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The role of experiential and non-experiential knowledge in cross-border acquisitions: The case of Indian multinational enterprises

Peter J. Buckley[1], Surender Munjal [1, 4, *], Peter Enderwick[1, 2], and Nicolas Forsans[3]

[1] Centre for International Business, Leeds University Business School,

University of Leeds, Leeds, LS2 9JT

Email: P.J.Buckley@lubs.leeds.ac.uk

[2] Auckland University of Technology, Auckland, New Zealand

Email: peter.enderwick@aut.ac.nz

[3] University of Exeter Business School, Exeter, EX4 4PU

Email: N.Forsans@exeter.ac.uk

[4] Director, James E. Lynch India and South Asia Business Centre, Leeds University Business School,

University of Leeds, Leeds, LS2 9JT

Email: S.Munjal@lubs.leeds.ac.uk

Tel: +44 113 343 8080

Fax: +44 113 343 6808

* Corresponding author

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Abstract

This paper investigates the antecedents of the internationalization of emerging economy multinational enterprises (EMNEs) through cross-border acquisitions. Using a panel data set of 1138 cross-border acquisitions made by 515 Indian MNEs during 2000 to 2013, it examines interactions of in-house resources with experiential and non-experiential knowledge to explore how EMNEs manage and exploit their knowledge base when internationalizing. The results show that Indian multinational enterprises have 'interface competence'. They combine in-house resources with experiential market and externally sourced technological knowledge for undertaking cross-border acquisitions. The Uppsala model provides insights in analyzing the role of market knowledge and the Global Factory model helps in analyzing the role of technology in cross-border acquisitions by EMNEs.

Keywords: Cross-border acquisitions, Experiential and non-experiential knowledge, Resources, Learning, Emerging market multinational enterprises, Internationalization

1. Introduction

Cross-border acquisitions by emerging economies multinational enterprises (EMNEs) have attracted significant academic attention. The World Investment Report 2014 suggests that acquisitions of foreign firms by multinational enterprises from emerging economies have contributed significantly towards their share of global outward foreign direct investment (FDI) flows which reached 39 percent in 2013 (UNCTAD, 2014). Examining EMNE acquisition of foreign firms, a growing body of literature suggests that EMNEs prefer to undertake FDI through acquisitions because it aids them in catching up with MNEs from industrially advanced economies (Awate, Larsen, & Mudambi, 2012, Bonaglia, Goldstein, & Mathews, 2007, Duysters, Jacob, Lemmens, & Jintian, 2009, Mathews, 2002, Mathews, 2006, Mathews & Zander, 2007, Young, Huang, & McDermott, 1996), and helps to augment strategic assets needed to create value and build competitive advantages for future growth (Deng, 2009, Gubbi, Aulakh, Ray, Sarkar, & Chittoor, 2009, Luo & Tung, 2007, Sun, Peng, Ren, & Yan, 2012).

This evolving body of literature seems to ignore the fact that cross border acquisition involves inherent risks and that the EMNEs need to have significant knowledge to manage the issues involved in undertaking acquisitions. Thus, the literature offers plausible explanations for the motivations and strategies behind acquisitions but there is a limited understanding of the antecedents for acquisitions undertaken by EMNEs. We contribute to the scholarship on EMNEs' internationalization through cross-border acquisition by addressing pertinent questions raised in the call for papers for this special issue (Aulakh, Kundu, & Lahiri, 2014), i.e. "How do [EMNEs] learn and build knowledge from their prior internationalization moves out of their home markets? What strategies and structures do they employ to use existing knowledge (Peng, 2012)?" We show that the combination of in-house resources with experiential market knowledge and externally sourced technological knowledge, facilitates cross-border acquisitions by the EMNE. Experiential market knowledge helps the EMNE to identify constraints and opportunities for acquisition in host markets, while externally sourced technological knowledge augments the technological competence of the EMNE.

Our findings challenge the popular conclusion that EMNEs lack requisite international experience (Aulakh, Kotabe, & Teegen, 2000, Brouthers, O'Donnell, & Hadjimarcou, 2005,

Elango & Pattnaik, 2007), and resources (Bartlett & Ghoshal, 2000, Child & Rodrigues, 2005, Chittoor, Sarkar, Ray, & Aulakh, 2009, Dunning, Kim, & Park, 2008, Isobe, Makino, & Montgomery, 2000, Mathews, 2006). This view suggests that their internationalization is either based on country specific advantages, such as a low cost base at home (Bartlett & Ghoshal, 2000, Narula, 2012), government policies and institutional support (Buckley, Clegg, Cross, Liu, Voss, & Zheng, 2007), ties with host countries (Buckley, Forsans, & Munjal, 2012), or through participation in networks (Bhaumik, Driffield, & Pal, 2010, Elango & Pattnaik, 2007, Mathews, 2006).

Scholars (e.g. Dunning, 2006, Narula, 2006, Ramamurti, 2012) argue that country specific advantages and networks alone do not provide sufficient conditions for the firm's internationalization. Internationalization especially during the early stages of the firm's life cycle – where most of the EMNEs are – requires capabilities and resources to overcome the costs and risks associated with it (Andersson, Johanson, & Vahlne, 1997, Eriksson, Johanson, Majkgard, & Sharma, 1997, Johanson & Vahlne, 1977, Sapienza, Autio, George, & Zahra, 2006). Elango and Pattnaik (2011) further emphasize the importance of knowledge management and learning in this regard. Extending this line of argument, we argue that the EMNE possesses certain resources and capabilities that enable it to undertake acquisitions of foreign firms. We show that EMNEs manage their knowledge and resources in a number of ways: first, amassing market knowledge of potential host markets from prior operations such as exports; second, sourcing technological knowledge, which cannot be adequately developed internally, from external sources; and third, exploiting learning and knowledge by combining them with organizational resources when internationalizing.

Knowledge acquisition and exploitation by EMNEs follow the conventional view that treats the firm as an institution for integrating knowledge (Grant, 1991, Grant, 1996) and supports the evolving body of research on EMNEs' internationalization which suggests that the EMNE possesses managerial skills (Chittoor, Aulakh, & Ray, 2015), the capacity to absorb external knowledge (Chittoor, Sarkar, Ray, & Aulakh, 2009, Kotabe, Jiang, & Murray, 2011), and the ability to bundle country specific advantages with their own firm specific advantages (Hennart, 2009). Our findings have implications for the Uppsala model (Johanson & Vahlne, 1977, Johanson & Vahlne, 2009, Johanson & Wiedersheim-Paul, 1975) as we examine the EMNE's strategies of amassing and exploiting learning and knowledge that enable it to surmount the intermediate stages of internationalization. This analysis is supportive of the Global Factory theoretical framework (Buckley, 2015, Buckley, 2011, Buckley, 2009,

Buckley, 2011) in that it emphasizes the integration of in-house (internalized) knowledge with that obtained beyond the core firm.

2. Theory and Hypothesis Development

The role of learning and knowledge has long been part of the core of both the international business and strategy literatures. Experiential knowledge, i.e. learning acquired through the means of personal and professional experience of conducting international business in home and host countries, formed the initial basis of the Uppsala model of internationalization (Johanson & Vahlne, 1977, Johanson & Wiedersheim-Paul, 1975). In 2009, Johanson and Vahlne revised the model to include the role of non-experiential knowledge sourced from other firms in the internationalisation process. The model thus suggests that the firm's international expansion is a function of its learning and knowledge which can be gathered from either the firm's own operations in the market, or from inter-firm networks in which the firm participates (Ahuja, 2000, Elango & Pattnaik, 2007, Gulati, 1998, Johanson & Mattson, 1988). The model emphasizes that a lack of knowledge is a barrier in the process of internationalization increasing the perceived risks and costs of internationalization, thereby restricting the firm's willingness to undertake FDI (Eriksson, Johanson, Majkgard, & Sharma, 1997). Thus, the model captures both evolutionary and behavioral dimensions of the firm's internationalization, highlighting the means by which the firm assembles its knowledge and learning in the process of internationalization (Forsgren, 2002, Johanson & Vahlne, 2009).

The Uppsala model provides helpful insights into the internationalization of EMNEs because many of them are in the early stages of internationalization (Elango & Pattnaik, 2007, 2011). The EMNE, like other firms, is likely to gain market knowledge by servicing foreign markets. It helps the EMNE in reducing psychic distance, provides valuable insights into competition, regulation and consumer behavior, and aids in identifying and evaluating market opportunities. Most importantly, engagement with host markets either through exports or imports is a cost effective way of gaining foreign market knowledge and therefore, firms during the early stages of internationalization often learn by trading with foreign markets (Araújo & Salerno, 2015, Cieślik, Kaciak, & Thongpapanl, 2015, Denis & Depelteau, 1985, Erramilli & Rao, 1990, Ling-Yee, 2004, Munjal & Pereira, 2015).

In contrast, technological know-how is more time consuming, riskier and more costly to develop in-house (Cohen, Eliasberg, & Ho, 1996, Pisano, 1990, Smith & Reinertsen, 1998).

The EMNE thus seeks to source technological know-how externally. In fact, their internationalization is often based more on technology exploration than technology exploitation (Chittoor, Sarkar, Ray, & Aulakh, 2009, Lall, 2000, Narayanan & Bhat, 2010). Sourcing technological know-how helps EMNEs to fill deficiencies in their technological know-how, catch-up with peers, and upgrade their technological competencies by combining sourced know-how with their internal research and development (R&D) (Aggarwal, 2000, Dunning, Kim, & Park, 2008, Thite, Wilkinson, Budhwar, & Mathews, 2015). The extant literature (Buckley, Munjal, Enderwick, & Forsans, 2016, Cassiman & Veugelers, 2006, Sapienza, De Clercq, & Sandberg, 2005) suggests that complementary knowledge enhances the competitive advantages of the firm, which is likely to have a positive effect on its internationalization.

The revised Uppsala model (Johanson & Vahlne, 2009) emphasizes the network aspect of internationalization but does not include technology change or innovation. Amassing non-experiential knowledge, through technology acquisition for example, conflicts with the basic assumption of the Uppsala model which suggests that the firm spreads its (fixed) internal technology - or fixed bundle of goods and services – across world markets in the process of its internationalization (Buckley, 2015). Thus, the assumption that firms are technologically static, renders the Uppsala model inadequate for exploring the role of externally sourced technological knowledge on the firm's internationalization. This points us to the Global Factory theoretical framework (Buckley, 2015, Buckley, 2011, Buckley, 2009, Buckley, 2011) which examines internalization and outsourcing decisions for all activities carried out by the focal firm during the course of its internationalization. It is thus an ideal framework to consider internal and external sources of knowledge. A major success attribute of the Global Factory structure is 'interface competence' – the ability of the firm to integrate and control external sources of goods and services and knowledge with internal resources. The Global Factory model (Buckley & Ghauri, 2004) suggests that the focal firm coordinates its network constellation of liked firms both horizontally and vertically, as shown in figure 1. Horizontal coordination represents the learning aspects of the global factory network as knowledge and information transferred throughout the global network, orchestrated by the focal firm (Buckley, 2009, Buckley, 2011). Vertical coordination is affected through the value chain and multistage activities are controlled (but not necessarily) owned) by the focal firm (Buckley, 2004).

****Figure 1 here****

The Global Factory model highlights the progress of managers of MNEs in integrating and coordinating each stage of the value chain whilst controlling the whole of the supply chain through not only ownership but also contract based control (outsourcing, licensing, subcontracting) (Buckley, 2009). In this process, the control of information is critical. Indian MNEs are emerging as global factories and the acquisition route is their preferred means of realizing this.

The Global Factory model emphasizes that interface competence directly enhances the firm's knowledge management capabilities, allows more control over its activities, and facilitates better exploitation of its network resources (for more details see Buckley 2011a, b). We argue that the EMNE's strategies of sourcing technological know-how from abroad and combining them with its in-house resources reflect interface competence. The EMNE accumulates international experience by serving host markets, often through exports initially, while simultaneously leveraging technological know-how from the inter-firm networks in which it participates (Mathews, 2006). The EMNE exploits experiential and sourced knowledge by combining them with the resources owned by the firm because knowledge and learning alone cannot assure international expansion. This whole process of accumulating, sourcing, combining and exploiting knowledge strategies shows how EMNEs effectively manage their knowledge and resources in the process of undertaking cross border acquisitions.

For empirical testing of our basic proposition that the EMNE combines in-house resources with experiential market and sourced technological resources we consider the following in-house resources of Indian MNEs: a) their own financial resources, and b) their internal technological resources. Our choice of resources is based on Miller and Shamsie's (1996) typology of resources which has been followed in prior research, such as Tseng, Tansuhaj, Hallagan, and McCullough (2007), exploring the effect of resources on the EMNE's internationalization. Miller and Shamsie's (1996) typology classifies the firm's resources into two: a) property-based resources; and b) knowledge-based resources. Property-based resources refer to tangible resources, such as finance; while knowledge-based resources are intangible resources, such as technological resources. Both finance and technological know-how are key resources for the firm's internationalization - availability of financial resources guarantees the funds needed to undertake acquisitions and in-house technological resources ensures absorptive capacity (Cohen & Levinthal, 1990, Ito & Rose, 2002).

Our hypotheses formulated in the next two sections focus first on the relationships between experiential market knowledge with (a) internal financial resources, and (b) internal technological resources, reflecting the importance of acquiring market knowledge, as suggested by the Uppsala model. Second, we examine the impact of interface competence by testing the relationship between externally sourced technological knowledge and (a) internal financial resources, and (b) internal technological resources.

2.1. Experiential market knowledge

The success of large multinational enterprises is often based on their experiential market knowledge, as it makes it possible for the firm to effectively structure their operations in foreign markets (Johanson & Vahlne, 2003b). It also enables the firm to customize the products and services offered in the market (Forsgren, 2002). The marketing management literature attributes development of new products to information received from markets. It further indicates that experiential market knowledge and learning help the firm to devise appropriate promotion and distribution strategies according to local market characteristics (Wren, Souder, & Berkowitz, 2000).

The literature in international business and strategy suggests that market knowledge may trigger vertical as well as horizontal expansion, often through acquisitions of suppliers and customers integrated within the value chain, as well as acquisition of competitors (Chari & Chang, 2009, Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). Lack of market knowledge is likely to hamper the firm's prospects to undertake acquisition as the firm will either not know the potential target firms or the value realizable by undertaking acquisition. Furthermore, foreign market operations can also help the firm identify strategic resources, such as technological know-how, tied up in other firms. Since such strategic resources are generally not available through normal market transactions, firms possessing strategic resources are often targeted for acquisition (Gubbi, Aulakh, Ray, Sarkar, & Chittoor, 2009).

Thus, experiential market knowledge augments the firm's competitive advantages and provides opportunities for it to internationalize. However, while experiential market knowledge may be necessary for the EMNE to internationalize successfully, we emphasize it is not sufficient. The firm also needs financial and technological resources to fully exploit its experiential market knowledge, for instance, financial resources are required to acquire

potential target firms identified during the course of foreign operations, and technological capabilities are required to exploit market insights by developing potential technology applications in target markets.

Acquisitions undertaken by Suzlon, India's leading, and the world's fifth largest wind turbine manufacturer (Suzlon, 2012), present a good example to support our propositions. Scholars (Ghemawat & Hout, 2008, Mesle & Takkallapalli, 2009) argue that the rising scale of operations stimulated Suzlon to undertake backward internalization by acquiring its suppliers. However, it should also be recognized that Suzlon gained market knowledge from its trading relationships in Western Europe. An initial trading relationship with Sudwind in Germany helped Suzlon to identify target firms in Western Europe that had the technology needed to develop high capacity wind turbines. Suzlon had access to finance (Munjal, Buckley, Enderwick, & Forsans, 2013) which it utilized in acquiring several target firms, for instance Hansen in Belgium in 2005, and RE Power in Germany in 2008. In both cases, Suzlon expanded vertically by acquiring its supplier firms.

Moreover, in-house technological capabilities helped Suzlon to exploit the market insights. This is evident from a recent move of Suzlon to acquire one of its large customers, Big Sky, in the USA (TheHindu, 2014). The ability of Suzlon to produce wind turbines of different sizes, ranging from 0.35 MW to 2 MW (Ramamurti & Singh, 2010), in order to cater to a variety of users in the market widens the opportunities for forward integration by acquiring its customers when a suitable target is identified. This shows that market knowledge when exploited in combination with the in-house financial and technological resources of the firm can lead to internationalization through acquisition. Thus, it is hypothesized that:

> **Hypothesis 1a**: Foreign acquisitions undertaken by EMNEs are facilitated by the joint-effects of experiential market knowledge and financial resources possessed by the firm.

> **Hypothesis 1b**: Foreign acquisitions undertaken by EMNEs are facilitated by the joint-effects of experiential market knowledge and technological resources possessed by the firm.

2.2. Non-experiential technological knowledge

Technological know-how is a key resource for the firm's growth. Firms often develop technological know-how by conducting R&D within their organizational boundaries because

it helps the firm maintain control over the specialized knowledge generated (Buckley & Casson, 1976). However, conducting R&D internally to develop new technological know-how involves considerable investment of time and resources (Atuahene-Gima, 1992, Kessler, Bierly, & Gopalakrishnan, 2000, Smith & Reinertsen, 1998).

Faced by the constraints of in-house development of technological know-how, the EMNE may seek to source technological know-how from the market. Externally sourced technology helps the EMNE to overcome its knowledge limitations and weaknesses (Aggarwal, 2000, Chittoor, Sarkar, Ray, & Aulakh, 2009). Research suggests that external technological resources enhance the EMNE's technology related competitive advantages, such as its ability to innovate, which can facilitate internationalization (Chittoor, Sarkar, Ray, & Aulakh, 2009, Dierickx & Cool, 1989, Giroud, Jindra, & Marek, 2012, Pereira, Munjal, & Nandakumar, 2016).

However, to fully exploit the potential of external technological know-how the firm should have available financial resources to deploy. First, finance is needed for environmental scanning, in part through experiential market development, to identify potential sources of desirable technologies. Second, finance is required to acquire foreign assets which may be used to gain a return from selling a new idea, product or technology produced by the firm before these become obsolete (Kafouros, 2008), and to further strengthen the technological competence of the firm through assimilation of sourced technological know-how (Pearce, 1999). Third, finance may be required for investment in the new idea, product or technology brought in by the sourced technological know-how. Furthermore, the EMNE also needs to have absorptive capacity (Cohen & Levinthal, 1990) to successfully combine externally sourced technological knowledge with its own know-how. The extant research suggests that by combining internal and external technological know-how the firm can improve its innovativeness, thereby producing new products, ideas and technology (Kafouros & Forsans, 2012, Kogut & Zander, 1992, Kyläheiko, Jantunen, Puumalainen, Saarenketo, & Tuppura, 2011). This can foster internationalisation for market seeking purposes, i.e. for selling new products, ideas and technology, as well as to acquire firms producing complementary technology.

Literature suggests that EMNEs are cash rich (e.g. Cuervo-Cazurra & Un, 2007, Munjal, Buckley, Enderwick, & Forsans, 2013, Ramamurti, 2012, Williamson, Ramamurti, Fleury, & Fleury, 2013) and often have absorptive capacity (Buckley, Munjal, Enderwick, & Forsans,

2016, Chittoor, Sarkar, Ray, & Aulakh, 2009, Kafouros & Forsans, 2012). In many cases they have acquired foreign firms that provide marketing and technological assets, such as brand names, patents, and access to distribution channels as a means of rapidly realizing the potential commercial gains attainable from the exploitation of sourced technological know-how.

Tata Motors, the leading Indian automobile company, is another good example that supports our arguments. Tata Motors sourced foreign technological know-how from Bosch, a leading German engineering MNE. Tata Motors had sufficient financial and in-house technological capabilities to obtain and assimilate Bosch's technology, which, for example, has been incorporated in the Tata Nano, the world's cheapest car. The Nano is sold in many developing countries, including in south Asia and is under further development to meet European safety and emission standards so that it can be further internationalized in the near future (BusinessLine, 2012). The company earlier acquired firms in Asia and Europe, for instance Daewoo Motors in South Korea and Jaguar/Land Rover in the UK both of which offered automobile technological expertise and marketing assets, such as distribution channels, so that it could develop and sell its automobiles in these host markets. Thus, it is hypothesized that:

> **Hypothesis 2a**: Foreign acquisitions undertaken by EMNEs are facilitated by the joint-effects of sourced technological knowledge and financial resources possessed by the firm.

> **Hypothesis 2b**: Foreign acquisitions undertaken by EMNEs are facilitated by the joint-effects of sourced technological knowledge and technological resources possessed by the firm.

3. Research Method

In order to investigate our hypotheses, we conducted panel regression on a sample of Indian MNEs that have used acquisitions to internationalize. Indian MNEs are a good test case for several reasons. First, Indian MNEs have attracted scholarly attention by swiftly establishing themselves in the world economy by undertaking cross-border acquisitions. Second, Indian MNEs have made some very notable cross-border acquisitions, such as the acquisitions of Corus Steel and Land Rover and Jaguar by Tata. Third, acquisitions by Indian MNEs cover a

wide range of industries including automobile, steel, information technology, telecommunication, power and energy, and pharmaceutical. Many of these are knowledge intensive industries, where experiential and non-experiential knowledge are important. Although the role of knowledge in the rapid internationalization of Indian MNEs is often noted (Ramamurti, 2004, Sun, Peng, Ren, & Yan, 2012), apart from a few anecdotes, no attempt has been made to explore the role that knowledge plays in the internationalization of Indian MNEs. Fourth, India is the one of the fastest growing emerging economies in the world. Due to the active role of Indian MNEs, India's participation in the world economy is growing. Finally, due to the large volume of FDI undertaken through acquisitions, India's share in global outward FDI flows, while still modest, has increased significantly from 0.003 percent in 1990 to 0.73 percent in 2014 (UNCTAD, 2015).

3.1 Data

The data was collected from Thomson One Banker and Prowess databases. Both Thomson One Banker and Prowess are credible rich data sources and have been used in various studies on Indian MNEs (Bhaumik, Driffield, & Pal, 2010, Chittoor, Sarkar, Ray, & Aulakh, 2009, Lara, Osma, & Noguer, 2006). Thomson One Banker provides detailed information on acquisitions. Further data is collected from the Prowess database. Prowess is a very rich database (Oura, Hume, Papi, Saxegaard, Petia, Peiris, & Simone, 2009) which provides detailed financial and background information about Indian firms.

Acquiring MNEs are identified by name across the two databases to create our own dataset for the study. Our final dataset for the period under study, 2000-2013, shows that 515 Indian MNEs made 1138 acquisitions valued of US$88 billion. The period of analysis starts from 2000 because prior to that acquisitions undertaken by Indian MNEs were negligible. In this sample, Indian subsidiaries of foreign MNEs were excluded. Our dataset shows that Indian MNEs made around 64% of their acquisitions (valued at US$ 51.7 billion) in advanced countries and 36% (valued at US$ 36.4 billion) in developing countries. The majority of these acquisitions, about 55% were targeted at the manufacturing sector (valued at US$ 41.5 billion), followed by about 41% targeted at the services sector (valued at US$ 31.4 billion) and about 4% in primary sectors (valued at US$ 15.2 billion). About two-third of the acquisitions were undertaken by firms affiliated with business groups (valued at US$ 82.6 billion).

3.2 Dependent Variable

Our dependent variable is acquisitions undertaken by Indian MNEs, for which details are obtained from the Thomson One Banker database. We aggregated the data on acquisitions by year for each acquiring firm included in the database. The process of aggregation allowed us to derive data on number and value of acquisitions made by each firm. Thus, our dependent variable, acquisitions, is measured in two ways. This enables us to test our propositions by testing two models, one estimating the value of foreign acquisitions (VFA) and the second estimating the number of foreign acquisitions (NFA). These models are described in section 3.5.

3.3 Independent Variables

Experiential market knowledge is measured by the aggregate volume of foreign trade undertaken by the firm. Erramilli (1991) associates market experience with the length (time) and the scope (scale) of foreign operations conducted by the firm. Since our database did not offer information on the time length of foreign operations we had to rely on the scale of foreign operations. This is a reasonable measure of market experience as the firm with more market knowledge is likely to achieve more foreign sales (Nerkar & Roberts, 2004). Prior studies (such as, Buckley, Munjal, Enderwick, & Forsans, 2016, Chen, Jiang, Wang, & Chung Hsu, 2014, Lee & Yang, 1990, Xiao, Jeong, Moon, Chung, & Chung, 2013) measure market experience with proxies based on volume of foreign sales. As shown above, the Uppsala model (Johanson & Vahlne, 1977, Johanson & Wiedersheim-Paul, 1975) also associates the rising scale of foreign operations with the experiential learning of the firm.

Non-experiential technological knowledge is represented by the technological know-how bought by Indian MNEs. Following Buckley, Munjal, Enderwick, and Forsans (2016), this is measured by the sum of royalties and fees paid for technical know-how in foreign currency. The monies paid as royalties and fees is an appropriate measure for sourced technical know-how because a supplier of technological know-how will demand a higher royalty and fee if the technical know-how is likely to be more valuable for the EMNE's growth. The more important the sourced technology is, the more the firm is expected to pay. Further, the use of sourced know-how is permitted for a length of time during which royalties and fees are paid. The level of royalties and fees reflects both the length and scale aspects of non-experiential technological know-how sourced by the EMNE.

Financial resources are represented by the retained earnings of the firm, i.e. the earnings accumulated by the firm from previous years. These earnings are freely available to the firm, for example, for future investments because these are retained as reserves after paying for statutory dues to lenders and shareholders of the firm. Technological resources are measured by the firm's spending on research and development activities. It is a standard proxy adopted in many studies (e.g. Buckley, Munjal, Enderwick, & Forsans, 2016, Erramilli, Agarwal, & Kim, 1997, Tseng, Tansuhaj, Hallagan, & McCullough, 2007). This measure also captures the firm's absorptive capacity to gain from the sourced technological know-how.

All these measures were collected by year at the firm level. We took a year lag of our main variables, i.e. experiential market knowledge, non-experiential market knowledge and technological resources because knowledge gathered in time t will affect the firm's decision to acquire in later years. Lagging of variables also controls for the problem of endogenity. We did not lag financial resources because financial resources are measured by retained earnings of the firm which is a stock variable. In this case, prior year values are already included in the value of financial resources in time t.

Our independent variables and data sources are shown in Table 1.

**** Table 1 here****

3.4 Control Variables

We control for firm heterogeneity, time effects and industry effects. Firm heterogeneity is controlled through prior FDI, age and size. These are standard controls and have been used previously (Buckley, Dunning, & Pearce, 1978, Chittoor, Aulakh, & Ray, 2015). The time and industry effects are controlled by incorporating time and industry dummies. For industry dummies we used the OECD International Standard Industry Classification (ISIC). In addition, we control for affiliation to a business group which is an important source of heterogeneity among firms. The resource based view of business group affiliation suggests that a business group is a bank of knowledge and resources, where firms are able to share knowledge and resources with other affiliated firms. Guillen (2000) further argues that business group affiliated firms in emerging markets maintain the capability of combining foreign and domestic resources - inputs, processes and market access - to repeatedly enter new industries. Thus, group affiliation is likely to create an important variation among firms for which a control is necessary. We also controlled for foreign investment received by the

acquiring firm because this is likely to affect the ability of the firm to undertake acquisitions (Aitken & Harrison, 1999, Bhaumik, Driffield, & Pal, 2010, Elango & Pattnaik, 2011, Pant & Ramachandran, 2012).

3.5 Model

We accumulated the acquisitions made by 515 Indian firms by year and created a panel data set. Panel data estimations control for unobserved heterogeneity and therefore prevent computation of inflated standard errors (Greene, 2003). We use the Generalized Least Square method for estimating value of acquisitions (because value is a continuous data) and Negative Binomial method for estimating number of acquisitions (because number is a discrete data). The following equations explain the models we used for obtaining our results.

$$\ln VFA_{it} = a + b_1 \ln EMK_{it-1} + b_2 \ln NETK_{it-1} + b_3 \ln Fin_{it} + b_4 Tech_{it-1} + b_5 EMK*Fin_{it} + b_6 NETK*Fin_{it} + b_7 EMK*Tech_{it-1} + b_8 NETK*Tech_{it-1} + b_9 Control + u_{it}$$

$$NFA_{it} = a + b_1 \ln EMK_{it-1} + b_2 \ln NETK_{it-1} + b_3 \ln Fin_{it} + b_4 Tech_{it-1} + b_5 EMK*Fin_{it} + b_6 NETK*Fin_{it} + b_7 EMK*Tech_{it-1} + b_8 NETK*Tech_{it-1} + b_9 Control + u_{it}$$

Where, VFA_{it} is value of foreign acquisitions by ith firm in t time and NFA_{it} is number of foreign acquisitions by ith firm in t time ; EMK_{it-1} stands for experiential market knowledge of ith firm in t-1 time; $NETK_{it-1}$ represents non experiential technical knowledge of ith firm in t-1 time; Fin_{it} is financial resource endowment of ith firm in t time; $Tech_{it-1}$ is technological resource endowment of ith firm in t-1 time; and finally, u_{it} is a stochastic random error for ith firm in t time; a, b_1, $b_{2, ,...}$and b_6 are usual regression coefficients, and the prefix 'ln' indicates the natural log.

4. Findings and Discussion

Our results are presented in tables 2 and 3, and descriptive statistics and correlation coefficients are in table 4. Our results are robust and consistent across both models. The VIF statistics are not above 10 and tolerance statistics are not below 0.10 suggesting that the results do not suffer from multicollinearity (Belsley, Kuh, & Welsch, 1980, Field, 2010, Greene, 2003). These results show that all four of our hypotheses are supported.

**** Table 2, 3 and 4 ****

Tables 2 and 3 show six models; the first model is the control model and models 2, 3, 4, 5 and 6 show interaction effects as hypothesized earlier. It can be seen that Chi-Sq values (i.e. goodness of fit) for all models in both tables 2 and 3 are significant ($p < 1\%$). Our results show support for hypotheses 1a, 2a and 2b, in both tables 2 and 3, while hypothesis 1b is not supported. Our detailed explanation is as follows.

Model 2 shows that the interaction of experiential market knowledge and financial resources is significant with $b = 0.151$ ($p < 1\%$), in table 2, when acquisitions are measured in value, and $b = 0.062$ ($p < 5\%$), in table 3, when acquisitions are measured in number. The result suggests that Indian MNEs have exploited their market knowledge in conjunction with their financial resources when acquiring firms in foreign countries.

The firm's decision to undertake cross-border acquisition depends primarily upon its financial resources. These give the firm the ability to exploit investment opportunities (Ito & Rose, 2002). However, investment opportunities need to be identified first. Indeed, the role of experiential learning and knowledge from foreign markets is critical in this process. Such knowledge helps in identifying opportunities and challenges in the foreign market, as well as assessment of possible target firms, that is, how well the target firm's operations align with the acquirers operations, and how much value the acquisition might add to the acquiring firm (Gubbi, Aulakh, Ray, Sarkar, & Chittoor, 2009). This assists the acquiring firm to decide whether or not to undertake investment and increase commitment in foreign markets. However, this market knowledge needs to be augmented by financial resources for the acquisition of the targeted firms to occur.

Model 3 shows the interaction of experiential market knowledge with technological resources of the firm. Our results do not find support for hypothesis 1b, as the interaction coefficient $b= 0.22$ ($p > 10\%$), in table 2, when acquisitions are measured by value and the interaction coefficient $b = 0.534$ ($p > 10\ \%$), in table 3, when acquisitions are measured by number, do not attain the appropriate levels of significance.

We acknowledge that the exploitation of technological know-how in facilitating internationalization is still a tenuous argument. However, we argue that this proposition should be re-tested on another sample because a research active firm is likely to accelerate internationalization by undertaking acquisitions. The experiential market knowledge and existing relationships and operations in host markets can also help a research active firm to identify potential target firms that can be acquired for seeking strategic-assets, such as

complementary technology, and for market-seeking purposes, i.e. to sell new innovative products created by the research active firm.

A recent study by Awate et al. (2012) on catch up strategies of EMNEs in the wind turbine industry indirectly highlights the role of experiential market knowledge in Suzlon's accelerated internationalization. Awate et al. (2012, p. 74) note that the active presence of Suzlon in Europe gave it "output orientation", i.e. the ability to produce different sizes of wind turbines at lower costs and according to their customers' requirements. It has also helped Suzlon to focus "on targets that possessed significant R&D knowledge in different technologies and were active innovators". This allowed Suzlon to make acquisition of firms, such as Sudwind and RE Power in Germany and Hansen in Belgium, that gave Suzlon the technology and marketing capabilities it needed to succeed in the industry (Awate, Larsen, & Mudambi, 2012, Kumar, 2009, Pradhan, 2012, Suzlon, 2012). Indeed, Suzlon exploited its market knowledge along with its financial prowess and technological capabilities to acquire and integrate the firms acquired. These acquisitions have made Suzlon the fifth largest wind turbine manufacturer in the world which has implications for its future internationalization.

Thus, experiential market knowledge provides a foundation for rising cross-border acquisitions by EMNEs. Learning and building on knowledge from prior internationalization moves such as exporting and importing, appear to be the key strategy employed by the EMNE (Aulakh, Kundu, & Lahiri, 2014, Peng, 2012). Among other factors, such as the ownership structure and managerial skills (Chittoor, Aulakh, & Ray, 2015), market knowledge enhances the EMNEs risk-taking ability. Without such market knowledge and learning, in-house resources may not be productively utilized by the EMNE. We argue that the EMNE has reached a stage in its life cycle where it can effectively combine in-house resources with experiential market knowledge to hasten internationalization, in many cases, through cross-border acquisition.

Model 4 shows the interaction of externally sourced technological knowledge and financial resources of the firm. The interaction coefficient b= 0.117 ($p < 1$ %) is significant, in table 2, when acquisitions are measured by value. It is also significant, b = 0.063 ($p < 1\%$), in table 3, when acquisitions are measured by numbers. Thus, our hypothesis 2a is supported. This means that technological knowledge sourced from other organizations, which is known to build the EMNE's competitive advantages (Kafouros & Buckley, 2008), facilitates the EMNE's internationalization when it is exploited together with financial resources.

External knowledge, especially foreign technological know-how, provides an opportunity for the firm to learn new skills, develop new products and formulate innovative production processes which can improve the prospects for the firm's internationalization (Kyläheiko, Jantunen, Puumalainen, Saarenketo, & Tuppura, 2011, Silverman, 1999). EMNEs with financial resources can undertake market seeking acquisition to sell new products developed using sourced technological know-how thereby maximizing commercial gains associated with the new product. Many EMNEs are cash-rich but in the absence of complementary foreign technology they find it difficult to internationalize (Cuervo-Cazurra & Un, 2007). Thus, the EMNE that has sufficient financial resources may augment these with complementary technological resources that can facilitate internationalization.

The results showing the interaction of non-experiential technological knowledge and technological resources of the firm are presented in model 5. The interaction coefficient b = 0.0003 ($p < 5\%$) is significant, in table 2, when acquisitions are measured in value, and b= 0.0001 ($p < 10\%$) is also significant, in table 3, when acquisitions are measured in numbers. These results suggest that the joint effect of sourced technological know-how and own technological resources contributes to the internationalization of Indian MNEs.

Sourced technological know-how enables the firm to become more productive and innovative which then facilitates internationalization to maximize the potential revenue stream arising from the productive and innovative capabilities developed by the firm (Kafouros, Buckley, Sharp, & Wang, 2008, Tsang, Yip, & Toh, 2008). However, the firm should have absorptive capacity (Cohen & Levinthal, 1990) to assimilate technological knowledge sourced externally. In this regard, the literature often argues that Indian EMNEs have the capacity to absorb foreign technology (Chittoor, Sarkar, Ray, & Aulakh, 2009, Lall, 1983) and that they actively seek supplementary technological know-how to strengthen their existing technological capabilities. Deregulation of technology imports in India has been used as an opportunity by Indian MNEs not only to overcome gaps in their technological capabilities, but also to upgrade their existing technologies by sourcing supplementary and complementary technological know-how from abroad (Aggarwal, 2000).

Recent examples from India showcase the EMNE's ability to combine foreign technology in building innovative capabilities. Tata Motors strengthened their internal R&D base by exploiting foreign technological know-how provided by Bosch. While Bosch supplied technology, Tata Motors had sufficient financial and technological resources to assimilate

this technology. Consequently, the firm has further internationalized making several acquisitions, e.g. Land Rover and Jaguar in the UK, Hispano Carrocera in Spain, and Daewoo in South Korea (Munjal, Buckley, Enderwick, & Forsans, 2013, Wells, 2010).

The most important thing to note from these results is the interface competence of the EMNE. As previously argued, Indian EMNEs do not rely solely on external technological know-how. Increasingly, the EMNE is developing the ability to exploit external technological know-how by effectively combining it with its internal resources. Selection of suitable external technological know-how and then utilizing it as a means of further engaging in the global economy appears to be an effective strategy. It has enabled the EMNE to catchup while changing the structure of the global economy.

Here, it is important to acknowledge that business group affiliation may play a significant role in enabling the EMNE to combine in-house resources with external technological know-how and market knowledge, facilitating cross-border acquisition. Business group affiliation encourages the internal exchange of resources, knowledge and experience accumulated across a variety of sectors which may assist a strategy of cross border acquisition. Business group affiliation can operate in a way similar to network learning. Moreover, business group affiliation provides a talent pool of managers offering advantages in identifying target firms, undertaking due diligence and achieving post-acquisition assimilation.

5. Conclusions

Prompted by the continuing internationalization of the EMNE, this paper explored the impact of experiential market and non-experiential technological knowledge on cross-border acquisitions undertaken by Indian MNEs. Using the example of Indian MNEs, it illustrates that EMNEs manage their knowledge base prudently and exploit this using their financial and technological resources to facilitate internationalization. The paper argued that knowledge management is critical in the process of undertaking cross border acquisition. It shows that knowledge acts as a facilitator mitigating the inherent risks associated with acquisitions. Experiential market knowledge helps in gathering market intelligence and identifying opportunities for making foreign acquisitions, and externally sourced technological knowledge builds technological competitiveness. The EMNE exploits its knowledge base by utilizing its financial resources to both identify and acquire target firms. Internationalization

is also promoted by combining externally sourced technological know-how with internal absorptive capacity which enhances the innovative potential of the EMNE.

The paper contributes to the current academic understanding of how knowledge is managed and exploited in the internationalization process. It reflects on the Uppsala model and highlights the importance of non-experiential knowledge and resources in the internationalization process. It emphasizes the importance of inter-firm networks from which the firm can gather knowledge more efficiently than developing it in-house. It stresses that an effective combination of sourced technological know-how, which EMNEs may lack internally, with its own internal resources supports cross-border acquisitions by the EMNE. It goes beyond the Uppsala approach in that it highlights the EMNEs ability in interface competence (Bonaglia, Goldstein, & Mathews, 2007), reflecting an evolving characteristic found in more established MNEs, some of which are able to manage vastly complex Global Factory systems (Buckley, 2011, Buckley, 2011).

It is this identification of interface competence in the combination and integration of required knowledge and skills that is the key contribution of our paper. The ability of the EMNE to bring together the necessary resources within home country contexts that many scholars see as challenging environments, and as such, unlikely to create many opportunities for the generation of ownership advantages, may be the distinguishing feature of such firms. This interpretation is certainly consistent with theorizing emphasizing the role of linkages, leverage and learning (Thite et al. 2016). We would argue that interface competence may be explained, at least in part, by the experience of many EMNEs operating in economies characterized by resource deficiencies, information asymmetries, pervasive political-business links, and institutional weaknesses. Development of the firm in such circumstances requires exceptional skills in the acquisition and utilization of resources. Our results suggest that such skills might also be applicable in an international context, helping to overcome the risks and challenges of such ventures.

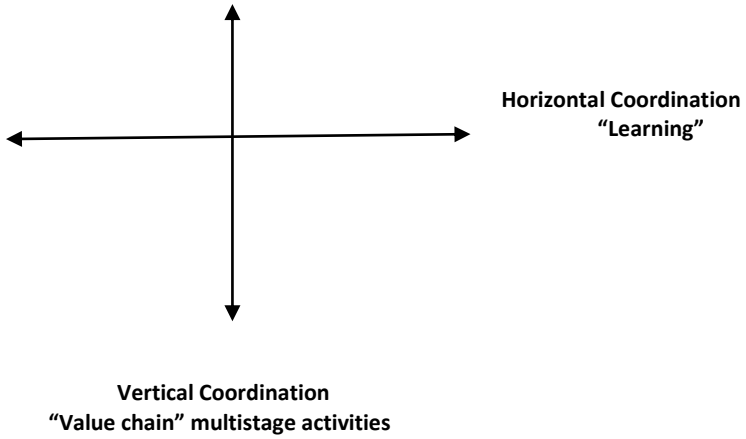
The study offers a number of managerial implications. First, managers should recognize that knowledge can expedite their internationalization if it is exploited in conjunction with the other resources held by the firm. Second, experiential market knowledge can reveal opportunities for resource augmentation as well as the sources from where non-experiential knowledge can be gathered. Third, externally sourced technological knowledge is vital for

the EMNE. It can enhance competitive advantages by complementing in-house R&D, creating a basis for the EMNE's internationalization.

Our study suggests the value of further work in a number of areas. Replicatory research on other emerging country firms is required to reconfirm the effects of resources and knowledge found here. Further, our results may be country specific if technological resources perform more strongly in the context of India. Many industries in India are knowledge driven, for instance, automobiles, pharmaceuticals, and software.

This research has examined the role of experiential market knowledge and non-experiential technological knowledge. However, future research could consider other aspects of knowledge, such as non-experiential market knowledge and experiential technological knowledge, and compare these to the results reported here. Future research could also explore differences between the capabilities of business group and standalone firms in combining knowledge and resources in the internationalization process. Finally, more in-depth case studies, preferably based on qualitative exploration, are warranted to explain those aspects of knowledge which cannot be captured quantitatively.

Figure 1: Coordination in the global Factory



Source: modified from Buckley 2004, p.259

Table 1: Independent variables and Data sources

Variable and Proxy	Proxy	Data Source
Own Financial Resource (FIN)	Retained Earnings	Prowess
Own Technical Resources (TECH)	Ratio of R&D expenditure to sales	
Experiential Market Knowledge (EMK)	Value of foreign trade	
Non-Experiential Technological Knowledge (NETK)	Value of royalties paid for acquiring technological know-how from abroad	
Business Group (BG)	Dummy Variable (equal to 1 if firm i is affiliated to a business group and 0 otherwise)	
Foreign Direct Investment (FDI)	Value of FDI	
Foreign Equity (FE)	Equity capital contribution of foreign investors	
Firm Age (AGE)	Total years since incorporation	
Firm Size (SIZE)	Total sales of the firm	

Table 2: GLS Random Effect Results for Value of Foreign Acquisitions (VFA)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Time and Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Age (AGE)	-0.016 (0.08)	-0.0001 (0.0794)	-0.015 (0.081)	-0.023 (0.08)	-0.0109 (0.081)	0.0006 (0.0794)
Firm Size (SIZE)	-0.0108 (0.0165)	-0.0021 (0.0164)	-0.0065 (0.0192)	-0.0103 (0.0164)	-0.0097 (0.0165)	0.002 (0.019)
Foreign Direct Investment (FDI)	0.0761*** (0.0085)	0.073*** (0.008)	0.07655*** (0.0086)	0.07477*** (0.0085)	0.07601*** (0.0085)	0.0724*** (0.0085)
Business Group (BG)	0.282** (0.124)	0.202* (0.122)	0.284** (0.124)	0.265** (0.124)	0.29** (0.124)	0.204* (0.1228)
Foreign Equity (FE)	0.031** (0.012)	0.029** (0.012)	0.031** (0.012)	0.031** (0.012)	0.031** (0.012)	0.029** (0.012)
Experiential Market Knowledge (EMK)	0.032* (0.016)	-0.016 (0.02)	0.029 (0.018)	0.033** (0.016)	0.032* (0.016)	-0.016 (0.021)
Non-Experiential Technological Knowledge (NETK)	0.037** (0.014)	0.035** (0.014)	0.037** (0.014)	-0.036 (0.029)	0.037** (0.014)	-0.028 (0.029)
Own Finance Resources (FIN)	0.001 (0.015)	-0.038** (0.017)	0.0001 (0.0156)	-0.0009 (0.0152)	0.0008 (0.0152)	-0.04** (0.018)
Own Technological Resources (TECH)	1.82 (2.075)	1.909 (2.065)	1.604 (2.134)	1.749 (2.073)	1.804 (2.074)	1.658 (2.121)
FIN*EMK		0.151*** (0.035)				0.143*** (0.035)

TECH*EMK			0.22 (0.513)			0.175 (0.508)
FIN*NETK				0.117*** (0.04)		0.1002** (0.0408)
TECH*NETK					0.0003** (0.0001)	0.0003*** (0.0001)
Constant	-10.888*** (0.37)	-11.596*** (0.4)	-10.895*** (0.371)	-11.569*** (0.438)	-10.916*** (0.37)	-12.177*** (0.456)
R Square	6.12%	6.47%	6.12%	6.27%	6.23%	6.7%
ChiSq	347.70***	372.00***	347.73***	357.05***	354.21***	385.69***
VIF	3.79-1.05	5.7-1.05	5.22-1.05	5.6-1.05	3.8-1.01	6.39-1.01

Notes: (1) *significant at 10%; ** significant at 5% and *** significant at 1%

(2) Standard Errors are reported in parenthesis

Table 3: Negative Binomial Random Effect Result for Number of Foreign Acquisitions (NFA)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Time and Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Age (AGE)	-0.01 (0.051)	-0.001 (0.051)	-0.007 (0.051)	-0.015 (0.05)	-0.008 (0.051)	-0.001 (0.05)
Firm Size (SIZE)	0.002 (0.012)	0.002 (0.012)	0.013 (0.014)	0.002 (0.012)	0.002 (0.012)	0.013 (0.014)
Foreign Direct Investment (FDI)	0.0528*** (0.0056)	0.0526*** (0.0055)	0.054*** (0.0056)	0.0522*** (0.0056)	0.0527*** (0.0056)	0.0531*** (0.0056)
Business Group (BG)	0.1758** (0.0802)	0.1457* (0.0809)	0.1784** (0.0802)	0.1641** (0.0801)	0.1788** (0.0803)	0.1437* (0.081)
Foreign Equity (FE)	0.01 (0.006)	0.01 (0.006)	0.01 (0.006)	0.01 (0.006)	0.01 (0.006)	0.01 (0.006)
Experiential Market Knowledge (EMK)	0.011 (0.012)	-0.009 (0.014)	0.003 (0.013)	0.011 (0.012)	0.011 (0.012)	-0.014 (0.015)
Non-Experiential Technological Knowledge (NETK)	0.014* (0.008)	0.013* (0.008)	0.014* (0.008)	-0.027* (0.016)	0.014* (0.008)	-0.025 (0.016)
Own Finance Resources (FIN)	0.014 (0.012)	-0.003 (0.014)	0.011 (0.013)	0.013 (0.012)	0.014 (0.012)	-0.005 (0.015)
Own Technological Resources (TECH)	0.712 (0.93)	0.709 (0.91)	0.188 (0.994)	0.645 (0.967)	0.709 (0.932)	0.172 (1.011)
FIN*EMK		0.062** (0.025)				0.054** (0.025)

TECH*EMK			0.534 (0.362)			0.483 (0.364)
FIN*NETK				0.063*** (0.02)		0.059*** (0.02)
TECH*NETK					0.0001* (0.00006)	0.0001* (0.00006)
Constant	-0.901*** (0.302)	-1.148*** (0.32)	-0.924*** (0.305)	-1.252*** (0.327)	-0.918*** (0.304)	-1.474*** (0.341)
Log Liklihood	-2767.70	-2764.75	-2766.69	-2763.53	-2766.77	-2759.31
ChiSq	416.45***	426.77***	417.57***	432.15***	417.95***	443.19***
VIF	3.79-1.05	5.7-1.05	5.22-1.05	5.6-1.05	3.8-1.01	6.39-1.01

Notes: (1) *significant at 10%; ** significant at 5% and *** significant at 1%

(2) Standard Errors are reported in parenthesis

Table 4: Descriptive Statistics and Correlation statistics

	Mean	SD	1	2	3	4	5	6	7	8	9
1. AGE	25.07	20.59	1								
2. SIZE	27668.27	183009.2	-0.0145	1							
3. FDI	5088.42	24552.7	-0.0796	0.0253	1						
4. BG	0.59	0.49	-0.1014	0.0434	-0.0774	1					
5. FE	4.27	13.40	-0.0138	0.0096	-0.0668	-0.0288	1				
6. EMK	13420.86	142923.40	-0.0474	-0.6216	-0.0859	-0.0830	-0.0680	1			
7. NETK	131.40	397.0824	-0.0613	-0.0219	-0.0311	-0.1030	-0.0224	-0.0776	1		
8. FIN	18245.18	82262.72	-0.0895	-0.3270	-0.2427	-0.0677	-0.0336	-0.2077	-0.0041	1	
9. RD	0.0045	0.0244	-0.0117	0.0031	-0.0028	-0.0137	-0.0006	-0.0144	-0.0087	-0.0140	1

Source: Author's calculations

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