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Competence-creating overlaps and subsidiary technological evolution in the multinational corporation

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ABSTRACT

This paper explores overlapping competence-creating activities within the boundaries of the multinational corporation by investigating how foreign greenfield subsidiaries' technological evolution is affected by the addition of an acquired unit in the same location. Drawing upon the complete U.S. patenting activity by subsidiaries of 21 Swedish multinationals over the 1893–1990 period, we use repeated event history analysis to test a set of hypotheses concerned with the effect of this competence-creating overlap. Findings include an initial retrogressive effect on greenfield subsidiaries' technological evolution as a result of competence-creating overlaps, which, over time diminishes to become positive after more than a decade of overlap exposure. Thus, we add to the theory of subsidiary evolution by expanding the view of the archetypal subsidiary that has so far been constrained to evolve without operational overlaps.

1. Introduction

This paper explores overlapping competence-creating activities within the boundaries of the multinational corporation (MNC). Suppose that the MNC acquires a competence-creating subsidiary in any given foreign location that already hosts a competence-creating greenfield subsidiary. In such a competence-creating overlap scenario, how will it affect the ongoing technological evolution of the first-comer subsidiary? In other words, in what way will an overlap impact its future potential for strategic renewal by entering into technologies that represent new additions to the entire multinational group?

Extant work on the internationalization of technological capabilities in the MNC has already confirmed an overall increase in foreign competence-creating activities, and foreign subsidiaries which have acquired these skills have become common in the large and well-established MNC (Cantwell, 1989; Dunning, 1994; Reger, 2002; Cantwell and Mudambi, 2005). The general explanation for the internationalization of technological capabilities is the MNC's initial need to adapt products to local market needs, which over time transforms into more sophisticated technological roles and responsibilities among foreign subsidiaries (Håkanson and Nobel, 1993; Miller, 1994; Papanastassiou, 1999; Patel and Pavitt, 1998; Cantwell and Piscitello, 2000). This advancement has generated mature MNCs with such an international dispersion of technological activities that it allows them to maintain an internal network of highly specialized subsidiaries (Cantwell and Mudambi, 2005). Certain subsidiaries have been able to venture beyond the general role of the international technological activities by obtaining competence-creating mandates, exploring agendas for regional or even global contribution to the MNC's technological portfolio.

In past decades, foreign acquisitions have become a major contributor to the expansion of technological capabilities outside the MNC's country of origin (Zander, 1999). In fact, a host of studies have explored the choice between greenfield and acquisition modes of entering and developing operations in foreign markets (e.g. Caves and Mehra, 1986; Kogut and Singh, 1988; Hennart and Park, 1993; Cho and Padmanabhan, 1995; Andersen, 1997; Harzing, 2002; Larimo, 2003), and there is a fair amount of agreement on which factors influence market entry choice. However, the entry mode option has almost exclusively been treated as a choice of several definite entry strategies, producing a lack of investigations addressing the dynamics when similar types of subsidiaries are set up to share the same turf. The archetypal subsidiary depicted in the literature on subsidiary evolution has been constrained to evolve without internal role overlaps in the local market. As a result, important dynamics in the evolution of subsidiaries in general and technology in particular have remained largely unexplored, both from a theoretical and empirical perspective. This paper addresses this gap by empirically testing for the effects of competence-creating overlaps, i.e. multiple competence-creating subsidiaries in the same foreign location, on the evolution of technological capabilities at the level of greenfield subsidiaries. Thus, we contribute to the literature on subsidiary evolution by expanding the field of analysis to incorporating role overlaps in the same local market. We believe that this may be a critical next step for the literature on

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subsidiary evolution, and by going beyond the foreign market entry decision, we will be allowed to empirically explore patterns affecting subsequent subsidiary evolution. Moreover, we contribute to management practice by extending Nadler and Tushman's (1999) assertion that corporate headquarters should have a key role in managing simultaneous cooperation and competition within the MNC. Also, our which is fairly new to the field, repeated events analysis, will provide a brief user guideline for scholars interested in analyzing the occurrence of an event that may take place recurrently during the window of observation.

The paper is divided into five main sections. The first section starts off by reviewing prior research on the internationalization of technological capabilities in the MNC, making a distinction between greenfield and acquired subsidiaries, respectively. Then follows a conceptualization of competence-creating overlaps within the MNC and the formulation of a set of hypotheses on how these overlaps can impact subsidiary evolution. The third section describes the sample, data and data collection, variables, and statistical method. The fourth section presents the results, and investigates the results in a number of robustness checks. The fifth and final section provides a discussion of the observed consequences of competence-creating overlaps and their implications for the strategies and management of the MNC.

2. Subsidiary evolution and competence-creating overlaps

The emergence of competence-creating roles among foreign subsidiaries of the MNC is essentially driven by two different types of organizational units and processes: (1) the establishment and evolution of greenfield subsidiaries and (2) the establishment and development of subsidiaries through foreign acquisitions, which have been shown to progress through dissimilar development paths (Bertrand and Zuniga, 2006; Hitt et al., 1991, 1996).

This paper focuses on the evolutionary processes associated with subsidiaries that were originally established as foreign greenfield subsidiaries, and treating foreign acquired subsidiaries as a specific dynamic element which may affect the ongoing and long-term operations of the former. Below, we will refer to these two types as simply greenfield and acquired subsidiaries, keeping in mind that the subsidiaries which we are interested in are all foreign subsidiaries. We posit that greenfield theorizing can be fruitfully enhanced by incorporating the MNC's acquisition strategies. Our point of departure is the moment greenfield subsidiaries achieve a competence-creating role in the MNC, and the expectation that they will continue to contribute to corporate-wide strategic renewal. Thus, the foreign investments by the MNC are, or at least develop into, strategic asset seeking, as in technology seeking, rather than purely market, resource or efficiency motivated. Greenfield subsidiaries provide sound testing conditions due to their comparatively long history in the MNC, which has also resulted in their becoming the standard type of unit for the theories of subsidiary evolution. This has been noted by Frost et al. (2002), who assert that the evolutionary logic appears to apply predominantly to greenfield subsidiaries.

2.1. The greenfield subsidiary

When greenfield subsidiaries are established, the MNC starts *de novo* activities in a foreign market, frequently on the basis of initially limited but subsequently expanding resources. Once a subsidiary has developed some type of rudimentary technological capabilities, it is often assumed that this process will continue and result in units with increasingly sophisticated technological capabilities. While it is true that a certain number of subsidiaries will reach a stage where they are capable of making substantial contributions to the technological and strategic development of the entire corporation, it is important to note that many subsidiaries do not develop any technological capabilities at all, or they may maintain only basic levels of technological support for extended periods of time.

The evolution toward more advanced technological capabilities and the likelihood to contribute significantly to the strategic renewal of the MNC among greenfield subsidiaries have been explained by a set of interrelated drivers or mechanisms (Pearce and Singh, 1992; Pearce, 1994; Taggart, 1996; Birkinshaw and Hood, 1998; Frost, 2001; Cantwell and Mudambi, 2005). The major drivers and mechanisms put forth in the literature are usually, but not necessarily, limited to (1) enhanced degrees of local market embeddedness, (2) opportunities to re-combine existing knowledge within the MNC, (3) subsidiary entrepreneurship, and (4) overarching resource allocation and coordination by corporate headquarters.

First, enhanced degrees of local embeddedness are expected to occur as greenfield subsidiaries evolve over time concurrently with their immediate local market. At the location level, the greenfield subsidiary will have opportunities for deliberate exploration of locally developed knowledge but it will also be in a position to take advantage of spillovers (Taggart, 1996; Mudambi, 1998; Feldman, 2000). This is based on the notion that each local environment offers a unique set of technological and business opportunities which especially competence-creating subsidiaries can assimilate and exploit, and suggests that competence-creating subsidiaries will continue to develop technologies that will make new additions to the MNC portfolio. Obviously, greenfield subsidiaries which have enjoyed long tenures as advanced units in given environments, should stand a better chance of leveraging the local market to their advantage, and thus bring about more strategic renewal than greenfield subsidiaries which have yet to gain such experience.

Second, Almeida (1996) and Cantwell and Mudambi (2000) suggest the existence of a virtuous cycle, in which technology diffuses to local firms, whose innovative efforts then have corporate-wide spillover benefits and cause the local subsidiary to further increase its own research efforts. This effect is proposed to be the most accentuated where the corporate headquarters invests in high value-added activities of research-intensive kind in the host country. In this process, the technological capabilities once transferred from the parent organization play an important role as stepping-stones into new technological fields. In general terms, technological capabilities transferred from home-country units represent resources that may be re-combined with internal and external resources in response to what can be tapped from the local environment. Such enhanced integration of the subsidiary within the MNC extends the opportunities to re-combine different ideas and resources into new products and services to the international level (Johanson and Vahlne, 1977).

Third, local embeddedness and the ability to respond to local business opportunities can trigger creative activities of what has been referred to as subsidiary entrepreneurship (Birkinshaw, 1999). Birkinshaw proposes a connection between distinctive capabilities and broadly defined subsidiary initiatives. Generally speaking, subsidiary initiatives are found to be promoted by a high level of distinctive subsidiary capabilities, but it also appears that initiatives, however created, have a positive impact on the formation of distinctive capabilities. It is also indicated that initiative-driving factors such as parent-subsidiary communications, credibility, and openness to initiatives all gradually increased over a 10-year period (Birkinshaw, 1999).

Finally, as an entity that can either facilitate or hamper subsidiary evolution, the corporate headquarters has the opportunity to run an internal capital market which supposedly will put resources to use in those units where it finds the best strategic