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Internationalisation of R&D into Emerging Markets: Fiat's R&D in Brazil, Turkey and India

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The idea that competence-creating subsidiaries from emerging nations can contribute to and possibly renew sources of competitive advantage is an appealing one for managerial practice and policy. Many mature MNEs can look to exploit the technological and market capabilities of their more capable subsidiaries in order to tap into new sources of growth. Based on a case study of Fiat and three of its emerging market R&D subsidiaries, we show that successfully developing competence-creating subsidiaries is a difficult task. Not only do parent and subsidiary managements have different ideas of what is involved, but subsidiary technological capability and local resources do not fully explain new technology creation mandates. The success of overall product market strategies and the mode of entry also exercise important effects. Furthermore, in our case study we find that internal embeddedness is more crucial than external embeddedness in distinguishing a successful new technology creation mandate.

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Introduction

In the late 1990s, the rapid internationalisation of research and development (R&D) by many multinational enterprises (MNEs) into emerging markets led to speculation amongst scholars about whether this constituted a novel trend capable of shifting MNE innovation into new regions. It is fair to say that there are as many pessimistic as optimistic views of this phenomenon. The pessimists caution that internationalisation of R&D has never involved very significant volumes of innovative activity. Even in 2010, [Patel \(2011\)](#) showed that the larger volumes of technological knowledge typically are generated in the home countries of MNEs and in the home country's strongest technological fields ([Patel and Pavitt, 1991](#); [Verspagen and Schoenmakers, 2004](#); [Patel, 2011](#)). This strand of research points to the domination of this centripetal tendency, because orchestrating global innovation can be both risky and complex to manage. Different and less adequate institutional features of new locations to support innovation activities make the geographic dispersion of R&D risky. The uncertainty of R&D outcomes and the need to conform to product market imperatives make MNEs' R&D decisions both more complex and highly "mission critical". As a result, most "significant" R&D tends to be centralised in the parent company, with the result that competence creation occurs there rather than in host locations.

The optimists believe that the dispersion of R&D facilities reflects a desire to find and exploit new markets through adaptive innovation, and to tap into new sources of technological knowledge and competitive advantage in a globalised world ([Cantwell, 1995](#)). They point out that there are huge rewards for the effective management of competence-creating subsidiaries in geographically dispersed locations. The MNE can emerge as a hydra-headed organisation, whose various branches in different geographical locations can exploit as well as renew competitive advantage through the internationalisation of R&D ([Kuemmerle, 1997](#); [Cantwell and Mudambi, 2005](#)). There is a rich literature on competence-creating subsidiaries and their characteristics, which range from the dual embeddedness of subsidiaries in the local environment and in the MNE network of parent and affiliates ([Meyer et al., 2011](#)); drivers of subsidiary roles ([Bartlett and Ghoshal, 1991](#)); identifying mechanisms that can change subsidiary roles ([Birkinshaw and Hood, 1998](#)); and organisational innovation enabled by the participation of capable subsidiaries ([Gerybadze and Reger, 1999](#); [Lahiri, 2010](#)).

The idea that competence-creating subsidiaries from emerging nations can contribute to and possibly renew sources of competitive advantage is appealing for managerial practice and policy related to international investment. Many mature MNEs (such as those in Europe) can expect to exploit the technological and market capabilities of their more capable subsidiaries in order to tap into new sources of growth, especially in the new phase of globalisation that began in the 1990s and which has encompassed several emerging markets. However, as the introduction to this Special Issue, and other papers in this volume make clear, we still have much to learn about the process of building competence-creating subsidiaries, and the

managerial and other challenges involved in creating technological advantages for firms from their subsidiaries in different geographical locations. Our paper makes a contribution to a better understanding of the barriers and enablers of competence creation and new technological development in emerging market locations.

We focus on a European MNE (Fiat) in the automobile sector — one of the first sectors to internationalise R&D (Dicken, 2003; Manning et al., 2009). Fiat's "selective globalisation strategy", adopted in the mid-1990s, shifted some of its R&D out of Europe into emerging markets such as Turkey, Brazil and India. Using a case-study approach, we study both the headquarters (HQ) R&D centre and affiliate R&D centres in emerging markets, to shed light on the constraints and managerial challenges involved in managing competence-creating subsidiaries in emerging markets and the constraints to new technology development from these subsidiaries.

Literature review

Roles of headquarters and subsidiary

Early understanding about the functioning of MNEs was linked to the product life cycle (Vernon, 1966) and internationalization process (Johanson and Vahlne, 1977) models. In both models, the MNE HQ has a dominant role and the MNE's foreign subsidiaries are totally dependent on centralised knowledge creation undertaken primarily in HQ locations (Dunning, 1981; Patel and Pavitt, 1991). Subsidiaries were often mini-replicas of the parent and encompassed a range of functions such as production, sales and adaptive R&D. From the mid-1980s, the push towards globalisation saw the replica model of subsidiary organisation retreat and MNEs began to reorganise by rationalising some activities (to avoid duplication) and by increasing specialisation of their production and R&D activities (Narula and Dunning, 2010).

Kogut and Zander (2003) note that, following entry into a country, the MNEs' subsequent expansion in the host location was a result of successful acquisition and recombination of local knowledge. At the same time, international expansion changes the global knowledge available to the MNE and imbues its subsidiaries with more power, resulting in a transformation of the MNE to become part of a network of subsidiaries characterised by cross-border transfers of learning. The importance to an MNE of the capabilities of its subsidiaries for the company's competitive advantage should not lead to the conclusion that all subsidiaries are equal or should be treated equally. In dismissing this notion as the "UN model" of MNE governance, Bartlett and Ghoshal (1986, 1991) argue that the role of the subsidiary within the MNE network is determined by the level of the subsidiary's capability and the strategic importance of the local markets in which it operates.

Based on a study of subsidiaries of a number of MNEs, Bartlett and Ghoshal (1986) argue that large or technically important local markets are likely to be of strategic significance. A high-capability subsidiary operating in a market perceived as strategically important can achieve the role of strategic leader and command a greater share of MNE resources, but a high capability subsidiary operating in a market of very little strategic importance will continue to be a contributor and may see the resources it develops being applied in other parts of the group. Low-capability subsidiaries operating in strategically important markets may be like black holes, drawing in resources from the rest of the group, while low-capability subsidiaries operating in markets of small strategic importance, have no access to critical information and scarce resources, and are considered implementers, as "deliverers of the company's value-added" (Bartlett and Ghoshal, 1991, p. 100).

Contemporary models of MNEs that see the strategic role of subsidiaries in the creation of MNE specific advantage are referred to as heterarchical models (Hedlund, 1986), compared to the hierarchical models implied by the product life cycle and the internationalisation literature. In heterarchical models, it is acknowledged that, although the HQ treats the subsidiaries as partners in value creation, there can be tension between the two sides — most notably over the control and distribution of MNE resources, the control of agendas for growth and the execution of corporate strategy. In hierarchical models, most tensions are around coordination and operational issues. Contemporary models of MNE, ironically, promise greater rewards from subsidiary activities and participation, but also predict greater tension between parent and subsidiary in the process. We can expect the same kinds of tensions to characterise MNEs keen to develop technological strength using competence creating subsidiaries.

Characteristics of competence-creating subsidiaries

Competence-creating subsidiaries are subsidiaries set up to promote innovation rather than sales. Bartlett and Ghoshal (1991) and Rugman et al. (2011) suggest that the concept of subsidiary capability can relate to production, sales, innovation or administrative support, and provide examples of MNEs that define their subsidiaries in these terms. They argue also that local environments may have high strategic value due to the existence of a lead market (as discussed by Bartlett and Ghoshal, 1986), or due to technology and other factors such as supplies of labour and natural resources. The endowments of local environments can be linked to a particular task or role or to particular combinations with the subsidiary's resources. Subsidiaries that are strategic leaders in innovation are able to successfully combine in-house capabilities with location specific assets. Implementers earn revenue for the company by exploiting most MNE-specific assets.

The importance of combinative capability in subsidiaries in the MNE internationalisation R&D strategy has been studied widely. Kogut and Zander (1992) and Phene and Almeida (2008) show that sourcing and combinative capabilities have significant influence on the scale and quality of innovation, specifically, combinative capability enhances innovation in subsidiaries by diffusing knowledge within the firm and integrating knowledge from different sources. This idea resonates

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