

# Chapter 11

## Building R&D Capabilities Abroad and the Role of Reverse Knowledge Transfer in Explaining MNCs' Productivity

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### ABSTRACT

*Although MNCs are increasingly globalizing their R&D, we have an incomplete and inconsistent understanding of whether, and under what conditions, the knowledge accumulated from foreign R&D centers can improve the productivity of the parent firm. We address this issue by examining the factors that influence the extent to which reverse knowledge transfer (RKT) enhances the productivity of the MNC at home. Our contribution lies in showing that the productivity benefits of RKT depend on the idiosyncratic characteristics of MNCs' parent and R&D affiliates. We show that RKT has a stronger effect on the productivity of the parent MNC when foreign R&D units are charged with a knowledge seeking role. These effects further increase when R&D affiliates are well embedded in host countries. Surprisingly, the productivity enhancing effects of RKT do not differ across acquired and greenfield affiliates.*

### INTRODUCTION

The strategy of the modern MNC increasingly focuses on building R&D capabilities abroad. Investing in R&D in other markets enables firms to internalize existing ownership advantages (Hymer, 1960; Buckley & Casson 1976), but also build new capabilities (Kuemmerle, 1999; Kafourous et al., 2012). By establishing R&D units

abroad, MNCs access new knowledge, ideas and technologies and develop a better understanding of customers' needs. The parent MNC possesses valuable knowledge that subsidiaries can use to become more competitive. Hence, headquarters is an important source of knowledge for subsidiaries. However, as globally dispersed subsidiaries can accumulate knowledge from the contexts in which they operate, they can assist the parent MNC in

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the home country to become more productive by transferring such knowledge back to the headquarters (a process known as reverse knowledge transfer (RKT)).

Prior studies have pointed to the strategic role of RKT and offered valuable insights into the factors that facilitate or impede knowledge transfer between subsidiaries and headquarters. This literature shows knowledge transfer depends on factors such as the age and the entry mode of the foreign subsidiary, its integration with the MNC (Håkanson & Nobel, 2001), its embeddedness in host countries (Belderbos, 2003; Blomkvist, 2009), the willingness of the affiliate to share knowledge (Gupta & Govindarajan, 2000; Simonin, 2004; Giroud et al., 2009), and the extent to which the subsidiary's knowledge is related to the parent's knowledge base (Mudambi et al., 2007).

Despite their valuable contributions, prior studies focused on the factors that influence the process of knowledge transfer, rather than on the impacts of RKT on the productivity of the parent MNC in the home country (Gupta & Govindarajan, 2000; Håkanson & Nobel, 2001; Blomkvist, 2009; Giroud et al., 2009; Arvanitis & Hollenstein, 2010). Indeed, with very few exceptions (e.g., Ambos et al., 2006), extant research examined the effectiveness of the knowledge transfer process, but did not consider the benefits of RKT for the headquarters. This limitation is important because although RKT from global R&D units may in theory be useful (Piscitello & Santangelo, 2008; Ben Hamida & Piscitello, 2009), it is a process that comes with various challenges and therefore its benefits for the parent MNC should not be taken for granted. Building on these observations, we contribute to the literature by identifying the factors that significantly influence the extent to which RKT from foreign R&D subsidiaries enhances the productivity of the parent MNC.

As knowledge transfer is not equally beneficial for all MNCs, we focus on how the characteristics of the foreign R&D subsidiaries impact the ability

of the parent MNC's to enhance its productivity. To test our framework, we examine how Swiss parent MNCs succeed in increasing their productivity by sourcing knowledge and technologies from their globally dispersed R&D subsidiaries. Our contribution lies in linking inter-firm differences in the productivity effects of RKT to the strategic role of the R&D subsidiary (knowledge seeking or Knowledge exploiting), the embeddedness of the subsidiary in the host country, and the mode of its entry (acquisition or greenfield). By integrating the subsidiary-specific factors in our framework, we offer a more complete account of the role of global R&D in exploiting the knowledge reservoirs of different countries.

## **THEORETICAL BACKGROUND AND CONCEPTUAL FRAMEWORK**

Since 1995, R&D investment by MNCs has grown faster than their turnover (OECD, 2008), making innovation one of the most dynamic elements in the globalization process. MNCs often conduct R&D in locations in which they can source knowledge and further develop their capabilities. The increase in international knowledge flows, both within the MNC and across different innovation systems, involves knowledge transfer from headquarters to foreign subsidiaries and 'reverse' knowledge transfer from foreign R&D units to domestic operations (Ambos et al., 2006; Criscuolo et al., 2005; Håkanson & Nobel, 2001; Schulz 2001; Yang et al. 2008). Prior research on RKT has focused on the factors explaining the process of knowledge transfer from foreign affiliates to the parent company, rather than on the impact of RKT on the productivity of parent MNCs. We argue that the characteristics of the R&D units (namely, their strategic role, embeddedness in the host economy and entry mode) are core factors in assessing the RKT effects on the productivity of the MNCs at home.

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