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Win, Place, or Show? How Foreign Investment Strategies Contribute to the Technological Growth of the Multinational Corporation

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This paper investigates the sources of technological growth of the multinational corporation. We conceptualize and shed empirical light on whether foreign investment strategies based on advanced greenfield subsidiaries, acquired subsidiaries, or a combination of both increase the likelihood of entry into technologies that represent new additions to the MNC's technology portfolio. Repeated event analyses of the complete U.S. patenting activity in 226 foreign locations of 21 Swedish multinationals reveal a substantially higher likelihood of entry into new technologies among investment strategies based on foreign acquisitions, as opposed to investment strategies based on greenfield establishments only. To the extent that MNC managers seek to enhance technological and strategic renewal through the expansion of foreign operations, the findings suggest that foreign investment strategies that involve the use of acquisitions are and should be the preferred alternative.

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Introduction

Compared to the extensive literature on decision-making at the point of entering foreign markets (e.g., [Hill et al., 1990](#); [Hennart and Park, 1993](#); [Buckley and Casson, 1998](#); [Sharma and Erramilli, 2004](#)), developments and effects in the post-entry period have received more limited attention. Some studies have looked at the implications of entry strategies for survival and forms of divestment ([Li, 1995](#); [Mata and Portugal, 2000](#)), subsequent investment patterns ([Chang and Rosenzweig, 2001](#)), reverse knowledge transfer ([Mudambi et al., \(this issue\)](#)), or subsidiary growth ([Tan, 2009](#)), but by and large the longitudinal effects of different forms of foreign investment strategies have received comparatively limited conceptual and empirical attention. At the same time, post-entry developments are of significant strategic importance for the MNC, as in many cases foreign parts of operations come to account for significant shares of total revenues and new capability development.

In this paper, we examine how foreign investment strategies influence the MNC's long-term ability to develop new technological capabilities and enter into previously unexplored technologies; i.e., its technological growth. We particularly focus on the relative contributions from greenfield investments vs. foreign acquisitions and attempt to shed light on which of the two represents the most significant contributor of new technology to the MNC. The existing literature supports *a priori* expectations about differentiated contributions, as foreign acquisitions have been found to introduce more distinct revolutionary breaks in otherwise path-dependent patterns ([Zander, 1999](#)), and there is evidence to suggest they may be characterized by a relatively higher degree of strategic asset-seeking behavior among maturing MNCs ([Granstrand et al., 1992](#); [Dunning and Narula, 1995](#); [Cantwell and Narula, 2001](#)). Yet, these expectations are still to be placed on firmer conceptual and theoretical grounds and to be explored in a direct comparative setting.

To disentangle and assess the technological consequences of different foreign investment strategies, we draw upon literatures that from various angles speak to the long-term development and expected contributions from foreign subsidiaries to the MNC's overall technological portfolio. We are particularly concerned with predicting and examining the effects of foreign subsidiaries that have entered the advanced stage of development, or the stage at which they have proven their capacity to make significant technological discoveries and recurrent contributions to the overall multinational group. Most of the subsidiaries can be expected to display the comparatively high complexity of activities and technological work that characterizes competence-creating subsidiaries ([Cantwell and Mudambi, 2005](#); [Cantwell and Mudambi, 2011](#)). In the empirical approach, we consider a "horse race" between three types of MNC investment strategies in foreign locations, characterized by the MNC's deployment of either greenfield or acquired subsidiaries, or a combination of the two. The analysis

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of three hypotheses aims at uncovering which type of investment strategy has a particularly pronounced effect on the pace of entry into technologies that represent new additions to the MNC's overall technology portfolio.

For the empirical investigation, we draw on a data set containing the complete U.S. patenting by subsidiaries in 226 foreign locations of 21 Swedish multinationals in the 1893–2008 period. From this data, we estimate the hazard rates for successive entries into new technologies for each of the possible investment strategies, controlling for a set of additional variables internal and external to the MNC. The results show that there are substantially different probabilities of advanced subsidiaries' contribution to MNC technological growth. Specifically, investment strategies involving acquisitions are significantly more likely to contribute to the technological growth of the MNC than those depending only on greenfield subsidiaries.

The paper makes two main contributions to the literature on post-entry effects of foreign market investment strategies. We conceptually disentangle and predict the development of technological contributions from advanced subsidiaries of the MNC, and, in contrast to prior work which addresses only greenfield subsidiaries (Blomkvist et al., 2010) or the dynamics of competence-creating overlaps (Kappen, 2011), make a direct empirical comparison between greenfields and acquisitions with regard to their ability to contribute to the technological growth of the entire multinational group. In addition to contributing new theoretical and empirical knowledge about post-entry developments in the internationalization of the MNC, the empirical findings offer some overall guidance for managers concerned with the growth and long-term strategy of the international firm. Specifically, if technological growth through operations in foreign locations is seen as desirable, the findings suggest that, in the choice between greenfield investments and acquisitions, investment strategies based on acquisitions should be the preferred and encouraged form of international expansion.

Three investment strategies in foreign locations

When the MNC enters and expands its technological activities in foreign locations, it may use three types of strategy: 1) Investment based only on greenfield subsidiaries; 2) investment based only on acquired subsidiaries; and 3) investment based on a combination of greenfield and acquired subsidiaries.¹ Consider these three possibilities and their implications for the MNC's technological growth and entry into new technologies *ad seriatim*.

Investment strategies based only on greenfield subsidiaries

In this case, the MNC establishes operations in a foreign location through a greenfield investment, which in terms of advanced technological capabilities then remains the only mode of operating in that location.

In most cases, the initial investment decision is driven by the MNC's need to adapt products to local market needs, which sets the stage for the emergence of more sophisticated technological roles and responsibilities (Ronstadt, 1978; Pearce and Singh, 1992; Pearce, 1994; Taggart, 1996; Frost, 2001). Fundamentally, it is a process by which the foreign subsidiary gradually becomes more embedded in its local business environment (Jaffe et al., 1993; Almeida, 1996; Mudambi, 1998; Maskell and Malmberg, 1999; Frost, 2001; Andersson et al., 2001; Andersson et al., 2002). Enhanced degrees of local embeddedness allow for the identification of new business opportunities in the local environment (Rugman and Verbeke, 2001), over time expanding the subsidiary's technological activity into new and locally idiosyncratic areas.

Successful pursuit of the new opportunities may lead to the granting of a world product mandate and the formation of a "center of excellence" within the multinational group (Chiesa, 1995; Birkinshaw and Hood, 1998; Holm and Pedersen, 2000). It comes with formal recognition of the subsidiary's particular technological and strategic capabilities, along with enhanced levels of autonomy to develop operations within the selected field of activity. At this stage of development, the subsidiary is likely to have developed the more advanced and complex technological capabilities that are characteristic of a competence-creating subsidiary (Cantwell and Mudambi, 2005; Cantwell and Mudambi, 2011). As each local environment offers a unique set of technological and business opportunities (e.g., Pavitt, 1988a; Porter, 1990; Cantwell, 1991), foreign subsidiaries reaching this advanced stage will tend to enter and exploit technologies that represent new additions to the technological portfolio of the multinational group.

Formal recognition as a center of excellence puts the advanced subsidiary in a position from where it can accelerate its entry into new technologies, as the granting of a world product mandate may trigger virtuous cycles of technological and strategic initiatives (Delaney, 1998). Birkinshaw (1999) shows that the formation of distinctive subsidiary capabilities promotes subsidiary initiatives, and suggests that proven capabilities and initiatives increase headquarters responsiveness for further initiatives. Following a different line of argumentation, Andersson and Forsgren (1996) and Forsgren, Johanson and Sharma (2000) suggest that higher degrees of local embeddedness lower the possibility to execute corporate control and lead to higher degrees of subsidiary autonomy. Such autonomy has been associated with product mandates and centers of excellence (Ensign et al., 2000) and enhanced levels of exploration of new fields of technology (Yamin, 2002).

Over time, the advanced greenfield subsidiary's ability to enter into new technologies is boosted further by the combinative capabilities offered by its broadening set of technological capabilities (Pavitt et al., 1989; Granstrand and Sjölander,

¹ The discussion is restricted to greenfield and acquired subsidiaries only, thus excluding from consideration other potential sources of MNC technological renewal such as joint ventures and strategic alliances. Hence, the study only captures a partial aspect of the broader internationalization and technological capabilities of the MNC.

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