 Knowledge Relevance

Knowledge attributes of the target knowledge plays a vital role in knowledge flows. In particular the attractiveness of knowledge is considered a major pulling force as far as the recipient units are concerned (Gupta and Govindarajan, 2000). This attractiveness is linked to the relevance and non-duplicative nature of the knowledge. Gupta and Govindarajan (2000) argued that knowledge relevance is a necessary condition for knowledge flow to occur (see also Schulz, 2001). Knowledge is considered relevant when it connects and builds on existing knowledge (Schulz, 2003) and permits new inferences or interpretations (Sperber and Wilson, 1986). Knowledge relevance is more likely to play a crucial role for RKT than in conventional knowledge flows (Yang et al., 2008). This is because in RKT, the parent needs to be persuaded to engage in RKT for which they need to be interested in the knowledge residing within the subsidiary. This is possible only when this knowledge is relevant to existing knowledge that the parent has, and able to foresee its potential benefits (Yang et al., 2008). Thus, it is reasonable to argue that parents of MNEs from the EM of India need to be persuaded with relevant subsidiary held knowledge in order to carry out the transfer. For this to happen, as noted above, there should be some form of connectedness to the knowledge that they already possess. Hence the relevance of the knowledge as perceived by the parent Indian unit is likely to increase the chances that they engage in RKT. Thus, we posit:

Hypothesis 5 (**H5**) – Reverse knowledge transfer from overseas subsidiary to the parent India MNE will be positively related to the perceived relevance of the knowledge to the parent (as rated by the parent).

Our hypotheses are captured in our framework shown in Figure. 1. In addition to the direct effects discussed in the earlier sections, we also aim to explore the interaction effects of knowledge relevance. This aspect of knowledge is significant because knowledge also evolves through the continuous incorporation of new knowledge into existing knowledge (Schulz, 2003). Knowledge thus has the capability of changing other knowledge that is related to it. Hence it would be interesting to explore how this aspect of knowledge affects the relationship of absorptive capacity and perceived subsidiary capability on RKT. The ability of the recipient unit to absorb knowledge to a large extent depends on the prior knowledge that this unit has (Gupta and Govindarajan, 2000). Hence the effect of absorptive capacity on RKT is also likely to vary based on the nature or characteristic of the target knowledge. When this prior knowledge held by the parent is related to the subsidiary's knowledge, the effect of absorptive capacity in aiding RKT improves. This is because at higher levels of knowledge relevance, the development of absorptive capacity is likely to be associated with a better understanding of the inbound knowledge and superior ability to use this knowledge which then gets translated to a greater probability of engaging in RKT. However, when this relatedness or knowledge relevance is less, absorptive capacity's effect on RKT is likely to diminish. This means that the more the prior knowledge is related to the target knowledge, the greater will be the positive effect of absorptive capacity on RKT.

Similarly, when it comes to subsidiary capability, the effect it has on RKT is also likely to vary depending on the characteristic of the target knowledge. The subsidiary could have a range of capabilities and the parent is likely to be more interested in those capabilities that are more relevant to their operations and expertise, which they would be interested to build on. Building on such related capabilities could also prove to be more beneficial for the parent Indian MNE in their catching-up strategies and establishing their position globally. At higher levels of knowledge relevance, it is likely to be easier for the parent to be persuaded to engage in RKT with a competent subsidiary. Thus when a subsidiary that is perceived to have a superior

capability has knowledge that is more relevant to the parent unit, then it becomes a more attractive proposition for the parent thus increasing their interest in this target knowledge. Thus knowledge relevance is likely to improve the positive effect that perceived subsidiary capability has on RKT.

Hypothesis 6 (**H6**) - Knowledge relevance positively moderates the relationship between RKT and perceived subsidiary capability.

Hypothesis 7 (**H7**) - Knowledge relevance positively moderates the relationship between RKT and absorptive capacity

3. Methodology

When it comes to Indian MNEs, there are several interesting aspects with regards to their internationalisation viz. prominence of south-north acquisitions, greater geographical dispersion, are mainly majority owned acquisitions and are mostly by MNEs from the private sector (Kumar, 2008; Nayyar, 2008; Pradhan, 2007; Sethi, 2009). Hence the target sample for this study was Indian MNEs with overseas M&As.

3.1 Data Collection

For this study, we identified a set of 329 Indian MNEs as the sampling frame; specifically focussing on those which have overseas M&As. We chose the latter entry mode because Indian MNEs tend to enter foreign markets, particularly in developed markets, via such acquisitions (Pradhan, 2007). The focus on Indian MNEs is based on a number of reasons which include i) significant boom in OFDI (Outward Foreign Direct Investment) since 1990s ii) evidence of learning by Indian MNEs from foreign associations (Chittoor and Ray, 2007; Elango and Pattnaik, 2007) iii) the significant dominance of Indian OFDI in developed countries (Sethi, 2009) . The list of Indian MNEs for this study has been compiled from two of the [iii]FICCI reports (FICCI, 2006; FICCI & Grant Thornton, 2010). These reports cover the M&As by Indian MNEs between 2000 and 2010 and have also been supplemented by some other reports[iv]. The Indian MNEs with acquisitions made during the timeframe of 2000 to 2010 have been chosen for the

study since the acquisition spree by Indian MNEs in the developed countries gathered momentum since 2003 (Nayyar, 2008). These MNEs are from a variety of industries with a majority of them from the IT& IT enabled Services (25%) and Pharmaceutical & Biotechnology (15%) sector.

A questionnaire was [v]administered to managers of these 329 Indian MNEs. To improve the response rates, follow up calls were made and emails were sent to these respondents. Following data collection for 6 months, responses were received from 114 respondents of which, 101 were found to be usable and the others were discarded as they were invalid or had large portions of incomplete data. The firm level response rate is 31%. To check for non-response bias with the data, t-test (independent sample) was performed to check whether the non-respondent and respondent firms differed in terms of a few relevant firm related parameters[vi] (Ambos and Ambos, 2009). The results from the t-test suggested that there were no significant differences (at $p \leq .05$) between the respondent and non-respondent firms on any of the chosen parameters thus ruling out non response bias. To reduce the possibility of common method bias, a number of procedural remedies (Chang et al., 2010; Podsakoff et al., 2003) were employed. All the respondents were ensured anonymity (individual level and organisational level) and were encouraged to provide responses honestly. This also reduces potential issues with social desirability bias which is a common source of common method bias. Further, the questionnaire was designed with different response formats including Likert scales, open ended questions and fixed alternative questions (Podsakoff et al., 2003). The questionnaire was divided into two sections i) that deals with questions related to the parent unit and ii) that deals with questions related to the subsidiary, that reduces the possibility of the respondents drawing conclusions regarding the potential linkages between the criterion and predictor variables from the ordering of the questions. Post-hoc analysis was done using Harmans one-factor test to ensure that no single factor emerged that accounts for most of the variance (Williams, 2009). In addition, a common method factor was added to the model (Liang et al., 2007; Podsakoff et al., 2003). The indicator's (manifest variables) variances that were accounted for by the main constructs (substantive variance) in the model and the method factor (method based variance) were then compared. It was seen that after the addition of the method factors, the substantive variance were

still significant and was greater than the method based variance suggesting that common method bias is unlikely to be an issue for this study.

Prior studies on knowledge flows have largely chosen respondents that include heads of organisations and functions (Bjorkman et al., 2004; Gupta and Govindarajan, 2000; Simonin, 2004) since they have a bird's eye view of the operations and more specifically on the subsidiary operations and post integration activities. Also, most nodal studies on RKT focus on the recipient or the parent unit perspective (Ambos et al. 2006; Rabbiosi 2011). Along the same lines, the respondents chosen for this study also consist of senior level respondents (71%) viz. [vii]CEOs, COOs, CIOs, VPs, GMs and Business Heads. The middle level managers (29%) include those heading departments or functions within their organisations, who have more of an operational perspective related to RKT. Additionally, services of research teams in India were utilised to identify these potential respondents based on the extent of their involvement with the international operations and engagement with subsidiaries. The respondent profile is provided in Table. 2. The mean age of the respondent MNEs is 37 years. The average tenure of the respondents with the specific organisation is 9 years.

Table 1: Respondent Characteristics

Description	Percentage	Description	Percentage
Industry – Sector		**Subsidiary Location**	
Pharma, Biotech & Healthcare	20	USA	32
IT & ITeS	17	UK	19
Automotives	12	Germany	9
Chemicals, Fertilizers & Plastics	11	Canada	3
Metals, Ores & Mining	11	Australia	2
Engineering & Machinery	7	France	2
Textiles, Apparels & Jewelry	5	Rest of Europe	18
Electrical & Electronics	4	Others	15
Oil, Gas & Power	3	**Subsidiary Age**	
Telecom	3	< 10 years	30
Others	7	10 – 20 years	15
MNE age (parent)		20 – 30 years	39
< 10 years	6	30 – 50 years	4

10 – 20 years	28	50 – 100 years	8
20 – 30 years	29	> 100 years	4
30 – 50 years	17	**Respondent Position**	
50 – 100 years	12	Senior Management	71
> 100 years	8	Middle Management	29
No. of employees (Parent)		**Respondent Experience with the MNE**	
< 1000	29	> 20 years	8
1000 – 5000	43	15-20 years	13
5000 – 10,000	9	10 - 15 years	17
> 10,000	19	5 – 10 years	29
		< 5 years	33

3.2 Measures

The survey was conducted at the organisational unit level, specifically to capture the parent EM-MNE perspective, who is the recipient unit in this study (Ambos et al., 2006; Rabbiosi, 2011). Most of the questions are based on 7 point Likert scales from the literature. Appendix has been provided with the scales that have been used to measure the constructs used for this study.

We use several country level, industry level and firm level variables as control variables. The firm level controls include the size and age of the parent unit relative to the subsidiary unit, acquisition age and organisational distance between the parent and the subsidiary unit. In terms of organisational level variables, size and age of the firms are seen to be important determinants of knowledge transfer (van Wijk et al., 2008). Organisational distance in terms of similarity of organisational practices and operations also aid knowledge flows (Simonin, 1999), which has also been controlled for in this study. Acquisition age is also controlled for (Yang et al., 2008) to account for the extent of association between the units that could potentially affect knowledge flows. Since cultural differences between the recipient and source units could hinder the knowledge flows (Ambos et al., 2006), the study controls for cultural distance between the host and home countries. Cultural distance was measured using Hofstede's (1980) four cultural dimensions[viii], following the approach by Kogut and Singh (1988). The study also controlled for the effects of the subsidiary location, since different locations present different advantages to the MNE network and hence has an influence on knowledge flows (Fey and Furu, 2008). The

location of the subsidiary was categorised into four groups – (i) USA & Canada (ii) UK, France & Germany (iii) rest of Europe and (iv) others[ix]. Depending on the type of industry that the firm belongs to, the dynamics of knowledge flows also vary (Cho and Lee 2004). The knowledge and technology intensive industries are more likely to pursue knowledge flows aggressively. Hence, industry level controls were also included by categorizing the parent MNE into three groups – (i) high technology & high-tech knowledge intensive (ii) medium technology & knowledge intensive and (iii) low technology & less knowledge intensive. This categorisation is based on the [x]NACE code (for respondent firms) that depends on their industrial sectors and has been used in other similar studies (Garcia-Manjon and Romero-Merino, 2012).

3.3 PLS Modeling

Structural Equation Modelling (SEM) using PLS (Partial Least Square) approach was employed in this study using SmartPLS V2.0 (Ringle et al., 2005). PLS (Lohmöller, 1989; Wold, 1975) is a variance based technique (Henseler et al., 2009) in contrast to CB-SEM (Covariance based SEM) which is a covariance based method. Over the years, PLS has been used extensively for data analysis in the field of marketing, strategy and management (see Hair et al., 2012 for a detailed list). PLS "maximizes the explained variance of the endogenous latent variables by estimating partial model relationships in an iterative sequence of ordinary least squares (OLS) regressions" (Hair et al., 2012, p. 415). Some of the main advantages that this soft modelling technique has is that it is not rigid when it comes to the assumptions with respect to multivariate normality, can handle both formative and reflective indicators, can analyse complex models using smaller samples and could be used as a predictive tool for theory building (Cool et al., 1989; Hair et al., 2012; Johansson and Yip, 1994; Ringle et al., 2012). This study uses PLS since it involves a relatively smaller sample to analyse the direct, moderating and mediating effects and has multiple paths that can be analysed simultaneously for the model as a whole. Based on the procedure by Hulland (1999), the analysis is conducted in two stages with the (i) reliability and validity of the measurement model and (ii) assessment of structural model.

3.4 Results

3.4.1 Measurement Model

The measurement model involves testing the reliability and validity of each of the reflective measures for all the constructs. The items all load > 0.55 as shown in Table 3 and are all significant ($p \leq .001$) and additionally the items load highest on the construct it measures when compared to its loading on other constructs (Chin, 1998). This establishes the individual item reliability. To establish the convergent validity and the composite reliability of the scale the following criteria have to be satisfied; Cronbach's alpha ≥ 0.7 (Nunnally, 1978), (CR) Composite Reliability ≥ 0.7 (Bagozzi and Yi, 1988) and (Average Variance Extracted) AVE ≥ 0.5 (Bagozzi and Yi, 1988). The results of the test provided in Table 3 indicate that these conditions have been satisfied.

Table 2: Results of Validity & Reliability Tests

Constructs	Items	Outer Loading	AVE	CR	Cronbach's alpha
Absorptive Capacity	Abs_Cap1	0.55	0.58	0.87	0.81
	Abs_Cap2	0.79			
	Abs_Cap3	0.83			
	Abs_Cap4	0.89			
	Abs_Cap5	0.72			
Knowledge Relevance	Know_Rel1	0.73	0.76	0.90	0.86
	Know_Rel2	0.94			
	Know_Rel3	0.93			
Reverse Knowledge Flow	Rev_Flow1	0.77	0.73	0.89	0.81
	Rev_Flow2	0.89			
	Rev_Flow3	0.89			
Perceived Sub. Capability	Sub_cap1	0.63	0.66	0.85	0.75
	Sub_cap2	0.92			
	Sub_cap3	0.86			

Tech. Knowledge Infrastructure	Tech_Knowl_Infra1	0.75	0.51	0.89	0.86
	Tech_Knowl_Infra2	0.77			
	Tech_Knowl_Infra3	0.58			
	Tech_Knowl_Infra4	0.73			
	Tech_Knowl_Infra5	0.70			
	Tech_Knowl_Infra6	0.69			
	Tech_Knowl_Infra7	0.80			
	Tech_Knowl_Infra8	0.64			
Learning Environment	Learn1	0.83	0.68	0.93	0.91
	Learn2	0.84			
	Learn3	0.89			
	Learn4	0.85			
	Learn5	0.78			
	Learn6	0.76			

All outer loadings are significant at p < .001 (Item names and descriptions are provided in the Appendix)

Discriminant validity was checked with the Fornell-Larcker criterion (Fornell and Larcker, 1981) as provided in Table. 4. According to this criterion, if the correlations for the specific construct with other constructs (off diagonal) are less than the diagonal element (which indicates the construct's correlation with its own items – square root of AVE), then it indicates discriminant validity of the construct. Table. 4 illustrates that this condition holds good for all the latent constructs in this study.

Table 3: Correlation Matrix for assessment of Discriminant Validity

Constructs	**1**	**2**	**3**	**4**	**5**	**6**
Abs Cap	**0.764**					
Knowl Relevance	0.197	**0.872**				
Learning Env.	0.628	0.234	**0.825**			
Perc Subsidiary Capability	0.304	0.450	0.363	**0.813**		
Rev Knowl Flow	0.482	0.412	0.494	0.525	**0.853**	
Tech Knowl Infra	0.692	0.165	0.597	0.354	0.482	**0.711**

3.4.2 Structural Model

PLS structural models are evaluated with R^2 estimates, path coefficients and their t-statistics. R^2 estimates indicate predictive power of models and R^2 values of .67, 0.33 and 0.19 suggest that they are substantial, moderate and weak PLS models (Chin, 1998) respectively. The path coefficients and t-statistics for the analysed model indicate the strength of the relationship and the significance between the endogenous and exogenous variables. The t-statistics for the path coefficients are generated from a bootstrapping procedure (with sample = 500) for the purpose of testing the hypotheses (Chin, 1998). Fig. 1 indicates the structural model with the R^2 estimates (.604) and the path coefficients which indicate adequate model fit and good predictive power of the model. Further, Table 5 provides the results from the various models that were used for testing the hypotheses.

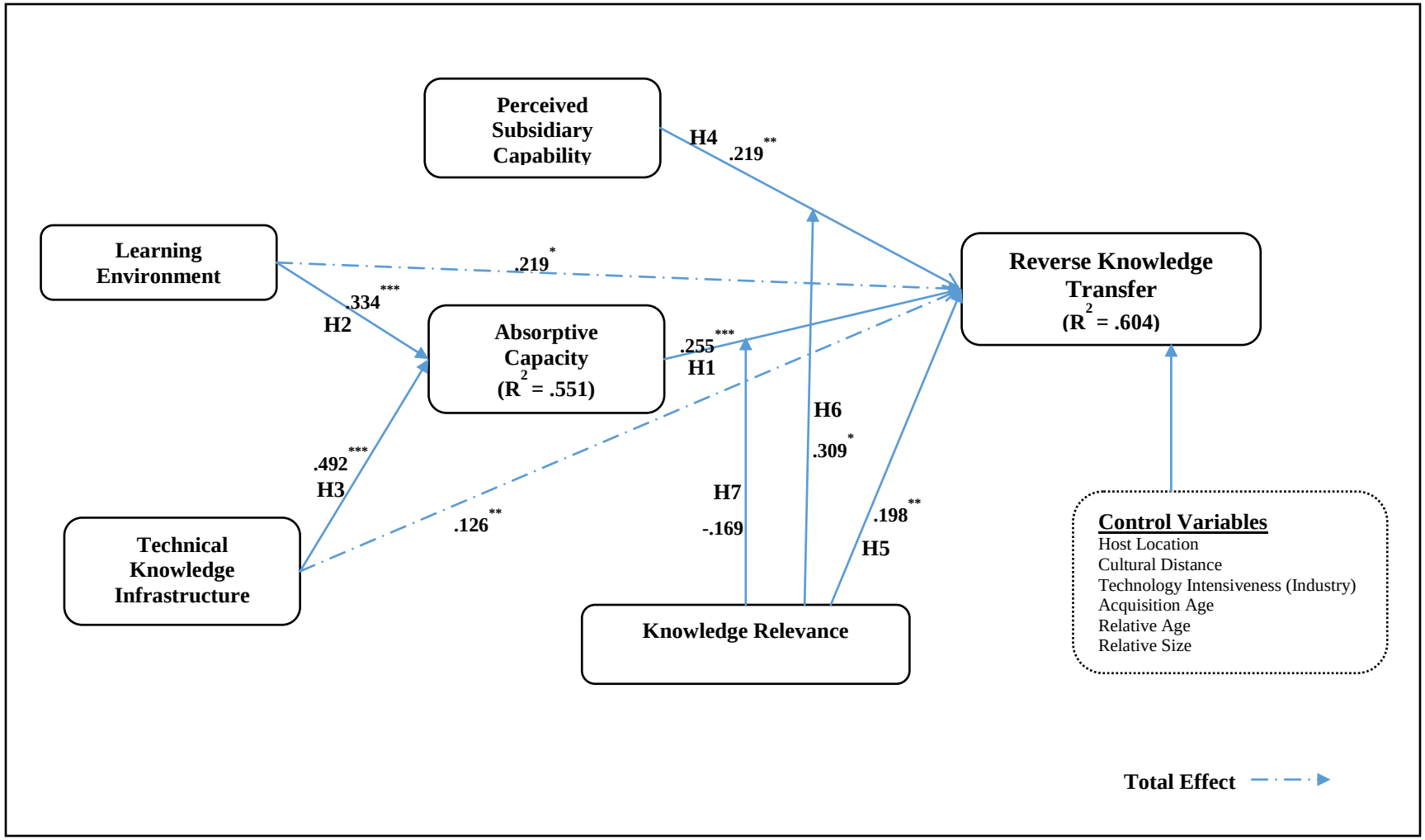

Figure 1: PLS-SEM Path Model[xi]

Five sets of models were analysed as indicated in Tables 5 and 6. Models 1 (without moderation) and 2 (with moderation) were used to test the hypotheses that were developed for this study. We found support for all (six) hypotheses except H7. In both models, absorptive capacity (H1, β = .255 at $p \leq .01$), perceived subsidiary capability (H4, β = .219 at $p \leq .05$) and knowledge relevance (H5, β = .198 at $p \leq .05$) have a significant positive impact on RKT. The positive effects of learning environment (H2, β = .334 at $p \leq .01$) and technical knowledge infrastructure (H3, β = .492 at $p \leq .01$) on absorptive capacity were also supported. These total effects of these two variables on RKT have also been provided in figure 1. In terms of the moderating effects, only the moderating effect of knowledge relevance on the positive relationship of perceived subsidiary capability on RKT (H6, β = .309 at $p \leq .1$) was supported while it was not supported for absorptive capacity (H7, β = -.169 at p = .19).

Table 5: PLS-SEM Path Modelling Results

Paths	Hypothesis	Model 1 (base)		Model 2 (full)	
		Path Coeff.	T-Statistics	Path Coeff.	T-Statistics
Direct Effects					
Abs Cap → RKT	H1	0.300***	3.202	0.255***	2.375
Learning Environment → Abs Cap	H2	0.334***	2.530	0.334***	2.684
Tech. Know*l. Infra → Abs Cap*	H3	0.493***	4.514	0.492***	4.836
Perc. Sub. Cap → RKT	H4	0.294***	2.827	0.219**	1.991
Knowledge Relevance → RKT	H5	0.240***	2.441	0.198**	2.156
Moderating Effects					
Perc Sub Cap X Knowledge Relevance → RKT	H6			0.309*	1.270
Abs C*ap X Knowledge Relevance → RKT*	H7			-0.169	0.873
Total Paths					
Tech. Knowl. Infra → *RKT*		0.148***	2.767	0.1254**	1.8353
Learning Environment → *RKT*		0.100**	1.744	0.0832*	1.5361
Control Variables					
Acquis Age → *RKT*		-0.1469**	1.762	-0.168**	2.283
Cultural Distance → *RKT*		-0.0066	0.062	0.002	0.017

High Tech Ind → *RKT*	0.1016	0.711	0.121	0.829
Med Tech Ind → *RKT*	0.1027	0.684	0.160	1.042
Organisational Distance → *RKT*	0.0106	0.094	-0.057	0.558
Relative Age → *RKT*	0.1141*	1.321	0.107*	1.240
Relative Size → *RKT*	0.0764	0.984	0.045	0.632
Location1 → *RKT*	0.1939*	1.518	0.115	0.840
Location2 → *RKT*	0.0749	0.530	0.020	0.150
Location3 → *RKT*	0.1307	0.909	0.132	1.002
R^2 (for RKT)	.498		.604	
R^2 (for Abs Cap)	.551		.551	

*** $p \leq .1$, ** $p \leq .05$, *** $p \leq .01$ (p from tdist (t, df = 499, one-tailed))**

In addition, model 2 was tested separately for the three different knowledge components namely technological (model 3), marketing (model 4) and management (model 5) that were used to measure RKT, perceived subsidiary capability and knowledge relevance. This additional comparative analysis (table 6) was done to understand whether the model behaved differently for the different knowledge types that were considered.

The results indicate that Model 2 has the maximum explanatory power for RKT (R^2 = .604) and the GoF (goodness of fit) value for this model (.355) is in the medium to large range (Tenenhaus et. al., 2004). The interaction effects have enhanced the explanatory power (R^2) in model 2 from model 1. Further, f^2 was computed (Chin, 1998) to check the extent of improvement of R^2 on model 2 over model 1 and it was found to be .21 which indicates medium effect (≥ .15). The R^2 (= .55) values for absorptive capacity also indicates the predictive power of learning environment and technical knowledge infrastructure together in accounting for the variance in absorptive capacity. The correlation matrix is provided in Table 7 in the Appendix along with the mean and standard deviation for all the variables. The VIF (Variance Inflation Factor) was also checked (< 10) to confirm that multi-collinearity is not a potential issue with this analysis (Hair et al., 1995). Further, because of the relatively low sample size, post-hoc statistical power was calculated (Cohen, 1988) based on the R^2 estimates obtained, the number of predictors used in the model and the probability level of .001. The test provided a statistical power (> .8) that is satisfactory.

Table 6: [xii]Additional PLS Analysis

Paths	Hypothesis	Model 3 (tech)		Model 4 (mrkt)		Model 5 (mgmt)	
		Path Coeff	T-Statistics	Path Coeff	T-Statistics	Path Coeff	T-Statistics
Direct Effects							
Abs Cap → RKT	H1	0.282***	2.744	0.186**	1.729	0.238**	2.115
Learning Environment → Abs Cap	H2	0.334***	2.655	0.335***	2.564	0.334***	2.528
Tech. Knowl. Infra → Abs Cap	H3	0.494***	4.874	0.492***	4.524	0.492***	4.549
Perc. Sub. Cap → RKT	H4	0.214**	1.674	0.394***	4.176	0.247**	2.285
Knowledge Relevance → RKT	H5	0.190*	1.534	0.249***	2.509	0.218**	1.994
Moderating Effects							
Abs Cap X Knowledge *Relevance → RKT*	H6	-0.132	0.974	0.210	0.390	0.199	0.960
Perc Sub Cap X Knowledge *Relevance → RKT*	H7	-0.015	0.143	0.078	0.731	0.245***	2.563
Total Effects							
Learning Environment → RKT		0.094**	1.751	0.062*	1.356	0.080*	1.360
Tech. Know. Infra → RKT		0.139**	2.291	0.092*	1.543	0.117**	1.841
R^2 (for RKT)		.434		.542		.465	
R^2 (for Abs Cap)		.552		.551		.550	

* $p \leq .1$, ** $p \leq .05$, *** $p \leq .01$ (p from tdist(t, df=499, one-tailed))

3.4.3 Mediating Effects

Additional analysis was done to check for mediation effects. Mediation analysis was done based on Baron and Kenny's (1986) procedures. The first mediation analysis was done to test the mediation effect of absorptive capacity on the relationship between technical knowledge infrastructure and RKT. For this the base model (model 1) was taken without learning environment and absorptive capacity and linking technical knowledge infrastructure as a predictor of RKT. The relationship of technical knowledge infrastructure → RKT was significant

(β = .294 at p ≤ .001). Then in the next model, two more paths were added; (i) technical knowledge infrastructure was linked as a predictor to absorptive capacity and (ii) absorptive capacity was linked as a predictor to RKT. It was seen that the strength of technical knowledge infrastructure → RKT was less and the significance levels also dropped (β = .147 at p ≤ .1). The other two paths technical knowledge infrastructure → absorptive capacity (β = .693 at p ≤ .001) and absorptive capacity → RKT (β = .212 at p ≤ .05) were also significant. This indicates the partial mediation of absorptive capacity on the relationship between technical knowledge infrastructure and RKT. Similar analysis was done to test the mediation of absorptive capacity on the relationship between learning environment and RKT. In the first model, it was seen that learning environment → RKT was significant (β = .356 at p ≤ .001). In the second model, after adding the additional paths, it was seen that learning environment → RKT reduced in strength and significance (β = .253 at p ≤ .05). The other two relationships, learning environment → absorptive capacity (β = .628 at p ≤ .001) and absorptive capacity → RKT (β = .166 at p ≤ .1) were also significant. This again indicates partial mediation of absorptive capacity on the relationship between learning environment and RKT even though it is not as prominent as in the earlier mediation effect.

4. Discussion

For EM-MNEs, acquiring knowledge-based assets is one of the primary motives behind their accelerated internationalisation attempts as suggested by the springboard perspective. In this regard, many of their overseas subsidiaries especially in the developed markets are valuable sources of organisational competencies and other technological capabilities, which are much sought after. Yet, there is limited understanding of the factors that determine the knowledge flows to parent units in EM from their overseas subsidiaries. The purpose of this study was to address this research gap and develop a model to explore and test RKT in relation to the factors that are pertinent in an EM context.

The findings of this study reveal that, the way the parent perceives the capability of the subsidiary, has an impact on RKT in Indian MNEs. When the parent perceives the subsidiary to be highly capable, they are more likely to engage in RKT with that subsidiary. Studies on

knowledge outflows from subsidiaries also suggest that knowledge outflows were significantly higher from subsidiaries that are highly rated with respect to their capabilities (Monterio et al., 2008; Noorderhaven and Harzing, 2009). In the case of MNEs from EM like India, according to the IB literature, one of the main motives of their internationalisation strategy is to acquire the knowledge that they lack (Kale, 2009; Luo and Tung, 2007; Mathews, 2006). Hence based on their acquisition strategy, they are likely to invest more of their efforts on RKT from their more competent subsidiaries. This is even more prominent when it comes to the acquisitions of EM-MNEs in the developed economies which are often termed as knowledge seeking OFDI (Kedia et al., 2012). Such knowledge seeking acquisitions pursued in the West are also a vital and major part of Indian OFDI, since these subsidiaries in developed markets are generally perceived to be more competent. The fact that the parent perception of the subsidiary capability drives RKT is also an indication of their commitment towards augmenting their knowledge base and closing the knowledge gap to compete more effectively with their global competitors.

The results indicate that the positive effect of perceived subsidiary capability on RKT will be stronger with greater knowledge relevance. This means that for Indian MNEs, the more the relevance of the knowledge associated with the subsidiary, the greater will be the extent of RKT from an overseas subsidiary that is perceived to be more capable by the parent. This further suggests the importance of knowledge relevance in international knowledge transfers involving organisational units from both developed and emerging economies**.** However, knowledge relevance was not found to have a positive moderating effect on the relationship between absorptive capacity and RKT. This result is quite surprising considering the fact that absorptive capacity is closely related to the prior knowledge held by the recipient unit (Gupta and Govindarajan, 2000; Schulz, 2003). However, we also need to consider the fact that many of the Indian MNEs engaged in overseas M&As are conglomerates who often venture into diverse and unrelated areas as part of internationalisation. This could potentially dampen the effect of knowledge relevance. In such cases, the positive effect of absorptive capacity on RKT could remain unaffected, in spite of the changes to the levels of relatedness in the knowledge possessed by the two units involved in the knowledge transfer. The results suggest that the parent units who pursue such unrelated diversification may still engage in RKT (irrespective of the associated knowledge relevance) and enhance their absorptive capacity and knowledge of these diverse

portfolios through their acquisitions. This could be one of the potential reasons for the results produced by this study and warrants further investigation on the links between MNE diversification and the effects of knowledge relevance.

Prior studies on the knowledge transfer indicate that the recipient's absorptive capacity has a positive effect on knowledge flow (Ambos et al., 2006; Mahnke et al., 2005; Pak and Park, 2004). However, the results were not fully supported for lack of significance in certain other studies (Gupta and Govindarajan, 2000; Szulanski et al., 2004). Researchers have attributed this inconsistency in results to the differences in operationalisation of absorptive capacity (Minbaeva, 2007). This study indicates that the parent Indian unit's absorptive capacity has a positive influence on RKT. Absorptive capacity indicates the capability to assimilate and utilise external knowledge and this has more of an effect on knowledge flows when the recipient and source units are not equals in terms of their knowledge possessions (Cohen and Levinthal, 1990). Hence this construct is likely to have more of a prominent effect in this study where the recipient unit is from the EM of India and most of their overseas subsidiaries are from developed markets. There could be a considerable gap in terms of their knowledge possessions and EM-MNEs are in the process of closing this knowledge gap with these knowledge acquisitions. Further, drawing from the learning perspective, this study suggests that a good learning environment and technical knowledge infrastructure facilitates the development of absorptive capacity in Indian MNEs. IT enabled technologies help organisations collaborate with geographically dispersed units (Alavi and Leidner, 2001; Almeida et al., 2002; Gold et al., 2001) and thus become more aware of knowledge residing in other units. The positive effects of technology based mechanisms on knowledge flows also suggest their effectiveness (Ambos and Ambos, 2009; Hong et al., 2006). Such mechanisms increase the ability of the Indian MNEs to recognise knowledge that is bound to be useful for them, which will make it easier for them to assimilate and use it for their own benefit. Since Indian MNEs are generally found to be very IT savvy, it is also natural that most of these Indian MNEs rely on IT enabled technologies to improve their absorptive capacity.

Similarly, a learning environment that provides its employees with opportunities to learn and further encourages and rewards them for their learning (Lyles and Salk, 1996; Pérez-Nordtvedt et al., 2008; Simonin, 2004; Simonin and Ozsomer, 2009), is found to facilitate knowledge

exchanges. Such an environment creates a frame of mind in employees where they are more willing to accept changes and new knowledge which in turn is crucial for the development of absorptive capacity. The LLL framework (Mathews, 2006) also discusses the continuous focus that EM-MNEs have on cumulative learning through leveraging the resources acquired through external linkages. The focus of Indian MNEs on learning environment and knowledge infrastructure provides further evidence of their focussed catching up strategies (Luo and Tung, 2007) and developing their absorptive capacity to effectively engage in RKT.

The model-based comparisons for three different knowledge types also provide interesting insights on the effects of the above discussed relationships. It could be seen that the positive effect of knowledge relevance on RKT is stronger when it comes to the flow of marketing know-how when compared to technological and management know-how. Marketing know-how is more location specific (Fang et al., 2010) and hence this knowledge is more linked to the context of the specific subsidiary. This also means that applicability of this knowledge is also highly dependent on the context and may or may not be relevant in other locations and business settings. In this scenario, parent units are more concerned with the relevance of this marketing know-how in terms of the transferability and applicability to their own business context. Similarly, the positive effect of technical knowledge infrastructure on RKT is also more prominent when it comes to flow of technological know-how. This could be attributed to the fact that technical knowledge infrastructure is more applicable in searching, locating and sharing technological knowledge when compared to the other types of knowledge because of its codified nature. The moderating effect of knowledge relevance on the positive relationship between perceived subsidiary capability and RKT is also stronger in the case of the flow of management know-how when compared to the others. Management knowledge is often deeply embedded in the organisational context (Muthuswamy and White, 2005) and institutional environment (Kostova and Roth, 2002). Management practices and strategies which work in certain organisational and national contexts need not provide the same results in another context. Hence, parent units of EM-MNEs pay more attention to the relevance of this knowledge even if they are targeting a very competent subsidiary for this knowledge. This indicates that although scholars have been treating knowledge flows as a combination of different types of knowledge flows, it is worthwhile to explore the differences in model behaviour for individual knowledge types. Such

differences help organisations fine tune their organisational mechanisms that facilitate knowledge flows in line with the nature and type of the target organisational knowledge.

5. Conclusions

This study takes a fresh look at the process of RKT in the context of MNEs from India. The study proposes a framework that brings together factors such as knowledge relevance, perceived subsidiary capability and parent absorptive capacity that are vital to RKT in the context of EM-MNEs. In addition to these direct effects, the study also seeks to contribute to our understanding of the mediating effect of absorptive capacity, and the development of the same in parent Indian MNEs - by means of having a corporate environment conducive to learning and having an effective technical knowledge infrastructure. The study also reveals the importance of knowledge relevance in RKT further by further exploring the moderating effects. Knowledge and learning have always played a central role in the internationalisation of firms (Pla-Barber and Alegre, 2014) and more so in the case of EM-MNEs (Kedia et al., 2012) and in this regard this study has several implications for academics and practitioners.

The findings from this study lend support to the more recent theoretical perspectives on EM-MNEs such as springboard and LLL. The knowledge residing with the more competent subsidiaries is specifically targeted by Indian MNEs to potentially fulfil their global ambitions and compete with other well-endowed industry leaders. Their efforts towards improving absorptive capacity by focussing on the learning environment is also an attempt to springboard - overcome several of their disadvantages stemming from lack of global experience, managerial competence, technological and innovation capabilities. Similarly, a sustained focus on learning (LLL) could potentially enable Indian MNEs to cumulatively develop capabilities and competencies as they progressively acquire more overseas subsidiaries. This study suggests that RKT from overseas subsidiaries is a crucial vehicle (as a springboard to acquire strategic assets) that could potentially aid the evolution of Indian MNEs, which triggers another debate whether a convergence between EM-MNEs and DMNEs is possible (Mellahi et al., 2013; Ramamurti, 2012). The direction and the speed of such evolution is going to play a significant role in new theoretical debates and models explaining internationalisation of EMNEs (Hennart, 2012;

Demirbag and Yaprak, 2015). This is one of the initial studies that suggest the need to take into account these emergent perspectives in exploring RKT and establishes the significance of the links between RKT and the attempts of EM-MNEs to springboard.

The findings of this study also throw light on the persuasive role of knowledge relevance that is particularly vital for EM-MNEs, when they attempt to transfer knowledge from overseas subsidiaries in host countries that have different business and organisational environments. The findings suggest that knowledge residing with their competent subsidiaries is of more interest to Indian MNEs, when they can see the relevance of this knowledge. The study also reveals that the effect of relevance is not the same for the different types of organisational knowledge. This warrants studies that also explore the effects of various determinants on the individual components of RKT. For instance, the effect of knowledge infrastructure on the flow of technological know-how is more prominent when compared to the flow of marketing know-how. This implies that it is essential for future studies to account for the contextual nature and other attributes of the knowledge in conjunction with organisational mechanisms and characteristics to be able to fully understand RKT.

One of the main implications for managers is the need to be more aware of the knowledge attributes of the target knowledge. Managers could strive towards engaging their teams in reverse knowledge transfer by making their teams see the potential value of the target knowledge in terms of their ability to improve organisational performance and efficiency. Managers from EM-MNEs need to also better understand that differences in organisational and business contexts in host and home countries and view the incoming knowledge in light of such differences. This can further aid them in transferring the knowledge that could be more relevant which in turn could provide them with better returns. The same holds good when dealing with different types of organisational knowledge and how relevance could be more crucial for certain types of knowledge flows which are more location specific when compared to others. The study also reveals the need for managers to focus on a conducive learning environment along with the required technological infrastructure that aids distributed learning. This learning is vital for EM-MNEs to compete effectively in global markets according to the emergent perspectives on EM-MNEs.

The authors would also like to acknowledge some of the limitations that the study has. The study has been conducted in the emerging market of India and hence the conclusions and implications should be applied with caution to other emerging markets. The motives of acquisition, the location choices and the nature of the industries involved in these acquisitions may vary considerably between these heterogeneous groups of EM. Further, this is a nodal study and hence captures the views of the recipient parent unit and could benefit from including the subsidiary perspective as well (dyadic). Additionally, this study employs cross-sectional surveys, which has limitations in terms of establishing causalities clearly and accounting for temporal effects.

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APPENDIX

Scales

(1) Reverse Knowledge Transfer (using a 7-point Likert scale ranging from 1= "Not at all" to 7= "A very great deal" in three knowledge areas (Gupta and Govindarajan, 2000))

- Our subsidiary provides us with knowledge and skills (repeated for technological, marketing and management knowledge with items Rev_Flow1, Rev_Flow2 and Rev_Flow3 respectively)

(2) Knowledge Relevance (using a 7-point Likert scale (Yang et al., 2008) ranging from 1= 'Not at all' to 7 = 'A Very Great Deal')

- Prior to the acquisition, how similar was the knowledge held by your subsidiary when compared to yours (repeated for technological, marketing and management knowledge with items Know_Rel1, Items Know_Rel2, Items Know_Rel3 respectively)

(3) Technical knowledge infrastructure (using a **7-**point Likert scale (Gold et al., 2001) ranging from 1 = 'Strongly Disagree' to 7 = 'Strongly Agree')

- We have clear rules for formatting or categorizing knowledge (Tech_Knowl_Infra1)
- We use technology that allows us to monitor its competition and business partners (Tech_Knowl_Infra2)
- We use technology that allows employees to collaborate with overseas units (Tech_Knowl_Infra3)
- We use technology that allows people in multiple locations to learn as a group (Tech_Knowl_Infra4)
- We use technology that allows us to search for new knowledge (Tech_Knowl_Infra5)
- We use technology that allows us to map the location of specific types of knowledge (Tech_Knowl_Infra6)
- We use technology that allows us to retrieve and use knowledge (Tech_Knowl_Infra7)
- We use technology that allows us to generate new opportunities in conjunction with its partners (Tech_Knowl_Infra8)

(4) Absorptive Capacity (using a 7-point Likert scale (Pak and Park, 2004) ranging from 1 = 'strongly disagree' to 7 = 'strongly agree')

- We (Parent) have the academic background to understand our subsidiary's knowledge (Abs_Cap1)
- We (Parent) have better capabilities for adopting new techniques than our competitors (Abs_Cap2)
- We (Parent) provide various education programs for employees (Abs_Cap3)
- We (Parent) allocate financial resources for new ideas and research (Abs_Cap4)
- We (Parent) provide frequent training programs abroad (Abs_Cap5)

(5) Perceived Subsidiary Capability (using a 7-point Likert scale (Harzing and Noorderhaven, 2006) ranging from 1 = 'far below when compared to others' to 7 = 'far above the others')

- How do you evaluate your subsidiary's capabilities relative to other units in your MNE network (repeated for technological, marketing and management knowledge with **i**tems Sub_cap1, Sub_cap2 and Sub_cap3 respectively)

(5) Learning Environment (using a 7-point Likert scale (Richey and Autry, 2009) ranging from 1 = 'strongly disagree' to 7 = 'strongly agree')

- We (Parent) provide employees with the opportunity to learn new skills (Learn1)
- Your employees are rewarded for using on the job what they have learned in training (Learn2)
- Training is encouraged in your organization to develop the skills needed for advancement (Learn3)
- Employees in your organization are open to new ideas and suggestions (Learn4)
- Your employees are rewarded for learning different approaches to solving problems (Learn5)
- In your organization supervisors and co-workers help reschedule work so that employees can attend training (Learn6)

Table 7: Descriptive Statistics and Correlations

Variables	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Rev. Knowl	4.805	1.288	1															
Learning Env.	5.545	0.929	.487**	1														
Abs. Capacity	5.327	0.988	.475**	.630**	1													
Tech. Knowl.	5.246	0.941	.488**	.590**	.677**	1												
Perc. Sub. Cap	5.241	0.851	.494**	.340**	.301**	.340**	1											
Knowl. Relev	4.774	1.260	.366**	.197*	.171	.154	.452**	1										
Cultural Dist	1.486	0.535	-.221*	-.169	-.038	-.142	-.128	.022	1									
Relative Age	3.782	6.219	.195	.071	.147	.173	.040	.010	-.236*	1								
Relative Size	47.787	125.21	.124	-.031	.007	.067	-.084	-.212*	-.192	.134	1							
Org. Dist	4.695	1.400	.326**	.326**	.282**	.366**	.397**	.233*	-.202*	.039	.157	1						
Acq. Age	4.509	2.596	-.123	.092	.012	-.006	.029	-.103	.111	-.194	-.025	.068	1					
High Tech	.41	.494	.116	.113	.086	.170	.251*	.032	.107	.010	-.100	.332**	.009	1				
Med Tech	.47	.501	-.073	-.142	-.056	-.131	-.124	-.048	.055	-.121	.065	-.237*	.015	-.771**	1			
Sub Loc1	.18	.385	-.068	.010	.061	.019	-.005	.077	.433**	-.072	.007	.022	-.030	.142	-.020	1		
Sub Loc2	.30	.459	-.068	-.258**	-.181	-.185	.043	.162	.080	-.120	-.130	-.088	.051	-.228*	.262**	-.303**	1	
Sub Loc3	.35	.478	-.040	.123	.063	.045	-.130	-.128	-.024	-.035	-.003	-.103	-.078	.161	-.179	-.339**	-.473**	1

N = 101, *Spearman's correlation* test. * p ≤ .05, ** p ≤ .01

ENDNOTES

[i] The term EM-MNEs is used to refer to MNEs from emerging markets and the term EM is used to refer to emerging markets as a whole.

[ii] **Linkage –** the focus is on how EM-MNEs rely on advantages that it can acquire externally through their international linkages. This is because they are unlikely to find these advantages in their domestic environment but rather in global markets. **Leverage –** focusses on the resources and their potential (from the linkage) for the EM-MNE in overcoming their disadvantages**. Learning** – Repeated linkage and leverage has the potential for learning to occur. The focus is on the cumulative benefits from this learning (Mathews, 2006). This framework has been used to account for the global role played by EM-MNEs (which has seen a rise in recent times) in spite of the several disadvantages they have.

[iii] Federation of Indian Chambers of Commerce and Industry

[iv] Grant Thornton, 2010; IBEF, 2006; Mape, 2006; BCG, 2009; Grant Thornton (M&A) Dealtrackers 2005 to 2010.

[v] Was also pretested by some senior academics and senior Indian Managers

[vi] Age, revenue figures (2010-2011), profit-loss figures (2010-2011). The information pertaining to these parameters were obtained from company websites, secondary data and online information sources

[vii] Chief Executive Officer, Chief Operating Officer, Chief Information Officer, Vice President, General Manager

[viii] Power Distance, Individualism, Masculinity/Femininity and Uncertainity Avoidance

[ix] From host countries like Australia, Singapore, Hong Kong, Dubai and other Asian and S. American countries

[x] European industrial activity classification- NACE. The categorisation based on NACE has been developed by the OECD and Eurostat (available on the web at http://ec.europa.eu/environment/emas/pdf/general/nacecodes_en.pdf)

[xi] Additional analysis linking knowledge relevance and perceived subsidiary capability to absorptive capacity were performed with the current model. These additional paths did not have any major effect on the existing results.

[xii] The results for control variables can be provided on request