Research Policy 47 (2018) 474–486

Contents lists available at ScienceDirect

Research Policy

journal homepage: www.elsevier.com/locate/respol

Host country R&D determinants of MNE entry strategy: A study of ownership in the automobile industry

Christopher Williams*, Alina Vrabie

Durham University Business School, Mill Hill Lane, Durham, DH1 3LB, United Kingdom

ARTICLE INFO

Keywords:
MNE ownership decisions
Patenting
Clusters
Technology transfer
Automobile industry

ABSTRACT

We investigate how host country R&D influences ownership decisions made by technology-intensive multinational enterprises (MNEs) as they internationalize. We draw from institutional and resource based theories, as well as literature on agglomeration and clusters, and construct a unique dataset of 1324 foreign investments recorded by German automobile manufacturers between 2005 and 2012 for our empirical tests. We find that in host countries that are cluster-abundant there will be a greater likelihood that technology-intensive MNEs will adopt joint ventures over wholly-owned subsidiaries, and will more likely use a lower equity stake in any joint venture. We find partial support for the influence of other aspects of host country R&D, including innovation output and inward technology FDI. Various robustness tests and insights from selected cases provide further support. Importantly, findings demonstrate the importance of multi-dimensional characteristics of host country R&D over and above those such as market size, political stability and cultural distance that are more commonly utilized and discussed in the entry strategy literature. The findings have implications for host country policy as well as strategy-makers in MNEs seeking to compete on the basis of globalized R&D.

1. Introduction

The internationalization of R&D by multinational enterprises (MNEs) has been taking place for over 40 years (Wortmann, 1990), and has continued relentlessly (OECD, 2007). MNEs have increasingly internationalized in order to be close to sources of R&D in host countries. Overseas subsidiaries of MNEs act as a vital link between host country R&D and MNE networks, allowing the MNE to update strategic assets through internationalization (Cantwell and Mudambi, 2005; Dunning, 2000). Industries such as pharmaceuticals, IT development, aerospace, and smart phones have become characterized by MNEs with vast, continually evolving global networks of R&D.

Given this phenomenon, the relationships between R&D characteristics of host countries and internationalization strategy of MNEs are important to understand. Berry, Guillén and Zhou (2010) touched on this in their discussion of distance measures in international business research, showing how knowledge distance (i.e., the difference between home and host country in terms of numbers of patents and scientific articles) has a significant impact on foreign market entry choice. Hennart (2009) argued that entry mode is determined by the need to bundle local complementary assets with MNE assets, acknowledging the role that host country R&D characteristics might have in MNE internationalization. Meyer et al. (2009) highlighted the connection between access to host country tacit and intangible knowledge and entry mode.

Unfortunately, the bulk of research on MNE entry strategy, and ownership decisions in particular, does not explicitly capture host country R&D and its various forms (Canabal and White, 2008). One stream of literature on host country R&D and MNE strategy implicitly assumes the internationalization/entry mode choice has already been made, i.e., the MNE has already internationalized (e.g., Almeida and Phene, 2004; Frost, 2001). However, host country R&D matters pre-entry because it represents future-oriented technological opportunity for the MNE. It may not only attract technology-intensive MNEs to consider investing in the host country, it has the potential to determine *how* they invest in the country. While extensive research has looked at location advantages and disadvantages (Dunning, 1998, 2000), the vast body on ownership has tended to emphasize features such as market characteristics, legal barriers, cultural distance and country risk factors (e.g., Agarwal and Ramaswami, 1992; Canabal and White, 2008; Delios and Henisz, 2003; Hennart and Larimo, 1998; López-Duarte and Vidal-Suárez, 2013; Yiu and Makino, 2002). Furthermore, some research on MNE entry strategy focusses on variance in firm and industry characteristics, ignoring the potential that host country R&D may account for entry decisions (e.g., Brouthers and Hennart, 2007; Chen and Hennart, 2002; Dikova, and Van Witteloostuijn, 2007).

* Corresponding Author.
E-mail addresses: chris.williams@durham.ac.uk (C. Williams), alina.vrabie@durham.ac.uk (A. Vrabie).

https://doi.org/10.1016/j.respol.2017.12.001
Received 6 February 2017; Received in revised form 7 December 2017; Accepted 11 December 2017
Available online 08 January 2018
0048-7333/

We believe there is a gap in the literature with respect to the links between host country R&D and MNE entry strategy. Host country R&D is particularly relevant for technology-intensive MNEs that are 'on the look-out' for R&D capabilities and technological opportunities in host countries. For technology-intensive MNEs, host country attractiveness is not just about market size and various sources of non-commercial risk, it also relates to R&D opportunities. Following their extensive literature review on entry strategy research, Ahsan and Musteen (2011) called for more research on the effect of host country attractiveness on entry strategy. We believe this should extend to upstream features of host countries, as well as the demand-side. Also, there have been calls for entry strategy research to consider the role played by local complementary assets (Hennart, 2009) and for more research on entry strategy using specific industry samples (Brouthers and Hennart, 2007).

We address this research gap by examining the links between three dimensions of host country R&D and ownership decisions (mode and equity level). These dimensions are host country innovation output (captured through patenting, an indication of the health of the country's national innovation system), the extent of clusters and R&D collaboration in the host country (an indication of its policy towards agglomeration and related institutions for economic development through proximity and networks), and inward technology FDI (an indicator of whether the host country seeks to receive and absorb technology through internationally transferable resources). Drawing on institutional and resource-based theories we develop hypotheses for the effects of these determinants. Empirical tests using data on 1324 foreign investments made by technology-intensive German automobile manufacturers in 65 countries reveal: (1) host country R&D determinants are an important predictor of ownership decisions adopted by technology-intensive MNEs in their internationalization; (2) host country R&D determinants are more important for these types of companies than market size, political stability and cultural distance, which are commonly used independent variables in the entry strategy literature; (3) clustering is the most consistent host country R&D determinant, although innovation output and inward tech FDI play a role; (4) as JVs are defined at higher equity thresholds, the effects for host country clustering and inward technology FDI become stronger; (5) different aspects of a host country's R&D environment have different impacts on MNE entry strategy.

Our study makes three important contributions. Firstly, we add to the literature on host country R&D determinants of entry strategy by technology-intensive MNEs. We show the importance of clustering over innovation output and inward technology FDI as a factor encouraging inward investors to opt for a JV and lower equity stakes within JVs. Secondly, we show how institutional and resource-based explanations of this phenomenon are relevant to explaining entry strategy of technology-intensive MNEs. This suggests technology-intensive MNEs are more concerned about legitimacy and knowledge seeking imperatives than economizing on transaction costs as they expand abroad. Thirdly, we shed new light on internationalization patterns in the global automotive industry, an industry that had $105B of spending on R&D in 2014 (Strategy&, 2015) and one that accounted for 15.4% of global R&D spending in 2016.[1] We identify reasons why MNEs in the automotive industry seek JVs and lower equity stakes in foreign markets, despite the overarching tendency towards full control and higher equity stakes in foreign investments made by automotive companies possessing formidable firm-specific advantages (Pfaffmann and Stephan, 2001; Talay and Cavusgil, 2009; Yiu and Makino, 2002).

2. Understanding MNE ownership decisions

Early work on ownership drew largely from transaction cost and internalization theory and the need for firms to economize on transaction costs as they internationalize. More recently scholars have devoted considerable attention to alternative theoretical bases for understanding ownership (i.e., the choice between a wholly-owned subsidiary (WOS) and a joint venture (JV)) and the underlying equity stake in international markets, prominently institutional and resource-based theories (Brouthers and Hennart, 2007; Mani et al., 2007). Yiu and Makino (2002), for instance, built on institutional theory (DiMaggio and Powell, 1983; Scott, 1995) to argue that MNE ownership decisions can be seen as a response to isomorphic pressures in the external environment, as well as internal organizational practices and routines. Institutions provide the structure for investments to occur (North, 1990). This structure consists of regulative, normative (social obligations) and cognitive (collective constructions of social reality) dimensions (Scott, 1995). In this sense, institutions set "the rules of the game" through coercive, mimetic and normative mechanisms (DiMaggio and Powell, 1983; Rodriguez et al., 2005). They determine the degree of stability in society as well as the extent to which property rights are undermined (Brouthers, 2002). Williams et al. (2017) showed how institutions at supra-national level can also play a role in influencing levels of ownership adopted by MNEs in host countries. Such institutions not only provide a basis against which the MNE seeks legitimacy, they also provide "reassurance power" (Williams et al., 2017) that will help the MNE to overcome risk and uncertainty in the host country.

Institutional theory suggests that in countries where the institutional environment undermines confidence, businesses will seek a lesser degree of control (North, 1990). A weak institutional environment encompasses conditions that compromise property and contract rights, therefore increasing the investment hazards. When a country has a weak institutional environment, firms are less likely to commit because a greater degree of ownership implies greater responsibility and risks (Brouthers, 2002). Hence, the institutional environment has an impact on the suitability of governance structures. MNEs will waive full ownership for their subsidiaries abroad and prefer shared ownership to counteract their subjection to institutional hazard (Delios and Beamish, 1999; Gomes-Casseres, 1990). Henisz (2000) argued a more nuanced line in that MNEs will choose shared ownership when political hazards increase but will opt for full ownership as contractual hazards increase (i.e., possible opportunistic behaviour from local partners and/or host governments).

A further approach for understanding ownership in foreign markets revolves around resources, capabilities and knowledge. MNEs can exploit their assets in international markets, or can use international markets to augment these assets (Brouthers and Hennart, 2007). Mutinelli and Piscitello (1998) showed how MNEs opt for JVs over WOS when they need to complement in-house R&D resources. Drawing on Italian FDI data, these authors shone the spotlight on how a lack of specialized resources and capabilities in firms can be a motive for pursuing JVs in foreign markets. Such JVs help the investing firm to develop new technology and specialized capabilities. Research has also highlighted links between resource-based advantages of firms and the use of WOS mode (Brouthers and Hennart, 2007; Gomes-Casseres, 1990). Nonetheless, knowledge sourcing and learning remain a major motive for the internationalization of MNEs (Dunning, 2000; Kuemmerle, 1999), especially in knowledge-intensive industries where developing an R&D capability through overseas linkages with innovative companies and prominent knowledge centres such as universities and research institutions can be crucial to long-term performance (Iwasa and Odagiri, 2004).

3. Hypothesis development

These theoretical perspectives suggest specific areas of concern for technology-intensive MNEs: gaining legitimacy and responding to isomorphic pressure in institutional theory, and augmenting and

[1] https://www.statista.com/statistics/270233/percentage-of-global-rundd-spending-by-industry/accessed 10 July 2017.