Sequential expansion in a foreign market

Knowledge drivers and contingencies of establishments of additional subsidiaries

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Received 20 January 2016
Revised 21 January 2016
Accepted 5 February 2016

Abstract

Purpose – A multinational firm's expansion in a foreign market is a key issue of international business. The purpose of this study is to extend the understanding of essential drivers that will facilitate firm's assessment of alternative modes of sequential expansion.

Design/methodology/approach – The study applies the knowledge-based view and explores a multinational firm's sequential post-entry expansion in a foreign market. Event histories of Swedish industrial firms' establishments of wholly owned subsidiaries in Germany, the UK and the USA were explored using Cox regression.

Findings – Broad market experiences stemming from corporate strategy and deep experiences from the preceding subsidiary increase the likelihood of a sequential investment. Effects of broad experiences are contingent on the context specified by the geographic scope of the firm and its general subsidiary experience.

Research limitations/implications – The study contributes to international expansion theory and integrates sources of knowledge originating from strategy theory and internationalization theory. The study shows that the dual approach is needed to understand international expansion.

Practical implications – In evaluating a further subsidiary investment in a foreign market, the multinational firm is advised to assess whether it possesses enough market experiences to justify the investment. The experiences should be associated with corporate strategy, the previous wholly owned subsidiary and the context specifications identified in the study.

Originality/value – The study is unique, as it addresses the simultaneous impact of broad and deep market experiences. Also, the inclusion of central context specifications makes the study novel.

Keywords Knowledge-based view, Strategy, Subsidiary, Post-market entry, Sequential expansion

Paper type Research paper

Introduction

Expansion in foreign markets is a key issue of international business, and identification of essential drivers helps the multinational firm to assess modes of expansion. Drawing on the knowledge-based view (Grant, 2002), this study contributes to theory on international expansion by extending the understanding of drivers of multinational firms' post-entry expansion in foreign markets. A conceptual model of drivers of investment sequences is developed, and the study identifies major reasons why a

An earlier version of this article was presented at the Annual Meeting of the Academy of International Business in Vancouver, Canada, in June 2014. The author is thankful for valuable comments received from conference participants and Susanne Sandberg. Andreas Pehrsson assisted in collecting empirical information.

European Business Review
Vol. 28 No. 3, 2016
pp. 285-311

0955-534X
DOI 10.1108/EBR-01-2016-0017

multinational firm establishes additional wholly owned subsidiaries in a foreign market. Such investments are important manifestations of corporate strategy, as they entail a great deal of commitment and equity risks (Anderson and Gatignon, 1986; Ghemawat, 1991; Li and Rugman, 2007; Lu and Beamish, 2001; Wooster *et al.*, 2016).

Conceptually, I argue that a broad portfolio of tacit market experiences stemming from corporate strategy in terms of product scope, and deep experiences connected to value-adding activities of the previous subsidiary are essential drivers of a sequence. Thus, broad and deep market experiences would be the change mechanisms that directly and positively drive an investment sequence. Also, it is argued that the effects are moderated by market context and firm's general experience of foreign subsidiaries. The conceptual model and the test presented in this article particularly contribute to international expansion theory by underscoring the importance of broad market experiences and central contingencies of all experiences. Thus, the model goes beyond previous models that underscore main effects of deep experiences.

When establishments occur in sequence, the character of the earlier investment influences the later investment (Kogut, 1983). The study underscores the driving role of experiential market knowledge (Nonaka, 1994) that is a foundation of a firm's knowledge base (DeLuca and Atuahene-Gima, 2007). The experiences are represented by know-how (Kogut and Zander, 1992) regarding assessment of the behavior of customers and competitors that may obstruct firms' post-entry expansion (Brusk *et al.*, 2012).

The study pays attention to subsidiaries that originally were greenfield investments or acquisitions, which are common expansion modes (Barkema and Vermeulen, 1998; Chang and Rosenzweig, 2001; Guillén, 2003). Foreign subsidiaries are viewed as semiautonomous units (Birkinshaw *et al.*, 2005) that commonly take active part in the creation and exploitation of market experiences. Furthermore, as the study focuses on wholly owned subsidiaries, it is possible to study experiences of one firm without interference from experiences of other firms.

Some studies on international expansion incorporate broad knowledge as drivers of market entry (Barkema and Vermeulen, 1998). However, no study recognizes the impact of broad market experiences originating from corporate strategy on sequential post-entry establishments of subsidiaries in a foreign market. The lack of inclusion of such broad market experiences is an important gap, as corporate strategy is a general source of broad market experiences (Maitland *et al.*, 2005; Oh and Contractor, 2012). Furthermore, it is relevant to question whether the impact is consistent across all contexts or if there are central contingencies. As market contexts are generally different, firms may be affected in varying ways by dynamism (Burns and Stalker, 1961). Also, the extent to which a firm is used to establishing wholly owned subsidiaries in general may affect the investment sequence in a particular foreign market as well.

Studies of different types of post-entry expansion in foreign markets commonly rely on the theory base of organizational learning (Jiang *et al.*, 2014; Ogasavara and Hoshino, 2009; Song, 2002). So far, studies have recognized that extensive market-specific and deep experiences constitute the mechanism that triggers an additional investment. However, to the best of my knowledge, just two studies pay attention to sequential post-entry establishments of subsidiaries. Jiang *et al.* (2014) conclude that firms need to recognize the time needed to accumulate necessary deep experiences, while Ogasavara

and Hoshino (2009) show that the average performance of subsidiaries in a sequence is higher than performance of the first subsidiary. Yet, it is important to explore whether the conclusions apply to all contexts or whether there are important contingencies.

Thus, there is a need to incorporate a firm's entire knowledge base and contingencies into a model that explains foreign expansion post-market entry. To close the research gaps, the following question needs to be answered: what relationships exist between a multinational firm's knowledge base and its sequential establishments of wholly owned subsidiaries in a foreign market post-entry? This study answers the question by explaining the likelihood of a firm's establishment of a subsequent wholly owned subsidiary in a foreign market after having previously established a similar subsidiary in the same market. The explanations consist of broad and deep market experiences, and contingencies regarding markets context and firm's subsidiary experience in general.

Specification of the impact of the entire knowledge base would enable a precise knowledge accumulation, as it is generally efficient to conduct specialized knowledge creation according to the knowledge-based view (Grant, 2002; Martin and Salomon, 2003). Such creation would be a way to achieve the high average performance of sequential establishments detected by Ogasavara and Hoshino (2009). Essentially, the firm may enjoy benefits from additional establishments as it is possible to achieve synergies by exploiting the common base of market experiences.

The article is organized as follows. A theoretical background reviews previous research and describes the application of the knowledge-based view. Based on a conceptual model, hypotheses are then developed. The hypotheses are followed by methods for tests, results, discussion, implications and concluding remarks.

Theoretical background

A multinational firm's initial investment in an important foreign market is often followed by further investments Mudambi (1998). For example, a firm that has established a wholly owned subsidiary often follows the same path and sequentially invests in more such subsidiaries. Thus, in accordance with behavioral theory (Cyert and March, 1963), the firm chooses familiar investments to reduce risks and uncertainty in a path-dependent way.

Studies on sequential investments regarding subsidiaries focus on the following four topics:

(1) market entry establishment of subsidiaries (Björkman and Eklund, 1994; Chang and Rosenzweig, 2001; Gao and Pan, 2010; Gimeno *et al.*, 2005; Guillén, 2003);

(2) post-entry enlargement of existing subsidiaries (Fisch, 2008; Johanson and Vahlne, 1977; Song, 2002);

(3) post-entry establishment of additional subsidiaries (Jiang *et al.*, 2014; Ogasavara and Hoshino, 2009); and

(4) divestment of subsidiaries and market exit (Zeng *et al.*, 2013).

Theoretical explanations of sequences refer to transaction costs, institutional context, competitive dynamics or real options (Chang and Rosenzweig, 2001; Fisch, 2008; Gimeno *et al.*, 2005; Zeng *et al.*, 2013). However, organizational learning based on experiential market knowledge constitutes the major explanation (Chang and Rosenzweig, 2001; Gao and Pan, 2010; Guillén, 2003; Jiang *et al.*, 2014; Ogasavara and

Hoshino, 2009; Song, 2002). This stream of research generally relies on theory on internationalization processes (Eriksson *et al.*, 2000; Johanson and Vahlne, 1977; Malhotra *et al.*, 2002). Here, knowledge depth constitutes the change mechanism, and the firm makes an additional investment and commits itself more extensively when the market knowledge is deep enough.

Accumulation of deep market experiences reduces uncertainty that is a central feature of internationalization. Competitive intensity triggers the accumulation (Cui *et al.*, 2005), and the experiences imply familiarity with the reaction pattern of local competitors (Pehrsson, 2014; Yeoh, 2004). Such familiarity helps a firm predict potential reactions to its expansion moves, reducing risks connected to establishing a subsequent wholly owned subsidiary. Also, understanding their competition helps firms gauge the switching costs of potential customers. Such costs might make the firm's expansion difficult (Brusk *et al.*, 2012) as potential customers are generally reluctant to switch to another supplier if that switch would entail costs.

To study the impact of experiences relevant to customers and competitors similar to those experiences described above, I apply the knowledge-based view. This view considers the firm to be a stock of knowledge resources (Grant, 2002; Gupta and Govindarajan, 2000; Kogut and Zander, 1996; Martin and Salomon, 2003). Thus, heterogeneous distribution of knowledge among competing firms is seen as a major reason for performance differences (Barney, 1991; Grant, 2002; Teece *et al.*, 1997). Essentially, the view stipulates that learning capability is a competitive advantage. According to Grant (2002), the view relies on some principal assumptions. First, it is difficult to transfer tacit experience-based knowledge from one firm to another. Second, there is a scale effect, as it is more expensive to create knowledge than to repeatedly use the same knowledge which limits the costs. Third, specialization makes knowledge creation efficient.

A firm's base of knowledge can be described along two interconnected dimensions (DeLuca and Atuahene-Gima, 2007; Zahra *et al.* 2000). Knowledge breadth captures the number of knowledge domains of a firm, and knowledge depth concerns the sophistication of each domain. Within this frame, knowledge can be accumulated based on experiential learning, transferred within the firm from one unit to another or acquired from external sources (Åkerman, 2015; Kale and Singh, 2007; Zhou and Li, 2012).

The present study focuses on experience-based knowledge, and sources of broad market experiences are rooted in strategy theory on international diversification. Here, product scope and relatedness among products are central determinants of broad market experiences that may lead to international expansion as relatedness facilitates learning (Hitt *et al.*, 2006; Palich *et al.*, 2000). An individual product represents one knowledge domain, as the product is commonly associated with other experiences regarding customers and competitors compared to another product. This is particularly evident if the product scope contains both standardized and customized products which frequently are offered on markets of different character (Pehrsson, 2014).

Furthermore, in accordance with internationalization theory (Malhotra *et al.*, 2002), the study considers a subsidiary's value-adding activities to be a central source of deep market experiences. These experiences are valid for an individual product, that is a particular knowledge domain, and more activities are accompanied by deeper experiences of customers and competitors.

Development of hypotheses

Conceptual model

The conceptual model (Figure 1) applies the knowledge-based view and explains a firm's subsequent post-entry expansion in a foreign market in terms of the likelihood of establishing an additional wholly owned subsidiary. It is predicted that broad market experiences stemming from corporate strategy and deep experiences originating from the preceding subsidiary have positive and direct impacts on a subsequent establishment. Also, it is predicted that the direct effects are contingent on market context in terms of size of the foreign market and firm's geographic market scope and firm's general experience of wholly owned subsidiaries.

Main effect of market experience breadth

According to corporate strategy literature, a firm that broadens its product scope accumulates a greater amount of market experience, as the firm becomes accustomed to a broader set of customers and competitors (Barkema and Vermeulen, 1998; Buckley and Ghauri, 2004; Luo, 2000; Maitland *et al.*, 2005; Oh and Contractor, 2012). When the firm broadens its product scope in a foreign market, the knowledge-based view stipulates that the local operation may be able to replicate and extend the broad corporate experiences created elsewhere when meeting a wider range of local competitors and customers.

My basic argument for the relevance of broad market experiences in the context of sequential international expansion is that the amount of such experiences is a change mechanism. Hence, the firm's propensity of conducting an additional foreign market

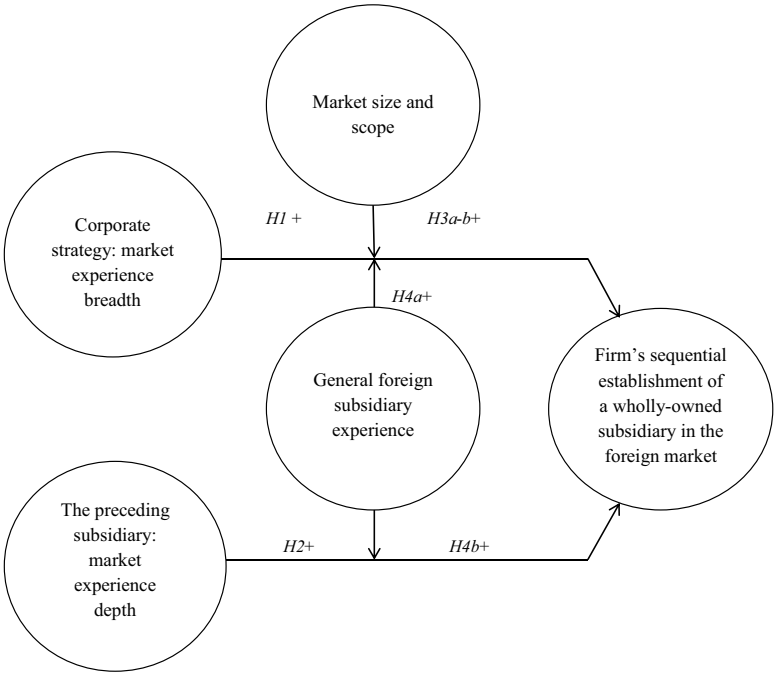

Figure 1.
Conceptual model for the study (H indicates hypothesis)

investment in the post-entry phase is expected to increase when market experiences are extended along the breadth dimension. To expand locally, the firm would prefer to repeat a familiar investment in a path-dependent way to limit risks and uncertainty (Cyert and March, 1963). The firm would, therefore, be more likely to establish an additional wholly owned subsidiary in a foreign market, if firm's portfolio of experiences regarding the local market becomes broader. A decision to make an additional investment means that benefits of firm's broad market experiences overshadow drawbacks such as equity risks (Ghemawat, 1991; Li and Rugman, 2007; Lu and Beamish, 2001).

Strategy scholars conclude that broadening of a product scope is most effective when products are related and a common stock of broad experiences can be exploited (Palich *et al.*, 2000; Pehrsson, 2006; Rumelt, 1982). Major reasons in accordance with the knowledge-based view are that it is more expensive to create knowledge than to replicate it and specialization makes knowledge creation efficient (Grant, 2002). Thus, product relatedness facilitates specialized replication of broad market experiences which reduces costs. However, continued broadening of the product scope will ultimately incorporate products that are less related to the corporate product core (Palich *et al.*, 2000). This is, for example, the case if a new product represents a radical breakthrough (Zhang *et al.*, 2009). The unrelated products will, hence, benefit less from exploitation of the knowledge base, as there are too few similarities with products incorporated previously.

Possibilities to exploit the common stock of experiences and limit risks may motivate management to add closely related products to the previous wholly owned subsidiary. On the other hand, my second argument for the relevance of broad market experiences says that unrelated products will generally not be appropriate for the previous subsidiary, but they will get higher priority if they are taken care of by a subsequent wholly owned subsidiary. Thus, the argument means that a broader total stock of market experiences triggers sequential investments in a foreign market even if the entire stock is not always shared by all organizational units. Rather, some units may exploit one part of the stock and other units may exploit other parts.

Third, broad market experiences are relevant even in circumstances where a sequential investment in a wholly owned subsidiary is the only relevant choice. The firm may be encouraged to conduct the path-dependent expansion in a foreign market if it possesses enough broad market experiences and, for example:

- the firm has developed unrelated products that require establishment of an additional wholly owned subsidiary in an effort to protect proprietary assets from imitation that may occur in partnerships (Kale *et al.*, 2000); or
- institutional forces such as government and public opinion require a wholly owned investment which is then the most legitimate choice of the firm (Li *et al.*, 2007).

In summary, a broader portfolio of market experiences is expected to stimulate sequential and path-dependent expansion. The first hypothesis predicts a main effect of broad market experiences on the propensity to establish an additional wholly owned subsidiary in a foreign market.

H1. The broader the firm's market experiences, the greater the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market.

Main effect of market experience depth

According to internationalization literature (Malhotra *et al.*, 2002), the depth of market experiences of a wholly owned subsidiary in a foreign market is associated with the value-adding activities of the subsidiary. Johanson and Vahlne (1977) show that just limited experience is associated with export to the market and, in principle, no local value-adding activity. This operation may be upgraded into a wholly owned sales subsidiary, which is later turned into a production subsidiary. Each upgrading is associated with additional market experiences where the experience depth constitutes the change mechanism. Also, Song (2002) identifies experiential market knowledge as a trigger of post-entry enlargement of existing subsidiaries. Song shows that deep market experiences may be turned into capabilities that are essential to upgrading of activities of existing subsidiaries. Thus, a decision to extend the scope of local value-adding relies on a trade-off between the extent of accessible deep market experiences and risks associated with the extension.

However, studies on firms that are quickly established in global markets based on, for example, technology advantages (Coviello *et al.*, 2011; Jones *et al.*, 2011) challenge the view that enlargement of a foreign subsidiary is a stepwise and time-consuming process. Thus, an extensive value-adding mandate may be assigned to a wholly owned foreign subsidiary already in the market entry phase. A necessary condition would be that the subsidiary skillfully exploits specialized market experiences (Madsen and Servais, 1997) that make knowledge creation efficient (Grant, 2002).

Both a firm that incrementally enlarges the value-adding scope of the first wholly owned subsidiary in a foreign market and a firm that chooses to implement a broad scope from inception would be able to exploit deep market experiences. Such experiences concern the knowledge domain of the particular product and are assumed to be a mechanism that triggers the establishment of an additional wholly owned subsidiary in a foreign market.

Value may be added to the product by advanced research and development activities resulting in more sophisticated variants of the product. The product variants may not only require different activities regarding research and development, but also when it comes to, for example, production and sales. To be effective, inclusion of more sophisticated variants needs to be accompanied by deep market knowledge to secure alignment with customer needs and competing products. Although the simple product variants and the sophisticated ones belong to the same knowledge domain, the latter may be appropriate for an additional subsidiary as it requires different operations. The second hypothesis predicts that deeper market experiences trigger the establishment of an additional wholly owned subsidiary:

H2. The deeper the firm's market experiences, the greater the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market.

Contingency effects

Market changes may occur that moderate relationships between market experiences and firm's expansion on a foreign market. In assessing the impact of market changes, the firm may perceive uncertainty that is due to the non-regularity and amount of

variations and the possibilities to predict the changes (Burns and Stalker, 1961; Davis *et al.*, 2009; Milliken, 1987). Major sources of uncertainty may include changes in customers' needs and competitors' behavior.

In particular, a broad product scope means that the firm is exposed to changes with relevance to customers and competitors in multiple environments (Eisenhardt *et al.*, 2010) causing uncertainty for the firm. On the other hand, focus on just one product domain would restrict the amount of market changes and facilitate the formulation of response alternatives.

Thus, it is generally more difficult to assess customers and competitors in large markets because there is room for more actors of whom many may be difficult to identify. Hence, the firm will potentially put more effort into the building of broad market experiences in such a market in comparison with a small market. Furthermore, the choice of investing in a foreign market and setting up the first wholly owned subsidiary would be motivated by the importance of the market in terms of its size. In other words, a subsidiary investment brings an extensive commitment and equity risks (Li and Rugman, 2007; Wooster *et al.*, 2016) that need to be balanced against the size of the potential market. To reduce uncertainty, the firm will be motivated to improve its capability of building broad experiences of a large market. Those experiences will reinforce the effects of broad experiences stemming from a broader product scope as both sources involve a greater number of customers and competitors. Thus, it is hypothesized that:

H3a. The larger the foreign market, the greater the impact of firm's broader market experiences on the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market.

According to internationalization theory, a firm may not only commit itself to a particular foreign market, but also to a range of geographically distributed markets (Cavusgil, 1984; Johanson and Vahlne, 1977; Welch and Luostarinen, 1988). This distribution manifests the firm's geographic scope (Hashai, 2011). A broader scope generally brings greater variation among customers and competitors that the firm needs to recognize (Barkema and Vermeulen, 1998), although some of the actors may be present globally and some may be local.

Hence, to limit risks and uncertainty inherent in decisions on geographic expansion, the firm needs to extend the body of broad market experiences by building experiences from multiple geographic environments. This process of accumulation rests on development of a capability of assessing market changes and coordinating activities in different foreign locations (Porter, 1985). However, developing an effective capability is not an easy task and it is, for example, contingent on similarities among individual markets (Roth *et al.*, 2009) and the strength of firm's internal network (Lee *et al.*, 2008). Yet, in principle, a broader geographic scope would support the development of a capability that, in addition, is necessary for the accumulation of broad market experiences based on product scope in a particular foreign market. Therefore, a greater scope of geographically distributed markets moderates the effect of broad market experiences regarding a particular foreign market:

H3b. The greater the firm's geographic scope, the greater the impact of firm's broader market experiences on the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market.

Furthermore, firm's general experience of foreign subsidiaries would be a central contextual specification. The knowledge-based view predicts that it is beneficial to replicate knowledge (Grant, 2002). Accordingly, the main relationships between the firm's market experiences and the likelihood that a firm will establish its second wholly owned subsidiary in a foreign market would be stronger if the firm possesses subsidiary experience prior to the initiation of an event history.

Studies focus on relationships between an entry mode in one foreign market and later modes in other markets (Chang and Rosenzweig, 2001; Elango and Pattnaik, 2011; Gao *et al.*, 2008; Gao and Pan, 2010; Thomas *et al.*, 2007). The findings of Gao *et al.* (2008) indicate that a firm that consistently chooses the mode of wholly owned subsidiaries steadily expands its body of experiential knowledge of foreign markets, no matter if the firm chooses greenfield investments or acquisitions. Full ownership means that the firm is able to shape a subsidiary on its own acquiring experiences regarding customers and competitors without interference from learning principles of other firms. On the other hand, a firm that mixes different modes would encounter difficulties to build a coherent body of knowledge.

According to Gao *et al.* (2008), a consistent choice of the same entry mode means that the firm accumulates experiences of establishing and managing a particular mode, and those experiences would be relevant to subsequent entries into other markets. Following the same logic, firm's experiences of establishing and managing wholly owned subsidiaries in other markets are expected to strengthen direct relationships between broad and deep market experiences and the likelihood of firm's post-entry establishment of a subsequent wholly owned subsidiary in a particular foreign market.

H4. The greater the firm's general experience of foreign subsidiaries, the greater the impact of (a) firm's broader and (b) firm's deeper market experiences on the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market.

Methods

Sample and data collection

The unit of analysis was the event history of an industrial firm's establishment of wholly owned subsidiaries in a foreign market. The sample consisted of event histories of Swedish firms that had established their first wholly owned subsidiaries in Germany, the UK or the USA before or during the observation period. Several firms established their second subsidiaries in the same country during the period. The period covered 1990 to 2011 as expansion is time-consuming and needs to be studied over decades. In particular, industry liberalizations during the past two centuries have created market opportunities for foreign firms in several countries and have most probably encouraged post-entry establishments.

Industrial firms were chosen, as they are generally responsible for a variety of value-adding activities associated with market experiences. Furthermore, the intention was to keep home market effects constant and enable control for institutional context. Therefore, the sample consisted of event histories of Swedish industrial firms in Germany, the UK and the USA. Swedish firms were chosen as they are generally open to research initiatives, and therefore data were accessible. The host countries are big, and they are dominant export markets for Swedish industrial firms in general. Most probably, establishing wholly owned subsidiaries in these markets was a realistic

alternative for the firms. This increased the possibility of identifying first and second wholly owned subsidiaries in the same country.

The Kompass search engine was used to identify relevant firms with headquarters in Sweden. Annual reports of the identified firms were scrutinized to ensure that the firms' main target groups included business customers and that the firms had established at least one wholly owned subsidiary in Germany, the UK or the USA. The criteria were met by 138 firms. Event histories of the firms were identified based on information from annual reports and other reports of the firms and press releases. Triangulation was conducted and information from annual reports was used if there was any data disparity. The same sources were used for data regarding independent variables, contingency variables and control variables, except for market size and institutional context.

The resulting sample consisted of 223 firm-country event histories in Germany (n = 73), the UK (n = 81) and the USA (n = 69). The firms established 33 second wholly owned subsidiaries in a country (n = 8, 13 and 12, respectively) during the observation period (14.80 per cent, Table I), while 190 initial subsidiary establishments were not followed by a second subsidiary. These initial establishments were treated as right-censored cases in the analysis. On average, it took approximately 11 years for a firm to establish its second wholly owned subsidiary in a country, and it varied between one year and 39 years. The observation period included at total of 3,797 at-risk observations for the sample. For each year, there were a number of subsidiaries in a country that were at risk of being followed by the establishment of a second subsidiary of the same firm in the same country.

The share of censored cases was below 90 per cent, which is regarded as a limit to avoid unbiased coefficient estimates and too weak statistical power (Tuma and Hannan, 1984). Furthermore, by successfully analyzing 30 events among 203 event histories, Gimeno *et al.* (2005) confirm that estimates may remain unbiased even when there is a high share of censored cases.

Dependent variable

Event history analysis (Allison, 1984) was used to determine the likelihood that an industrial firm's establishment of its first wholly owned subsidiary in a foreign country market was followed by establishment of a second wholly owned subsidiary in the same market. Thus, the dependent variable, Firm's 2nd subsidiary establishment in the country, assumed the value 1 if a second wholly owned subsidiary was established in the country in a given year and 0 if no second subsidiary was established (Table I).

Independent variables

An independent variable was used to capture breadth of firm's market experiences. Thus, market experience breadth was measured by the number of 3-digit SNI product codes, which correspond to SIC codes, when the first subsidiary was established. Several studies use such codes to measure differences among products (Barkema and Vermeulen, 1998; Hoskisson *et al.*, 1993; Lubatkin and Srinivasan, 1997; Robins and Wiersema, 2003), and greater differences mean a broader scope (Hitt *et al.*, 2006).

Market experience depth was measured by the number of value-adding activities initially assigned to the first subsidiary. Several studies incorporate measures of value-adding scope (Birkinshaw and Morrison, 1995; Hobday and Rush, 2007; Pehrsson,

Year of establishment	Firms' first sub. establishment in the country	Firms' second sub. establishment in the country		At risk
		Yes	No	
Pre 1990	118			
1990	4	3	119	122
1991	3	0	122	122
1992	6	0	128	128
1993	12	0	140	140
1994	7	0	147	147
1995	6	0	153	153
1996	5	0	158	158
1997	5	0	163	163
1998	7	3	167	170
1999	17	2	182	184
2000	5	2	185	187
2001	7	6	186	192
2002	3	2	187	189
2003	7	4	190	194
2004	6	1	195	196
2005	0	1	194	195
2006	2	2	194	196
2007	0	1	193	194
2008	1	4	190	194
2009	1	1	190	191
2010	1	0	191	191
2011	0	1	190	191
Number of first establishments	223			
Number of second establishments		33		
Number of right-censored cases			190	
Number of observations				3,797

Table I.
Swedish industrial firms' wholly owned subsidiaries in Germany, the UK and the USA

2009; Porter, 1985). This study paid attention to the internationally relevant activities used by Pehrsson (2009). Thus, a subsidiary employing design engineers was engaged in product development, while a production plant and local engineers indicated the presence of production. A subsidiary handling promotion, sales or after-sales services meant the presence of these activities. The number of activities was counted to get variable scores.

Contingency variables

Three contingency variables were included. First, Gross domestic product (GDP) per capita was included as an indicator of market size. Data in constant 2005 US dollars were retrieved from the World Bank (2015) and transformed into logarithmic values. Second, geographic scope is generally a source of international market experience (Barkema and

Vermeulen, 1998). Thus, geographic scope was measured by the logarithmic value of the number of country markets where the firm had established operations when a country event history was initiated. Finally, to measure the impact of a firm's earlier experiences from subsidiary establishments in any foreign market, general foreign subsidiary experience represented the number of wholly owned subsidiaries that were established in any country before the start of a country event history of the firm.

Control variables

The analysis included six controls for the situation relevant to establishment of a wholly owned subsidiary. First, the time period in which the first subsidiary establishment took place in any of the three foreign country markets was identified. The reason was that liberalization processes of several industries were initiated in the early 1980s, and they often became effective in the end of the decade. It was assumed that the liberalizations impact firm's event histories. Scale point 0 of the control variable period for the first subsidiary establishment in the country, thus, meant that an establishment took place in 1989 or before that year, while 1 meant establishment after 1989. Second, firm size was a control variable, as experiences emanating from size are often central to international expansion (Gimeno *et al.*, 2005) and million SEK were transformed into logarithmic values. Third, as building of experiences is a cumulative process, firm's overall experiences were captured by firm's age that probably affects expansion as well. The variable measured the logarithmic value of the number of years from the foundation of the firm to the start of an event history in a country.

Fourth, product complexity was controlled for as it is a way of measuring additional value and need for experiences (Pehrsson, 2014). In principle, the experiences needed to build value of a main product alone are different from experiences relevant to building value of a complex system consisting of the main product and complementary products. A dummy variable measured product complexity, where scale point 0 meant separate products and 1 represented systems of products.

Fifth, industry effects were controlled for in terms of effects of intensity of research and development in an industry. The intensity indicates whether a firm needs to establish wholly owned subsidiaries to protect proprietary assets from imitation (Kale *et al.*, 2000). It was assumed that a firm operating in an upstream industry just adds limited value to raw materials, while a firm in a downstream industry pursues research and development to a larger extent and adds extensive value to raw materials. R&D intensity was assigned scale point 0 if the main product of a firm belonged to an upstream industry and 1 if it was a downstream industry. Upstream industries consisted of the chemical ($n = 21$), energy ($n = 11$) and wood and paper industries ($n = 25$). Downstream industries consisted of the electrical products ($n = 51$), food ($n = 7$), machinery ($n = 28$) and advanced metal products industries ($n = 47$). Miscellaneous products industries ($n = 33$) were classified in the same manner.

Sixth, institutional characteristics of a foreign country market are generally crucial to expansion (Qian *et al.*, 2008). Therefore, the Economic Freedom of the World index (Gwartney *et al.*, 2013) was used, as it captures institutional context, and greater freedom was assumed to be important to establishments. The index

includes, for example, tax rates, legal systems, inflation rates, trade restrictions and regulations.

Analysis procedure

Cox (1972) proportional hazard regression analysis was used to predict the hazard rate, as the analysis allows for censored cases and time-dependent covariates. Thus, the analysis produced a function that predicted the probability that a second country subsidiary followed a first subsidiary for certain values of the predictor variables on the condition that the second subsidiary was not established during the previous year. The software package of IBM SPSS Statistics, version 22, was used for the analysis.

Results

Descriptive statistics and correlations

Table II describes the character of the industrial firms' second wholly owned subsidiaries in a foreign country. The subsidiaries are evenly distributed along the mode of establishment and industry.

Table III reports descriptive statistics and correlation coefficients. As there were significant correlations, variance inflation factors (VIFs) were checked. All VIFs were below 1.74, which is far from the threshold value of 10 (Neter *et al.*, 1996). Hence, multicollinearity was not a serious problem for regression analysis.

Tests of the hypotheses

Table IV presents the results of the Cox regression. However, first I tested whether the hazard ratios changed across time with respect to the covariates. All covariates were time-invariant, except for market size which was dependent on time ($p < 0.001$). Furthermore, following a suggestion of Little *et al.* (2006), the interactions were orthogonalized to limit any multicollinearity. For each interaction, the product term was regressed onto the first-ordered effects and the residual represented the interaction effect. The variance of the new term consisted of the unique variance without first-order effects and general unreliability.

Character of establishments	Country of establishments: Germany	UK	USA	*n*
Mode of establishment				
Greenfield	4	6	3	13
Acquisition	4	7	9	20
N	8	13	12	33
Industry ofestablishment				
Chemical	0	0	2	2
Electrical	3	6	4	13
Machinery	1	0	3	4
Metal	3	5	2	10
Wood and paper	0	2	0	2
Miscellaneous	1	0	1	2
N	8	13	12	33

Table II. Character of Swedish industrial firms' second wholly owned subsidiaries

Table III. Descriptive statistics and Pearson correlation coefficients[a]

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1 Firm's second sub. establishment in the country	0.11	0.32	–										
2 Period for first sub. establishment in the country	0.48	0.50	0.05 (0.42)	–									
3 Firm size[b]	2.68	0.80	0.16** (0.01)	−0.24** (0.00)	–								
4 Firm's age[b]	1.28	0.67	−0.04 (0.54)	0.09 (0.12)	0.15** (0.01)	–							
5 Product complexity	0.35	0.48	0.16* (0.01)	−0.04 (0.56)	0.00 (0.98)	−0.14** (0.02)	–						
6 RD intensity	0.66	0.47	0.12* (0.04)	0.05 (0.39)	0.06 (0.33)	0.06 (0.31)	0.14* (0.02)	–					
7 Institutional context	8.02	0.25	0.10 (0.09)	0.00 (0.96)	0.08 (0.18)	0.00 (0.96)	−0.07 (0.27)	0.03 (0.61)	–				
8 Market size[b]	1.42	0.25	0.22** (0.00)	0.49** (0.00)	−0.08 (0.18)	0.04 (0.51)	0.09 (0.16)	0.09 (0.13)	−0.10 (0.09)	–			
9 Geographic scope[b]	1.06	0.38	0.14* (0.02)	−0.22** (0.00)	0.60** (0.00)	0.18** (0.00)	−0.04 (0.53)	0.03 (0.60)	0.06 (0.30)	−0.14* (0.02)	–		
10 General foreign subsidiary experience	3.35	3.22	0.05 (0.38)	0.03 (0.58)	0.30** (0.00)	0.19** (0.00)	0.04 (0.51)	0.03 (0.60)	0.07 (0.24)	0.13* (0.03)	0.40** (0.00)	–	
11 Market experience breadth	2.05	1.12	0.12* (0.04)	0.08 (0.16)	0.25** (0.00)	0.28** (0.00)	−0.13* (0.04)	0.24** (0.00)	0.12* (0.04)	0.10 (0.10)	0.21** (0.00)	0.15* (0.01)	–
12 Market experience depth	3.05	1.38	0.17** (0.00)	−0.07 (0.26)	0.30** (0.00)	0.12* (0.04)	0.01 (0.90)	0.07 (0.24)	0.03 (0.64)	0.02 (0.74)	0.33** (0.00)	0.16** (0.01)	0.17** (0.00)

Notes: [a] $n = 223$ event histories; 33 second country-subsidiary establishments and 3,797 observations; [b] logarithmic values; * $p < 0.05$; ** $p < 0.10$ (two-tailed)

Table IV.
Cox regression to predict the hazard rate of a firm's establishment of its second wholly owned subsidiary in a foreign market[a]

Variables	Model 1 Controls	Model 2 Market experience breadth	Model 3 Market experience depth	Model 4 Moderators	Model 5 Interaction	Model 6 Interaction	Model 7 Interaction	Model 8 Interaction	Model 9 Full model
Control variables									
Period for first sub. establishment in the country	−1.65† (0.43)	−1.71† (0.44)	−2.24† (0.49)	−0.53 (0.54)	−1.66† (0.43)	−1.74† (0.44)	−1.50† (0.43)	−1.60† (0.44)	−0.17 (0.68)
Firm size	1.42† (0.29)	1.38† (0.28)	1.35† (0.29)	0.55* (0.33)	1.41† (0.29)	1.44† (0.29)	1.32† (0.29)	1.44† (0.29)	−0.06 (0.43)
Firm's age	−0.48* (0.27)	−0.56* (0.28)	−0.47* (0.26)	−0.20 (0.33)	−0.47* (0.28)	−0.50* (0.27)	−0.38 (0.29)	−0.48* (0.28)	−0.03 (0.36)
Product complexity	0.56 (0.40)	−0.71* (0.40)	−0.17 (0.42)	−0.44 (0.47)	−0.59 (0.40)	−0.69* (0.41)	0.70* (0.40)	0.53 (0.41)	0.82 (0.54)
RD intensity	−1.23** (0.49)	−1.09** (0.48)	−1.34*** (0.48)	−1.58† (0.57)	−1.26** (0.49)	−1.10** (0.49)	−1.27*** (0.49)	−1.22** (0.49)	−2.21†(0.69)
Institutional context	0.63 (0.67)	0.16 (0.68)	1.34* (0.71)	1.25* (0.74)	0.51 (0.69)	0.79 (0.68)	0.43 (0.69)	0.66 (0.69)	1.20 (1.08)
Contingency variables									
Market size				1.73† (0.36)					1.68† (0.38)
Geographic scope				2.28** (0.97)					2.22** (1.15)
General foreign subsidiary experience				0.08 (0.06)					0.07 (0.09)

(*continued*)

Table IV.

Variables	Model 1 Controls	Model 2 Market experience breadth	Model 3 Market experience depth	Model 4 Moderators	Model 5 Interaction	Model 6 Interaction	Model 7 Interaction	Model 8 Interaction	Model 9 Full model
Independent variables									
H1: Market experience breadth		0.42** (0.17)							0.25 (0.36)
H2: Market experience depth			0.66† (0.16)						
Interactions									
H3a: Market size × market experience breadth					0.39 (0.64)				1.78 (2.51)
H3b: Geographic scope × market experience breadth						1.14* (0.69)			2.05** (1.02)
H4a: General foreign subsidiary experience × market experience breadth							−0.18** (0.07)		−0.29*** (0.10)

(*continued*)

Variables	Model 1 Controls	Model 2 Market experience breadth	Model 3 Market experience depth	Model 4 Moderators	Model 5 Interaction	Model 6 Interaction	Model 7 Interaction	Model 8 Interaction	Model 9 Full model
H4b: General foreign subsidiary experience × market experience depth								−0.01 (0.04)	0.06 (0.05)
-2 log likelihood	281.08	275.28	255.28	212.87	280.70	278.08	275.10	272.48	189.86
Chi-square	49.07†	54.94†	62.60†	78.38†	49.53†	51.09†	55.34†	49.30***	110.21†
Chi-square change versus Model 1		5.87**	13.53**	29.31***	0.46	2.02*	6.27**	0.23	61.14†

Notes: [a] 223 Firm-country event histories, 33 establishments of second subsidiaries and 3,797 observations for all models; *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$; †$p < 0.001$

Table IV.

The control variables were entered in the first regression model. Tests were then conducted for main effects (Model 2 and 3) and interaction effects (Model 5 to 8). All models were significant ($p < 0.001$). The significance level of each model was compared with the level of Model l. As the statistical power of Models 2, 3, 6 and 7 exceeded the power of Model 1, they can be used to draw conclusions on significant effects predicted by the hypotheses.

In Table IV, a positive coefficient of a covariate indicates an increase in the hazard of a firm's establishment of its second wholly owned subsidiary in a country, while a negative coefficient indicates that the hazard decreased. Contrary to the assumption, the results of the controls show that the hazard increased if the first establishment was carried out in the first time period. As expected, a positive control effect appeared for firm size, while firm's age surprisingly had a negative effect in some models. The control for industry effects in terms of R&D intensity consistently shows that a downstream industry decreases the hazard rate which contradicts the assumption.

Regarding the tests, the results support the first hypothesis predicting that the broader the market experience emanating from firm's product scope, the greater the likelihood that the firm will establish an additional wholly owned subsidiary in a foreign market (Model 2, $p < 0.05$). Also, the results support a positive effect of deep experiences based on value-adding activities as predicted by *H2* (Model 3, $p < 0.001$).

The interaction effect predicted by *H3a* was rejected (Model 5), but the prediction of *H3b* was supported (Model 6, $p < 0.10$). Thus, greater geographic scope of the firm strengthens the positive impact of broad market experiences on the likelihood of a sequential investment. Surprisingly, in contrast to the expected positive interaction effect of firm's general experiences of foreign subsidiaries, a significant and negative effect was found for the interaction with broad market experiences (*H4a*, Model 7, $p < 0.05$), while the analysis did not generate any significant effect of the interaction with deep experiences (Model 8), and *H4b* was rejected.

The cumulative hazard rates of firm's second establishment as a function of time to the establishment are illustrated. Figure 2 shows the positive interaction between geographic scope and broad experiences. To facilitate interpretation of the interaction, the cases were classified into those with a narrow product scope below the mean value (1-2 SNI codes) and those with broad scopes over the mean value (3-5 scopes). The figure shows separate lines for the two patterns. The cumulative hazard rate of firm's second establishment increased by around 0.17 per cent if it was established 39 years after the first establishment in the country and there was a broad product scope instead of a narrow scope.

Figure 3 shows the hazard functions for interactions between general experience of foreign wholly owned subsidiaries and a narrow or a broad product scope where the mean value represents the cutting value. Here, the cumulative rate increased by around 0.12 per cent if the second subsidiary was established 39 years after the first and it had a broad scope instead of a narrow scope.

Robustness of the results

The positive signs of the beta-coefficients of the contingency variables and independent variables were robust across the specific models and the full model (Table IV). This coincides with the positive correlations between the variables and the dependent variable, firm's second subsidiary establishment in the country (Table III). All

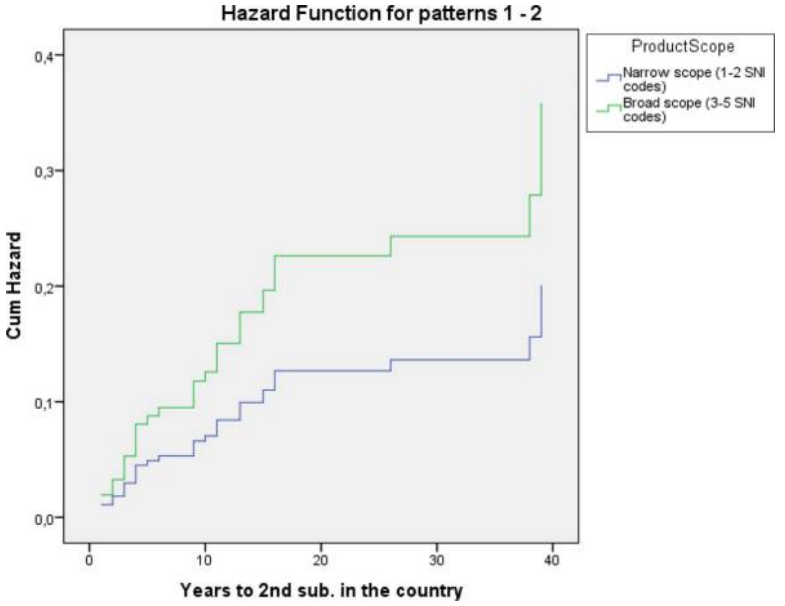

Figure 2.
Hazard function for firm's establishment of its second wholly owned subsidiary in a foreign country: geographic scope × market experience breadth (product scope)

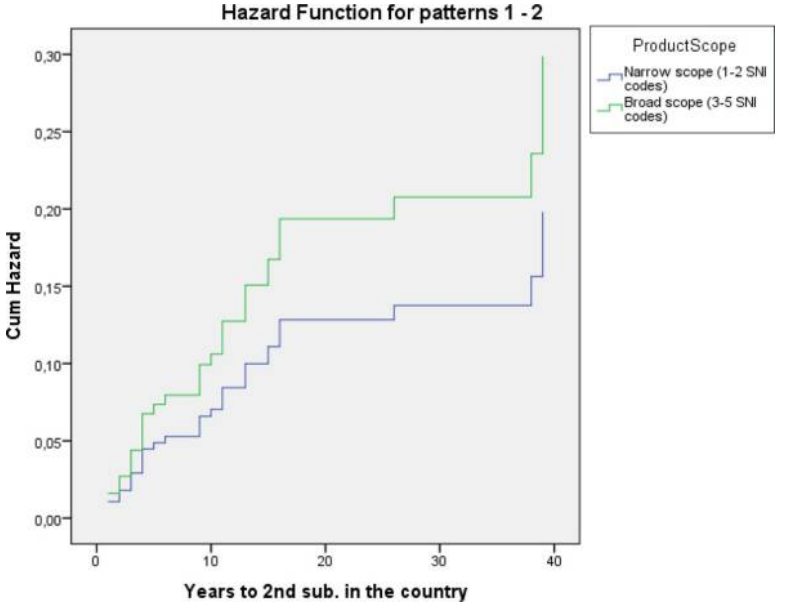

Figure 3.
Hazard function for firm's establishment of its second wholly owned subsidiary in a foreign country: general foreign subsidiary experience × market experience breadth (product scope)

correlations were significant except for the correlation involving general foreign subsidiary experience ($r = 0.05$). The signs of the beta-coefficients of the interactions were robust across the models (Table IV), but not regarding the interaction between general foreign subsidiary experience and market experience depth. Yet, the magnitudes of this coefficient were low and it was not significant.

Some firms had subsidiaries in more than one country and an event history in a certain country may have been influenced by a corporate policy. Therefore, I examined whether the event histories involved any fixed firm effects. However, there was no significant correlation ($r = -0.02$) between the event histories and subsidiary establishments that took place elsewhere before the start of an event history in a certain country.

Discussion

Discussion of the findings

The study of multinational firms' sequential establishments of wholly owned subsidiaries in foreign markets post-entry has received just limited attention in research, despite a positive association between the expansion and subsidiary performance on average (Ogasavara and Hoshino, 2009). There is a need to examine the driving role of broad experiences of the particular market in addition to deep experiences and effects of central contingencies such as market context and firms' general experience of establishing wholly owned subsidiaries. In accordance with the knowledge-based view, specification of key sources of market experiences makes it possible for a firm to quickly accumulate relevant experiences, as specialized knowledge creation yields efficiency (Grant, 2002). In this way, the time needed for a sequential investment to achieve high performance will most probably be reduced.

The present study applies the knowledge-based view and extends understanding of the sequential expansion post-entry. The conceptual model developed and tested in the study clarifies the main impact of market broad experiences stemming from a firm's corporate strategy in terms of product scope and those experiences concern customers and competitors. Also, the model specifies the impact of deep experiences associated with the value-adding activities of the previous wholly owned subsidiary, and how market context and firm's general subsidiary experiences moderate the main effects. The study shows that the market experiences and the moderations are change mechanisms that trigger additional investments.

It was found that the broader a firm's product scope and corresponding market experiences, the greater the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market. For example, continued broadening of the scope will include products with limited relatedness to the original product core. As the number of product similarities will diminish, the previous wholly owned subsidiary will encounter difficulties in trying to achieve further economies by replicating broad market knowledge. Therefore, new products that are launched as a result of continued product diversification may be taken care of by an additional subsidiary.

Furthermore, the study shows that there is a positive impact of deep market experiences connected to the value-adding scope of the previous investment. Several value-adding activities are associated with a great amount of deep market experience that has a positive impact on enlargement of the initial subsidiary in a foreign market (Johanson and Vahlne, 1977; Song, 2002). The present study contributes by showing that deep market experiences

associated with an extensive value-adding mandate of the previous subsidiary also favor sequential establishment of an additional wholly owned subsidiary in the market.

The positive impact of broad market experiences originating from a firm's product scope is positively moderated by the breadth of firm's geographic scope. A broader geographic scope means greater market variation (Barkema and Vermeulen, 1998), and as the firm has to face more uncertainty, the firm needs to accumulate broader experiences. The reason for the moderation effect would be that the same capability of assessing broader markets is relevant for both a broad geographic scope and a broad product scope. Therefore, a broader geographic scope would support the accumulation of broad market experiences based on product scope in a particular foreign market resulting in a greater likelihood that the firm will establish a subsequent wholly owned subsidiary in the market.

The analysis reports some counter-intuitive findings, as it was found that neither the size of the foreign market, nor firm's general experience of foreign wholly owned subsidiaries positively impact the likelihood that the firm will establish a subsequent wholly owned subsidiary in a foreign market. In fact, it was found that the general experience had a negative and robust moderation effect on the relationship between market experience breadth and a sequential expansion. Most probably, a reason for the negative moderation is that the same mode is less feasible for establishments in different countries. This underscores that a firm accumulates broad market experiences concerning local customers and competitors and that there frequently are few commonalities between different foreign markets.

Contributions to theory

The conceptual model developed and tested in the study extends the understanding of international expansion and contributes to theory in a number of ways. First, the model reveals that the knowledge-based view is applicable to the examination of drivers of sequences of multinational firms' post-entry establishments of wholly owned subsidiaries in foreign markets. Thus, the study adds to previous insights of international expansion and underscores that market experiences along both the breadth and the depth dimension of knowledge (DeLuca and Atuahene-Gima, 2007; Zahra *et al.*, 2000) are major reasons why firms expand in foreign markets.

Second, the study contributes by showing that a broad portfolio of experiential knowledge regarding customers and competitors represents a change mechanism that directly drives the establishment of additional wholly owned subsidiaries in a foreign market. This adds to the previous understanding of international expansion that merely focuses on the importance of deep market experiences. Essentially, a firm that adjusts its corporate strategy and broadens its product scope will generally target a more widespread range of customers. Hence, by broadening the strategy locally, the firm has to face a wider variety of customers and competitors, thereby accumulating broader market experiences.

Previous research shows that in-depth experiential learning triggers sequential expansion in foreign markets post-entry, whether existing subsidiaries are expanded (Song, 2002) or additional subsidiaries are established (Jiang *et al.*, 2014). The study contributes in a third way by underscoring that deep market experiences linked to the value-adding activities of the previous wholly owned subsidiary in the foreign market drive the sequential establishments of wholly owned subsidiaries.

Fourth, the study contributes to the understanding of expansion in a foreign market post-entry as it shows that experience effects are bounded by the context. Effects of

broad market experiences based on the local product scope are reinforced by those that originate from firm's scope of geographic markets. On the other hand, the effects are weaker if the firm has great experience of establishing wholly owned subsidiaries in other foreign markets, which indicates that each market needs to be treated separately. Fifth, the study contributes as it underscores the mutual importance of broad and deep market experiences. Setting up an additional wholly owned subsidiary in a foreign country with no or just a weak linkage to broad experiences emanating from a firm's corporate strategy may seriously restrict the firm's ability to strategically coordinate and integrate the subsidiary into the corporate framework. An eclectic approach ensures that implementation of a corporate strategy relies on deep market experiences, whereas the strategy provides broad experiences that guide expansion in a foreign market.

Conclusions and limitations

Research on international expansion pays just limited attention to the important issue of sequential post-entry establishments of subsidiaries in foreign markets. In particular, no previous study examines whether local market experiences associated with corporate strategy are essential drivers of sequences. There is also a lack of studies of contextual boundaries for effects of broad and deep experiences.

Thus, the study closes the research gaps by answering this question: what relationships exist between a multinational firm's knowledge base and its sequential establishments of wholly owned subsidiaries in a foreign market post-entry? It was found that broad experiences from the local market directly influence firm's propensity to expand, and the effect is strengthened if the firm has a broad geographic scope. Also, local presence of many value-adding activities, such as product development and production, indicates that the firm has deep experiences from coping with local customers and competitors. Those experiences directly and positively influence the sequential expansion. Additional establishment of wholly owned subsidiaries are bounded by the market context and firm's earlier establishments of such subsidiaries in other foreign markets.

There are limitations to generalizing the results of this study. First, the study focuses on establishments of wholly owned subsidiaries, and attention to other types of investments may generate different findings. Second, there may be potential sources of market experiences that the study did not pay attention to. Third, the study of industrial firms may limit generalizability of the findings. Fourth, the home country of firms in the sample and the host countries may be sources of bias. Fifth, observations from another time period might have generated different findings. Sixth, the study partly used static covariates, which may be a limitation as those covariates do not capture variance over time. Seventh, the statistical power of the coefficient estimates may suffer from the high share of censored cases among the firm-country event histories.

Managerial implications and future research

To make a sound decision, a multinational firm evaluating a further subsidiary investment in a foreign market needs to assess the extent of its broad and in-depth market experiences associated with both corporate strategy and the previous wholly owned subsidiary in the market. The firm is advised to evaluate whether the product scope is broad enough and whether it has enough experiences related to the previous investment to justify establishment of an additional subsidiary.

It would be interesting to test the stability of the results by analyzing foreign establishments made by firms from other home countries during other time periods. Also, samples may include event histories of firms operating in more host countries of different character. Furthermore, it would be interesting to analyze event histories of firms offering products to consumers. There is also a need to further validate the model developed in the article by recognizing market experiences originating from more sources and experiences that drive investments other than wholly owned subsidiaries.

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