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Sequencing the expansion of geographic scope and foreign operations by "born global" firms

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Abstract
"Born global" firms are not actually "born" global, but rather internationalize rapidly from their inception by expanding their geographic scope and extent of foreign operations. However, it remains unclear whether such firms: (1) simultaneously expand along both dimensions; (2) focus on expanding along a single dimension at a given time, and switch interchangeably between expanding geographic scope and extent of foreign operations in subsequent periods; or (3) stick solely to a specific internationalization path over several subsequent periods. This study theorizes and empirically demonstrates that born global firms stick to a dominant internationalization path over subsequent periods. Arguably, this phenomenon reflects managerial efforts to reduce the perceived risk of internationalization, and their preference to develop and leverage capabilities that are specific to either of the internationalization paths until the economies of further expanding this path are exhausted.
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INTRODUCTION

The phenomenon of technology-intensive, small and medium-sized enterprises that internationalize rapidly from the early stages of their organizational lives is receiving increasing attention from scholars and practitioners alike. These firms are often referred to in the literature as "born global" firms (Autio, Sapienza, & Almeida, 2000; Oviatt & McDougall, 1994; Zahra, Ireland, & Hitt, 2000).

In fact, the term "born global" is somewhat misleading. These firms are not genuinely "born" globally dispersed, but rather increase their level of internationalization rapidly from inception. This can be accomplished along two major dimensions: (1) geographic scope, as reflected by the number, spread and diversity of targeted foreign markets; and (2) extent of foreign operations, as reflected by the extensiveness of the commitment of value chain activities to foreign markets (Jones & Coviello, 2005; Oviatt & McDougall, 1994; Stray, Bridgewater, & Murray, 2001).

It is broadly agreed that the more international a born global firm is, the greater its geographic scope and extent of foreign operations (Oviatt & McDougall, 1994; Stray et al., 2001; Zahra et al., 2000). However, the extant literature generally does not address the *process* through which born global firms pursue growth through increasing operational commitment to specific locations, or the

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interrelationships between geographic scope and operational commitment. Introducing a more fine-grained account of the process in which born global firms expand internationally is important in order to address issues that are not fully resolved in extant literature, such as the extent to which born global firms can mitigate risk in their international expansion by pursuing specific expansion strategies, and the factors that allow born global firms to overcome resource constraints and liabilities of newness (Mudambi & Zahra, 2007).

This paper extends our understanding of the motivations driving international expansion moves by born global firms and their sequences. It specifically informs scholars and practitioners how born global firms devise short-term sequences of international expansion moves via three mechanisms. First, they concentrate key resources on making a substantial expansion along a single internationalization path (either geographic scope or extent of foreign operations) in a given time period, rather than push for simultaneous moderate expansions along both paths. Second, they leverage the reduced risk and greater capability to expand in a specific internationalization path, attained in previous periods, to further expand in that path in subsequent periods. Third, they shift to the alternative internationalization path, once the benefits of further expansion along a given path are exhausted.

These insights are important, as they help resolve outstanding issues in the born global literature. First, they highlight a novel risk-reduction mechanism exercised by born global firms. Traditionally, such risk aversion is observed via staged expansion following models of internationalization (such as the Uppsala school: Johanson & Vahlne, 1977, 1990; Johanson & Wiedersheim-Paul, 1975). However, this process is less appropriate for born global firms. Rather, this study shows that born global firms are likely to reduce the risk of further internationalization by sticking to a "dominant internationalization path" until the growth opportunities along that path are exhausted.

Second, the aforementioned mechanisms offer a novel explanation for the existence of the born global firm. Extant explanations do not fully answer the question how fairly small and young born global firms overcome their resource constraints to internationalize early and rapidly. It is assumed that the unique technological assets of such firms and their ability to rely on other firms' resources compensate for such constraints (Autio et al., 2000; Filatotchev, Liu, Buck, & Wright, 2009; Knight & Cavusgil, 2004; Oviatt & McDougall, 1994; Zahra et al., 2000). This paper argues that the focus on a dominant internationalization path over multiple periods of time up to the point where the benefits of further expansion become exhausted is a key parameter in allowing the rapid and early internationalization of born global firms. It enables born global firms to reduce complexity and risks, and to leverage scarce resources and capabilities. It further allows born global firms to avoid the high switching costs of shifting managerial time and effort interchangeably between alternate paths in subsequent periods. The "dominant internationalization path" strategy therefore enables born global firms to internationalize rapidly despite their resource constraints. These insights provide guidelines to managers in born global firms who are tasked with devising future internationalization trajectories and particularly need to make choices between internationalization deepening and internationalization broadening. Such managers often make short-term expansion decisions (Penrose, 1959) in a way that is very similar to the approach outlined in this paper. The insights of this paper further go a long way in allowing international business scholars to bridge the gap between the born global phenomenon and received concepts in the internationalization literature such as risk aversion, path dependence and resource constraints, and therefore provide a first step towards building a more general theory of the internationalization process.

The paper proceeds as follows. The next section presents a conceptual framework addressing the short-term relationships between the expansion of geographic scope and foreign operations of born global firms. The following section describes the data and methods. Then the results are presented, and the final sections discuss the results and draw conclusions.

CONCEPTUAL FRAMEWORK

The expansion of geographic scope and extent of foreign operations is central to extant internationalization theories. Gradual internationalization adherents, led by the Uppsala school, view internationalization as an evolutionary process, whereby the firm increases its international involvement as a function of heightened knowledge and market commitment (Johanson & Vahlne, 1977, 1990; Johanson & Wiedersheim-Paul, 1975). This process evolves through an interplay between

the development of foreign market knowledge on the one hand and an increase in foreign market commitment on the other (Johanson & Vahlne, 1977, 1990). The concept of foreign market commitment is said to be composed of two major factors. The first is the number, spread and diversity of the foreign markets into which the firm penetrates in terms of their "psychic distance" from the home country (hereafter: geographic scope). The second is the amount of resources committed to foreign markets, that is, the size of fully or quasi-irreversible resource investments (Hill, Hwang, & Kim, 1990; Li & Rugman, 2007) in specific foreign markets. This is often reflected by the extent to which different foreign market servicing modes,[1] varying in their degree of internalization, are chosen (hereafter: the extent of foreign operations).

The view that increased foreign market commitment is a function of the cumulative experience gained in foreign markets is rooted in behavioral theories of the firm, that emphasize the role of risk aversion (Cyert & March, 1963). In the short term, managers prefer gradual and incremental expansions of their geographic scope and foreign operations in order to avoid the risks associated with radical internationalization moves (Barkema & Drogendijk, 2007). As foreign experience accumulates, the perceived risk of further internationalization declines, and additional incremental increases are made in geographic scope and foreign operations (Johanson & Vahlne, 1977, 1990). This view is also supported by similar models suggested by Reid (1981), Czinkota (1982), Cavusgil (1984) and Welch and Luostarinen (1988).

The "Born Global" Perspective

In contrast to the above view, the "born global" perspective refers to a rapid internationalization process starting early in the firm's lifespan. Multiple explanations have been offered for the early and rapid internationalization of young and resource-constrained firms that exhibit much less risk aversion than gradually internationalizing firms. These explanations mostly focus on the ability and need of born global firms to leverage the competitive advantage conferred by their unique technological knowledge to internationalize rapidly via multiple collaborative modes while simultaneously leveraging their international presence to supplement this technological knowledge (Autio et al., 2000; Filatotchev et al., 2009; Knight & Cavusgil, 2004; Oviatt & McDougall, 1994; Zahra et al., 2000).

The born global perspective also views the geographic scope and foreign operations of born global firms as two major constructs portraying their extent of internationalization. For instance, Oviatt and McDougall (1994) classify different types of born global firms according to the number of countries in which they operate (i.e., geographic scope) and the number of activities coordinated across countries (i.e., the extent of foreign operations). Likewise, Zahra et al. (2000) refer to international diversity and the mode of international entry as the two main characteristics of the internationalization level of born global firms.

It is noteworthy that, while born global firms are defined as international at birth, such firms in fact expand their geographic scope and foreign operations rapidly over time, rather than being born globally dispersed. Analyzing the *process* of internationalization of born global firms, Jones (2001) and Jones and Coviello (2005) specifically refer to the cross-border business modes and the distance of targeted foreign countries from the home country as the two major dimensions along which an entrepreneurial process of internationalization can be depicted. Hashai and Almor (2004) demonstrate that born global firms also exhibit sequential internationalization, albeit at a quicker pace than that predicted by the Uppsala school. They show that, with the accumulation of foreign experience, born global firms use more complex foreign market servicing modes, internationalize a greater variety of value chain activities, and enter markets that are more psychically distant.

Choosing a Dominant Internationalization Path

Born global firms may reach a broader geographic scope and a greater extent of foreign operations through multiple routes. One such route is to expand the extent of foreign operations (i.e., the number of activities coordinated across countries) only after geographic expansion (i.e., penetration into a large number of countries) is achieved (see route A in Figure 1). Alternatively, born global firms may expand the extent of their foreign operations in a small number of countries, and only then penetrate additional foreign markets (route B). Born global firms may also expand their geographic scope and foreign operations interchangeably in subsequent periods (route C[1]), expand both internationalization paths simultaneously (route D),

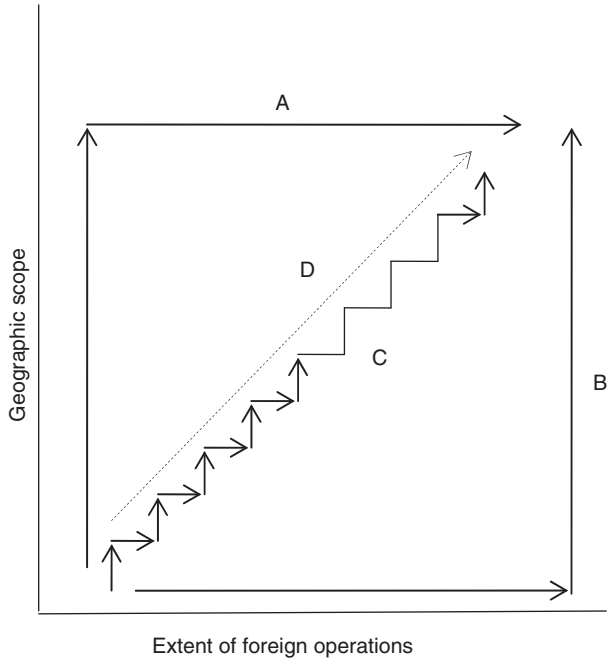

Figure 1 Possible internationalization paths of born global firms.

or internationalize in virtually any combination of the above routes (Vermeulen & Barkema, 2002).

It therefore follows that at any given point in time the managers of born global firms need to make crucial decisions in relation to the utilization of their given bundle of resources to expand their foreign operations *and/or* their geographic scope.

Several notable studies have looked, either directly or indirectly, into the interrelationship between the expansion of geographic scope and foreign operations. In the context of born global firms, Shrader, Oviatt, and McDougall (2000) found a significant negative relationship between the degree of entry-mode commitment and the number of countries entered, reflecting the attempts of born global firms to trade off the risks associated with the two internationalization paths. In other contexts, Mudambi (1998) has investigated whether multinational corporations invest further resources in markets where they are already present (increasing the extent of foreign operations) or invest further resources in new markets to diversify location-specific risks (increasing geographic scope). He has found that multinational corporations with extant operations in a given foreign location are significantly more likely to invest further in those locations. This implies that initial investments in expanding geographic scope are followed by consolidating investments in foreign operations (Figure 1, route A). Allen and Pantzalis (1996), as well as Goerzen and Beamish (2003), found that the performance of multinational corporations relates positively to their geographic scope, but relates negatively to their extent of foreign operations, yet again implying some kind of trade-off between the two internationalization paths.

Yet, to date, no study has specifically analyzed the short-term relationship between geographic scope and foreign operations expansion for born global firms. Verbeke, Li, and Goerzen (2009) argue that the choice of a firm's international expansion route is highly context specific, and will likely result from firm-specific strategic motivations for making such an expansion. This view implies that we are unlikely to observe systematic patterns of international expansion among heterogeneous populations of firms. Verbeke et al. (2009) further claim that, in more homogeneous populations of firms, the likelihood of finding systematic patterns of international expansion substantially increases. Following this point of view, the current paper suggests that born global firms represent such a homogeneous population. Born global firms are not only similar in terms of their resource constraints and technological intensity (Filatotchev et al., 2009; Knight & Cavusgil, 2004), but also mostly share a market-seeking motivation for internationalization, where they build on unique technological knowledge to internationalize while supplementing this knowledge through their enhanced international presence (Autio et al., 2000; Oviatt & McDougall, 1994; Zahra et al., 2000).

Given this point of view, the current study suggests the existence of a systematic relationship between sequences of short-term expansions of geographic scope and foreign operations in current and subsequent short-term periods for born global firms. Two central arguments are made. The first is that, during any given time period, managers of born global firms are expected to adopt a dominant internationalization path (expanding either their geographic scope *or* their foreign operations) rather than simultaneously expand along both paths. Two main issues lie at the heart of this dominant internationalization path argument: (1) simultaneous expansion along both paths is likely to be perceived as riskier than sticking to a single path of international growth per unit of time; and (2) in the short term, born global firms may find it more efficient to develop capabilities that are specific to either path of internationalization rather than

simultaneously develop capabilities in both paths. The second argument is that once expansion occurs in a specific internationalization path, a born global firm is likely to continue expanding along this path also in subsequent periods, and leverage the reduced risk of following a familiar path as well as the capabilities developed for that path. This process will likely end once the benefits of further expansion along such a path are exhausted, and more cost-effective international expansion opportunities arise in the alternate path.

Reducing the Perceived Risk of International Expansion

It is well established in the literature that, in the short term, expansion of geographic scope is often perceived as risky by the managers of internationalizing firms. The risks of such expansion often result from the "liability of foreignness" (Hymer, 1976; Zaheer, 1995), and intensify the cultural, political, economic and other risks of penetrating unfamiliar foreign locations (Shrader et al., 2000). Likewise, expansion of foreign operations by means of greater entry-mode commitment is often perceived as risky because of its irreversible nature, which reduces the strategic flexibility of firms, and may lead to loss of potential revenue (Ghemawat, 1991; Hill et al., 1990; Johanson & Vahlne, 1977; Li & Rugman 2007; Miller, 1992; Root, 1987; Shrader et al., 2000). These risks intensify even more in the case of born global firms, which are often subject to the "liability of newness". For such firms, resource constraints and lack of business experience are likely to make the penetration into new foreign markets and irreversible resource commitments to such markets even riskier (Mudambi & Zahra, 2007; Shrader et al., 2000).

Any expansion move (either of geographic scope or of foreign operations) that a born global firm makes is, to some extent, indivisible in terms of the amount of resources it requires (Barney, 1991; Penrose, 1959; Wernerfelt, 1984). Hence expansion of *both* internationalization paths simultaneously is likely to be perceived as even riskier by managers of born global firms compared with the separate expansion of each path. This results from the need to deal concurrently with both types of risks. For instance, foreign direct investment is likely to be perceived as riskier in a new country than in a country in which the born global firm is already active. It is further likely to be perceived as riskier than entering a new foreign country with low resource commitment, such as exports.

The roots of the greater perceived risk of simultaneous expansions of geographic scope and foreign operations, as compared with the expansion of a single path in a given time period, lie in the limited ability of internationalizing firms in general, and born global firms in particular, to handle complexity successfully in a given time period (Hutzschenreuter & Voll, 2008; Vermeulen & Barkema, 2002; Wagner, 2004). Firms are constrained by "time compression diseconomies" (Dierickx & Cool, 1989), where bounded rationality (Cyert & March, 1963) limits the ability of managers to absorb and evaluate the information required to expand simultaneously along both internationalization paths. Given the scarcity of managerial resources in born global firms, and their intensity of making internationalization decisions (Mudambi & Zahra, 2007; Shrader et al., 2000), risk minimization considerations are expected to lead managers of born global firms to trade off the risks (Shrader et al., 2000) associated with each of the internationalization paths, and concentrate on expanding a single dominant internationalization path per unit of time.

Developing Path-specific Capabilities

Dealing with new and unfamiliar foreign markets *in parallel* with increasing equity stakes in existing foreign operations forces the simultaneous development of capabilities required for expanding the geographic scope and foreign operations of the born global firm.

An important observation in this respect is that, while some of the capabilities required for expanding geographic scope and foreign operations are complementary,[2] many of them are quite distinct. Geographic scope expansion out of market-seeking motivations, as is often the case for born global firms, requires mainly the possession of capabilities relevant to the execution and global coordination of downstream value chain activities, such as marketing, sales and distribution activities. Foreign operation expansion, on the other hand, often requires the possession of capabilities that are relevant to both upstream and downstream value chain activities (Porter, 1985), ranging from logistics, operations and R&D to sales, distribution and customer support. Hence expansion of geographic scope requires the capability to cope with foreign market entry barriers (often through collaborative agreements with indigenous firms in host markets), and to coordinate a greater number of geographically dispersed downstream affiliations operating in

diverse environments. It also requires the ability to deal with the complexity of operating in countries with different cultures (Hutzschenreuter & Voll, 2008), and to become locally responsive to *multiple* and differing foreign customer demands (Bartlett & Ghoshal, 1989; Delios & Henisz, 2003; Zahra et al., 2000). Expansion of foreign operations, by contrast, requires mainly the capability to assess resource relatedness and synergies in order to internally manage and control multiple value chain activities located in specific foreign markets (Aulakh & Kotabe, 1997; Hill et al., 1990).

During their international expansion, born global firms are expected to develop both types of capabilities. When expanding their geographic scope, born global firms typically need to learn how to duplicate their distribution and sales efforts, adapt to new host environments and foreign partners, and coordinate a more diverse set of markets. When expanding their foreign operations in specific locations, born global firms typically need to learn how to internally manage multiple upstream and downstream activities along the value chain in given foreign market settings. Yet, if born global firms are required to develop both sets of capabilities *simultaneously*, this is likely to absorb significant managerial time and effort (Barney, 1991; Penrose, 1959). While such heavy "taxation" of managerial time and effort may prove problematic to all firms, it is particularly problematic for born global firms, which are often heavily resource-constrained (Knight & Cavusgil, 2004; Mudambi & Zahra, 2007; Oviatt & McDougall, 1994; Shrader et al., 2000).

Because management teams are posited to be inelastic in the short term (Penrose, 1959; Tan & Mahoney, 2005), they are often unable to handle effectively the increased demands that are placed on them when required to expand both the geographic scope and the foreign operations of their firms.[3] Rather than develop two sets of capabilities simultaneously, born global firms may find it more beneficial (in cost–revenue terms) to focus their managerial time and effort on developing a particular set of capabilities through the expansion of a single internationalization path.

In other words, born global firms face increasing returns for managerial attention *per time period*. Moderately increasing the geographic scope and foreign operations simultaneously will likely lead to lower returns than focusing the same managerial time and effort on a single task. This results from the fact that, per time period, there are increasing returns to the development of specific capabilities. Within a given time frame, the capability level of relatively young and small firms (Helfat & Peteraf, 2003), as many born global firms are, is expected to be proportional to the *continuous* time spent on the development of a specific type of capability. Trying to develop multiple sets of capabilities in the same time frame will likely result in too frequent changes in managerial attention, leading to costly "set-up" costs and, subsequently, lower capability levels.[4]

The greater perceived risk of simultaneously managing two internationalization paths, coupled with the need to develop two sets of capabilities simultaneously, is expected to lead to substitution between the short-term expansions of the born global firm's foreign operations and geographic scope, where the greater the expansion along one trajectory, the smaller the expansion along the other. Put differently, born global firms are expected to sequence their short-term expansions of either geographic scope or foreign operations. Other things being equal, during a given time period, born global firms are likely to stick to a dominant path of internationalization, while making minimal expansion, halting or even contracting the alternate path. Hence it is hypothesized that:

Hypothesis 1a: In the short term, the geographic scope expansion of born global firms is negatively correlated with their foreign operation expansion.

Furthermore, once a born global firm embarks upon expanding a particular internationalization path (either its geographic scope or the extent of its foreign operations), it faces even less perceived risk and possesses even better capabilities to internationalize further along that specific path in subsequent periods. Choosing a sequence of short-term international expansions, all within the same internationalization path, would likely be less risky then facing the new types of risks associated with the alternate internationalization path. In addition, born global firms may stretch and leverage the capabilities they have developed (Barney, 2002; Chi, 1994; Hamel & Prahalad, 1993) to expand further in a familiar internationalization path that best matches their stock of competencies.

Sticking to a previously developed internationalization path would likely be less costly, owing to savings on the "set-up" costs associated with developing the capabilities required for expanding the alternate path. Here, resource indivisibility is

likely to lead to the emergence of organizational slack that can be leveraged for further expansion of a chosen internationalization path in subsequent periods while incurring low marginal costs (Cyert & March, 1963; Penrose, 1959). For instance, a born global firm may expand its foreign operations further by adding value chain activities to a subsidiary established in a previous period, while building on this subsidiary's resources (e.g., using sales points to provide customer support). It may also expand its foreign operations by building on the knowledge gained through engagement with a partially owned subsidiary (established in a previous period) to establish a wholly owned subsidiary. Likewise, a born global firm may use the knowledge and capabilities gained when entering a foreign market in a previous period to facilitate further entry into foreign markets that are culturally or institutionally similar. Indeed, such slack should not necessarily be utilized in subsequent periods. Yet minimizing the shifts of indivisible resources between the different tasks associated with the two internationalization paths is likely to generate strategic momentum dynamics (Amburgey & Miner, 1992) and yield higher capability levels. Arguably, there are also increasing returns for managerial attention, in born global firms, *between* subsequent time periods. It is therefore hypothesized that:

Hypothesis 1b: The geographic scope expansion of born global firms is negatively correlated with their foreign operation expansion in subsequent periods, and vice versa.

Nevertheless, the economies of a sequence of expansions along a specific internationalization path are likely to be exhausted over time, leading born global firms to turn to the alternate path. This is typically the case where the net benefits (in cost-revenue terms) from following a given internationalization path gradually slacken to become marginal. For instance, for a born global firm expanding its extent of foreign operations, the net benefits of internalizing additional value chain activities in given foreign markets are likely to become gradually lower, to the point where entry to a new foreign market becomes more attractive. On the other hand, for a born global firm expanding its geographic scope, targeting foreign markets that are gradually more culturally and institutionally distinct from existing foreign markets may at some point be less beneficial than expanding operations in existing markets. It follows that, over time, born global firms are likely to reduce the rate of expansion along a given internationalization path until they reach a certain "optimal" level of international path expansion. It is therefore hypothesized that:

Hypothesis 1c: The rate of expansion by born global firms along a dominant internationalization path will diminish over time.

In terms of the internationalization routes depicted in Figure 1, the above discussion implies that either route A or route B is likely to be the "conceptual" route in which born global firms internationalize, exhibiting several subsequent expansion moves along a single internationalization path before shifting to the alternate one.

The Impact of Technological Intensity and Foreign Experience

Greater technological intensity (often defined as the relative share that technology constitutes of the firm's inputs and outputs) is conceived as a major driver for the competitive success of born global firms in foreign markets, and hence of geographic scope expansion (Knight & Cavusgil, 2004; Mudambi & Zahra, 2007; Oviatt & McDougall, 1994). Greater technological intensity is also a major incentive for the internalization of value chain activities by technology-intensive firms in general (e.g., Buckley & Casson, 1976; Rugman, 1981, 1986) and by born global firms in particular (Hashai & Almor, 2004) and hence is a major motivation for the expansion of foreign operations. Technological intensity is therefore expected to affect the negative association between born global firms' short-term expansions of geographic scope and foreign operations.

Greater technological intensity is assumed to be positively correlated with the expansion of both the geographic scope and foreign operations of born global firms (Mudambi & Zahra, 2007). Yet greater technological intensity is further expected to increase the complexity of technological knowledge transfer (Kogut & Zander, 1993; Martin & Salomon, 2003; Teece, 1977) and hence increase the burden on managers of born global firms, as well as their perceived risk of knowledge transfer.

The transfer of technological knowledge is required both across host markets when expanding geographic scope (Martin & Salomon, 2003) and for granting foreign subsidiaries technological

competencies when expanding foreign operations (Teece, 1977). It follows that the complexity of simultaneous expansion of geographic scope and foreign operations, and the managerial time and effort required for handling such simultaneous expansions, due to knowledge transfer implications, are likely to be higher for relatively more technologically intensive born global firms. This, in turn, implies greater risks and greater difficulties in simultaneously developing "geographic scope" and "foreign operation" expansion capabilities, and leads to the hypothesis that:

Hypothesis 2: Technological intensity increases the negative correlation between the short-term expansion of geographic scope and foreign operations of born global firms.

The foreign experience of the top management team of born global firms is expected to contribute positively to their international expansion (Zahra et al., 2000). It is also expected to reduce the perceived risk of further internationalization moves by born global firms (Knight & Cavusgil, 1996; McDougall, Shane, & Oviatt, 1994). Experiential learning by the born global firm's top management team is thus expected to reduce the risk that managers attribute to simultaneous expansion along both paths.

Generally speaking, managers with greater foreign experience are likely to have experienced more diverse threats and opportunities, which enable them to learn how to deal with host markets' idiosyncrasies, increase their ability to coordinate a network of culturally and institutionally diverse foreign markets effectively, and confer the skills required to manage internalized foreign operations efficiently (Bartlett & Ghoshal, 1989; Sambharya, 1996; Tan & Mahoney, 2007; Zahra et al., 2000). This foreign experience may assist a born global firm to develop routines that will enable it to reduce the perceived risk of expanding their geographic scope and foreign operations simultaneously. Such routines may also reduce the managerial attention that is required to develop the capabilities necessary for simultaneous expansion of both internationalization paths, relative to those required for a single path expansion. The final hypothesis of this paper is therefore:

Hypothesis 3: The foreign experience of the top team management moderates positively the negative correlation between the short-term expansion of geographic scope and foreign operations of born global firms.

DATA, METHODS AND MEASURES

The Sample

The hypotheses were tested on a sample of Israel-based high-technology (hi-tech) born global firms. The firms in the sample closely resemble the characteristics of other firm samples discussed in the born global literature (e.g., Autio et al., 2000; Knight & Cavusgil, 2004; Mudambi & Zahra, 2007; Zahra et al., 2000).

The sample was derived from the full list of Israel-based hi-tech firms constructed for 2006 by the consulting firm Dolev and Abramovitz Ltd. Dolev and Abramovitz is a private company that collects annual information on the Israeli hi-tech industry. The data are updated using phone surveys, and Dolev and Abramovitz publishes a yearly book describing the entire hi-tech industry in Israel, as well as providing periodical reports. The Dolev and Abramovitz dataset is well recognized as a comprehensive resource for this sector in Israel. The 2006 report included about 400 Israeli hi-tech firms that had reached the stage of selling their products. For all these firms, at least 25% of their revenues originated from foreign markets, and hence they satisfied accepted criteria in the literature for being internationally oriented (Knight & Cavusgil, 1996; Zahra et al., 2000).

Relevant data for the study were collected from primary and secondary sources. Secondary data were mainly data available in the Dolev and Abramovitz dataset, annual financial reports, prospectuses and other written reports supplied by the firms, and the United States Patent and Trademark Office (USPTO) database (for patent data).

Additional data that were unavailable in secondary sources were collected through a personal survey based on structured questionnaires, which were given to the senior management of the surveyed firms. All reported data were then cross-checked against secondary sources available through the firms' websites, financial newspaper archives (leading financial newspapers in Israel, such as *Globes* and *The Marker*) and stock exchange data (for the sampled firms that are publicly held).

Overall, 165 questionnaires were completed for randomly selected firms. Out of these 165 firms, 18 firms whose questionnaires included incomplete

data were removed from the dataset. Three additional firms did not satisfy accepted criteria in the literature for being born global firms, as they had started selling their products abroad only after 7 or more years of operating in Israel. This resulted in a sample of 144 firms. Basic *t*-test comparisons between the 144 participating firms and the 253 non-participating firms did not show evidence of bias in terms of the averages of firm sales, number of employees, age of firm, firm valuation or industrial classification.

The questionnaires covered a wide range of "hard data", including foreign market dispersion, and human resource distribution across foreign subsidiaries and functions, as well as the entry modes of R&D, production and marketing activities. These data were repeatedly reported for multiple periods of time from each firm's inception through until 2006. Each period reflected the time between subsequent investment rounds as indicated in the Dolev and Abramovitz dataset. Overall, this procedure resulted in 483 firm-period observations for the 144 analyzed firms, where the average length of a period was reported to be around 1.8 years (with a minimum of 1 year and a maximum of 5 years).[5] The minimum number of periods per firm was two and the maximum number of periods was seven.

Methods and Measures

To test the predictions regarding the co-evolution of the two internationalization routes (geographic scope expansion and foreign operation expansion), two-stage least-squares (2SLS) within-firm fixed-effects regression models were used. The use of this specific research design stems from the assumption that managerial decisions regarding the expansion of geographic scope and foreign operations, in born global firms, are likely to be interrelated and made simultaneously. The born global firms in the sample are relatively small to medium-sized single business unit firms, in which corporate-level internationalization decisions, rather than subsidiary-level ones, are likely to dominate (Tan & Mahoney, 2007). Since both paths of internationalization make use of the born global firm's relatively fixed and scarce managerial resource bundle (Mudambi & Zahra, 2007; Shrader et al., 2000), the decision on whether to expand the geographic scope of international operations in any given time period is likely to be affected by the decision on whether or not to expand the extent of foreign operations, and vice versa. It follows, therefore, that the expansion of geographic scope and that of foreign operations of born global firms are likely to be endogenous to each other. Since the choice of international path in a given period is further likely to affect path choice in subsequent periods, there is a need to control for such endogeneity also in this case.

2SLS regressions (Jaccard & Wan, 1996; Kmenta, 1986; Wooldridge, 2002) enable the relationships between two endogenous variables to be tested in a two-stage process. In the first stage, one of the endogenous variables is estimated based on all other independent variables, and then this estimation is used to predict the other endogenous variable.

Main Variables

Geographic scope

The proxy used for the expansion of geographic scope aims to reflect the increase in "psychic distance" between the sampled born global firms and the foreign markets they target in each period. This was done by analyzing the "added cultural distance" (Hutzschenreuter & Voll, 2008) between the countries in which each firm operated in a given period and the countries in which it operated in the previous period. Following Hutzschenreuter and Voll (2008), this calculation involved adapting the procedure used by Kogut and Singh (1988) to calculate a measure of cultural distance between pairs of countries, based on the nine dimensions and "as is" scores of the GLOBE project (House, 2004). The procedure determines the value of the cultural distance between two countries as the average of the differences between them in each cultural distance dimension while at the same time controlling for the variance in each dimension. As noted by Hutzschenreuter and Voll (2008), using the GLOBE scores allows the inclusion of cultural practices in addition to cultural values, and hence complements Hofstede's (1980) familiar cultural distance dimensions on which the original Kogut and Singh index was based.

Similarly to Hutzschenreuter and Voll (2008), the added cultural distance resulting from geographic scope expansion moves was computed for every newly penetrated foreign market as the smallest distance to all already existing foreign markets. Hence the added cultural distance of a single expansion step is its distance to the closest existing foreign market. To measure the level of added cultural distance of a given firm per period, the

added cultural distance of all expansion steps to new foreign markets, taken in each period *t*, was summed. This measure is denoted $\Delta geographic\_scope_t$.

The overall geographic scope of a firm in a given period *t* reflects the level of cultural diversity of a firm's network of served foreign markets at each period. This measure, denoted as $geographic\_scope_t$, is computed in the same manner as described above. For each firm, the sum of the cultural distances between every pair of countries existing at a given period is computed and divided by the total number of pairs.

Extent of foreign operations

The measure for foreign operations captures the extent of foreign R&D, production, marketing and customer support activities within a foreign market. The extent of foreign operations in each period *t* ($foreign\_operations_t$) was measured as the number of employees per foreign market in subsidiaries that are jointly responsible for at least two value chain activities (e.g., R&D and production, or production and marketing).[6] This choice follows a long tradition of using the number of foreign subsidiaries as a proxy for the extent of irreversible investments in foreign markets (Lu & Beamish, 2001; Tang & Tikoo, 1999), but also takes into account the scale of irreversible commitment in terms of the number of employees (Goerzen & Beamish, 2003; UNCTAD, 2009) and the number of value chain activities executed in a given country. The measure for expansion of foreign operations in each period *t* is denoted $\Delta foreign\_operations_t$, and is defined as $(foreign\_operations_t - foreign\_operations_{t-1})$.

In order to test the hypothesis regarding the diminishing rate of expansion along a given internationalization path, one period lagged levels of geographic scope (as measured by $geographic\_scope_{t-1}$) and foreign operations (as measured by $foreign\_operations_{t-1}$) were included in the second-stage regressions. These measures test the likely effect of existing levels on further expansion of both geographic scope and the extent of foreign operations (Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004).

Instrumental Variables

The 2SLS technique accounts for the correlation in the disturbance term across equations to produce more efficient estimates. A crucial condition for such an estimation is the inclusion of an instrumental variable (IV) that is correlated with the second-stage dependent variable but not with the first-stage one. The IV used for $\Delta geographic\_scope_t$ is the number of product types that each firm sells in a given period (denoted as $products_t$). Firms selling a larger variety of products are likely to be able to penetrate a greater diversity of foreign markets (Oviatt & McDougall, 1994), while not necessarily changing the extent of their foreign operations. The variable $products_t$ is indeed significantly correlated with $\Delta geographic\_scope_t$ but not with $\Delta foreign\_operations_t$ (see Table 1) and hence meets the criteria of being an IV.

The IV used for $\Delta foreign\_operations_t$ is each firm's marketing intensity (M_{It}), measured as the ratio of marketing expenses to sales. M_{It} is expected to correlate positively with the extent of foreign operations, in particular for hi-tech firms, due to the close association between the marketing and R&D functions in the processes of introducing new technologies that meet consumer demands (Hirsch, 1989; Mudambi, 2008; Porter, 1998). M_{It}

Table 1 Descriptive statistics and correlation matrix

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. $geographic\_scope_t$	4.19	3.38	1	—	—	—	—	—	—	—	—	—
2. $foreign\_operations_t$	17.54	15.12	0.17*	1	—	—	—	—	—	—	—	—
3. $\Delta geographic\_scope_t$	2.06	2.25	−0.10*	−0.05	1	—	—	—	—	—	—	—
4. $\Delta foreign\_operations_t$	7.46	9.85	0.06	−0.11*	−0.10*	1	—	—	—	—	—	—
5. $tech\_intensity_t$	0.25	0.13	0.24**	0.43***	0.11*	0.15*	1	—	—	—	—	—
6. $sales_t$ ($ million)	27	66	0.36***	0.24**	0.26**	0.14*	0.21**	1	—	—	—	—
7. $foreign\_experience_t$	3.75	2.49	0.22**	0.13*	0.15*	0.12*	0.11*	0.37**	1	—	—	—
8. $employees_t$	127	232	0.33***	0.23**	0.16*	0.24**	0.32***	0.80***	0.42***	1	—	—
9. $products_t$	6.61	19.43	0.13*	0.01	0.25**	0.05	0.02	0.24**	0.12*	0.23**	1	—
10. M_I	0.15	0.11	0.07	0.27**	0.08	0.28**	0.56***	0.26**	0.38***	0.23**	0.04	1

N=483. Significance measures are all two-tailed: ***statistically significant at 0.1%; **statistically significant at 1%; *statistically significant at 5%.

does not necessarily have a direct association with the geographic scope of international operations because a variety of entry modes (not all of which require internal funds investment) can be used to serve foreign markets. M_{It} is indeed significantly correlated with $\Delta foreign\_operations_t$ but not with $\Delta geographic\_scope_t$ (see Table 1), and hence also meets the criteria for being an IV.

Moderating and Control Variables

The measure for $foreign\_experience_t$ is the average foreign experience of the firm's top managerial team at the beginning of period t. Following Sambharya (1996), Nadkarni and Perez (2007) and others, such foreign experience is defined as the total years spent by the top managerial team abroad on previous assignments in the current firm, in other firms and/or in higher education. Since management teams are different in size, the average foreign experience per management team (firm) at the beginning of each period was used. It is noteworthy that this measure may increase or decrease between subsequent periods according to the composition of the firm's top management team. This measure was log-transformed in order to reflect the intuition that foreign experience is not purely additive (Goerzen & Beamish, 2003).

Technological intensity ($tech\_intensity_t$) was measured by the ratio of R&D expenses to sales in each period t. This measure reflects the extent of resources directed towards technology creation, and is well accepted in the literature (e.g., Belderbos, 2003; Hashai & Almor, 2004; Zhang, Li, Hitt, & Cui, 2007).

Firm sales (in US$ thousands), denoted as $Sales_t$, served as a control for firm size. Firm size is expected to be positively correlated with geographic scope and the extent of foreign operations. Larger born global firms are likely to have a greater amount of slack resources than smaller born global firms, and are more able to commit substantial resources to expanding their geographic scope and foreign operations. In addition, larger firms are less vulnerable to failures in foreign markets, and hence are less risk-averse than smaller firms (Agarwal & Ramasawi, 1992; Madhok, 1997). $Sales_t$ is highly skewed, and has been log-transformed to alleviate this.

Regression Models

The first stage of the 2SLS model estimates the measures for expansion of geographic scope and foreign operations as a function of their respective IV and other independent variables. In the second stage, this estimation is used to identify correlations between an expansion (or contraction) of either the geographic scope or foreign operations and an expansion (or contraction) in the alternate path (Wooldridge, 2002), while controlling for the effect of independent variables. The first-stage models have the following structure:

$$\Delta geographic\_scope_t = \alpha_0 + \alpha_1 products_t + \alpha_2 sales_t + \alpha_3 foreign\_experience_t + \alpha_4 tech\_intensity_t + \varepsilon \quad (1)$$

$$\Delta foreign\_operations_t = \alpha_0 + \alpha_1 M_{It} + \alpha_2 sales_t + \alpha_3 foreign\_experience_t + \alpha_4 tech\_intensity_t + \varepsilon \quad (2)$$

The second-stage models are as follows:

$$\begin{aligned}\Delta geographic\_scope_t = {} & \beta_0 + \beta_1 \Delta foreign\_operations_t \\ & + \beta_2 products_t + \beta_3 sales_t \\ & + \beta_4 foreign\_operations_{t-1} \\ & + \beta_5 geographic\_scope_{t-1} \\ & + \beta_6 foreign\_\exp erience_t \\ & + \beta_7 tech\_intensity_t \\ & + \beta_8 foreign\_experience_t \\ & \times \Delta foreign\_operations_t \\ & + \beta_9 tech\_intensity_t \\ & \times \Delta foreign\_operations_t + \varepsilon\end{aligned} \quad (3)$$

$$\begin{aligned}\Delta foreign\_operations_t = {} & \beta_0 + \Delta geographic\_scope_t \\ & + \beta_2 M_{It} + \beta_3 sales_t \\ & + \beta_4 foreign\_operations_{t-1} \\ & + \beta_5 geographic\_scope_{t-1} \\ & + \beta_6 foreign\_experience_t \\ & + \beta_7 tech\_intensity_t \\ & + \beta_8 foreign\_experience_t \\ & \times \Delta geographic\_scope_t \\ & + \beta_9 tech\_intensity_t \\ & \times \Delta geographic\_scope_t + \varepsilon\end{aligned} \quad (4)$$

where ε is the error term.

In order to test the relationships between a change in either internationalization path in a given period and a change in the alternate path in subsequent periods, the following specification was used in the second-stage models:

$$\begin{aligned}\Delta geographic\_scope_t = {} & \beta_0 + \beta_1 \Delta foreign\_operations_{t+i} \\ & + \beta_2 products_t + \beta_3 sales_t \\ & + \beta_4 foreign\_operations_{t-1} \\ & + \beta_5 geographic\_scope_{t-1} \\ & + \beta_6 foreign\_experience_t \\ & + \beta_7 tech\_intensity_t + \varepsilon \qquad (5)\end{aligned}$$

$$\begin{aligned}\Delta foreign\_operations_t = {} & \beta_0 + \Delta geographic\_scope_{t+i} \\ & + \beta_2 M_{It} + \beta_3 sales_t \\ & + \beta_4 foreign\_operations_{t-1} \\ & + \beta_5 geographic\_scope_{t-1} \\ & + \beta_6 foreign\_experience_t \\ & + \beta_7 tech\_intensity_t + \varepsilon \qquad (6)\end{aligned}$$

where $i \geqslant 1$, and ε is the error term.

Within-firm fixed-effects models allow us to test for short-term intra-firm variance in geographic scope and foreign operations (rather than inter-firm variation) while controlling for unmeasured firm-specific effects on these measures. The analysis of within-firm variation in specific time periods seems to be the most appropriate to test the predictions. This is because the logic and reasoning underlying the hypotheses pertain to the impact of a change in a given internationalization path (either geographic scope or foreign operations) of a born global firm on the alternate internationalization path within a given time period and in subsequent periods.

Within-firm fixed-effects models further enable us to control for the impact of unmeasured firm-specific effects, which are not changing over time, on either the geographic scope or foreign operations (such as firm age), as well as enabling control for industry-specific effects (as industry is fixed per firm). These models further allow us to control for year- and period-specific effects. Controlling for specific years and periods is important in order to control the impact of exogenous effects on born global firms' internationalization (e.g., the international expansion of many Israeli born global firms was halted in 2001 and 2002 by the burst of the "dot-com" bubble).

RESULTS

Descriptive statistics and correlation data, presented in Table 1, indicate that on average $geographic\_scope_t$ and $foreign\_operations_t$ are positively correlated. This implies that born global firms that are more internationalized in terms of geographic scope are likely to be more internationalized in terms of foreign operations. In addition, the correlations show that larger, more foreign-experienced and more technology-intensive born global firms have greater geographic scope, have a greater extent of foreign operations, and sell a larger number of products. The expansion of geographic scope and foreign operations is also positively correlated with firm size (in terms of sales and number of employees), technological intensity and foreign experience. Finally, each of the two expansion measures is significantly negatively correlated to its level, indicating that the more developed an internationalization path is, the smaller is the extent of its expansion.

On average, the firms in the sample spend 25% of their revenues on R&D, are about 5.56 years old, enroll 127 employees, and have an average sales turnover of about US$27 million. Of the firms, 69% became international (in terms either of foreign sales or of the establishment of a foreign subsidiary) within their first period of operation (i.e., less than 2 years after their inception), whereas the rest did so in the second period (i.e., about 3.6 years after their inception). The sample therefore includes relatively young hi-tech firms that internationalize rapidly from their inception, and meets the multiple criteria existing in extant literature for born global firms (Autio et al., 2000; Hashai & Almor, 2004; Knight & Cavusgil, 1996, 2004; Mudambi & Zahra, 2007; Oviatt & McDougall, 1994; Zahra et al., 2000).

Finally, the distribution of these born global firms across hi-tech sectors is as follows: capital equipment 22%, medical devices 21%, telecommunications 16%, enterprise software 12%, storage and data centers 6%, home networking and homeland security 6%, and multimedia and broadcasting 4%, as well as other sectors, including cellular, chip design, Internet and electronics (13%). In this respect it is noteworthy that the analyzed firms all operate within a single business sector (one of the above sectors), thus allaying

Table 2 First-stage regression models for the expansion of geographic scope and foreign operations

Dependent variable:	$\Delta geographic\_scope_t$	$\Delta foreign\_operations_t$
$Products_t$	0.362***	—
	(0.078)	—
M_{It}	—	2.726**
		(0.853)
$sales_t$ (log)	1.565**	1.219**
	(0.416)	(0.423)
$foreign\_experience_t$	0.588*	0.529*
(log)	(0.273)	(0.241)
$tech\_intensity_t$	1.258**	1.635**
	(0.439)	(0.597)
Period	+	+
Year	+	+
R^2	0.267	0.293
F-statistic	12.01***	12.19***
N	350	350

***statistically significant at 0.1%; **statistically significant at 1%; *statistically significant at 5%.
Unstandardized coefficients with robust standard errors in brackets. Intercept is not shown.

concerns regarding possible corporate diversification effects on managerial resources (Hitt, Hoskisson, & Kim, 1997; Zahra et al., 2000).

Table 2 presents the first-stage 2SLS within-firm fixed-effect regressions. In the first model, $\Delta geographic\_scope_t$ is estimated by its IV ($products_t$) and three other independent variables: $sales_t$, $foreign\_experience_t$ and $tech\_intensity_t$. In the second model, $\Delta foreign\_operations_t$ is estimated by its IV (M_{It}) and the same three independent variables. As expected, a positive significant positive relationship between $products_t$ and $\Delta geographic\_scope_t$, and between M_{It} and $\Delta foreign\_operations_t$ is found.

Table 3 presents the second-stage 2SLS within-firm fixed-effect regressions for the relationship between the changes in born global firms' geographic scope and the extent of foreign operations. The table includes six models. Models 1–3 refer to the relationships between $\Delta foreign\_operations_t$ (as dependent variable) and $\Delta geographic\_scope_t$, $\Delta geographic\_scope_{t+1}$ and $\Delta geographic\_scope_{t+2}$, respectively. Models 4–6 refer to the relationships between $\Delta geographic\_scope_t$ (as dependent variable) and $\Delta foreign\_operations_t$, $\Delta foreign\_operations_{t+1}$ and $\Delta foreign\_operations_{t+2}$, respectively.[7]

Model 1 indicates a significant negative relationship between $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_t$ (as implied by the negative coefficient of the latter measure). This result lends support for Hypothesis 1a. Likewise, a negative and significant relationship is identified for the relationship between $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_{t+1}$ (model 2) as well as between $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_{t+2}$ (model 3). The two latter results support the prediction that born global firms tend to stick to a dominant internationalization path for several periods, as suggested by Hypothesis 1b. Similarly, model 4 indicates a significant negative relationship between $\Delta geographic\_scope_t$ and $\Delta foreign\_operations_t$, thus further corroborating Hypothesis 1a. The significant negative relationships between $\Delta geographic\_scope_t$ and $\Delta foreign\_operations_{t+1}$ (model 5) and between $\Delta geographic\_scope_t$ and $\Delta foreign\_operations_{t+2}$ (model 6) lend further support to Hypothesis 1b. Overall, these models reveal a clear substitution between the expansion of geographic scope and the extent of foreign operation expansion in a given period and subsequent ones.

It is further noteworthy that there is a consistent negative relationship between each of the expansion measures and their levels.[8] In models 1–3 $\Delta foreign\_operations_t$ is negatively and significantly correlated with $foreign\_operations_{t-1}$, and in models 4–6 $\Delta geographic\_scope_t$ is negatively and significantly correlated with $geographic\_scope_{t-1}$. These results support Hypothesis 1c and imply that, as a born global firm becomes more internationalized along a given route, it makes smaller expansion moves along that route. It is therefore highly likely that at some point, as the born global firm further increases its level of internationalization along a given path, these expansion moves will cease. This finding, coupled with the positive correlation between the two level measures (see Table 1), gives a strong indication that born global firms reach greater levels of geographic scope and foreign operations by sticking to a dominant path of internationalization for several periods, and then, once the economies of further expanding this path are exhausted, turn to the alternate internationalization path.

As for the control measures, as expected, $sales_t$, $foreign\_experience_t$ and $tech\_intensity_t$ are all positively and significantly correlated with $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_t$. Overall, all the second-stage regressions are significant at the $p<0.1\%$ significance level.

Table 4 investigates the moderating effect of foreign experience and technological intensity on the relationships between $\Delta foreign\_operations_t$ and

Table 3 Second-stage 2SLS within-firm fixed-effects regression models for the relationships between expansion of geographic scope and foreign operations (same and subsequent periods)

Dependent variable	$\Delta foreign\_operations_t$			$\Delta geographic\_scope_t$		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
$\Delta geographic\_scope_t$	−0.214*	—	—	—	—	—
	(0.113)	—	—	—	—	—
$\Delta geographic\_scope_{t+1}$	—	−0.206*	—	—	—	—
	—	(0.105)	—	—	—	—
$\Delta geographic\_scope_{t+2}$	—	—	−0.162*	—	—	—
	—	—	(0.098)	—	—	—
$\Delta foreign\_operations_t$	—	—	—	−0.431**	—	—
	—	—	—	(0.165)	—	—
$\Delta foreign\_operations_{t+1}$	—	—	—	—	−0.392**	—
	—	—	—	—	(0.139)	—
$\Delta foreign\_operations_{t+2}$	—	—	—	—	—	−0.206**
	—	—	—	—	—	(0.095)
$Products_t$	—	—	—	0.321***	0.325***	0.361***
	—	—	—	(0.034)	(0.028)	(0.017)
M_{lt}	1.732*	1.692*	1.624*	—	—	—
	(0.695)	(0.757)	(0.701)	—	—	—
$geographic\_scope_{t-1}$	−1.829	−1.810	−1.614	−1.028***	−1.158***	−1.295**
	(1.498)	(1.582)	(1.329)	(0.134)	(0.194)	(0.422)
$foreign\_operations_{t-1}$	−0.101*	−0.097*	0.102*	−0.026	−0.039	−0.066
	(0.045)	(0.039)	(0.053)	(0.022)	(0.027)	(0. 051)
$sales_t$ (log)	1.735***	1.653***	1.713***	1.243***	1.309***	1.254***
	(0.523)	(0.452)	(0.561)	(0.426)	(0.396)	(0.330)
$foreign\_experience_t$ (log)	0.376*	0.387*	0.354*	0.619*	0.652*	0.664*
	(0.149)	(0.156)	(0.148)	(0.335)	(0.321)	(0.355)
$tech\_intensity_t$	1.417**	1.428**	1.430**	1.164**	1.264**	1.325**
	(0.416)	(0.425)	(0.399)	(0.344)	(0.401)	(0.467)
Period	+	+	+	+	+	+
Year	+	+	+	+	+	+
Centered R^2	0.231	0.186	0.165	0.306	0.279	0.231
F-statistic	10.47***	9.96***	8.81***	11.18***	10.85***	10.37***
N	350	203	102	350	203	102

***statistically significant at 0.1%; **statistically significant at 1%; *statistically significant at 5%.
Unstandardized coefficients with robust standard errors in brackets. Intercept is not shown.

$\Delta geographic\_scope_t$ as per Hypotheses 2 and 3. Model 7 in Table 4 shows a negative sign for the interaction of $tech\_intensity_t$ and $\Delta geographic\_scope_t$. Model 8 shows a negative sign for the interaction of $tech\_intensity_t$ and $\Delta foreign\_operations_t$. Overall, these results support Hypothesis 2, implying that greater technological intensity increases the negative association between simultaneous expansions of geographic scope and the extent of foreign operations.

Model 7 in Table 4 further indicates that the interaction of $foreign\_experience_t$ and $\Delta geographic\_scope_t$ is positive. In a similar vein, model 8 shows a positive coefficient for the interaction of $foreign\_experience_t$ and $\Delta foreign\_operations_t$. Together, the two models show a positive moderation of foreign experience for the $\Delta foreign\_operations_t - \Delta geographic\_scope_t$ negative relationship, thus supporting Hypothesis 3.

The impact of the control measures is consistent with the effects discussed for Table 3, and all the second-stage regressions are significant at the $p < 0.1\%$ significance level.

Robustness Tests

In order to ensure the robustness of the results, several tests were conducted. First, a more nuanced firm-level analysis than the one achieved by using firm-specific effects was conducted. More specifically, given the "Penrosian" reasoning of this

Table 4 Second-stage 2SLS within-firm fixed-effects regression models for the moderating effects of foreign experience and technological intensity

Dependent variable	$\Delta foreign\_operations_t$ Model 7	$\Delta geographic\_scope_t$ Model 8
$\Delta geographic\_scope_t$	−0.197*	—
	(0.105)	—
$\Delta foreign\_operations_t$	—	−0.385***
	—	(0.074)
$products_t$	—	0.336***
	—	(0.076)
M_{It}	1.657*	—
	(0.583)	—
$geographic\_scope_{t-1}$	−1.633	−1.071**
	(1.254)	(0.416)
$foreign\_operations_{t-1}$	−0.106*	−0.030
	(0.049)	(0.045)
$sales_t$ (log)	1.584***	1.258***
	(0.080)	(0.544)
$foreign\_experience_t$ (log)	0.311***	0.621***
	(0.070)	(0.064)
$tech\_intensity_t$	1.463**	1.252**
	(0.397)	(0.428)
$foreign\_experience_t \times \Delta foreign\_operations_t$	—	1.051**
	—	(0.490)
$tech\_intensity_t \times \Delta foreign\_operations_t$	—	−1.327**
	—	(0.257)
$foreign\_experience_t \times \Delta geographic\_scope_t$	0.284**	—
	(0.113)	—
$tech\_intensity_t \times \Delta geographic\_scope_t$	−1.437**	—
	(0.492)	—
Period	+	+
Year	+	+
Centered R^2	0.317	0.338
F-statistic	9.64***	11.76***
N	350	350

***Statistically significant at 0.1%; **statistically significant at 1%; *statistically significant at 5%.
Unstandardized coefficients with robust standard errors in brackets. Intercept is not shown.

paper's arguments, the effect of firm size ($sales_t$) on the results was further investigated. Firm size as a control variable was shown to affect positively the expansion of both geographic scope and foreign operations (see Tables 3 and 4). Firm size was initially added as a moderator for the $\Delta foreign\_operations_t$–$\Delta geographic\_scope_t$ relationship. While the interaction term of firm size with each of the international expansion measures was positive, it was not significant. Next, the sample was divided into two subsamples, one including the smallest 50% of firms and the other the largest 50%.[9] This split aimed to investigate whether firm size mitigates the negative relationship between $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_t$, and the negative association between international expansions along each path and the level of internationalization of this path. A comparison of the results of the two subsamples indicated that the negative association between $\Delta foreign\_operations_t$ and $\Delta geographic\_scope_t$ did not change, although its significance for the sample of large firms in the case where $\Delta geographic\_scope_t$ was the dependent variable decreased to $p<5\%$. The negative association of the measures with their levels was also maintained, but its significance was reduced in both cases to $p<5\%$ in the sample of large firms. These results imply that even the larger firms in the sample are still too small to mitigate the phenomena observed for the whole sample, yet there is a slight indication

that the larger firms in the sample have somewhat lesser constraints on expanding their geographic scope than smaller firms.

An alternative proxy for geographic scope refers to the dispersion of the sampled firms across culturally distant foreign markets. Based on the clustering of countries into nine different cultural groups, as conducted by Ronen and Shenkar (1985), this proxy is an entropy measure that considers both the number of clusters in which a firm operates and the relative contribution of each cluster to total sales. This proxy of geographic scope also refers to the "psychic distance" between the sampled firms and the foreign markets they target. The larger the entropy measure, the more dispersed a firm's sales are across culturally distinct clusters, and hence the greater the likelihood is that it faces greater psychic distance. The entropy measure was defined as $\sum_{i-1}^{9}\ln(1/P_i)$, where, in each period t, P_i is the proportion of sales attributed to cluster i (out of total sales) and $\ln(1/P_i)$ is the weight given to each cluster. The measure for the expansion (or contraction) of geographic scope was defined as the difference in the entropy measure between subsequent periods. Running the regression system with this proxy yielded results very similar to those presented in Tables 3 and 4, with somewhat lower significance levels ($p<5\%$ for the major measures investigated).

Other robustness tests use the number of countries in which each analyzed firm has sales in a given period as an alternative measure for geographic scope, and adopt the number of subsidiaries conducting more than a single value chain activity in a foreign market as an alternative measure for the extent of foreign operations. Using these measures did not affect the results. The number of employees (log-transformed) was further used as an alternative measure for firm size. Also, in this case, the results did not change. When using the number of each firm's patents, as well as patent citations (both obtained from the USPTO database) as alternative measures for $tech\_intensity_t$, the results were not affected. Finally, controlling for the length (in years) of specific periods yielded similar results to those presented in Tables 2 and 3, thus further corroborating the hypotheses.

DISCUSSION

This study investigates the process through which born global firms internationalize. It shows that they sequence their expansions of geographic scope and foreign operations by sticking to one of the paths for several subsequent short-term periods (while halting the expansion of the other), and turn to the alternate path once expansion opportunities along the first path are exhausted. The analysis further reflects a negative association between the rate of expansion along a given internationalization path and the extent of expansion along this path, indicating that born global firms strive to reach a certain "optimal" level of path expansion before they turn to the alternate path.

The findings of this study suggest that born global firms either expand internationally through a series of geographic expansion moves, followed by a series of foreign operation expansion moves (route A in Figure 1), or expand through a series of foreign operation expansion moves, followed by a series of geographic expansion moves (route B in Figure 1). Clearly, these are only "conceptual" routes that reflect subsequent expansions along a path before turning to the other. A change in the dominant internationalization path may occur several times (and not only once, as depicted for the two routes). Born global firms are less likely to move interchangeably between expanding their geographic scope and foreign operations in subsequent periods (route C) or to increase both paths simultaneously (route D).

The findings of this study indicate that one mechanism by which born global firms mitigate the perceived risk of their rapid internationalization is in sticking to a dominant internationalization path. By maintaining a dominant path of internationalization in subsequent time periods, born global firms are expected to reduce the complexity associated with expanding simultaneously along both internationalization paths. In this respect, the conceptual framework and empirical results allow both scholars and practitioners to gain a more refined view of the characteristics of the internationalization process undertaken by this type of firm.

The mechanism of sequencing between expansion of geographic scope and foreign operations may well be one of the ways enabling born global firms to pursue early and rapid internationalization. Direction of managerial resources to a particular internationalization path reduces the risks involved in the simultaneous expansion of paths. It further frees managerial resources that would otherwise have been directed towards developing expansion capabilities along both paths, and allows path-specific capabilities to be leveraged. This shows that the notion of reducing the

perceived risk of internationalization, central to the Uppsala school, is also applicable to born global firms. By focusing on a dominant international expansion path in subsequent time periods, born global firms become able to overcome the joint liabilities of foreignness and newness (Mudambi & Zahra, 2007). Such focus reduces the perceived risk of internationalization for born global firms, and allows them to enjoy economies of scale in the development of capabilities that are specific for expansion in a given path and hence gain rapid international growth. Such focus further allows born global firms to avoid the high switching costs of shifting resources interchangeably between alternate paths in subsequent periods. These findings therefore add a novel explanation to extant perspectives on the rapid international expansion of born global firms (see Autio et al., 2000; Knight & Cavusgil, 2004; Oviatt & McDougall, 1994; Zahra et al., 2000).

Moreover, the findings support the notion put forward by Shrader et al. (2000), who predict and find substitution between the degree of entry-mode commitment and the number of foreign markets entered, reflecting the attempts of born global firms to trade off risks associated with the two internationalization paths. Yet, while the findings of Shrader et al. (2000) refer to the "long-term" position of born global firms in terms of their geographic scope and the extent of foreign operations, the current paper focuses on substituting between the two international expansion paths within a given short-term period and between subsequent ones.

The findings of this study further indicate that born global firms decrease the rate of expansion along the specific internationalization path they focus on, as indicated by the negative association between the change and extent measures. By doing this, born global firms try to optimize the level of expansion along a given internationalization path, and hence further optimize the use of their scarce resources. This finding deviates from the recent findings of Pedersen and Shaver (2011), who claim that once the necessary infrastructure is set for a first international expansion, the rate of further internationalization steps increases. This deviation may arise from the fact that the current study investigates born global firms, whereas the findings of Pedersen and Shaver apply to older firms that have first established operations in their home country, and only then consider international expansion.

An intriguing research avenue opened by this study is to investigate the *ex ante* determinants of internationalization along the two internationalization routes analyzed here. In this respect, the findings of this study reveal that greater foreign experience of the top management team positively moderates the negative association between the simultaneous expansion of geographic scope and foreign operations. This implies that the foreign experience of the born global firm's top managerial team plays a significant role in shaping its future international expansion pattern. Born global firms with a managerial team that is less internationally experienced are even more likely to stick to a single internationalization path in the short term than other born global firms. One interesting research avenue in this regard is to explore whether, at some level of foreign experience, born global firms become able to combine simultaneous expansions along both internationalization paths.

This study also shows that greater technological intensity increases the negative association between simultaneous expansion of geographic scope and foreign operations. This implies that the more technology-intensive a born global firm is, the greater the probability that it will stick to a single internationalization path in the short term. While, in general, greater technological intensity should be positively associated with greater internationalization (Knight & Cavusgil, 2004; Mudambi & Zahra, 2007; Oviatt & McDougall, 1994), the findings of this study imply that greater technological intensity supports international expansion along a single path. Here, future research may use more fine-grained data to suggest different internationalization paths for born global firms, based on their level of technological intensity and its change over time. In fact, since the extant literature implies that greater internationalization is both affected by and affects technological intensity (Autio et al., 2000; Zahra et al., 2000), future studies should aim to improve understanding of the longitudinal endogenous relationships between the choice of internationalization path and the technological intensity of born global firms.

From a broader perspective, the reasoning for the arguments for substitution between geographic scope and foreign operations of born global firms can be further expanded when studying the relationships between other growth paths, such as the relationship between geographic and product diversification (e.g., Kumar, 2009). In a different context, Cantwell and Mudambi (2005: 1115)

have noted that the complexity of engaging in product diversification "taxes" the firm's managerial resources in a similar manner to the findings of this paper with regard to internationalization. Further insights may be gained by building on arguments of increased complexity and risk stemming from simultaneously pursuing endogenously related growth paths, compared with the increasing returns to scale that are derived from sticking to a dominant growth path within a given time period, and between subsequent ones.

Finally, a central question is whether the internationalization mechanisms identified in this study are relevant to populations of larger and older firms. In principle, by sticking to a "dominant internationalization path", such firms may also reduce the perceived risk of internationalization, as well as more efficiently utilize managerial capacity. Yet, for instance, in larger multinational firms that pursue a multi-domestic strategy, decisions regarding the expansion of geographic scope and foreign operations may likely be more influenced by subsidiary managers than headquarter decisions (Bartlett & Ghoshal, 1989). Hence, while this paper has made a start towards studying the relationship between short-term changes in the extent of foreign operations and geographic scope for born global firms, there is a need to replicate this study to identify systematic patterns of internationalization in other homogeneous populations of firms. This will allow a better perception of the extent to which firms tend to stick to a dominant internationalization path as a means to decrease the perceived risk of internationalization, and to leverage their resource.

CONCLUSION

This study advances the "born global" literature by analyzing the relationship between short-term changes in geographic scope and the extent of foreign operations within a given period and between subsequent ones, in born global firms. The study adopts a "Penrosian" approach to make four major arguments:

(1) Born global firms find it more risky to manage expansion simultaneously along the two paths of internationalization, than to follow a single path.
(2) It is more cost-effective for born global firms to develop capabilities for expanding either their geographic scope or their foreign operations in a given time period than to develop both types of capabilities simultaneously.
(3) Born global firms find it more cost-effective to leverage existing capabilities by sticking to a dominant internationalization path in subsequent time periods than to switch between alternate paths.
(4) Born global firms decrease the rate of expansion along a given internationalization path until the opportunities of further expansion along this path are exhausted.

The study further shows that greater technological intensity increases the negative association between the two international expansion paths, while foreign experience on the part of born global firms' top managerial teams moderates the negative association between the two paths to a certain extent.

Given the limited answers provided in the extant literature regarding the extent to which born global firms are risk-averse, and regarding their ability to internationalize rapidly despite their young age and resource constrains, the overall contribution of this paper's findings to extant literature is threefold. First, the findings highlight how born global firms aim to reduce the risk of internationalization by sticking to a "dominant internationalization path". This mechanism is clearly different from the one depicted in traditional stage models of internationalization, where gradual international expansion is advocated. Yet it makes a nice parallel, showing that risk-aversion considerations are also applicable to born global firms, and not only to gradually internationalizing firms. Second, by sticking to a dominant internationalization path, born global firms are further able to reduce managerial complexity and leverage their resources and capabilities better in order to pursue early and rapid internationalization. This, in turn, is a novel explanation of how such firms are able to overcome their liabilities of newness and their resource constraints to gain early and rapid internationalization. Finally, the fairly consistent set of "stock and flow" results along each of the dimensions separately shows that a greater extent of foreign expansion is associated with a lower current growth rate in a given dimension. This indicates a novel internationalization feature of born global firms, in which they converge to a certain "optimal" level of path expansion before they turn to the alternate path. Such conversion allows for even better resource

utilization, and hence further supports the rapid internationalization of born global firms. Taken together, these findings go a long way in bridging the gap between the born global phenomenon and traditional internationalization theories, and provide a first step towards building a more general theory of the internationalization process.

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NOTES

[1]Alternative definitions often used in the literature are: entry mode, operation mode or business mode.

[2]Take, for example, the capability to deal with regulatory authorities, which is important both in foreign market entry and in the expansion of operations in an existing foreign country.

[3]Relaxation of this constraint by the recruitment of additional managers is often ineffective, owing to the time and attention that new managers require from current managers until they become effectively embedded in existing firm-specific routines (Penrose, 1959; Tan & Mahoney, 2005).

[4]To clarify this point, increasing returns in capability development imply that if a born global firm is able to reach a (conceptual) level of, say, ten when developing a single capability, it is expected to reach a level that is lower than five (for each capability) when developing two sets of distinct capabilities at once.

[5]This figure is consistent with extant literature that usually refers to "short-term" changes as changes occurring within a period of up to 6 years (Chatterjee & Wernerfelt, 1991; Kumar, 2009; Silverman, 1999).

[6]While formally this definition implies that several different subsidiaries may each be in charge of a specific value chain activity in a given country, in the current sample multiple value chain activities were always executed within a single subsidiary. This is probably the outcome of the relatively small size of the sampled firms (see Table 1).

[7]There were not enough observations in the dataset to allow longer lags.

[8]This result is consistent for the required conditions for using true change measures, as discussed in Bergh and Fairbank (2002).

[9]The firms were split according to median sales in 2006 (end of the last period) in order to avoid a situation in which firm-period observations of the same firm would be split between the two subsamples.

REFERENCES

Agarwal, S., & Ramasawi, S. N. 1992. Choice of foreign market entry mode: Impact of ownership, location and internalization factors. *Journal of International Business Studies*, 23(1): 1–27.

Allen, L., & Pantzalis, C. 1996. Valuation of the operating flexibility of multinational corporations. *Journal of International Business Studies*, 22(4): 633–653.

Amburgey, T. L., & Miner, A. S. 1992. Strategic momentum: The effects of repetitive, positional and contextual momentum on merger activity. *Strategic Management Journal*, 13(5): 335–349.

Aulakh, P. S., & Kotabe, M. 1997. Antecedents and performance implications of channel integration in foreign markets. *Journal of International Business Studies*, 28(1): 145–175.

Autio, E., Sapienza, H. J., & Almeida, J. 2000. Effects of age at entry, knowledge intensity and imitability on international growth. *Academy of Management Journal*, 43(5): 909–924.

Barkema, H. G., & Drogendijk, R. 2007. Internationalising in small, incremental or larger steps? *Journal of International Business Studies*, 38(7): 1132–1148.

Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1): 99–120.

Barney, J. B. 2002. *Gaining and sustaining competitive advantage*. Englewood Cliffs, NJ: Prentice Hall.

Bartlett, C. A., & Ghoshal, S. 1989. *Managing across borders: The transnational solution*. Boston, MA: Harvard Business School Press.

Belderbos, R. 2003. Entry mode, organizational learning, and R&D in foreign affiliates: Evidence from Japanese firms. *Strategic Management Journal*, 24(3): 235–259.

Bergh, R. D., & Fairbank, J. F. 2002. Measuring and testing change in strategic management research. *Strategic Management Journal*, 23(4): 359–366.

Buckley, P. J., & Casson, M. 1976. *The future of the multinational enterprise*. London: Macmillan.

Cantwell, J., & Mudambi, R. 2005. MNE competence-creating subsidiary mandates. *Strategic Management Journal*, 26(12): 1109–1128.

Cavusgil, S. T. 1984. Differences among exporting firms based on their degree of internationalization. *Journal of Business Research*, 12(2): 195–208.

Chatterjee, S., & Wernerfelt, B. 1991. The link between resources and type of diversification: Theory and evidence. *Strategic Management Journal*, 12(1): 33–48.

Chi, T. 1994. Trading in strategic resources: Necessary conditions, transaction cost problems, and choice of exchange structure. *Strategic Management Journal*, 15(4): 271–290.

Contractor, F., Kundu, S. K., & Hsu, C. C. 2003. A three-stage theory of international expansion: The link between multinationality and performance in the service sector. *Journal of International Business Studies*, 34(1): 5–18.

Cyert, R. M., & March, J. G. 1963. *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall.

Czinkota, M. R. 1982. *Export development strategies: US promotion policies*. New York: Praeger.
Delios, A., & Henisz, W. J. 2003. Policy uncertainty and the sequence of entry by Japanese firms, 1980–1998. *Journal of International Business Studies*, 34(3): 227–241.
Dierickx, I., & Cool, K. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Science*, 35(12): 1504–1511.
Filatotchev, I., Liu, X., Buck, T., & Wright, M. 2009. The export orientation and export performance of high-technology SMEs in emerging markets: The effects of knowledge transfer by returnee entrepreneurs. *Journal of International Business Studies*, 40(6): 1005–1021.
Ghemawat, P. 1991. *Commitment: The dynamic of strategy*. New York: Free Press.
Goerzen, A., & Beamish, P. 2003. Geographic scope and multinational enterprise performance. *Strategic Management Journal*, 24(13): 1289–1306.
Hamel, G., & Prahalad, C. K. 1993. Strategy as stretch and leverage. *Harvard Business Review*, 67(2): 75–84.
Hashai, N., & Almor, T. 2004. Gradually internationalizing "born global" firms: An oxymoron? *International Business Review*, 13(4): 465–483.
Helfat, C. E., & Peteraf, M. A. 2003. The dynamic resource-based view: Capability lifecycles. *Strategic Management Journal*, 24(10): 997–1010.
Hill, C. W., Hwang, P., & Kim, W. C. 1990. An eclectic theory of the choice of international entry mode. *Strategic Management Journal*, 11(2): 117–128.
Hitt, M. A., Hoskisson, R. E., & Kim, H. 1997. International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40(4): 767–798.
Hirsch, S. 1989. Services and service intensity in international trade. *Weltwirtschaffliches Archiv – Review of World Economics*, 125(1): 45–60.
Hofstede, G. 1980. *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage Publications.
House, R. J. 2004. *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage Publications.
Hutzschenreuter, T., & Voll, J. C. 2008. Performance effects of "added culture distance" in the path of international expansion: The case of German multinational enterprises. *Journal of International Business Studies*, 39(1): 53–70.
Hymer, S. H. 1976. *The international operations of national firms: A study of direct foreign investment*. Cambridge, MA: MIT Press.
Jaccard, J., & Wan, C. K. 1996. *LISREL approaches to interaction effects in multiple regression*. Thousand Oaks, CA: Sage.
Johanson, J., & Vahlne, J.-E. 1977. The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1): 23–32.
Johanson, J., & Vahlne, J.-E. 1990. The mechanism of internationalization. *International Marketing Review*, 7(4): 11–24.
Johanson, J., & Wiedersheim-Paul, F. 1975. The internationalization of the firm: Four Swedish cases. *Journal of Management Studies*, 12(3): 305–322.
Jones, M. V. 2001. First steps in internationalisation: Concepts and evidence from a sample of small high-technology firms. *Journal of International Management*, 7(3): 191–210.
Jones, M. V., & Coviello, N. E. 2005. Internationalization: Conceptualizing an entrepreneurial process of behavior in time. *Journal of International Business Studies*, 36(3): 284–303.
Kmenta, J. 1986. *Elements of econometrics*, (2nd ed.) New York: Maxwell Macmillan International.
Knight, G., & Cavusgil, S. T. 1996. The born global firm: A challenge to traditional internationalization theory. In S. T. Cavusgil & T. Madsen (Eds), *Advances in international marketing*, Vol. 8: 11–26. Greenwich, CT: JAI Press.
Knight, G., & Cavusgil, S. T. 2004. Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2): 124–141.
Kogut, B., & Singh, H. 1988. The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, 19(3): 411–432.
Kogut, B., & Zander, U. 1993. Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24(4): 625–646.
Kumar, S. M. V. 2009. The relationship between product and international diversification: The effects of short-run constraints and endogeneity. *Strategic Management Journal*, 30(1): 99–116.
Li, J., & Rugman, A. M. 2007. Real options and the theory of foreign direct investment. *International Business Review*, 16(6): 687–712.
Lu, J., & Beamish, P. 2001. The internationalization and performance of SMEs. *Strategic Management Journal*, 22(6–7): 565–586.
Lu, J., & Beamish, P. 2004. International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal*, 47(4): 598–609.
Madhok, A. 1997. Cost, value and foreign market entry mode: The transaction and the firm. *Strategic Management Journal*, 18(1): 39–61.
Martin, X., & Salomon, R. 2003. Knowledge transfer capacity and its implications for the theory of the multinational corporation. *Journal of International Business Studies*, 34(4): 356–373.
McDougall, P. P., Shane, S., & Oviatt, B. M. 1994. Explaining the formation of international new ventures: The limits of theories from international business research. *Journal of Business Venturing*, 9(6): 469–487.
Miller, K. D. 1992. A framework for integrated risk management in international business. *Journal of International Business Studies*, 23(2): 311–331.
Mudambi, R. 1998. The role of duration in multinational investment strategies. *Journal of International Business Studies*, 29(2): 239–262.
Mudambi, R. 2008. Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, 8(5): 699–725.
Mudambi, R., & Zahra, S. 2007. The survival of international new ventures. *Journal of International Business Studies*, 38(2): 333–352.
Nadkarni, S., & Perez, P. D. 2007. Prior conditions and early international commitment: The mediating role of domestic mindset. *Journal of International Business Studies*, 38(1): 160–176.
Oviatt, B. M., & McDougall, P. P. 1994. Toward a theory of international new ventures. *Journal of International Business Studies*, 25(1): 45–64.
Pedersen, T., & Shaver, J. M. 2011. Internationalization revisited: The big step hypothesis. *Global Strategy Journal*, forthcoming.
Penrose, E. 1959. *The theory of the growth of the firm*. New York: Oxford University Press.
Porter, M. E. 1985. *Competitive advantage*. New York: Free Press.
Porter, M. E. 1998. Clusters and the new economics of competition. *Harvard Business Review*, 76(6): 77–90.
Reid, S. D. 1981. The decision-maker and export entry and expansion. *Journal of International Business Studies*, 12(2): 101–112.
Ronen, S., & Shenkar, O. 1985. Clustering countries on attitudinal dimensions: A review and synthesis. *Academy of Management Review*, 10(3): 435–454.
Root, F. R. 1987. *Entry strategy for international markets*. Lexington, MA: Heath.
Rugman, A. M. 1981. *Inside the multinationals: The economics of internal markets*. New York: Columbia University Press.

Rugman, A. M. 1986. New theories of the multinational enterprise: An assessment of internalization theory. *Bulletin of Economic Research*, 38(2): 101–119.
Sambharya, R. B. 1996. Foreign experience of top management teams and international diversification strategies of US multinational corporations. *Strategic Management Journal*, 17(9): 739–746.
Shrader, R. C., Oviatt, B. M., & McDougall, P. P. 2000. How new ventures exploit trade-offs among international risk factors: Lessons for the accelerated internationalization of the 21st century. *Academy of Management Journal*, 43(6): 1227–1247.
Silverman, B. S. 1999. Technological resources and the direction of corporate diversification: Toward an integration of the resource-based view and transaction cost economics. *Management Science*, 45(8): 1109–1124.
Stray, S., Bridgewater, S., & Murray, G. 2001. The internationalisation process of small, technology-based firms: Market selection, mode choice and degree of internationalisation. *Journal of International Global Marketing*, 15(1): 7–29.
Tan, D., & Mahoney, J. T. 2005. Examining the Penrose effect in an international business context: The dynamics of Japanese firm growth in US industries. *Managerial and Decision Economics*, 26(2): 113–127.
Tan, D., & Mahoney, J. T. 2007. The dynamics of Japanese firm growth in US industries: The Penrose effect. *Management International Review*, 47(2): 259–279.
Tang, C. Y., & Tikoo, S. 1999. Operational flexibility and market valuation of earnings. *Strategic Management Journal*, 20(8): 749–761.
Teece, D. J. 1977. Technology transfer by multinational firms: The resource cost of transferring technological know-how. *Economic Journal*, 87(346): 242–261.
UNCTAD. 2009. *World investment report*. Geneva: UNCTAD.
Verbeke, A., Li, L., & Goerzen, A. 2009. Toward more effective research on the multinationality-performance relationship. *Management International Review*, 49(2): 149–162.
Vermeulen, F., & Barkema, H. 2002. Pace, rhythm, and scope: Process dependence in building a profitable multinational corporation. *Strategic Management Journal*, 23(7): 637–653.
Wagner, H. 2004. Internationalization speed and cost efficiency: Evidence from Germany. *International Business Review*, 13(4): 447–463.
Welch, D. J., & Luostarinen, R. 1988. Internationalization: Evolution of a concept. *Journal of General Management*, 14(2): 36–64.
Wernerfelt, B. 1984. A resource-based view of the firm. *Strategic Management Journal*, 5(2): 171–180.
Wooldridge, J. M. 2002. *Econometric analysis of cross section and panel data*. Cambridge, MA: MIT Press.
Zaheer, S. 1995. Overcoming the liability of foreignness. *Academy of Management Journal*, 38(2): 341–363.
Zahra, S. A., Ireland, R. D., & Hitt, M. A. 2000. International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal*, 43(5): 925–949.
Zhang, Y., Li, H., Hitt, M. A., & Cui, G. 2007. R&D intensity and international joint venture performance in an emerging market: Moderating effects of market focus and ownership structure. *Journal of International Business Studies*, 38(6): 944–960.

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