



# Unpacking the Relationship between Outward Direct Investment and Innovation Performance: Evidence from Chinese firms



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## SUMMARY

This study investigates the impact of outward direct investment (ODI) by Chinese MNEs on innovation performance and the conditions under which such an impact is moderated, based on a sample of Chinese firms. The empirical evidence suggests that undertaking ODI leads to an increase in the innovation performance of these Chinese firms. The impact of ODI on innovation is contingent on firm characteristics such as in-house R&D, strategic orientation, and international experiences as well as contextual factors associated with investment destinations and industry contexts. We also find that learning through ODI is a complex process. There is a substitution between ODI and in-house R&D in Chinese MNEs. Our findings suggest that conducting ODI in developed countries serves as an effective channel for latecomer firms to overcome internal resource constraints and leapfrog toward the technology frontier.

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## 1. Introduction

Outward foreign direct investment (ODI) is widely recognized as an important internationalization strategy by firms from developing countries. To achieve a sustainable growth, developing countries, especially emerging economies (EEs), have actively invested in developed economies in order to access key strategic assets, resources, and leading-edge technologies (Liu & Buck, 2009; Luo & Tung, 2007; Ramamurthi & Singh, 2009). Unlike MNEs from developed economies that normally adopt technologically advanced production, emerging market multinational companies (EMNEs) typically consider different investment motives due to the lack of advanced technologies, marketing techniques, and established brands (Lall, 1992; Li, 2007; Luo & Tung, 2007; Narula, 1996). Although both developed and developing country firms employ ODI as a means of international expansion, the differences in firm-specific advantages and investment strategic orientations between the two types of firms raise questions as to whether previous findings derived from advanced country MNEs are applicable to EE firms (Buckley, Clegg, Cross, & Liu, 2007; Boisot & Meyer, 2008; Sun, Peng, Ren, & Yan, 2010; Deng, 2012).

Despite recent calls for more research on the internationalization of ODI from EEs, most studies focused on the EMNEs' motives (Child & Rodrigues, 2005; Luo & Tung, 2007; Witt & Lewin, 2007), location choices (Lu, Liu, Wright, & Filatotchev, 2014), and entry

selections (Cozza, Rabellotti, & Sanfilippo, 2013; Cui & Jiang, 2012; Morck, Yeung, & Zhao, 2008; Wang, Hong, Kafouros, & Wright, 2012). With respect to the outcomes of ODI activities, great emphases have been placed on the impact of ODI on profitability (Chari, Chen, & Domingues, 2012), productivity (Cozza et al., 2013), and trade (Chen & Tang, 2016). Yet, little is known about the extent to which ODI contributes to the innovation performance of EMNEs and especially under what conditions ODI acts as an effective channel of enhancing innovation (Chen & Tang, 2016). Our understanding of the boundary conditions in leveraging the relationship between ODI and the innovation performance of EE firms is limited. This study aims to address this gap by focusing on the interplay between firm heterogeneity, contextual factors and ODI in relation to the innovation performance of EMNEs.

The rapid increase in ODI from China represents an interesting case for this study. The total ODI made by Chinese firms exceeded 77.2 Billion USD in 2012, which was an increase of about 2.5 times compared to the value in 2007.<sup>1</sup> In the ODI ranking list, China has moved up to third place, after the United States and Japan. Yet the technological gap between China and developed countries remains significant. The majority of Chinese MNEs (CMNEs), except for a small number of firms like Huawei or ZTE, are still lag-behind in innovation (Fu, 2015). Chinese ODI therefore serves as an ideal

<sup>1</sup> Data source: National Bureau of Statistics of China. <http://data.stats.gov.cn/index>.

setting to examine the relationship between external knowledge sourcing through ODI and innovation performance in the context of EEs.

This study contributes to the literature in the following areas. Firstly, based on a sample of 189 firms from Guangdong province from 2007 to 2009, we investigate whether and under what conditions ODI yields a positive impact on the innovation performance of Chinese investing firms. A recent study by [Chen and Tang \(2016\)](#) revealed the positive association between ODI and firm performance, including R&D and new product sales, based on a cross-sectional sample of ODI deals from China. The current study is distinguished from that of [Chen and Tang \(2016\)](#) by not only testing the direct association between ODI and the innovation performance of Chinese firms, but also by unpacking the boundary conditions under which ODI has an innovation-enhancing effect. More specifically, we differentiate ODI according to the type of destinations – developed or developing countries and their industries, such as high-tech and low-tech industries. Such differentiations enable us to provide new insights into the contexts in which external learning via ODI takes place from a learning perspective and provide empirical evidence. Our findings show that Chinese ODI in developed countries serves as an ‘innovation springboard’ for latecomer firms to overcome internal constraints and leapfrog toward the technology frontier. While strategic asset seeking has long been regarded as a major motivation for ODI, especially for MNEs from developing countries, there is a lack of empirical evidence on whether these MNEs have achieved their strategic objectives. Our empirical findings thus help address this research gap.

Secondly, this paper intends to reveal what lies behind the relationship between ODI and the innovation performance of CMNEs by examining the extent to which the innovation-enhancing effect of ODI is also contingent on firm characteristics such as in-house R&D, strategic orientation, and international experiences. The findings from this research shed light onto the interrelationship between internal learning in the form of in-house R&D and external learning via exporting and ODI. Learning through exporting and ODI is complementary and jointly contributes to the innovation performance of CMNEs, whereas ODI in the high-tech industries serves as an effective knowledge source to overcome weak internal R&D capabilities. Our research extends the organizational learning theory by capturing a more complex learning process experienced by EMNEs. Finally, the panel data used in this study allows us to adopt techniques to remove the potential estimation bias, thus providing reliable empirical evidence.

The rest of the paper is organized as follows. Section 2 discusses the theoretical background and develops the hypotheses. Section 3 describes the methodology for empirical tests. Section 4 presents the estimation results. Section 5 presents the conclusions.

## 2. Theoretical background and hypotheses

### (a) External learning, outward direct investment, and innovation

We adopt a learning perspective to examine the extent to which ODI as a means of external learning allows firms to enhance innovation by acquiring international knowledge. Organizational learning is concerned with access to knowledge and the capabilities needed for creation of new knowledge and places great emphasis on knowledge acquisition ([De Clercq, Sapienza, Yavuz, & Zhou, 2012](#); [Gao, Pan, Lu, & Tao, 2008](#); [Huber, 1991](#); [Hurley & Hult, 1998](#); [Levitt & March, 1988](#)). In particular, externally sourced knowledge is crucial to the learning process in which organizations can combine internal and external knowledge from outside their firms’ boundary to create new knowledge. Thus, a firm’s ability to exploit external knowledge is crucial to its innovative capabilities

and determines the commercial success of its innovation ([Cassiman & Veugelers, 2006](#); [Cohen & Levinthal, 1989](#); [Lokshin et al., 2008](#)). It is noted that learning also relies on the development of a stock of prior knowledge which is mainly achieved through in-house R&D investment. The incentive to learn also influences a firm’s innovation. While these insights derived from organizational learning help underpin the impact of ODI by latecomer MNEs from EEs, they overlook the boundary conditions through which learning takes place, as well as the interrelationship between internal learning through conducting in-house R&D and external learning through ODI ([Liu et al., 2010](#)). Our study aims to extend the organizational learning approach by specifying the conditions under which learning via ODI contributes to innovation performance in the context of EMNEs about which our understanding is still limited.

[Johanson and Vahlne \(1977, 1990\)](#) suggest that learning and knowledge accumulation can be effectively achieved through the internationalization process, and more international activities lead to more knowledge exploration ([De Clercq, Sapienza, & Crijns, 2005](#); [Pearce, 1999](#)). Overseas investments create great learning potentials, expose companies to diverse knowledge environments and help them to enhance their knowledge stock ([Ghauri & Park, 2012](#); [Meyer, Wright, & Pruthi, 2009](#)). During the course of internationalization, external knowledge acquisition can take place via product specification, quality standard requirement, interaction and collaboration with foreign firms and other institutions.

ODI has been acknowledged as an effective way to enhance innovation capability because it not only offers companies the opportunities to get access to foreign codified knowledge as trade does, but also facilitates the transmission of tacit know-how by spatial proximity, social embeddedness, and mobility of skilled workers ([Dhanaraj, Lyles, Steensma, & Tihanyi, 2004](#); [Narula & Santangelo, 2009](#); [Polanyi, 1966, 1967](#); [Uzzi, 1997](#)). This tacit knowledge not only plays a key role in the development of innovation, but also can effectively assist in the acquisition and transmission of codified knowledge ([Uzzi, 1997](#)).

To achieve competitive advantage and overcome latecomer disadvantages on the global stage, CMNEs have rapidly expanded their overseas investment, penetrating the market previously dominated by established Western MNEs ([Gu & Reed, 2013](#); [Peng, 2012](#); [Zhang, Li, Li, & Zhou, 2010](#)). Not only by acting in a conventional way to seek new markets, ODI has also served as a strategic asset-seeking channel for exploiting learning opportunities and building innovation capabilities ([Child & Rodrigues, 2005](#); [Luo & Tung, 2007](#); [Mathews, 2006](#)). Empirical studies have shown that firms actively engaging in cross-border investment generate more knowledge than those operating only in the domestic market ([Driffield & Love, 2007](#); [Fu, 2012](#); [Keller, 1997](#); [Kuemmerle, 1997](#); [Lyles & Dhanaraj, 2004](#); [Pittiglio, Sica, & Villa, 2009](#)).

In recent years, CMNEs have extensively engaged in strategic asset-seeking activities in advanced countries to acquire innovation resources through ODI ([Burghart & Rossi, 2009](#); [Deng, 2007](#); [Wang, 2002](#)). Thus, ODI is regarded as an effective practice to catch up with the technological frontiers and overcome the lack of advanced technology in their home country ([Child & Rodrigues, 2005](#); [Liu & Buck, 2009](#); [Liu, Buck, & Shu, 2005](#)). Several studies show that Chinese ODI presents distinctive contrasts from that of developed countries regarding investment motives and host country contexts in which they operate ([Buckley et al., 2007](#); [Cozza et al., 2013](#); [Cui, Meyer, & Hu, 2013](#); [Wang et al., 2012](#)). Although factors such as destination of ODI, strategic orientation, international experiences, and in-house R&D are not uncommon in the literature on innovation and internationalization, they are under-researched in the literature concerning the impact of ODI on investing firms. For example, [Cozza et al. \(2013\)](#) have investigated the impact of ODI on Chinese firms’ performance and uncovered

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