LEARNING FROM EXPERIENCE AND LEARNING FROM OTHERS: HOW CONGENITAL AND INTERORGANIZATIONAL LEARNING SUBSTITUTE FOR EXPERIENTIAL LEARNING IN YOUNG FIRM INTERNATIONALIZATION

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This article addresses a critical issue for entrepreneurs and managers pursuing internationalization strategies: how firms can accumulate the knowledge and skills required for successful international expansion. Specifically, we examine how young firms may compensate for their lack of firm-level international experience by utilizing other sources of knowledge. Drawing on organizational learning theory, we develop an integrative framework that looks at the joint and interactive effects of experiential learning by the firm, the management team’s pre-start-up international experience (i.e., congenital learning), and interorganizational learning from key exchange partners (customers, suppliers, investors, etc.). Utilizing empirical data on 114 young, technology-based firms in Flanders, Belgium, we find that a firm’s level of international experience negatively moderates the effects of congenital and interorganizational learning on the extent of internationalization. That is, the lower a firm’s experiential learning, the more significant the effects of the start-up team’s prior international knowledge base and the knowledge and skills acquired through key partners. These results make important theoretical and empirical contributions to the international entrepreneurship and organizational learning literatures by highlighting some of the factors underlying learning advantages of newness that facilitate the internationalization of young firms and by explicating substitutive interrelationships among different learning mechanisms. Copyright © 2010 Strategic Management Society.

INTRODUCTION

Internationalization is a complex and uncertain process that poses significant challenges for any firm. For young firms, the expansion into foreign markets is a particularly important and intricate decision—internationalization is increasingly a competitive necessity for such firms, especially in technology-based industries, but resource constraints and liabilities of newness exacerbate the challenges and risks involved (Autio, Sapienza, and Almeida, 2000; Oviatt and McDougall, 1994; Sapienza et al., 2006). Entering foreign environments means that the firm’s existing knowledge and capabilities are often not applicable, and the firm has to develop new knowledge and capabilities in order to succeed (Johanson and Vahlne, 1977, 1990; McDougall and

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Oviatt, 1996; Sapienza et al., 2006). Accordingly, international business (IB) research has increasingly zeroed in on the critical question of how firms accumulate the knowledge and skills required for international expansion (e.g., Barkema, Bell, and Pennings, 1996; Lu and Beamish, 2004; Nadolska and Barkema, 2007; Petersen, Pedersen, and Lyles, 2008).

In addressing this question, the bulk of extant IB research has built upon the internationalization process theory (Johanson and Vahlne, 1977, 1990) and has, thus, focused on firm-level experiential learning, i.e., the gradual accumulation of knowledge as a firm expands its international activities. Taking the perspective of established multinational enterprises (MNEs), such studies have shown that a firm’s international experience affects outcomes such as the financial performance of foreign subunits (Luo and Peng, 1999), the failure rates of FDI (Li, 1995; Barkema et al., 1996), and even a firm’s ability to learn from various types of subsequent international experiences (Barkema and Drogeđik, 2007). However, the insights generated by this research are of limited relevance for young firms that, by definition, lack experience.

Yet, many start-ups manage to expand into foreign markets, often exhibiting a pattern of early internationalization (Knight and Cavusgil, 2004; Yamakawa, Peng, and Deeds, 2008) that does not match the step-by-step process that the Uppsala stage model would predict. The international entrepreneurship (IE) literature has sought to explain this phenomenon, focusing on the antecedents, elements, and outcomes of internationalization for new firms (cf. Keupp and Gassmann, 2009; Zahra and George, 2002). As Keupp and Gassmann (2009) note in their recent review, the IE literature has uncovered an extensive set of personal-, firm-, industry-, and country-level factors that play a role in driving new firms to internationalize, and it has related these antecedents to various outcomes that have to do with internationalization patterns and performance. However, the black box that remains in IE research is the question of why young firms are able to internationalize, i.e., what elements such as ‘strategic management, access to resources, knowledge, and information, firm capabilities, and innovatory advantages . . . enable entrepreneurial firms to internationalize . . .’ (Keupp and Gassmann, 2009: 608).

In this article, we address this gap in the literature by drawing on organizational learning theory to develop an integrative framework that examines the joint and interactive effects of different learning sources on the extent of internationalization of young firms. We specifically address the research question of whether young firms can compensate for their lack of firm-level international experience by utilizing other sources of knowledge as they pursue international expansion.

We examine two potential alternatives to experiential learning by the firm. First, we look at the congenital knowledge base that a firm’s founders bring from previous international experiences (living abroad or working in an international context). We extend prior IE and export marketing research that has shown founders’ prior experience to impact internationalization (e.g., Crick and Jones, 2000; Leonidou, Katsikeas, and Piercy, 1998; Reid, 1983; Reuber and Fischer, 1997; Ursic and Czinkota, 1989) by testing whether a start-up team’s congenital knowledge base can compensate for a firm’s lack of direct experience at the early stages of internationalization, and whether this effect diminishes as a firm gains experience. Second, we investigate learning from a young firm’s portfolio of key exchange partners and whether a firm’s level of international experience moderates the effects of such interorganizational learning on the extent of internationalization. In line with extant literature, we conceptualize the extent of internationalization in terms of both the scale and the scope of a firm’s international sales (Fernhaber, Gilbert, and McDougall, 2008; Sullivan, 1994; Zahra and George, 2002); our measure weights a firm’s foreign sales by the geographic and psychic1 distance of each foreign region.

Our study makes three unique contributions to the IE and IB literatures. First, in developing and testing an integrative research model grounded in organizational learning theory, we answer calls for a richer understanding of how learning takes place in an international context (Cumming et al., 2009; McDougall and Oviatt, 2005; Meyer, 2007; Simonin, 2004; Zahra, 2005). We distinguish between three sources of learning and examine whether congenital and interorganizational learning can act as substitutes for experiential learning. In so doing, we extend

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1 The concept of psychic distance encompasses a range of factors preventing or disturbing the flow of information between potential or actual foreign partners, associated with country-based differences in language, culture, and political/economic/legal environments (Johanson and Vahlne, 1977).
prior research that has suggested that young firms possess learning advantages of newness (Autio et al., 2000; Sapienza et al., 2006). These advantages refer to young firms’ ability to build the knowledge and capabilities needed for internationalization, unencumbered by the inhibiting influences of previously developed routines, but also without the benefits of accumulated international experience (such as higher absorptive capacity [Barkema and Drogendijk, 2007] or an increased level of commitment to internationalization [Johanson and Vahlne, 1977]). Our study suggests that the ability to utilize a variety of different learning sources may be a key factor underlying learning advantages of newness—that by drawing on congenital or interorganizational learning to substitute for a lack of firm-level international experience, young firms can take advantage of the absence of constraining routines while compensating for their limited experiential knowledge base.

Second, we extend the research on interorganizational learning and internationalization beyond the context of alliances, joint ventures, acquisitions, and subsidiaries. Such formal organizational arrangements have received the bulk of attention in the IB literature (e.g., Lyles and Salk, 1996; Lane, Salk, and Lyles, 2001; Simonin, 2004), and they represent a specific type of interorganizational context in which the participating organizations typically have the common goal of exchanging and utilizing information and know-how. There is a paucity of research, however, on firms’ interorganizational knowledge acquisition beyond formal interorganizational structures and the effects of such informal information sharing on internationalization. Prior research has proposed that during the course of conducting business, a firm is likely to acquire significant amounts of external knowledge from its customers, suppliers, and other exchange partners (Allen, 1979; von Hippel, 1987) and that such knowledge acquisition may, in fact, be more prevalent than the learning that takes place through formal alliances (Ganesan, Malter, and Rindfleisch, 2005). Learning from exchange partners has been suggested to be especially relevant for young, internationalizing firms (Coviello, 2006; Yli-Renko, Autio, and Tontti, 2002). We contribute to this stream of research by empirically measuring interorganizational learning across a young firm’s portfolio of key exchange partners and by considering the role that such learning plays in the overall learning arsenal that facilitates young firms’ internationalization.

Finally, our study bridges the established MNE perspective of the IB literature and the international new venture perspective of the IE literature, answering recent calls for more integrative, balanced theory building (Keupp and Gassmann, 2009). Where the IB literature has emphasized the accumulation and effects of international experience, the IE literature has tended to focus on the earliest stages of internationalization, examining motivations and drivers to initiate foreign activity (e.g., Brush, 1995; McDougall, Shane, and Oviatt, 1994; Oviatt and McDougall, 1994). Little attention, however, has been given in either literature to the questions of when firm-level international experience begins to play a role and how, in the meantime, young firms manage to compensate for their lack of experience. Extending prior research that has proposed that an internationalizing firm may learn at different rates depending on the stage of internationalization (Autio et al., 2000; Nadolska and Barkema, 2007), the current study focuses on how the impact of different learning sources may vary in the process. In particular, we develop new theory on how firms may use other learning sources to compensate for a lack of first-hand experience in internationalization, and we empirically test these substitutive learning effects with empirical data on young—neither completely new nor mature—firms.

HYPOTHESES

Experiential learning

Firm-level experience has traditionally been considered the primary learning mechanism in internationalization. The Uppsala stage model (Johanson and Vahlne, 1977, 1990) was built on the tenet that firms gradually accumulate knowledge as they expand their international activities in incremental stages. In this model, the lack of knowledge about foreign markets and operations is considered the key obstacle to international expansion, and companies can overcome this knowledge gap mainly by operating abroad. Firms start with entry modes such as exporting that require less resource commitment, and they first enter markets that are geographically and psychologically proximate to the home country. Then, as they gain experience, the perceived risks related to internationalization decrease and the companies respond by committing more resources, utilizing higher-level entry modes such as foreign subsidiaries, and expanding into more distant markets.
This notion of experiential learning is rooted in the behavioral theory of the firm: an organization’s behaviors and actions are viewed as based on past activities and previously developed routines (Cyert and March, 1963; Levitt and March, 1988). When internationalizing, the company learns about the foreign markets it targets and accumulates knowledge about how to set up international activities. As a firm conducts international activities, it changes its structures and routines to support further internationalization—it develops internationalization capabilities (Tallman and Fladmoe-Lindquist, 2002) and increases its absorptive capacity that facilitates future learning of new, related knowledge (Cohen and Levinthal, 1990).

Even though prior studies have confirmed that various types of international experience facilitate international expansion for established MNEs (e.g., Barkema et al., 1996; Barkema and Vermeulen, 1998; Li, 1995; Luo and Peng, 1999), we are concerned here with the role that firm experience plays specifically in young firm internationalization and in conjunction with other learning mechanisms. Following the experiential learning logic of the Uppsala stage model, we propose that the more experience a young firm gains by deploying higher-level entry modes and the longer it conducts cross-border business activities, the more it learns about how to manage and control the complexity of international activities and the more it develops skills that facilitate future international expansion (Chang, 1995; Johanson and Vahlne, 1977; Martin and Salomon, 2003). As a result, the firm will be able to realize more foreign sales in markets that are more geographically and/or psychically distant. We present the following as our baseline hypothesis:

Hypothesis 1: The greater the firm-level experiential learning, the greater the extent of internationalization of a young firm.

**Congenital learning**

For firms that lack international experience, internationalization may be facilitated by the founders’ knowledge base acquired during previous, pre-start-up international experiences (Oviatt and McDougall, 1994; Sapienza et al., 2006). This type of congenital learning (Huber, 1991) arising from the knowledge stock brought into a firm at founding through its founders’ past experiences will have an important imprinting effect on the firm’s strategy (Boeker, 1989; Feeser and Willard, 1990). Previous actions and their outcomes are retained in the memory of the founders, resulting in interpretations and generalizations that can be drawn upon in decision making (Kim, 1993).

In our context, we focus specifically on the amount of time that founders lived abroad or worked in an international setting prior to starting the current business. Such congenital learning should impact a young firm’s extent of internationalization through two mechanisms (cf. Leonidou, Katsikeas, and Piercy, 1998): (1) perceptions and attitudes and (2) capabilities and performance. First, the more international experience founders have, the more alert and exposed they will be to opportunities in foreign markets and the less risks they will perceive associated with internationalization. As a result, they are more likely to pursue an internationalization strategy in the first place (Brush, 1995; Oviatt and McDougall, 1994; Reid, 1983; Ursic and Czinkota, 1989) and, in the course of internationalizing, to venture out into foreign markets that are more distant geographically and psychically (Laanti, Gabrielsson, and Gabrielsson, 2007; Oviatt and McDougall, 1997). Second, international experience increases the founders’ capabilities to formulate and execute their internationalization strategies and, thereby, improves the firm’s international performance (Reuber and Fischer, 1997; Westhead, Wright, and Ucbasaran, 2001). That is, the more pre-start-up international experience the founders have, the better equipped they should be to overcome the challenges of operating across geographical and psychic distances and to successfully realize sales revenues in the foreign markets the firm enters. Therefore, we hypothesize:

Hypothesis 2a: The greater the congenital learning from the founding team at start-up, the greater the extent of internationalization of a young firm.

While prior research has provided support for the effects of congenital learning at the early stages of internationalization, there is little evidence concerning the persistence of such effects once the firm starts accumulating international experience. In the broader management literature, studies have established that a founder’s background and a venture’s founding strategy have a long-lasting impact on the firm’s long-term performance (Cooper 1979; Feeser and Willard, 1990), but that these imprinting effects tend to fade as the firm experiences environmental variation that
requires it to adapt and change (Bamford, Dean, and McDougall, 1999; Boeker, 1989).

Following this logic, we expect a firm’s level of experiential learning to moderate the effect of congenital learning on internationalization. That is, firms with lower levels of international experience should benefit more from congenital learning than firms with higher levels of international experience. At the early stages of internationalization, the founders’ pre-start-up international experience essentially substitutes for the lack of firm-level international experience and plays a role in formulating and implementing initial internationalization strategy. But once the firm starts conducting international activities, we expect the learning effects of the congenital knowledge base to be trumped by firsthand experiential learning for three reasons. First, a firm’s experiential learning is more recent and, therefore, more accurate and timely than the founders’ pre-start-up experience. Second, since experiential learning arises from the focal firm’s activities, it is more precisely targeted to the firm’s specific foreign markets, processes, and products—as opposed to founders’ pre-start-up experience. Third, there are inherent inefficiencies and potential inaccuracies involved with transferring and applying knowledge from prior contexts (Dokko, Wilk, and Rothbard, 2009; Groysberg, Lee, and Nanda, 2008), whereas the firm’s experiential learning can be more readily accessed and utilized.

When faced with multiple sources of information, entrepreneurs and managers will tend to satisfice, i.e., search sources only until a satisfactory answer is found (Simon, 1955), leading to a substitution dynamic in knowledge acquisition where the more relevant and accessible learning source will be utilized, resulting in a decreased impact for the alternative source(s) (Dokko et al., 2009; Groysberg et al., 2008; Haunschild and Beckman, 1998). Therefore, we propose that as a young firm gains more firsthand international experience through implementing foreign entry actions and operating in foreign markets for an increasing length of time, it will increasingly rely on experiential learning from the firm’s own activities, and the importance of congenital learning will diminish. We hypothesize:

**Hypothesis 2b:** The lower a young firm’s level of experiential learning, the more positive the relationship between congenital learning and the extent of internationalization.

### Interorganizational learning

Extant research has shown that organizations learn from other organizations by accessing others’ knowledge bases through interaction and observation (Levitt and March, 1988; Huber, 1991). In the context of internationalization, interorganizational learning studies have focused on explicating the organizational antecedents and performance outcomes of knowledge acquisition across a range of cross-border interorganizational arrangements (Dhanaraj et al., 2004; Lyles and Salk, 1996; Lane et al., 2001; Simonin, 2004). However, only recently have researchers begun to focus on the role that learning from the firm’s broader network of exchange partners—as opposed to formal alliances, IJVs, or parent-subsidiary relationships—may play in internationalization (Chetty and Blankenburg Holm, 2000; Johanson and Vahlne, 2003; Oviatt and McDougall, 2005). Studies have proposed that such network relationships may influence international market entry and selection decisions, as well as facilitate international growth (Coviello and Munro, 1997; Johanson and Vahlne, 2003; Yli-Renko et al., 2002).

In this article, we use the term interorganizational learning to encompass both vicarious learning, or modeling, that takes place as an organization observes and imitates other organizations (Denrell, 2003; Huber, 1991), as well as the transfer of knowledge that takes place through active exchanges between organizations (Lane and Lubatkin, 1998). We focus specifically on interorganizational learning from young firms’ relationships with key exchange partners, i.e., the most important customers, suppliers, commercialization/technology partners, and investors. Prior research suggests that these key relationships are central in a firm’s interorganizational learning, as they tend to involve higher levels of interaction and knowledge transfer and provide more strategically valuable knowledge (Dyer and Singh, 1998; Yli-Renko, Autio, and Sapienza, 2001).

Interorganizational learning can yield new knowledge and new capabilities (Lane and Lubatkin, 1998). First, a young firm’s exchange partners represent an important source of knowledge specific to particular foreign markets (Johanson and Vahlne, 1977). The partners are typically larger, more established firms active in multiple markets (Yli-Renko et al., 2001). Through interaction with them, the young firm will be able to acquire information about
customer needs and market trends, select the highest-potential foreign markets, and anticipate and prepare for the conditions in those markets. Exchange partners may also serve as bridges between the young firm and other organizations (Tiwana, 2008; Elango and Pattnaik, 2007). For example, investors are known for their networking activities; through their connections, investors can mobilize information about international markets (Carpenter, Pollock, and Leary, 2003; Smith, 2001).

Second, key exchange partners can also help the young firm develop foreign entry capabilities. The partners, as established organizations, will have processes in place for managing exchange relationships and conducting cross-border activities. Through observation, interaction, and emulation, a young firm that establishes a relationship with such a partner can develop corresponding routines and processes (Lane and Lubatkin, 1998). Developing this organizational complementarity in operating systems and decision-making processes enables coordinated interorganizational action and facilitates further learning (Dyer and Singh, 1998).

Note that such acquisition of foreign market knowledge and internationalization capabilities can take place even if the partner organization is located in the young firm’s home market. The young firm can, in essence, learn secondhand from the partner’s international experiences. Investors, while typically located in proximity to the investee firm, have been shown to serve as a source of learning in internationalization, as they share experiences in implementing internationalization strategies across their portfolio companies (Gupta and Sapienza, 1992).

By contributing to the development of foreign market knowledge and internationalization capabilities, interorganizational learning can decrease the perceived uncertainty and risk of internationalization, leading to an increased perception of international opportunities and a higher level of commitment to international expansion (Johanson and Vahlne, 2003, 2006). Further, learning from partners is also likely to contribute to the effectiveness, or success, of a young firm’s international activities, resulting in more foreign sales realized in more geographically and/or psychically distant markets. Thus, we hypothesize:

**Hypothesis 3a:** The greater the interorganizational learning from key exchange partners, the greater the extent of internationalization of a young firm.

Although much of the literature seems to suggest that interorganizational learning will benefit all firms, it is likely that the impact on more experienced firms will differ from the impact on less experienced firms. We propose that firms taking initial steps in the international arena may benefit more from the knowledge and skills acquired through exchange partners than will more internationally experienced firms. That is, at the early stages of internationalization, interorganizational learning essentially substitutes for the lack of firm-level international experience and significantly influences the design and implementation of early internationalization strategy. But as the firm gains more international experience, the interorganizational learning effects should diminish.

While experiential learning arises from the focal firm’s own activities, interorganizational learning involves the transfer of knowledge across organizational boundaries. This has implications for the efficiency of the knowledge transfer process as well as for the relevance of the knowledge that is transferred. First, prior research has shown that the costs of sharing know-how in interorganizational relationships are high and that effective mechanisms, such as relational governance norms, must be in place for interorganizational learning to occur (Dyer and Singh, 1998; Yli-Renko et al., 2001). Thus, compared to internally developed knowledge, knowledge gained from partners is more difficult and costly to acquire. Second, since knowledge acquired through exchange partners originates from external sources, it is often not directly applicable to the focal firm and requires interpretation and adaptation (Baum, Li, and Usher, 2000). It also tends to be more exploratory in nature (Dijksterhuis, Van Den Bosch, and Volberda, 1999; Dyer and Singh, 1998), and overall more risky and uncertain to utilize than the learning that arises from a firm’s own experience. Given that firms will tend to rely on the most accessible and relevant knowledge sources (Haunschild and Beckman, 1998; Simon, 1955), we expect firms to draw on the more cost-effective and relevant experiential learning rather than the relatively more uncertain interorganizational learning, if both of these sources are available.

Extant research offers some empirical evidence to support the notion that the influence of learning from others decreases as new organizations gain experience. Shaver, Mitchell, and Yeung (1997) found that organizations with prior foreign direct investment experience gained relatively less from information
spillovers created by other foreign entrants. Similarly, Argote, Beckman, and Eppe (1990) found that new shipyards learned production skills from other shipyards before making their own investment, after which they primarily benefited from their own experience.

In sum, we hypothesize that as a young firm gains more firsthand international experience through implementing foreign entry actions and operating in foreign markets for an increasing length of time, it will increasingly rely on experiential learning, and the importance of interorganizational learning for international expansion will diminish. Note that we are not saying a firm ceases to learn from its partners—we argue that the impact of this learning diminishes as the firm’s experiential knowledge base accumulates. We hypothesize:

**Hypothesis 3b:** The lower a young firm’s level of experiential learning, the greater the positive relationship between interorganizational learning and the extent of internationalization.

### DATA AND METHODS

To test the hypotheses, we use a sample of young, technology-based firms in Flanders, Belgium. Our sampling criteria defined the firms as 12 years old or younger, conducting R&D activities, and developing and commercializing new products or services based upon a proprietary technology or skill. We focus on young firms because: (1) organizational learning is important for the firms’ development and growth (Thornhill and Amit, 2003); (2) key external relationships have been shown to have a significant impact on young firms (Eisenhardt and Schoonhoven, 1996; Yli-Renko et al., 2001); and (3) we wanted to capture congenital learning effects which may fade over time (Boeker, 1989). Focusing on young firms rather than new firms, which are typically defined as less than seven years old (e.g., Zahra, Ireland, and Hitt, 2000), enables us to also examine the effects of experiential learning (which accumulates over time). In fact, extant studies of experiential learning often encompass several decades of data (e.g., Baum and Ingram, 1998; Nadolska and Barkema, 2007). Further, the European context of our empirical study necessitates a higher age limit than is typical in U.S.-based entrepreneurship studies. Early-stage equity funding is not as readily available in Europe as in the U.S. (Lockett, Murray, and Wright, 2002), with a particularly limited supply of venture capital in Belgium (Bygrave and Quill, 2007), and young firms have limited opportunities to go public (Martin, Sunley, and Turner, 2002). Less available capital results in longer development times for high-technology firms (Bürgel, 1999). We focus on high-technology sectors because the dynamism in these sectors makes knowledge-building and the development of capabilities particularly salient (Eisenhardt and Schoonhoven, 1990). By focusing on one region, the unobserved heterogeneity among firms resulting from variance in environmental conditions is reduced. Flanders is a small, export-intensive economy in the northern part of Belgium and is considered to be an emerging high-tech region (Cantwell and Iammarino, 2001).

To identify the sample, four databases of firms in Flanders were used: (1) a database of firms in technology sectors; (2) a database of spin-offs from universities and research institutes; (3) a database of all firms that received government R&D subsidies; and (4) a database of companies in the portfolios of venture capital investors. Of the 1,003 firms initially identified, 247 met the definition of young, technology-based firm based on telephone screening. Of these firms, 210 were interviewed in the first round of data collection in 2002–03 for an earlier study (Heirman and Clarysse, 2004). The data for the present study were collected with structured face-to-face interviews with the founders/CEOs of the firms in 2005. By 2005, 22 of the original firms had gone bankrupt and six had been acquired. Of the 182 independent firms, we interviewed 114, yielding a response rate of 63 percent. Responding firms were not significantly different in size (number of employees) or age from nonrespondents, as indicated by Kolgomorov-Smirnov two-sample tests. The median age of the firms in the sample was six years at the time of data collection. The majority of the sample firms were small, with a median of seven employees and 650,000 Euros in sales revenues.

The founders/CEOs were targeted because they typically possess the most comprehensive knowledge of the firm’s history, strategy, processes, and performance (Carter et al., 1994). To reduce the potential for single-respondent/common-method

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2 To check for the potential effect that our higher age limit may have on results, we also performed our analyses with the 10-year cutoff that has been used in prior research on young firms (e.g., Yli-Renko et al., 2001); the results of our hypothesis tests remained stable.
bias, we used previously validated measures for the theoretical constructs (Spector, 1987). Further, we obtained secondary data from the National Bank of Belgium and the BEL-FIRST database to validate our self-reported data for a subset of the sample. We also performed Harman’s one-factor test to check whether common-method bias was present (Podsakoff and Organ, 1986). This test resulted in four factors with eigenvalues greater than one, with the first factor accounting for 23 percent of variance, indicating that common-method bias is not a problem in our data.

Measures

Table 1 presents the descriptive statistics and correlations for the variables in our study, and the Appendix lists the measurement items, confirmatory factor analysis results, and Cronbach alphas. The Appendix shows that all t-values are significant and the extracted variances range from 0.73 to 0.90, indicating that all constructs demonstrate good construct validity and reliability.

Table 1. Correlations and descriptive statistics of the variables in the model

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<td>Firm age</td>
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<td>0.03</td>
<td>−0.01</td>
</tr>
<tr>
<td></td>
<td>• ICT (n = 46)</td>
<td>−0.02</td>
<td>−0.00</td>
<td>−0.12</td>
<td>0.18*</td>
<td>−0.14*</td>
<td>−0.03</td>
<td>0.10*</td>
</tr>
<tr>
<td></td>
<td>• Other (n = 21)</td>
<td>−0.00</td>
<td>0.07</td>
<td>−0.05</td>
<td>−0.19*</td>
<td>0.07</td>
<td>0.00</td>
<td>−0.04</td>
</tr>
<tr>
<td>Mean</td>
<td>5.59</td>
<td>8.65</td>
<td>7.32</td>
<td>3.21</td>
<td>558</td>
<td>6.75</td>
<td>0.19</td>
<td>0.27</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>5.71</td>
<td>13.41</td>
<td>4.80</td>
<td>3.78</td>
<td>17,248</td>
<td>3.24</td>
<td>0.59</td>
<td>0.45</td>
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<tr>
<td>Min</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3.72</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max</td>
<td>28</td>
<td>80</td>
<td>25</td>
<td>27</td>
<td>15,000</td>
<td>13</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Pearson correlation coefficients; Kendall’s tau-b correlation coefficients for industry sector correlations (n = 114). *** p ≤ 0.001, ** p ≤ 0.01, * p ≤ 0.05.

Extent of internationalization

The dependent variable in this study is the extent of internationalization, operationalized as a firm’s foreign sales weighted by the psychic and geographical distance of the foreign markets. Following the categorization approach of Sapienza, De Clercq, and Sandberg (2005), we assigned regions a weight that represents their geographical and psychic distance from the home market: a weight of 1 was assigned to EU countries, 2 to other European countries, 3 to North America, and 4 to the rest of the world. For each geographic region where a firm had realized sales revenues, we multiplied the sales (measured in Euros) generated in that region with the index weight. The sum of these weighted sales figures represents a firm’s extent of internationalization from the home market: a weight of 1 was assigned to EU countries, 2 to other European countries, 3 to North America, and 4 to the rest of the world. For each geographic region where a firm had realized sales revenues, we multiplied the sales (measured in Euros) generated in that region with the index weight. The sum of these weighted sales figures represents a firm’s extent of internationalization.

The dependent variable in this study is the extent of internationalization, operationalized as a firm’s foreign sales weighted by the psychic and geographical distance of the foreign markets. Following the categorization approach of Sapienza, De Clercq, and Sandberg (2005), we assigned regions a weight that represents their geographical and psychic distance from the home market: a weight of 1 was assigned to EU countries, 2 to other European countries, 3 to North America, and 4 to the rest of the world. For each geographic region where a firm had realized sales revenues, we multiplied the sales (measured in Euros) generated in that region with the index weight. The sum of these weighted sales figures represents a firm’s extent of internationalization. Thus, our dependent variable encompasses the outcomes of internationalization in terms of both scale and scope (e.g., Fernhaber, Gilbert, and McDougall, 2008; Sullivan, 1994; Zahra and George, 2002). We used two secondary data sources to validate our dependent variable. We first corroborated the sales revenues reported in the survey with the figures extracted from the financial accounts available in BEL-FIRST; the correlation was very high ($r = 0.88$, $p < 0.001$, $n = 39$). Further, we obtained detailed financial information on more than 320,000 Belgian companies. It is provided by Bureau van Dijk.

BEL-FIRST is a financial database that contains detailed financial information on more than 320,000 Belgian companies. It is provided by Bureau van Dijk.
information about the percentage of sales generated in different geographical regions from the National Bank of Belgium; these data correlated very strongly with those reported in the survey ($r = 0.70, p < 0.001, n = 24$).

**Experiential learning**

As experiential learning takes place through the firm’s experiences, and experiences accumulate over time, many studies have used the number of years a company has had international sales to measure this type of learning (e.g., Cavusgil and Zou, 1994; Erramilli, 1991). However, prior research has shown that in addition to the length of international exposure, the intensity of this exposure also plays an important role (Zahra et al., 2000). To better capture this variation, we sought to measure the amount of experience a firm has gained by taking entry modes into account. The type of entry mode used will influence the amount of learning that takes place (Holmund and Kock, 1998); e.g., realizing foreign sales through exports requires limited interaction with the foreign environment, whereas firms with foreign subsidiaries will have a physical presence with daily activities in the foreign market. Zahra et al. (2000) showed that high-control entry modes increase the breadth, depth, and speed of technological learning of international ventures. In line with previous studies (e.g., Calvet, 1981), we categorized entry modes into three levels: 1 = exports and licensing, 2 = distributor agreements, and 3 = foreign subsidiary; this categorization represents the learning intensity of each type of entry mode. Next, we multiplied the number of years the firm has experience with each entry mode with the entry mode’s learning intensity. The experiential learning measure was then created by summing this number across the firm’s entry modes.

**Congenital learning**

Congenital learning represents the international knowledge base of the founders at start-up. International knowledge accumulates over time—individuals who have many years of international experience are likely to have more knowledge and skills related to internationalization than their less experienced counterparts (Cavusgil and Zou, 1994). In line with prior research (e.g., Carpenter, Sanders, and Gregersen, 2001; Sambharya, 1996; Sullivan, 1994), we use the number of years of prior international experience—including both living abroad and working in an international context—to measure a founder’s international knowledge base at start-up. The firm-level variable was created by summing up the number of years across all of the firm’s founders.

**Interorganizational learning**

To capture the extent of interorganizational learning, we focused on the relationships between the young firms and their key partners. Building on Dyer and Singh (1998) and Yli-Renko et al. (2001), we asked each firm to identify their most important partners, specifically their key supplier, customer, partner for commercial activities (e.g., distributor), partner for technology development, and investor. We used two statement items to measure the extent to which the young firm perceives that it has learned from each of its key partners in the context of internationalization: (1) Our company has acquired new or important information about foreign markets from this key partner; and (2) This key partner has helped us to build our capabilities/skills toward internationalization. These items were developed based on Yli-Renko et al. (2001) and Lane and Lubatkin (1998). We added the scores across the five partner categories in order to reflect our conceptual focus on the overall interorganizational learning from the firm’s portfolio of key exchange relationships.

**Control variables**

Because international growth requires both financial and human resources, we included the firm’s starting financial capital and the number of employees at founding as control variables. We verified the self-reported employee numbers by using secondary data extracted from the BEL-FIRST database ($r = 0.83, p < 0.001, n = 86$). Further, we included the age of the firm (expressed in number of years) as it may influence internationalization outcomes (Autio et al., 2000; Sapienza et al., 2006). We also included two control variables to capture changes in the management team since founding: (1) the number of founders that had left the company since start-up; and (2) whether or not new managers with international experience had joined the team (binary variable). Since the nature of the firm’s business and its operating environment can influence its propensity to initiate and grow international sales (Cavusgil and Zou, 1994), we also included industry-sector dummy variables. We grouped our sample firms into five industry sectors: electronic equipment, biotechnology, microelectronics, information and communications technology (ICT), and other high technology.
Table 2. Linear regression estimates of extent of internationalization

<table>
<thead>
<tr>
<th>Control variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm size at founding</td>
<td>1.39</td>
<td>0.91</td>
<td>0.75</td>
<td>1.02</td>
<td>0.89</td>
</tr>
<tr>
<td>Founding capital</td>
<td>1.05*</td>
<td>0.74**</td>
<td>0.82**</td>
<td>0.70*</td>
<td>0.77*</td>
</tr>
<tr>
<td>Firm age</td>
<td>4.72****</td>
<td>1.04</td>
<td>1.07</td>
<td>1.26</td>
<td>1.25</td>
</tr>
<tr>
<td>Founding team exits</td>
<td>-0.66</td>
<td>-0.37</td>
<td>-0.27</td>
<td>-0.06</td>
<td>-0.03</td>
</tr>
<tr>
<td>Team additions</td>
<td>2.02</td>
<td>1.00</td>
<td>0.56</td>
<td>0.93</td>
<td>0.61</td>
</tr>
<tr>
<td>Sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Learning variables          |         |         |         |         |         |
| Experiential learning       | 0.49*   | 0.51*   | 0.48*   | 0.49*   |         |
| Congenital learning         | 0.01    | 0.03    | 0.01    | 0.03    |         |
| Interorganizational learning| 0.27*   | 0.25*   | 0.26*   | 0.25*   |         |

| Interaction terms           |         |         |         |         |         |
| Congenital learning x experiential learning | -0.007** | -0.005* |         |         |         |
| Interorganizational learning x experiential learning | -0.03** | -0.03** |         |         |         |
| Adjusted $R^2$              | 0.26    | 0.50    | 0.51    | 0.51    | 0.51    |
| $F$                         | 5.64*** | 10.35***| 9.92***  | 10.22***| 9.65*** |
| $P$                         | 0.001   | 0.004   | 0.027   | 0.022   |         |
| d.f. (residual)             | 104     | 101     | 100     | 100     | 99      |

Unstandardized coefficients. One-tailed tests for theorized (directional) effects. Two-tailed tests for control variable effects. ***$p \leq 0.001$, **$p \leq 0.01$, *$p \leq 0.05$.

RESULTS

Table 2 presents the results of the hypothesis tests using multiple regression analysis. In Model 1, we included only the control variables. In Model 2, we added the three learning variables. We observe that the coefficient for experiential learning is positive and significant ($0.49$, $p \leq 0.05$), providing support for Hypotheses 1. The coefficient for congenital learning is positive but not significant; thus, Hypothesis 2a is not supported. The coefficient for interorganizational learning is positive and significant ($0.27$, $p \leq 0.05$), providing support for Hypotheses 3a. In control variable effects, our results show a significant positive relationship between the level of founding capital and the extent of internationalization, indicating that a strong financial resource base facilitates international expansion. Firm age has a significant effect in Model 1, but this effect disappears when experiential learning is entered in Model 2. Given that experience accumulates with age, and that the number of years a firm has implemented foreign entry actions factors into the measurement of our experiential learning variable, it is not surprising that the firm age control variable in Model 1 would capture some of the experiential learning effect.

In Models 3 to 5, we introduced the interaction effects between experiential learning and congenital learning and between experiential learning and interorganizational learning. Before entering the interaction terms into the model, we first centered the variables and created the interaction terms in order to reduce multicollinearity (Aiken and West, 1991). We examined the variance inflation factors in the models and found them all to be at accepted levels, ranging from 1.11 to 2.35. Since all variance inflation factors are well below 10, multicollinearity does not pose a problem (Neter, Wasserman, and Kutner, 1990).

Hypothesis 2b predicted a negative moderating effect for experiential learning on the relationship between congenital learning and the extent of internationalization. The interaction term experiential learning x congenital learning is negative and significant ($-0.005$, $p \leq 0.05$), indicating that Hypothesis 2b is supported: the lower the level of experiential learning, the greater the positive relationship between congenital learning and internationalization. Similarly, Hypothesis 3b predicted a
negative moderating effect for experiential learning on the relationship between interorganizational learning and the extent of internationalization. The interaction term experiential learning \( \times \) interorganizational learning is negative and significant \((-0.03, p \leq 0.01\), indicating that Hypothesis 3b is supported: the lower the level of experiential learning, the greater the positive relationship between interorganizational learning and internationalization.

Figure 1 illustrates the significant interaction effects found for Hypotheses 2b and 3b. We conducted simple slope analyses (Aiken and West, 1991) to examine the impact of congenital and interorganizational learning on internationalization at two different levels of experiential learning (one standard deviation above the mean and one standard deviation below the mean). We see that for both congenital and interorganizational learning, the relationship with the extent of internationalization has a steeper slope at the lower level of experiential learning.

We conducted a sensitivity analysis to further examine the significance of these substitution effects. A decrease of one standard deviation below the mean on experiential learning results in an 18 percent decrease in the extent of internationalization. If this decrease in experiential learning is coupled with a one standard deviation increase in congenital learning, the result is a 10.4 percent decrease from the original level of internationalization. If the decrease
in experiential learning is coupled with a one standard deviation increase in interorganizational learning, the result is a 0.9 percent decrease from the original level of internationalization. Finally, if the decrease in experiential learning is coupled with a one standard deviation increase in both congenital and interorganizational learning, the result is a 4 percent increase over the original level of internationalization. These analyses clearly demonstrate the economic significance of congenital and interorganizational learning as viable substitutes to experiential learning in facilitating young firm internationalization.

**DISCUSSION**

In this article, we addressed the fundamental question of why young firms are able to internationalize (Keupp and Gassmann, 2009) by examining how young firms can compensate for a lack of international experience by using other learning sources. We found that a firm’s level of international experience negatively moderates the effects of congenital and interorganizational learning on the extent of internationalization. That is, the lower a firm’s experiential learning, the more significant the effects of the start-up team’s prior international knowledge base and the knowledge and skills acquired through the firm’s portfolio of key exchange partners.

Our research model integrated insights from the IE, IB, and organizational learning literatures. While extant research has focused separately on how firms learn from: (1) firm-level prior international experience (e.g., Barkema and Vermeulen, 1998; Chang, 1995; Luo and Peng, 1999); (2) the congenital knowledge base that founders and managers bring from previous international experiences (e.g., Carpenter et al., 2003; Oviatt and McDougall, 1994; Reuber and Fischer 1997; Ursic and Czinkota, 1989); and (3) the knowledge acquired through cross-border interorganizational alliances, joint ventures, or acquisitions (e.g., Lyles and Salk, 1996; Lane, Salk, and Lyles, 2001; Simonin, 2004), few studies have examined how a firm’s learning arsenal operates as a whole or has provided theoretical or empirical consideration as to whether and how the learning mechanisms may interact in influencing internationalization outcomes. The current study represents, to our knowledge, the first attempt to examine these important issues in the context of young firm internationalization.

**Theoretical implications and contributions**

Our research extends the process theory view of internationalization and helps reconcile it with recent entrepreneurship perspectives. In the Uppsala model, Johanson and Vahlne (1977, 1990) posited that a firm’s experience in implementing internationalization activities drives subsequent international commitment and expansion. Consistent with this view, our data showed a significant positive relationship between experiential learning and the extent of internationalization. Yet, consistent with prior IE research (e.g., Knight and Cavusgil, 2004; Yamakawa et al., 2008), our data also displayed the early internationalization of young firms—the majority of our sample firms had international activities, with a median of 40 percent of sales coming from abroad, even though the median age of the firms was only six years. The results of our hypothesis tests highlight two learning-based explanations for the internationalization of young firms.

First, we hypothesized that congenital learning, represented by the founding team’s pre-start-up international experience, may influence young firms’ extent of internationalization. In our sample of young (not new) firms, we did not observe a significant direct effect of congenital learning. However, we hypothesized and found that the effect of congenital learning was moderated by the level of experiential learning. Firms with low levels of experiential learning benefited significantly from congenital learning, but this imprinting effect of the pre-start-up knowledge base was diminished for firms with more firsthand experience. This finding contributes to the IE literature by addressing the question of the persistence of the effects of the founding team and serves to reconcile some of the mixed results of previous studies regarding the relationship between founders’ international experience and firm internationalization. While many have found strong founding team effects on the propensity to internationalize (e.g., Reuber and Fischer, 1997; Reid 1983, Oviatt and McDougall, 1995), there is less evidence of the longer-term impact on the extent of internationalization. For example, Contractor, Hsu, and Kundu (2005) did not find an association between entrepreneurs’ international experience and the firms’ export intensity or export growth. Our finding suggests that the pre-start-up international experience of the founding team has a transitory influence on firm internationalization—congenital learning may compensate for a lack of experiential learning at the early
stages of internationalization, but this imprinting effect diminishes as the firm gains firsthand international experience.

Second, we found strong support for our hypothesis that learning from key partners can fuel the internationalization process of young firms. This finding serves to empirically validate recent claims in the internationalization literature regarding the importance of business network relationships. For example, Johanson and Vahlne (2003, 2009) suggested that a firm’s relationships influence the choice of markets to enter and the entry modes used, and Oviatt and McDougall (2005) proposed that relationships facilitate young firms’ internationalization by providing access to new knowledge, helping entrepreneurs identify new market opportunities, and introducing the firm to local networks. By empirically measuring the extent to which young firms perceive that their key exchange relationships facilitate the acquisition of foreign market knowledge and the development of internationalization capabilities, our study serves to highlight interorganizational learning as an important mechanism through which business relationships influence internationalization. This finding contributes not only to the internationalization literature but also to the broader interorganizational relationship literature by extending the focus from formal alliances, joint ventures, and acquisitions to a firm’s broader set of exchange relationships and by extending the set of outcomes that have been studied. Previous studies have found that knowledge transfer and spillovers between exchange partners can benefit, for example, new product development (Deeds and Hill, 1996; Yli-Renko and Janakiraman, 2008), marketing skill development (Simonin, 1999), and sales cost efficiency (Yli-Renko et al., 2001). Our findings indicate that such learning effects also hold when the focal outcome is the extent of internationalization.

Further, we proposed that learning through exchange partners could substitute for learning by doing. Our results provided support for this hypothesis by showing that the lower the level of experiential learning, the stronger the positive relationship between interorganizational learning and the extent of internationalization. This finding suggests that, at the early stages of internationalization, young firms achieve a higher extent of internationalization by acquiring knowledge and developing skills through exchange partners. As they accumulate international experience, experiential learning becomes more important and the firms become less dependent on secondhand information and imitation of other organizations’ skills. Lane et al. (2001) speculated on a similar diminishing effect for interorganizational learning from an IJV’s parent, but they did not formally hypothesize or empirically observe it in their emerging market IJV context. We sought to conceptually develop the underlying substitution argument and proposed that this dynamic is due to the higher efficiency and relevance of experiential learning over interorganizational learning. Knowledge acquisition from exchange partners requires costly governance mechanisms and is more difficult to acquire compared to internally developed knowledge. Thus, if both sources are available, firms will tend to rely on internal experiential learning rather than external interorganizational learning. However, experienced firms do not cease to learn from their partners, but the impact of such interorganizational learning diminishes as the level of experiential learning increases. From a managerial standpoint, this finding highlights the strategic importance of drawing on the firm’s network of partners to gain foreign market knowledge and internationalization capabilities, especially early on in the firm’s internationalization process.

By showing that congenital and interorganizational learning are more influential at lower levels of experiential learning, we illustrate how these two alternatives to experiential learning may, in essence, be factors that explain the existence of learning advantages of newness. While prior research has suggested that such advantages result from the lack of previously developed routines that could constrain the firm’s extent and success of international activities (Autio et al., 2000; Sapienza et al., 2006), the question that has remained is why young firms seem to be able to benefit from the increased flexibility associated with a lack of experience and not suffer from the downsides of a limited experiential knowledge base. Our findings suggest that an ability to draw on alternative sources of knowledge may be an important compensating mechanism that may partly explain the existence of learning advantages of newness.

The higher relative impact of congenital and interorganizational learning at the early stages of internationalization also suggests a temporal element to the phenomenon of internationalization which several scholars have emphasized and which is still relatively unstudied (Jones and Coviello, 2005; Zahra, 2005). By showing that the impact of different learning sources varies depending on a firm’s
level of experience, we extend prior research that has proposed that an internationalizing firm may learn at different rates depending on the stage of internationalization (Autio et al., 2000; Nadolska and Barkema, 2007). While our findings underscore the central role of experiential learning, thus providing support for the cornerstone of the Uppsala model even in a young-firm context, they also shed new light on how a firm’s experience may interact with the firm’s founders and the firm’s network relationships to impact learning and internationalization. In line with prior IE research, our findings confirm that the founders’ prior knowledge base plays an important role at the early stages of internationalization but, interestingly, also indicate that this effect is transitory, tending to fade as the firm’s experiential learning kicks in. In line with Johanson and Vahlne’s (2009) recent conceptual revisit of their model, our findings highlight the role interorganizational relationships play in internationalization through both direct and interactive learning effects. Overall, then, our study suggests an important temporal perspective to the internationalization process and puts forth a view of internationalization as dynamic interplay between different learning mechanisms—over the course of the internationalization process, emerging multinationals can draw on a range of learning mechanisms, but the availability and utility of these mechanisms will vary.

Limitations and directions for future research

As every empirical piece, our study is not without limitations, thereby providing avenues for future research. First, our dataset is comprised of 114 young, technology-based firms located in Flanders. Although this has the beneficial effect of reducing unobserved heterogeneity, it raises the question of whether our results would hold in other environments and for other types of firms. Flanders, as a small, open, networked economy, provides a research setting where young firms are prone to internationalize early on, management team members often have prior international experience, and a young firm is likely to have key business relationships from which it can gain foreign market knowledge and internationalization capabilities. However, there is no reason to believe that the theoretical foundations of our study would not also apply to firms operating in larger, less open markets. Even though the availability of alternative knowledge sources may vary depending on context, the substitutive relationships between the different learning mechanisms should hold. Nevertheless, further studies with larger samples across different regions and industries would contribute to the generalizability of our findings. Second, given the cross-sectional nature of our data and its inherent survivor bias, we cannot provide insights into the causal dynamics of learning and internationalization or the potential effects on firm survival. The research design also does not allow testing for changes in the role of the company’s exchange partners at different phases of the internationalization process. Future longitudinal studies could shed light on such dynamics and the survival outcomes of learning and internationalization. Third, by focusing solely on the five key exchange partners of each company, we examined a limited subset of the firms’ relationships, ignoring the effects that the size of the firm’s network may have on learning outcomes. Comprehensive studies of a firm’s entire portfolio of relationships are, of course, difficult to execute.

While beyond the scope of the current study, future research should examine the conditions under which interorganizational learning from exchange partners occurs and explicate the processes through which this learning takes place. Factors such as the location and knowledge base of the partner organization, the specific type of business relationship, the relative absorptive capacity of the dyad (Lane and Lubatkin, 1998), and the social capital embedded in the relationship could be included in future research. Also, given that we observed a positive effect of a firm’s level of starting capital on the extent of internationalization, it might be fruitful to study in more depth how a firm’s tangible resources are deployed to spur internationalization and how they may influence or interact with the firm’s knowledge base. Future studies could consider additional dependent variables—such as the speed of internationalization—and examine how the various learning mechanisms may increase the pace of international expansion (Oviatt and McDougall, 2005). Finally, our findings may have implications beyond the context of internationalization: the same substitution dynamics between congenital, interorganizational, and experiential learning might be found in domestic growth, acquisitions, and new product development, for example.

In conclusion, the context of young firm internationalization provides rich opportunities for examining how knowledge is accumulated through various learning mechanisms. Organizational learning
theory, in turn, offers a productive conceptual lens for the continued investigation of the internationalization process. This study aimed at providing new insight on how firm and founder experience and interorganizational learning interact to facilitate young firm internationalization and, thus, explicated some of the mechanisms underlying learning advantages of newness. We hope that our results will prompt further research in this area.

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REFERENCES

Learning Mechanisms in Young Firm Internationalization


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## APPENDIX

### Table A1. Variables, measurement items, confirmatory factor analysis, and Cronbach alphas

<table>
<thead>
<tr>
<th>Factor name</th>
<th>Measurement items</th>
<th>Parameter estimate</th>
<th>T-statistic(^a)</th>
<th>Cronbach (\alpha)</th>
<th>Variance extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of internationalization</td>
<td>Foreign sales in each geographical region weighted by an index reflecting the geographical and psychic distance from the home country</td>
<td>5.98</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experiential learning</td>
<td>Years of international experience weighted by the learning intensity of the entry mode used</td>
<td>5.75</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital learning</td>
<td>Sum of the number of years of pre-start-up international experience of the firm’s founders (includes working internationally and living abroad)</td>
<td>13.56</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interorganizational learning from key:</td>
<td>Sum of the averaged scores of each of the five key exchange partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) supplier</td>
<td>Item 1: Our company has acquired new or important information about foreign markets from this key partner(^b)</td>
<td>1.40</td>
<td>12.20</td>
<td>0.89</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>Item 2: This key partner has helped us to build our capabilities/skills toward internationalization</td>
<td>1.64</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) customer</td>
<td>Item 1</td>
<td>1.84</td>
<td>6.43</td>
<td>0.65(^c)</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>Item 2</td>
<td>1.97</td>
<td>6.58</td>
<td></td>
<td></td>
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<tr>
<td>(c) commercial partner</td>
<td>Item 1</td>
<td>2.23</td>
<td>14.77</td>
<td>0.80</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>Item 2</td>
<td>1.70</td>
<td>11.84</td>
<td></td>
<td></td>
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<tr>
<td>(d) technology partner</td>
<td>Item 1</td>
<td>1.52</td>
<td>12.06</td>
<td>0.87</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>Item 2</td>
<td>1.95</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) investor</td>
<td>Item 1</td>
<td>1.41</td>
<td>9.97</td>
<td>0.82</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>Item 2</td>
<td>1.76</td>
<td>9.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>Number of employees at founding, logarithm</td>
<td>0.77</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Founding capital</td>
<td>Starting capital at founding, logarithm</td>
<td>1.88</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>Number of years lapsed since founding</td>
<td>0.44</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Founding team exits</td>
<td>Number of founders that had left the company since start-up</td>
<td>0.60</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team additions</td>
<td>Whether or not new internationally experienced management team members had joined the management team since start-up (binary variable)</td>
<td>0.45</td>
<td>14.77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) All T-statistic are significant at \(p \leq 0.001\).

\(^b\) Statement-style items were measured on a Likert-scale from 1 = do not agree to 7 = completely agree.

\(^c\) Although many researchers consider 0.70 to be the acceptable limit for the Cronbach alpha reliability measure, others have argued that 0.60 is adequate (Nunnally, 1967). Given that alphas tend to be lower with fewer items (Cortina, 1993) and that our two measurement items have been validated in previous studies, the lower alpha for this one key exchange partner category should not pose a problem.