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A Learning Perspective

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Closing the Knowledge Gap in Foreign Markets - A Learning Perspective

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Abstract

The study explores how firms close their knowledge gaps in relation to business environments of foreign markets. Potential determinants are derived from traditional internationalization process theory as well as more recent literature on organizational learning processes, including the concept of absorptive capacity. Building on these two literature streams a conceptual model is developed and tested on a set of primary data of Danish firms and their foreign market operations. The empirical study suggests that factors considered essential in traditional internationalization process theory, such as experiential learning, explains only a very limited part of perceived knowledge gaps. When factors pertaining to the concepts of absorptive capacity and superstitious learning are added, the explanatory power improves significantly. Apparently, our understanding of firms' internationalization processes can be enriched by insights from organizational learning literature.

Key words: Internationalization, knowledge gap, absorptive capacity, superstitious learning.

JEL Codes: D21, F23, M10

1 Introduction

In many ways a firm's entry into a foreign market takes on the characteristics of an organizational learning process (Andersen, 1993; Cavusgil, 1984; Jones, 1999). A firm spots opportunities in foreign markets, screens the opportunities, enters the market in order to exploit these opportunities, and adapts the firm's procedures to fit that market and culture. Usually, the operations in the foreign market require extensive adaptation by the entrant firm because of unfamiliarity of the local business environment and the need for coordination of the local operation with activities in other countries (Hymer, 1960). Entering foreign markets is a knowledge development process, and the entrant firm may realize a considerable market discrepancy, i.e. the firm identifies a gap between the knowledge *possessed* and the knowledge *needed* for accomplishing the foreign business venture. This knowledge gap captures some of the notion of the liability of foreignness and requires that the new local operation learn how to operate successfully and to fill the knowledge gap in the local environment (Zaheer, 1995). Both internationalization process theory (Johanson and Vahlne, 1977; Erramilli, 1991) and organizational learning theory (March, 1999) suggest a perceived knowledge gap will stimulate managerial actions in order to close the knowledge gap. In terms of market entry, it has been argued that firms need to acquire new knowledge to fill the gap between their current capabilities and those needed to compete successfully in the new market. Yet few studies address the factors that help to reduce the knowledge gap. In this study we aim to bring together internationalization process theory and organizational learning theories in order to provide insights into how firms reduce perceived knowledge gaps in foreign markets. Our contribution lies in evaluating whether these theories are complementary in explaining the reduction of the knowledge gap.

One basic tenet of organizational learning theory is that firms learn when they experience problems (Cyert and March, 1963). Problems are triggered by performance shortfalls – situations in which (actual or anticipated) performance would fall below aspiration levels. The main assumption is that when performance falls short of aspirations, firms search for new ways of solving the problem, indicating that new knowledge is needed.

In the same vein, the idea of a diminishing knowledge gap resulting in an incrementally increasing resource commitment is pivotal in the traditional theory of firms' internationalization processes (Carlson, 1975; Johanson and Vahlne, 1977; Loustarinen, 1979). The theory presumes that closing of the knowledge gap is a longwinded process because it takes time to acquire the 'experiential knowledge' (Penrose, 1959) without which management will be reluctant to commit irrevocable resources to the foreign market.

On the other hand, experiential knowledge results from current activities in the foreign market - which in turn are contingent on the firm's resource commitment to the foreign market (Johanson and Vahlne, 1977). Hence, the internationalization theory sees the closing of the knowledge gap as a prerequisite for firms' high resource commitments to foreign markets (such as the establishment of wholly-owned subsidiaries), and the closing of the knowledge gap itself is contingent on the interplay between resource commitment, experiential learning, and elapsed time of operations in the foreign market.

In this paper we take a closer look at the factors that potentially explain how knowledge gaps of entrant firms are reduced. To do so, we rely not only on traditional internationalization process theory, but also on organizational learning theory. Specifically we address the question of how critical is the absorptive capacity (Cohen and Levinthal, 1990, 1994; Zahra and George, 2002) of entrant firms to closing their knowledge gaps.

2 Knowledge Gaps

Within learning theory, knowledge gaps are incidents that foster new learning (March, 1999). Frequently, changing environments, attempting new strategies, advancing technology or decreasing resources can trigger the firm into recognizing that the gap exists. Thus, a gap consists of the recognition that the current knowledge and/or capabilities are not sufficient to maintain performance in the current situation. The discovery of a gap between expectations and reality indicates that new knowledge is needed (Shaver, et. al. 1997). This motivates actions to remove or diminish the gap.

March (1999) suggests that when gaps or problems are recognized, the recognition process defines the scope, limits, and boundaries of the gap. This also constructs the attention boundaries for finding the new knowledge needed to fill the gap. Epple et al. (1991) advance the notion that through direct experience, firms can develop routines that standardize the task and improve the performance over time. The development of experiential learning leads to confidence in the routines and to the expectation that these can be transferred to new situations (Winter and Szulanski, 2001). However March (1999) warns that this can also lead to problems of learning myopia such as over confidence, ignorance of the long run, and overlooking possible future failures.

In the context of entrance into a foreign market, the entrant firm faces the "liability of foreignness" and the prospect of filling the gap between its current experiences and knowledge and what it needs to know (Hymer, 1960). This is a widely accepted notion and according to traditional internationalization process theory (Johanson and Vahlne, 1977), the closing or narrowing of the knowledge gap of entrant firms is mainly determined by time-consuming, experiential learning. The international expansion of the firm is understood as a knowledge development process where the firm develops knowledge when it operates in the foreign market, this experience-based knowledge enables the firm to better see and evaluate business opportunities and, consequently, to make new commitments. If the entrant firm suffers from learning myopia, it would have a false sense of confidence in its current capability, not foresee the future problems, and possibly undertake the entrance prematurely.

3 Conceptual Model of the Study

Figure 1 shows the conceptual model of the study. Our model explores the variables and controls that potentially impact the perceived knowledge gap of firms operating in foreign markets.

** Insert Figure 1 about here **

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Traditional internationalization process theory explains knowledge gap reduction by three interrelated factors: (1) elapsed time of operation in the foreign markets, (2) experiential knowledge sourcing, and (3) commitment of resources to the foreign market. Organizational learning literature adds to the understanding of these three factors (in particular elapsed time), and moreover, has contributions of its own by adding the dimensions of absorptive capacity (Cohen and Levinthal, 1990, 1994) and superstitious learning (Levitt and March, 1988). Following Zahra and George (2002), the former is decomposed into potential and realized absorptive capacity. Altogether, these factors make up a "learning box", i.e. a space in which six different knowledge gap determinants are at play. Each of the six factors holds the potential of explaining part of the story of how knowledge gaps of entrant firms are reduced. In addition to the learning box factors, various general firm characteristics (size, age and international experience) may influence the knowledge gap, and we include them as control variables.

While the traditional internationalization process view and the organizational learning view both are occupied with how firms close knowledge gaps, they are focusing on very different types of explanatory factors. The internationalization process theory focuses primarily on *manifest* variables associated with learning, such as elapsed time, knowledge sourcing and commitment. In contrast, the organizational learning theory is focusing on the *underlying* mechanisms of learning, such as absorptive capacity, that enable firms to absorb new knowledge.

4 Hypotheses of Factors Affecting Knowledge Gaps

In this section we take a closer look at the abovementioned factors potentially affecting knowledge gaps and we develop hypotheses for each of the six factors. First we look at the factors pertaining to traditional internationalization process theory (i.e. elapsed time of operations, experiential knowledge sourcing, resource commitment) followed by an examination of the factors derived from organizational learning theory: potential and realized absorptive capacity as well as superstitious learning (overconfidence).

Elapsed time of operations

In traditional internationalization process theory, elapsed time of operations in the foreign market affects the quality of the learning of the entrant firm. However, elapsed time *per se* does not bring about knowledge about foreign markets. For example, if the entrant firm performs no activities in the foreign market, or if activities are restricted by certain organizational routines leaving no room for variation, the learning effect will be close to zero even though the firm has been in the country for a while. Nevertheless, Eriksson *et al*. (1997) found that "time" *per se* is strongly correlated with increased international commitment of firms – even more than the conduct of business activities. Without the necessary time available, an entrant firm cannot absorb the experience from its current business activities.

In the same vein, Barkema *et al*. (1996) and Barkema and Vermeulen (2001) submit that learning is inherently incremental, and the speed with which firms expand internationally is subject to diminishing returns from efforts to speed up the process. Hence, the elapsed time of operation affects the ability of the entrant firm to learn about the foreign market in question. In their study of relationships between firms' profitability and their speed of international expansion, Barkema and Vermeulen (2001) build on Dierickx and Cool's (1989) concept of "time compression diseconomies" which identifies diminishing returns when – everything else being equal – the pace of organizational learning processes increases. New business opportunities in foreign markets are detected by managers, but they are bounded in terms of their rationality and cognitive scope (Sutcliffe, 1994). Each new foreign market brings new challenges and experiences for the management of the entrant firm in terms of customers, competitors, cultures, and institutions (Li, 1995). Experience that comes too fast may overwhelm managers, leading to an inability to transform experience into meaningful learning (Clark and Fujimoto, 1991; Eisenhardt and Martin, 2000).

On the organizational level, international expansion requires adaptation of home grown "mental maps" which permeate and underpin organizational structures and processes. Such adaptation processes are complex and take time (Murtha *et al.*, 1998; Hastings, 1999). Once these experiences are developed, it is possible to make associations to the absorptive capacity of a firm thus benefiting from the new expansion.

However, the amount of new experience the firm can absorb and put to commercial use is constrained by time (Cohen and Levinthal, 1990; 1994).

Hence, based on the traditional internationalization process theory with supplements of recent literature on learning in innovation processes we develop the following hypothesis:

H_1: *The greater elapsed time of the foreign market operation, the smaller is the perceived knowledge gap of the entrant firm.*

Experiential knowledge sourcing

Many of the difficulties faced by entrant firms arise from not knowing how business is done in the foreign country. Some of the rules, customs, and practices are explicit and relatively easy to comprehend and adopt. At a deeper level, how the game is played is influenced by the values of the foreign country and by its basic cultural assumptions. These differences tend to be implicit, and hence more difficult to uncover. They also are much more socially imprinted upon the individual, and hence foreigners find differences in values and cultural assumptions much harder to accept than differences in practices (Schein, 1985).

Reflecting on these different characteristics, the internationalization process theorists (Johanson and Vahlne, 1977; Forsgren and Johanson, 1992) make a distinction between two broad categories of knowledge that entrant firms are in need of: (1) knowledge than can be acquired quickly and with relative ease because it is explicit. Some examples are markets statistics and information about competition laws, product approval requirements, technical standards, etc., of the foreign market.; (2) knowledge that is characterized by its tacitness (Polanyi, 1966) and can be acquired mainly through learning-by-doing. The acquisition of the latter type of knowledge is considered by the internationalization theorists to be critical, if not indispensable, in firms' internationalization process. As expressed by Forsgren and Johanson (1992, p.10):

> "*International expansion is inhibited by the lack of knowledge about markets and such knowledge can mainly be acquired through experience from practical operations abroad*"

Hence, the improvement of local market familiarity is contingent upon the extent to which the firms accumulate knowledge through ongoing activities. This leads to the following hypothesis:

H_2: *The greater the extent to which the entrant firm is engaged in experiential knowledge sourcing, the smaller is the perceived knowledge gap.*

Resource commitment to foreign markets

The internationalization process theorists associate experiential knowledge sourcing closely with "current business activities" in the foreign market (Johanson and Vahlne, 1977) and the hiring of personnel in the foreign market:

> *"Persons…must be able to interpret information from inside the firm and from the market. The interpretation of one kind of information is possible only for one who has experience with the other part. We conclude that, for the performance of marketing activities, both kinds of experience are required; and in this area it is difficult to substitute personnel or advice from outside for current activities (…). Thus, the best way to quickly obtain and use market experience is to hire a sales manager or a salesman of a representative or to buy the whole or a part of the firm."* (Johanson and Vahlne, 1977:29)

In other words, experiential knowledge sourcing in the local market takes place either through expatriating personnel, or, alternatively, by hiring local people – preferably individuals employed in organizations of local business partners (distributors, licensees, etc.). In either case, the entrant firm *internalizes* the foreign market activities thereby expanding the scope of its "current activities". In turn, the expansion of current activities intensifies the experiential learning that in turn diminishes the firm's reluctance about resource commitment in terms of internalization. The process has the characteristics of being circular, reiterative, and self propelled - but also incremental:

since managers (of entrant firms) are presumed risk averse there are tight limits as to how much additional commitment the entrant firm will make over a shorter period of time. The firm's resource commitment evolves in correspondence with the gradual narrowing of its perceived knowledge gap. In this way, the overall perceived market risk - the multiple of market uncertainty and irrevocable market investments – is more or less kept constant during the foreign market penetration time period. Hence,

H_3: *The greater the entrant firm's commitment of resources to the foreign market, the smaller is the perceived knowledge gap.*

Absorptive Capacity

According to Cohen and Levinthal (1990) absorptive capacity is critical to a firm's capability to learn. One premise of absorptive capacity is that firms need prior related knowledge to assimilate and use new knowledge (1990:129). Learning is cumulative, and learning performance is greatest when the object of learning is related to what is already known. As a result, learning is more difficult in novel domains (1990:131). Furthermore, absorptive capacity is collectively constituted by "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (1990:128).

Since its inception several researchers have refined Cohen and Levinthal's absorptive capacity definition. As a recent example, Lane, Salk and Lyles (2001) have proposed that "the first two components, the ability to understand external knowledge and the ability to assimilate it, are interdependent yet distinct from the third component, the ability to apply the knowledge" (p.1156). Furthermore, on the basis of their extensive review of the organizational learning literature, Zahra and George (2002) derive four dimensions that together compose absorptive capacity: acquisition, assimilation, transformation, and exploitation of knowledge. Acquisition refers to firms' capabilities to identify and acquire externally generated knowledge that is critical to their operations (see also Kim, 1997; Clark and Fujimoto, 1991; Zahra and George, 2002). Assimilation refers to firms' routines and processes that allow them to analyze, process, interpret, and understand the information obtained from external sources (see also Kim, 1997;

Szulanski, 1996). Transformation denotes a firm's capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge (Koestler, 1966; Kim 1997; Fichman and Kemerer, 1999). Exploitation, or application, of knowledge is an organizational capability that is based on the routines that allow firms to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired knowledge into their operations. The primary emphasis is on the routines that allow firms to exploit knowledge. Exploitation reflects a firm's ability to harvest and incorporate knowledge into their operations. It requires retrieving knowledge that has already been created and internalized for use (see also Lyles and Schwenk, 1992; Tiemessen, Lane, Crossan and Inkpen, 1997). Exploitation is evident, for example, in new ventures that capture knowledge from existing markets, competitors, and customers.

Following Zahra and George (2002) we collapse the four dimensions of absorptive capacity into two: *potential* and *realized* absorptive capacity. Acquisition and assimilation capabilities are dimensions of "potential" absorptive capacity and transformation and exploitation are dimensions of "realized" absorptive capacity. Potential absorptive capacity makes the firm receptive to acquiring and assimilating external knowledge (Lane and Lubatkin, 1998). It captures Cohen and Levinthal's (1990) description of a firm's capability to value and acquire external knowledge, but does not guarantee the exploitation of this knowledge. Realized absorptive capacity is a function of the transformation and exploitation capabilities and reflects the firm's capacity to leverage the knowledge that has been absorbed. Potential and realized absorptive capacities have separate, but complementary roles. Both subsets of absorptive capacity coexist at all times and fulfill a necessary but insufficient condition to improve firm performance (Zahra and George, 2002).

Cohen and Levinthal (1990) introduced absorptive capacity in the context of innovation processes of firms, more specifically R&D investments of US manufacturing firms, but the line of thinking and basic components seem applicable to our context of firms' international market expansion (Andersen, 1993; Cavusgil, 1984; Jones, 1999). Hence, we derive the following two hypotheses in relation to absorptive capacity:

H_4: *The greater the level of potential absorptive capacity of the entrant firm, the smaller is the perceived knowledge gap.*

H_5: *The greater the level of realized absorptive capacity of the entrant firm, the smaller is the perceived knowledge gap.*

Superstitious Learning (Overconfidence)

Traditional internationalization process theorists predict that firms enter foreign markets that are of successively greater psychic distance from the home market (Carlson, 1975; Johanson and Wiedersheim-Paul, 1975). Thus, foreign markets in which a firm already operates function as stepping-stones to new markets. This stepwise geographical expansion diminishes knowledge gap in relation to foreign-market business environments because managers of entrant firms have acquired valuable experience through previous operations in similar foreign markets.

These spillover effects across foreign markets in terms of learning is not quite concordant with the important role that the Uppsala scholars, Johanson and Vahlne (1977), ascribed to market-*specific* knowledge in the internationalization process of firms. Though, in a later work Johanson and Vahlne (1990) themselves suggest a relaxation of their original emphasis on market-specific knowledge as being pivotal in firms' international market expansion. Johanson and Vahlne (1990) reiterate the general rule that resource commitment to foreign markets will be made in small steps due to a longwinded accumulation of experiential knowledge. However, some exceptions to the incremental expansion are conceivable. One exception is when managers of entrant firms have considerable experience from markets with similar conditions. It may be possible to generalize this experience to the foreign market entered most recently (Johanson and Vahlne 1990, p. 12). In other words, pre-entry learning is conceivable.

However, problems for entrant firms occur if inappropriate inferences are made regarding the causalities between behavior and outcome as a result of uncritical transfer of experience from one market to another. As an example, O'Grady and Lane (1996) point out that managers may overestimate the similarities between neighboring countries. Even countries that share language, historical, and legal traditions, often have

very different institutions that do not allow the simple transfer of business practices and attitudes across borders. O'Grady and Lane provide many examples of Canadian retailers that performed poorly in the United States due to the large differences in the operating environment between countries. In fact, many of the examples that they present show that the differences in the business environment between Canada and the U.S. were more profound than the managers had expected. From these observations O'Grady and Lane coined the term "the psychic distance paradox". Moreover, the growing literature on survival of firms in foreign countries suggests that foreign investment into close countries often fails (e.g. Mitchell, Shaver and Yeung, 1994). The reason may very well be that managers of entrant firms take more precautions when entering distant markets and spend more time on planning, since they are fully aware of the significant "psychic distance."

In these studies of foreign market entries the "overconfidence" phenomenon has been primarily attached to the transfer of experience between adjacent geographical markets, such as the USA and Canada. One may ask, however, if this phenomenon of overconfidence is applicable to *all* foreign market entries – the supposition being that managers in general are enticed into "superstitious learning" (Levitt and March, 1988), i.e. a misconceived transfer of cause-effect inferences from one foreign market to another.

The organizational learning literature offers insights into the phenomena of overconfidence and superstitious learning (Levitt and March, 1988) and enables us to take the argumentation a step further. In this literature overconfidence and superstitious learning are analyzed as generic, universal phenomena. Superstitious learning has been defined as the phenomenon by which "the subjective experience of learning is compelling, but the connections between actions and outcomes are mis-specified" (Levitt and March, 1988: 325). Another definition (Zollo, 2004) submits that learning is "superstitious" when confidence in one's competence consequent to experience accumulation develops before or faster than competence itself. Zollo and Gottschalg (2004) term this problematic situation as the "confidence-competence paradox".[1] The notion is rooted in a long research tradition of ethnology, anthropology, and sociology.

[1] The opposite situation, that competence develops faster than confidence, analogues possession of tacit knowledge, i.e. a situation where people know more than what they are aware of (Polanyi, 1966).

Explanations of superstitious learning are mainly related to motivation. Managers, and organizational members in general, may make erroneous (positively biased) attributions of their own capabilities, and of the resulting outcomes, for well-known reasons related to social desirability of competence and of performance (Zollo, 2004). Perceptions of past success encourage complacency, or satisfaction with the status quo, and therefore reduce search efforts (March and Simon, 1958; Nelson and Winter, 1982).

Overconfidence and superstitious learning, in turn, are contingent on the extent to which managers' *perception* of homogeneity of the focal business operations is in line with the true homogeneity. Whenever organizations perceive business operations within a given category (e.g. similar operations, but in different countries) as very similar, they might rapidly gain confidence in their ability to deal with such a business operation (Zollo and Gottschalg, 2004). To the extent that search does occur, it tends to be in the same domain, exacerbating the problem of learning myopia mentioned earlier (Levinthal and March, 1993). In our context managers would be at risk of superstitious learning in foreign country A – "superstitious" in the sense that what has been learned in country A is wrongly believed to be applicable to business operations in foreign country B. In this situation an entrant firm will underestimate the knowledge gap that has to be bridged in order to conduct business successfully in country B. Or put differently, the entrant firm is overconfident about the suitability of its knowledge pool in relation to country B. As unexpected problems in country B arise the entrant firm begins to realize the misconception.

To the extent that superstitious learning and overconfidence can be generalized to any foreign market entry, we would expect a *curvilinear* (inverted U-shaped) rather than a decreasing, linear development of perceived knowledge gaps in foreign markets over a period of time. At entry the company managers perceive a relatively small knowledge gap, but as more and more unexpected problems occur this gap widens. At a certain point in time the entrant firm manages to align their perceived and real knowledge gaps. Eventually, when the pace by which new knowledge is acquired surpasses the rate by which managers realize their overconfidence the knowledge gap starts shrinking.

On the basis of the above argumentation we conjecture a sixth and last hypothesis:

H_6: *During an initial period of time of the foreign market operation, the perceived knowledge gap of the entrant firm increases (and subsequently decreases).*

5 Methodology

Data Compilation and Sample Characteristics

The data for this study was gathered through a mail survey, part of the large, international research project "Learning in the Internationalization Process". The project included researchers from Denmark, Finland, New Zealand, Korea, and Sweden. However, only the data set arising from the Danish firms is relevant to our research question, i.e. only the Danish survey did include all the variables applied to test the hypotheses of this study. A pilot study was conducted in 1997 in which ten managers were asked to answer the questionnaire in an interview situation. The final standardized questionnaire was sent out in August 1998 to all Danish firms that were involved in international operations, e.g. having export or subsidiaries abroad. The population comprised 723 firms in various industries (both manufacturing and services firms were included) and with different international locations. This population was chosen due to the active involvement of these firms in foreign markets that exposed them to "liability of foreignness" and a potential knowledge gap.

The questionnaires were mailed to the CEO, and the CEO - or another executive - completed most questionnaires. The number of replies reached 246, corresponding to a response rate of 34 percent. For various reasons (e.g. the firm was no longer participating in foreign market activities), a number of returned questionnaires were found to be inadequate. After exclusion of incomplete questionnaires, a total of 200 replies, corresponding to a net response rate of 27.8 percent, were found usable for data processing. A test was conducted to check the sample for possible non-response bias. Regarding size and number of foreign subsidiaries, no statistically significant differences

between respondent and non-respondents were found. The average profile of the firms in the sample is shown in Table 1.

** Insert Table 1 about here **

The average size of the sample is 192 employees in Denmark and abroad, with considerable variation, providing turnover of DKK 238 million (equivalent to US$ 34.5 million). One seventh of the personnel is employed outside Denmark and almost half of the average turnover originates from foreign activities. The average firm in the sample is highly internationalized and possesses considerable experience in conducting foreign operations. However, the sample also includes a number of novice exporters.

Operationalization of Variables

Respondents were asked to select one recent business venture or operation in a foreign market (e.g. entering a new market, or undertaking a considerable expansion of an existing business). The operation was to be important to the firm and its international expansion. Furthermore, the operation should preferably be well underway in the foreign location.

Knowledge gap was measured as the perceived lack of knowledge in relation to the particular foreign business operation. More specifically, the respondents were asked to indicate the extent to which a lack of various kinds of local market knowledge constituted an obstacle to the accomplishment of the particular foreign business operation i.e. a perceived gap between the possessed and needed knowledge. Following Eriksson et al. (1997), the required foreign market knowledge was of two different kinds: "institutional knowledge" and "business knowledge". "Institutional knowledge" consists of knowledge of the institutional framework, rules, norms and values in the particular market. "Business knowledge" includes knowledge on counterparts (customers, suppliers, distributors, and competitors) in the host country, including knowledge about local business cultures. Five items were applied in order to measure this construct (the exact wording of the five items are listed in Appendix 1). On the basis of these five items

(Cronbach alpha = 0.77) we created a composite index (reflective construct) of knowledge gap.

The **elapsed time** of operation in the particular foreign market was measured as the number of months since the particular international business operation was commenced. In principle, the value of the variable may vary from 1 month to infinite. The elapsed time of the business operations reported in the query was ranging from 1 month to 180 months (i.e. 15 years). As discussed below also the quadratic term of elapsed time (elapsed time squared) is included in the tested model.

Experiential knowledge sourcing was measured as the extent to which knowledge of importance to the focal business venture was sourced by experiential activities. The respondents were asked how the knowledge needed to conduct the business venture was provided: was it mainly purchase from external expert sources or through the firm's own experiential activities (two poles on a 7-point Likert scale)? Five items were applied in order to measure this construct (the exact wording of the five items are listed in Appendix 1). On the basis of these five items (Cronbach alpha = 0.71), we created a composite index (reflective construct) of experiential knowledge sourcing.

Foreign market commitment. Internalization of the foreign market operations was used as a proxy for 'market commitment'. If the foreign business operation was carried out as a local subsidiary or by own sales force (internalization modes) it was categorized as high commitment mode (dummy=1), while a local agent or other local operator was categorized as low commitment (dummy=0).

Potential absorptive capacity is a measure of the capability to acquire and assimilate new knowledge. As put forward by Cohen and Levinthal (1990), prior related knowledge is the best proxy for this capability. It was measured as the extent to which the firms in its completion of the business operation could draw on its previous experience, i.e. to what extent the existing knowledge is of use when conducting the focal business operation. Five items were applied in order to measure this construct (the exact wording of the five items are listed in Appendix 1). Again, on the basis of these five items (Cronbach alpha = 0.72) we created a composite index (reflective construct) of potential absorptive capacity.

Realized absorptive capacity, i.e. the transformation and exploitation of local business knowledge, was measured by asking the respondent how the focal business operation differed from previous operations. The logic behind this measure is the argument of path-dependency in learning on foreign markets, i.e. the less the new foreign operation differed from previous operations the easier it would be to utilize the existing knowledge. The difference was measured along two dimensions: (1) the newness of the foreign country, and (2) the newness of the customer(s) in the foreign market (see Appendix 1 for the exact wording). The assumption is that the more the country or the customer(s) differ from previous operations the lower the realized absorptive capacity and, therefore, the two items were added in order to form one (formative) construct for realized absorptive capacity.

Please note that all independent variables are phrased so that according to the proposed hypotheses the higher values of the variables the less knowledge gap is expected. Put differently, for the hypotheses to be confirmed we expect a negative relation between the independent variables and the dependent variable of perceived knowledge gap.

Control Variables

In addition to the hypotheses about learning factors making up "the learning box" we check for three factors that may have an effect on perceived market familiarity.

The knowledge gap may vary with the **size** of the entrant firm. With more resources large firms might have better opportunities for employing specialists possessing local market knowledge. Conversely, small firms may be more risk averse (since their business diversification is limited) and therefore more sensitive to perceived knowledge gaps. The knowledge gap may also be contingent on the **age** of the entrant firm. It is more likely that aging firms have developed and fine-tuned learning procedures, including ways to combat knowledge gaps in relation to foreign markets. A counter argument is that the older firm may be plagued by dated, ineffective learning routines.

Similarly, with more **international experience** firms may improve their ability to make correct assessments of the knowledge gap in relation to foreign markets, but experienced firms might also be lulled into an over-confidence in their how-to-do-

international-business expertise. International experience is a multi-item measure based on the respondents' perception of the international experience of the firm for 7 different tasks (see Appendix 1 for items and exact wording).

The correlation matrix (including all correlation coefficients) and descriptive data (mean values, standard deviation, minimum and maximum values) on all the variables in the model are provided in the Appendix 2. In order to detect potential problems of multicollinearity we should look at correlation coefficients among the independent variables in the model. None of these are above the usual threshold indicating the possibility of multicollinearity (i.e. $r > 0.5$), Hair et al. (1995). In fact, the highest correlation coefficient (on 0.28) is between the two control variables – age of firms and their international experience - which is far below the threshold. Therefore, we concluded that the data set does not seem to involve problems of multicollinearity.

6 Results and Discussion

Results

We estimated an ordinary least square model (OLS-model) to test our hypotheses and conceptual framework. In hypotheses 1-5 we expected a negative, linear relationship between the independent variables and the dependent variable (the perceived knowledge gap). In contrast, hypothesis 6 on superstitious learning predicted a curvilinear (inverted U-shaped) relationship between elapsed time and perceived knowledge gap, where the perceived knowledge gap initially would increase, and then decrease over a period of time. In order to test for the curvilinear relationship predicted by hypothesis 6, we included both elapsed time and elapsed time squared in the model. The prediction following hypothesis 6 is that elapsed time will be positive (= initial increase of knowledge gap) and the elapsed time squared will be negative (i.e. a subsequent decrease of knowledge gap).

Table 2 provides the statistical results of the regression analysis. The first column of the table (Model 0) lists the intercept and the three control variables, where none of them turned out to be significant. The second column (Model 1) includes the independent variables that pertain to traditional internationalization process theory. An adjusted R-square of only 0.02 indicates that the explanatory power of this model is very limited, and

the low F-value indicated a weak robustness of the model (only significant at a 10% significance level). Two of three variables, "Experiential knowledge sourcing" and "Foreign market commitment", do seem to reduce the perceived knowledge gap (i.e. negative sign of coefficients) with statistically significance. Somewhat surprisingly, "Elapsed time" does not seem to have any linear effect at all. Thus, from this analysis, it suggests that none of hypotheses 1, 2 and 3 are supported.

The third column (Model 2) includes the independent variables that pertain to the organization learning literature, including potential and realized absorptive capacity as well as superstitious learning. In contrast to Model 1 this model is very robust (F-value significant on a 1 % level) and has a significantly higher explanatory power: the adjusted R-square is 0.11. The coefficients of potential and realized absorptive capacity have the expected negative signs (significant at a 1 % level). Furthermore, both first and second order effects of elapsed time becomes significant with the first order effect being positive (at a 5 % level) and the second order effect being negative (at 1 % significance level) indicating a curvilinear (inverted U-shaped) effect of time where the knowledge gap first increases and subsequently decreases as hypothesized in hypothesis 6 (Superstitious learning). This would indicate that hypotheses 4, 5 and 6 are supported.

The fourth and last column includes the full model (Model 3) comprising all independent variables of both the internationalization process view and the organization learning view. The adjusted R-square (0.15) is only marginally higher than the 0.11 of the Organizational Learning Model (Model 2) indicating the inclusion of traditional internationalization process variables adds little to the explanation of perceived knowledge gaps of entrant firms. Moreover, among the internationalization process variables only "Experiential knowledge sourcing" maintains statistical significance (giving support to hypothesis 2), but not to hypothesis 1^2 and hypothesis 3. In contrast, significance is maintained for the organizational learning variables, saying that hypotheses 4, 5 and 6 are supported.

None of the control variables are insignificant in any of the four models. The values for variance inflation are all within the usual threshold (less than 6), indicating that

we have no multicollinearity problems in the data set, except for elapsed time and elapsed time squared which by definition are highly correlated.

** Insert Table 2 about here **

In order to test for the importance of the different categories of variables the explanatory power of the different models was tested against each other as shown in Table 3. The traditional internationalization process variables are adding to the explanatory power when Model 1 (Internationalization Process Model) is compared to the base Model 0 of "Controls" (improving the R-square by 0.02). But still, the explanatory power of the organizational learning variables is far more significant (improving the R-square by 0.11). With an R-square improvement of 0.04 the full model (Model 3) is only slightly better than the Organizational Learning Model (Model 2), saying that the variables derived from the organizational learning literature are the ones that overwhelmingly determine reduction of knowledge gaps.

** Insert Table 3 about here **

Discussion of results

We have proposed and tested several models of factors which potentially determine the perceived knowledge gap of firms entering foreign markets, see Table 2. Model 1 includes variables associated with the internationalization process view. Model 2 comprises variables pertaining to the organization learning view. Model 3 captures the impact of utilizing both theories to see if they are complementary in explaining the reduction of knowledge gaps.

One of our contributions is the finding that firms perceive greater value in closing the knowledge gap through generation of *experiential* knowledge instead of via acquired *explicit* knowledge. This is in accordance with the traditional internationalization process

[2] One may argue that H1 is supported to the extent that elapsed time as a linear function is significant at a 5 % level in the full model (Model 3). However, since elapsed time squared (the quadratic term of elapsed

theory - emphasizing the critical role that experiential knowledge plays in firms' internationalization. One can argue that this is very positive and that the firms are learning to exploit their current capabilities. On the other hand, March (1991) forewarns us that firms adapting solely through exploitation, may in fact keep the firm in the race, but may not put it in a position to perform successfully in a competitive environment. Our study does not address this particular question, but various theorists are suggesting that firms need to be better at sourcing knowledge externally because competition is now being knowledge-driven on a worldwide basis (Murtha *et al.*, 1998). Firms that only generate new knowledge through internal means may be left behind.

The lack of a significant association between elapsed time (as a negative linear relationship) on the one side and knowledge gap reduction at the other side is at odds with the internationalization process model. Furthermore, our data gave only limited support to the contention that knowledge gaps diminish with greater resource commitment to a foreign market (i.e., internalization of foreign market operations). This somewhat unexpected finding may be explained in lower levels of knowledge requirements among those firms that have externalized their foreign business operations. Firms using local, independent operators may simply have more moderate knowledge requirements than firms with internalized foreign market activities. If the perceived need for acquisition of knowledge is moderate because the foreign market activities are delegated to a local, independent operator, the entrant firm may not perceive an extant knowledge gap – either because the entrant firm does not realize any knowledge gap at all, or does realize the knowledge gap, but does not see this gap as a hindrance to the completion of the foreign business operation. In other words, it may indeed be likely that internalization of foreign market activities induces a learning process, but the firms' perception of what level of knowledge is required increases accordingly, thereby keeping the knowledge gap unchanged. To summarize, among the variables of the internationalization process view only acquisition of experiential knowledge appears as contributing to the reduction of knowledge gaps.

In contrast, all three variables pertaining to the organization learning view result in a reduction in the knowledge gap of entrant firms. Both measures of absorptive

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time) is significant at a higher level (1 % level) we submit that H6, rather than H1, is supported.

capacity (potential and realized) were found to be significant predictors of reducing the knowledge gap of entrant firms. Our results contribute to support the importance of absorptive capacity of firms and further support the theory developed by Cohen and Levinthal (1994), and Zahra and George (2002). Furthermore, we find that there is a curvilinear (inverted U-shaped) relationship between elapsed time and perceived knowledge gap of entrant firms indicating superstitious learning. The concept of superstitious learning, or overconfidence, points in the direction of a more subtle relationship between elapsed time and perceived knowledge gaps than just a linear one. When substituting a curvilinear function for a linear, down-sloping function, elapsed time emerges as a significant explanatory factor. Initially, entrant firms do not know what they don't know about how to conduct business in a (new) foreign market. During the first period of time the firms seem to go through a painful process of realizing how business experience from prior markets is of little use in the new market. In our sample of firms the perceived knowledge gap is at its highest among firms reporting business operations of 5 year's longevity. For those firms reporting business operations with less or more than 5 years longevity, perceived knowledge gap is, on average, lower. Apparently, it takes about 5 years for these firms to learn what they don't know about the foreign market.

We demonstrate that there is some symmetry between the internationalization process theory and the organizational learning theory. Model 3 in Table 2 shows the inclusion of experiential knowledge sourcing along with the absorptive capacity variables. A firm's direct experiences will influence its ability to understand and to assimilate any new knowledge (Cohen and Levinthal, 1990). Consequently the firm's own insights and current knowledge base influence its ability to adapt and to integrate knowledge acquired from others. It thus seems positive that experiential knowledge sourcing in conjunction with absorptive capacity variables contributes to the reduction of the knowledge gap.

Limitations of the study

We have two specific reservations as to the robustness and validity of our findings that we want to point out. Our first reservation concerns the cross-sectional/static nature of the study, which is a serious limitation of our study inasmuch as we want to explore a

time-varying factor, namely the change in managers perceived knowledge gaps. Presumably, an ultimate investigation of knowledge gap eliminators can only be provided through large-scale longitudinal studies.

Secondly, the data of the study are compiled from companies in Denmark. As such, one may question to what extent perceptual/subjective measures of companies from a "small open economy" can be generalized to firms from large economies, such as the USA. Hence, it is generally accepted that, *ceteris paribus*, firms from small, open economies tend to demonstrate a higher propensity to internationalize their operations than those from larger home economies (Bellak and Cantwell 1998). As a result of an urgent need for export, market seeking companies from small, open economies may have less time, and less resources, for preparing their foreign market entries. Consequently, these firms may in general experience greater knowledge gaps than international firms from large economies.

Future research areas

Significant differences exist in the context of knowledge gaps for firms and this provide opportunities for researchers to explore whether the context is important and whether the factors influencing the knowledge gap vary based on context. We have explored an area, namely the case of foreign markets, in which there is widespread agreement that a knowledge gap exists when a firm undertakes an entry. One of the consequences of this may be that it is very clear to firms that a knowledge gap exists and that they have to do something about it. This may have influenced our results. It will be interesting to see what factors influence it if in the future, researchers study knowledge gaps in a much more uncertain context.

Studying knowledge gaps is certainly an area for future research to explore what are the relations between experiential learning, perception of knowledge gaps, and performance. Our dependent variable was the knowledge gap, but future research might also link this to the performance of the firms.

The results of our study have several implications for organizational learning research and management. It is important to place an emphasis on how new knowledge is developed and how recognized knowledge gaps are addressed. Particularly when one is

researching processes, such as experiential learning and absorptive capacity, a longitudinal perspective provides important influencing factors. Further empirical research is critical to helping us determine the processes for filling knowledge gaps and the utilization of past knowledge.

7 Conclusion

In this study we contribute to theories governing internationalization and organizational learning by testing both simultaneously. We test the factors that potentially affect managers' perceived knowledge gap in relation to business environments of foreign markets. Potential determinants were derived from traditional internationalization process theory as well as more recent literature on organizational learning processes, including the concept of absorptive capacity. Building on these literature streams a conceptual model was developed and tested on a set of primary data of Danish firms and their foreign market operations.

Our study is one of the first using organizational learning theory in the context of knowledge gaps of entrant firms. The standard explanation of knowledge gap closing discerned by traditional internationalization process theory sees individuals as being central in the learning processes of entrant firms. Our study suggests that the entrant firm as the level of analysis enhances our understanding of knowledge gaps and internationalizing processes of firms. In particular the concepts of potential and realized absorptive capacity of entrant firms boost the explanatory power of our model. In contrast, the factors deemed essential in traditional internationalization process theory were found to have limited effect. Hence, by uncovering some latent, but indeed powerful, variables of organizational learning literature our study has contributed to an opening of a "black box" of learning in relation to foreign market operations. Apparently, traditional internationalization process theory has only been scratching the surface of the learning box containing the explanations of knowledge gap closing of entrant firms. The internationalization process theory has emphasized the *means* of learning: time, commitment, and experiential activities. In contrast, organizational learning theory emphasizes the *capacity* to learn as captured by concepts of absorptive capacity and

(over) confidence. Our study suggests both means and capacity of learning as prerequisites of firms' reducing of knowledge gaps.

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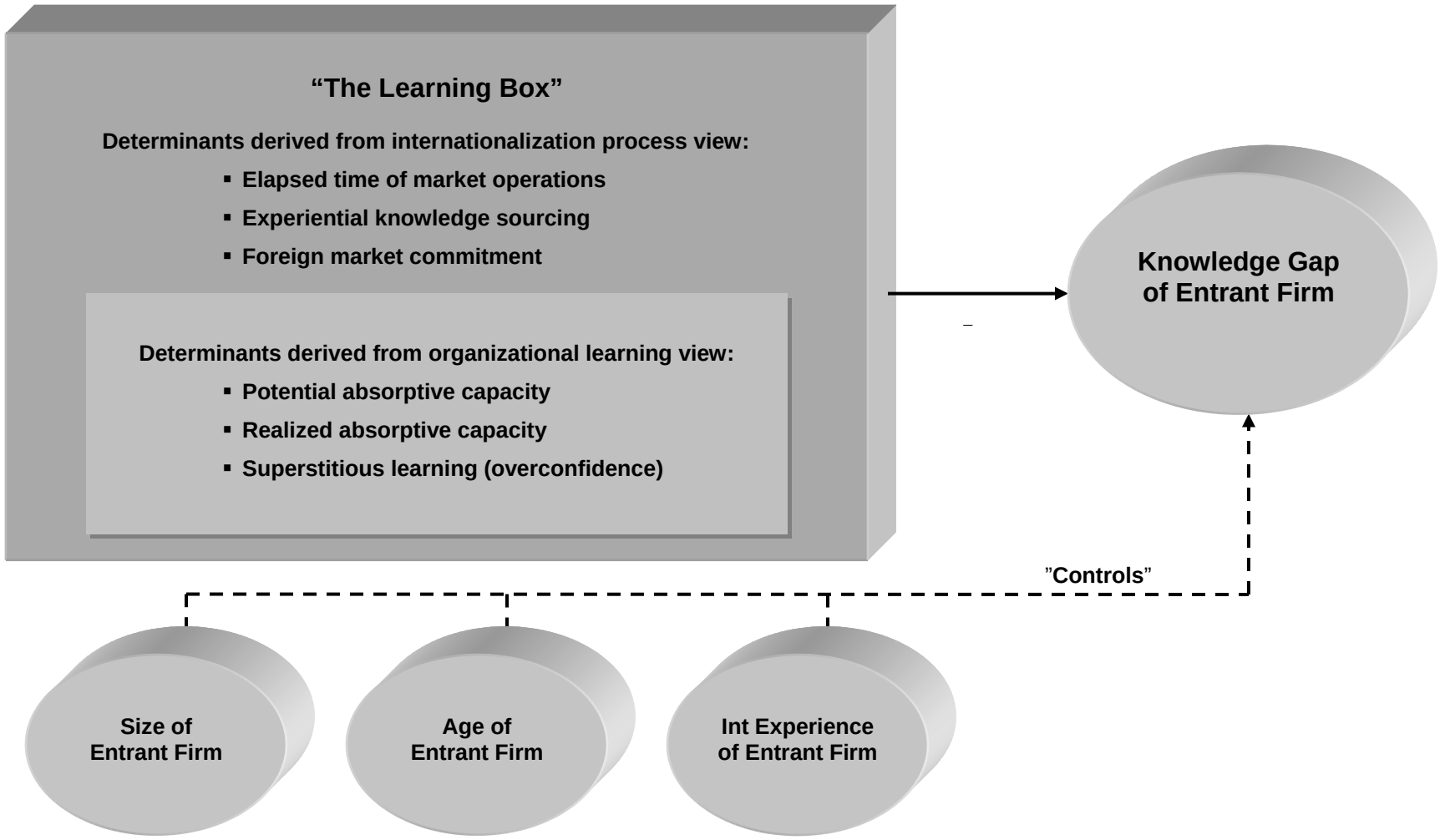

Figure 1: Conceptual model of the study: Factors that potentially affect knowledge gaps as perceived by entrant firm managers.

Table 1. *Characteristics of the sample (N=200)*

Company characteristics	**Mean (1998)**	**Standard deviation**
Total turnover (million DKK)	238 (US$ 34.5 million)	488
- proportion of sales abroad	42.9 %	31.2 %
Total number of employees	192	419
- proportion of employees abroad	14 %	23 %
No of countries in which the company operates	18	17
Years of export experience	21	18

Table 2. *OLS-model results*

Dependent variable ▸	**Perceived Knowledge Gap**			
Independent variables ▾	**Model 0 ("Controls")**	**Model 1 (Internationali-zation Process)**	**Model 2 (Organizational Learning)**	**Model 3 (Full Model)**
Intercept	2.88*** (0.52)	3.95*** (0.65)	4.15*** (0.60)	5.29*** (0.70)
Size of Entrant Firm (1000's)	-0.15 (0.25) 1.03	-0.16 (0.25) 1.04	-0.03 (0.24) 1.07	-0.04 (0.24) 1.07
Age of Entrant Firm	-0.003 (0.006) 1.10	-0.005 (0.006) 1.15	-0.004 (0.006) 1.10	-0.006 (0.005) 1.15
Int'l Experience of Entrant Firm	0.06 (0.11) 1.09	0.10 (0.11) 1.11	0.06 (0.10) 1.10	0.10 (0.10) 1.12
Elapsed time		0.01 (0.04) 1.03	0.22** (0.10) 6.44	0.24** (0.10) 6.45
Elapsed time – squared (Superstitious Learning)			-0.02*** (0.008) 6.41	-0.02*** (0.008) 6.43
Experiential knowledge sourcing		-0.20** (0.09) 1.04		-0.22*** (0.08) 1.05
Foreign market commitment		-0.34* (0.21) 1.07		-0.27 (0.20) 1.09
Potential absorptive capacity			-0.33*** (0.08) 1.05	-0.34*** (0.07) 1.06
Realized absorptive capacity			-0.12*** (0.05) 1.06	-0.11*** (0.05) 1.07
F-value R-square Adjusted R-square N	0.27 0.004 0.000 200	1.81* 0.05 0.02 200	4.58*** 0.14 0.11 200	4.85*** 0.19 0.15 200

Notes: Standard errors are shown in parentheses and the Variance Inflation Factor is also shown. ***, **, and *, denote significance at 1%, 5%, and 10% levels, respectively

Table 3 *Hypothesis testing*

	F-value	Δ R-square
Model 1 ’Internationalization’ vs. model 0 ‘Controls’	2.94**	0.02
Model 2 ’Learning’ vs. model 0 ‘Controls’	7.79***	0.11
Model 3 ‘Full model’ vs. model 2 ‘Learning’	5.10***	0.04

***, and **, denote significance at 1%, and 5% levels, respectively

Appendix 1 - Measurement of constructs

Construct	Items	Cronbach alpha
Knowledge gap	A lack of knowledge pertaining to the following business areas is an obstacle to the conduct of the focal business operation abroad (7-point Likert scales): 1) knowledge of business laws and rules of the foreign market 2) knowledge of financial practice of the foreign market 3) knowledge of the local business culture 4) knowledge of customers in the foreign market 5) knowledge of suppliers in the foreign market	0.77
Elapsed time	Number of months since the focal international business operation was commenced	n.a.
Experiential knowledge sourcing	To what extent is the knowledge needed for conducting the focal business operation (and pertaining to the 5 business areas listed below) provided through purchase from external sources versus own experiential activities (7-point Likert scales where 7 = experiential knowledge): 1) knowledge of business law and rules of the foreign market 2) knowledge of financial practice of the foreign market 3) knowledge of the local business culture 4) knowledge of customers in the foreign market 5) knowledge of suppliers in the foreign market	0.71
Foreign market commitment	Dummy variable. Takes the value 1 for high commitment modes (local subsidiary and own sales force) and 0 for low commitment modes (local agent or other local operator)	n.a.
Potential absorptive capacity	In developing the focal business operation, it is useful to have previous business experience with (7-point Likert scales): 1) business law and rules of the foreign market 2) financial practice of the foreign market 3) local business culture 4) customers in the foreign market 5) knowledge of suppliers in the foreign market	0.72
Realized absorptive capacity	How does the business operation differ from earlier ones? (7-point Likert scales) 1) newness of the foreign country 2) newness of the customer(s) in the foreign market	n.a.
Size	Total number of employees of the entrant firm as a whole, or - if a conglomerate - the number of employees in the division of relevance (in 1000's of employees)	n.a.
Age	Age of entrant firm is measured as number of years since inception of the firm or division	n.a.
International experience	The respondent was asked to indicate the international experience of the firm in relation to (7-point Likert scale - where 7 = extensive international experience): 1) management and support of personnel outside the home country 2) international financing 3) product development and modification 4) development and adaptation of production processes 5) conducting business with new customers 6) conducting business in new markets 7) collaboration with other firms in foreign markets	0.76

Appendix 2. Correlation matrix for all variables included in the model (N=200)

		1	2	3	4	5	6	7	8	9
1)	Elapsed time	1.00								
2)	Experiential knowledge 0.12*	1.00								
3)	Market commitment	0.10	0.15**	1.00						
4)	Potential Absorptive Capacity	-0.18***	-0.09	0.05	1.00					
5)	Realized Absorptive Capacity	0.18***	0.06	-0.04	-0.07	1.00				
6)	Size of firm	0.05	-0.02	0.02	0.09	0.14**	1.00			
7)	Age of firm	0.05	-0.01	-0.17**	-0.04	0.07	0.14**	1.00		
8)	International experience 0.02	0.08	0.04	-0.05	0.08	0.14*	0.28***	1.00		
9)	Knowledge gap	-0.01	-0.17**	-0.12*	-0.28***	-0.15**	-0.04	-0.03	0.03	1.00
	Mean	26.77	5.19	0.62	3.13	3.92	0.19	22.1	4.85	3.09
	Std. Dev.	29.24	1.15	0.48	1.27	1.90	0.40	17.2	0.96	1.40
	Min. values	1	1.60	0	1	1	0.02	1	1	1
	Max values	180	7	1	7	7	3.13	109	7	7

***, ** and * indicates 1%, 5% and 10% significance level, respectively

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