

**INTERNATIONAL ENTREPRENEURSHIP:
A META-ANALYSIS ON DETERMINANTS OF INTERNATIONALIZATION AND
PERFORMANCE IMPLICATIONS**

ABSTRACT

International Entrepreneurship (IE) research has attracted considerable attention over the last 20 years. However, empirical research on determinants of internationalization and on the internationalization-performance relationship shows controversial results. This meta-analysis synthesizes empirical findings in order to find whether and under which circumstances international experience, international network contacts, and knowledge intensity influence the internationalization of entrepreneurial firms. Moreover, we provide meta-analytic evidence on the internationalization-performance relationship in IE. We find that the relationships are highly context dependent. Country of origin of the study, industry, date of publication, age and size of the firms, and journal quality significantly impact the relationships between international experience, international network contacts, knowledge intensity, internationalization, and performance in IE research.

Key words: International Entrepreneurship; International Experience; International Networks; Knowledge Intensity; Performance

1 INTRODUCTION

International Entrepreneurship (IE) research focuses on firms, “that, from inception, [seek] to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries” (Oviatt and McDougall, 1994). IE research is characterized by studies focusing on young firms, which - despite lacking resources and experience – internationalize proactively and rapidly. Research on IE started at the end of the 80s (e.g. Lindqvist, 1991, McDougall, 1989, Rennie, 1993) and gained momentum particularly after the Oviatt and McDougall milestone article was published in 1994. Since then, an impressive number of conceptual and empirical studies and miscellaneous special issues focussed on IE topics (for substantive reviews see e.g. Coviello and Jones, 2004, Keupp & Gassmann, 2009, Rialp, Rialp, & Knight, 2005). Thus, after about 20 years of research, IE has found its place as a mature and growing disciplinary area.

A major focus of IE research is on determinants of internationalization answering the question of how young and small firms are able to internationalize rapidly and successfully despite their lacking resources (Autio, 2005). Moreover, studies have shown these firms to achieve superior firm growth (Autio, Sapienza and Almeida, 2000) and performance (Zahra, Ireland and Hitt, 2000). However, with an increase in publications in IE research, the findings on a) major determinants of internationalization and b) results regarding the relationship between early internationalization and firm performance have become inconclusive providing conflicting results.

With regard to the determinants of internationalization, many different factors from the individual, firm, or environmental level have been studied, but there is little consensus on major relationships and what their effect sizes are. For example, numerous authors studied the relationship between knowledge intensity and internationalization in IE research (e.g. Bloodgood, Sapienza and Almeida, 1996; Qian, 2002). Some assumed a positive relationship

between knowledge intensity and internationalization (e.g. Burgel and Murray, 2000) arguing that knowledge intensive firms have to quickly amortize initial R&D expenditures, and therefore, venture into foreign markets early to gain additional revenues and to be able to finance ongoing R&D expenditures. In contrast, others argue that rapid internationalization exposes young firms to additional risks of knowledge dissemination and found a negative relationship between knowledge intensity and internationalization (e.g. Li, Eden, Hitt and Ireland, 2008). The relationships between other frequently studied major determinants such as prior international experience and international network contacts and internationalization are equally inconclusive.

Although a significant amount of IE studies aimed at providing normative implications and studied the influence of early internationalization on firm performance (e.g. Brouthers and Nakos, 2004; Brouthers and Nakos, 2005; Shrader, 2001; Zhou, Wu and Luo, 2007) results remain inconclusive as well. Not only in IE has research studying the internationalization-performance relationship attracted widespread attention (for a meta-analysis see e.g. Bausch and Krist, 2007). However, in IE the internationalization-performance relationship merits particular research attention, because of the firms' inherent characteristics. Early internationalizing firms suffer not only from liabilities of foreignness (Zaheer, 1995), but additionally from liabilities of newness and size (Singh, Tucker and House, 1986) making them less likely to compensate for failures made in foreign markets (Sapienza, Autio, George and Zahra, 2006). Thus, it is particularly important to gain more differentiated knowledge of how internationalization affects performance in IE research and to overcome the inconclusive findings currently holding back the field.

The aim of this paper is to study a) the influence of major IE determinants on internationalization and b) to investigate the relationship between internationalization and performance in IE research using meta-analysis. To the best of our knowledge, our study is

the first to *quantitatively* synthesize the IE literature. Using meta-analytical techniques, we examine major determinants of IE research (i.e. international experience, international network contacts, and knowledge intensity) and their influence on internationalization. We offer integrated findings and show the strength of their effect sizes and overall results. Moreover, we provide quantitative evidence on the relationship between internationalization and performance in the field of IE. The normative implications of IE have been questioned and discussed (Sapienza et al., 2006), partly because empirical findings have been divergent with respect to the influence of internationalization on performance. Through our meta-analysis, we provide evidence-based insights into the internationalization-performance relationship in IE research.

The quantitative approach taken in this paper provides additional insights to the results achieved by narrative reviews of IE literature (e.g. Autio, 2005; Coviello and Jones, 2004; Keupp and Gassmann, 2009; Rialp et al., 2005; Zahra, 2005). Whereas narrative reviews were able to marshal and summarize previous IE work on a broad scope, they offer room for subjective interpretations. Narrative reviews do not subject the studies they examine to statistical tests (Geyskens, Steenkamp and Kumar, 2006). Thus, although they allow for a broader examination of a topic, they cannot estimate whether those who conducted the studies mistook chance results for meaningful ones (and, hence, reached falsely positive conclusions based on sampling error) or used samples so small that chance factors concealed important results (leading to falsely negative conclusions) (Geyskens et al., 2006). Meta-analysis synthesizes existing findings by aggregating effect sizes using a weighted average approach (Hedges and Olkin, 1985; Hunter and Schmidt, 2004). Moreover, meta-analysis allows testing predictions that are not easily tested in a single study, and can identify previously unknown factors that help explain the wide variety of findings that often arise in

research streams covering a broad number of influence factors (Crook, Ketchen, Combs and Todd, 2008).

The remainder of the paper is structured as follows: First, we summarize the background literature of our study and develop research hypotheses. Next, we conduct our meta-analysis integrating a number of ($K=31$) studies with a total of $N=16,456$ firms. We then discuss our research findings, address limitations of our study, and outline implications for future research and theory development in IE.

2 THEORY

2.1 Background literature and hypotheses development

A number of studies in the field of IE examined how it is possible that young and entrepreneurial firms venture into foreign markets right from inception (Autio, 2005). Hence, “[...] a significant amount of IE research has focused on the determinants of new ventures’ decision to internationalization” (Keupp and Gassmann, 2009, 608). To study determinants of internationalization, current research applied various different theoretical perspectives (for overviews see e.g. Keupp and Gassmann, 2009; Rialp et al., 2005). The Process Theories of Internationalization (PTI) (Johanson and Vahlne, 1977/1990/2009) frequently served as theoretical backing and were often discussed in contrast to the assumptions of the International New Venture Theory (Oviatt and McDougall, 1994). Transaction Cost Economics (TCE) dominates literature on the internationalization of small and medium sized enterprises and their specific investments under uncertainty (see e.g. Coviello and McAuley, 1999). The Eclectic Paradigm (e.g. Dunning, 1980) provides a three-tiered framework that companies can follow when determining whether it is beneficial to pursue internationalization. More recently, learning theoretical arguments dispersed in IE research (e.g. Schwens and Kabst, 2009). We do not claim to be exhaustive concerning the various

theories dominating the field; however, simply listing the different perspectives taken shows the theoretical heterogeneity that dominates IE research. As a consequence of this theoretical “melting pot”, previous research resulted in numerous determinants from the individual, firm, and environmental level fostering new venture internationalization (for an overview see e.g. Johnson, 2004).

Focusing on all of these various influence factors would not only go beyond the scope of this paper, but it would be impossible to integrate these factors meta-analytically, because the number of studies is not sufficient in order to include them into a meta-analysis.

However, three determinant factors are most salient in the research field and the International New Venture Theory (Oviatt and McDougall, 1994) emphasized these three factors as major determinants of internationalization in IE research, namely: *international experience*, *international network contacts*, and *knowledge intensity*. As the existing empirical findings regarding the influence of these factors are largely inconclusive, we focus on these factors in the present study and derive hypotheses in the following.

International experience. We argue that, overall, international experience has a positive influence on firm internationalization in IE research. International experience enhances the awareness of emergent opportunities (Westhead, Wright and Ucbasaran, 2001), the pace of internationalization (Zahra, Ireland and Hitt, 2000; Oviatt and McDougall, 2005), the degree of internationalization (Reuber & Fischer, 1997), and the export performance (Kundu and Katz, 2003; Cavusgil and Zou, 1994). This is, because “managers who have lived abroad are more likely to sell internationally” (Burgel and Murray, 2000, 52). Moreover, executives of a young firm who have been exposed to the international arena are more likely to comprehend the dynamics of the foreign markets and are more aware of profit opportunities (Bloodgood, et. al., 1996). In other words, internationally experienced managers have a greater affinity

towards foreign markets and will not hesitate to exploit opportunities by internationalizing the company's activities. Additionally, international experience may reduce the extent of liability of foreignness and its negative consequences (Eriksson, Johanson, Majkgard and Sharma, 1997; Hymer, 1960; Zaheer, 1995). International experience is necessary for understanding cultural differences, which facilitates assimilation in international markets (Oviatt and McDougall, 1995; Madsen and Servais, 1997). Consequently, firms with international experience are able to attract and engage partners (Reuber and Fischer, 1997) and their top management's experience leads to more efficient opportunity identification, market knowledge, and network building (McDougall, Oviatt and Shrader, 2003).

However, another stream of research argues that international experience can be misapplied leading to a negative relationship between international experience and internationalization (Haleblian and Finkelstein, 1999; Hayward, 2002). The more similar the prior international markets are to the new focal target market, the lower the likelihood of knowledge misapplication. However, when the difference is medium to large, misapplication becomes a serious concern. According to this literature, experience effects may range from positive to negative.

Overall, we do not assume knowledge misapplication to be most dominant in IE research. Most studies in IE focus on small and young firms, which have been shown to possess some learning advantages of newness over older and larger firms (Autio et al., 2000) reducing the risk that international experience is improperly applied. International experience increases the firm's amount of revenues generated from abroad and leads to a broader geographical scope of internationalization (Autio et al., 2000; Oviatt and McDougall, 2005). Therefore, we hypothesize:

Hypothesis 1: In IE research, international experience has an overall positive influence on internationalization.

International network contacts. In line with Zahra, Matherne and Carleton (2003, 168), we broadly define networks as “mutually beneficial relationships with [a firm’s] suppliers, buyers, other companies, trade associations, universities and research centres in international markets”. We argue that, overall, international network contacts have a positive influence on internationalization in IE research. Various scholars emphasized international network contacts’ important role in IE (see e.g. Coviello, 2006). International network contacts provide a mechanism for young firms to gain initial access to foreign markets (Coviello, 2006) and to reduce uncertainty related to international commitment (Freeman, Edwards and Schroder, 2006). Networks may facilitate foreign market entry by providing contact to potential customers or other stakeholders and by helping to spot opportunities for market development (Weerawardena et al., 2007). Thus, networks constitute a mechanism which reduces barriers to internationalization by substituting own experience with the experience of the network, or by gaining access to the networks’ resources and experiences (Schwens and Kabst, 2009).

However, international network contacts have a liability side as networks increase firms’ visibility (e.g. Chetty and Agndal, 2007). In some cases, small internationalizing firms do not aim for full visibility in a large and intensive network - especially when the firm has sensitive knowledge to protect from dissemination. With an increase in visibility, product piracy becomes more likely (Carayannopoulos, 2009). When international network contacts become more dispersed, connections between network partners may become weaker. The manageability of the network may diminish with weakening bonds and risk of intra-network opportunistic behavior may increase. This effect is further enforced by the remoteness of international network partners. Compared to, for instance, physical firm clusters, international cooperation suffers from lower face-to-face interaction. Former research has already shown

that face-to-face interaction is a prerequisite for enhanced innovation and information exchange (Carayannopolus, 2009; von Hippel, 1998) and, hence, is a liability when continuous and close interaction is absent.

Overall, we assume to find a positive effect of international network contacts on firm internationalization. International New Venture Theory emphasized international network contacts' pivotal role by stating that "[...] hybrid structures, such as licensing, and franchising, are often useful alternatives to both internal control and market control over the exchange of resources" (Oviatt and McDougall, 1994, 54). Moreover, just recently, Johanson and Vahlne (2009) explicitly extended their original Process View of Internationalization towards the importance of networks. In line with Johanson and Vahlne (2009), we assume the liability of outsidership to be more serious for small and internationalizing firms suffering from limited resources than the liability of potential knowledge expropriation within a network. Hence, in line with dominating theories and widespread empirical evidence we hypothesize:

Hypothesis 2: In IE research, international network contacts have an overall positive influence on internationalization.

Knowledge intensity. Knowledge intensity describes "the extent to which a firm depends on the knowledge inherent in its activities and outputs as a source of competitive advantage" (Autio et al., 2000, 913). We argue that, overall, knowledge intensity has a positive influence on firm internationalization because knowledge intensity is a key source of international competitive advantage fostering internationalization (e.g., Autio et al., 2000; Bell, McNaughton, Young and Crick, 2003; Coviello and McAuley, 1999; Jones, 1999). Knowledge intensity allows for a differentiation or cost advantage for foreign companies compared to firms that are already established in the foreign market. Knowledge increases the

resource fungibility and, thus, “provides managers with greater degrees of freedom to experiment and capitalize on emergent growth opportunities in the foreign market” (Sapienza et al., 2006, 925). Moreover, creating a superior and competitive knowledge base often necessitates fundamental financial expenditures. Hence, knowledge intensive firms are often forced to pursue early international venturing in order to be able to amortize initial expenditures and to generate sufficient revenues to finance ongoing development activities (Burgel and Murray, 2000). Moreover, aiming at a maximum exploitation of technological skills, companies will try to protect their products by establishing, for instance, patent rights. However, as companies from abroad may circumvent patent rights valid in the domestic market, a venture is forced to internationalize more rapidly in order to keep its first mover advantage and to pre-empt competition (Bloodgood et. al., 1996). Earlier research showed that knowledge intensive firms pursue a strong internationalization path, because they strive for business opportunities in niche markets (Bell, McNaughton, Young, and Crick, 2003) and they seek growth opportunities in large markets (Ojala and Tyrväinen, 2007).

However, another stream of IE research argues that knowledge intensity is negatively related to internationalization. According to this literature, the risk of losing the firm’s most valuable asset – its knowledge – grows significantly with increasing scale and scope of internationalization (Li, Eden, Hitt and Ireland, 2008). The more internationally diversified a firm is, the more the firm is exposed to challenges arising from the formal and informal institutional set-up of the host country (Whitley, 1999). The risk of losing the firm’s inherent knowledge into the hands of competitors increases significantly with firm internationalization (Klein, 1989).

Although previous findings were inconclusive, we assume to find an overall positive influence of knowledge intensity on the internationalization in IE research. This is in line with the International New Venture Theory (Oviatt and McDougall, 1994) arguing that

knowledge intensive new ventures are able to secure their proprietary knowledge through imperfect imitability, licensing, and property rights protection. Thus, we hypothesize:

Hypothesis 3: In IE research, knowledge intensity has an overall positive influence on internationalization.

Internationalization and performance. We argue that, overall, internationalization has a positive influence on performance in IE research. There is evidence that new ventures with international activities usually outperform those that are without them (McDougall and Oviatt, 1996). As such, Bloodgood et al. (1996) found a positive association between the international intensity of a venture and its operating income. Zahra, Ireland and Hitt (2000) hypothesized a positive association between international expansion and performance arguing that international expansion offers new market opportunities in which a firm can sell its products. As a firm increases international scope it can leverage its skills and products over a broader array of markets increasing growth and profitability. Internationally operating entrepreneurial firms have been shown to rely on knowledge- and capabilities- based international business strategies leading them to engender superior performance (Knight and Cavusgil, 2004). Internationally dispersed firms often possess global technological competence, unique products development, quality focus, and the ability to leverage foreign distributor competence enhancing the firm's success. In line with this research, Zhou, Wu, and Luo (2007) found that internationalization positively influences performance.

However, some researchers acknowledged that internationalization can be subject to risk and failure, hence, recognizing possible drawbacks to success in internationalization (Bausch and Krist, 2007). Exposure to an international setting may erect barriers to successful business, limit firm efficiency and lead to larger organizational complexity hampering the internationalization performance of the firm. Moreover, internationalization

confronts the firm with liabilities of foreignness (Zaheer, 1995), which is particularly challenging for small and young firms suffering from liabilities of size and newness (Singh, Tucker, and House, 1986).

We admit that the costs of internationalization may at least partially offset the gains of internationalization, however, overall we assume to find a positive relationship between internationalization and performance in IE research. Therefore, we hypothesize:

Hypothesis 4: In IE research, internationalization has an overall positive influence on performance.

2.2 Exploratory moderator analysis

We test the following study characteristics as potential moderators of all focal relationships: 1) country of origin (North-America versus Europe): As the internationalization of the firm in IE literature may significantly depend on the home country market and its size, we controlled for the country of origin. Firms from European countries, for instance, may internationalize earlier or more rapidly as they are located close to various other European countries compared to firms from the U.S., for which internationalization mostly requires entering much more distant markets. 2) Industry (high tech versus other): As numerous studies in the field of IE explicitly focused on technology firms (e.g. Bell, McNaughton, and Young, 2001; Bloodgood et.al., 1996; Boter and Holmquist, 1996; Crick and Spence, 2005; Preece, Miles, and Baetz, 1998) we decided to examine differences in effect sizes between high tech companies and companies from other sectors such as manufacturing. 3) Date of publication: The quantity of IE research has increased intensively over the years. Thus, we coded the date of publication enabling us to examine whether the relationships between international experience, networks, knowledge intensity and internationalization as well as the internationalization-performance relationship have changed over time. 4) Firm age and firm size: We moderated for both firm age and firm size as the resource endowment of the

firm has often been regarded as critical for the internationalization of the firm. In particular in IE research, which is mostly dominated by young and rapidly internationalizing firms, the question of resources availability is salient. Firm size and firm age function as proxies for resources availability in earlier research and moderating for both factors may influence the relationship between international experience, international network contacts, knowledge intensity and internationalization. 6) Journal quality: To investigate whether the results from studies published in journals with lesser impact differ from studies published in journals with greater impact, we moderated for journal quality. The journal quality reflects the methodological and analytical rigor as well as the theoretical contribution of the articles. In order to measure the journals' quality, we used the Hirsch's (2005) h index which was calculated with Harzing's (2009) Publish or Perish software. Applying the h-index allows controlling for both the number of publications and the number of citations per publication.

Because we had no a priori reason to believe that specific study characteristics would lead to stronger or weaker relationships, we do not offer directional hypotheses for these moderators. This procedure is in line with Geyskens et al. (2006).

3 METHODOLOGY

3.1 Sample

In all, we identified 69 articles studying determinants of internationalization and/or the internationalization-performance relationship through a systematic literature search of IE research in ProQuest, Wiley InterScience, and JSTOR. Key word search included *Born Globals*, *International New Ventures*, *High-technology Start-ups*, *Internationalization*, *Performance*, *Success*; but to name a few. The goal of the search was to identify available empirical studies and at the same time to avoid a systematic bias of our literature search. We also conducted issue-by-issue searches of entrepreneurship journals (*Journal of Business*

Venturing, Entrepreneurship: Theory and Practice, Small Business Economics, Journal of Small Business Management, Journal of International Entrepreneurship) management journals (*Academy of Management Journal, Administrative Science Quarterly, Journal of Management, Strategic Management Journal, Management Science, Organization Science*), international business journals (*Journal of International Business Studies, Management International Review, Journal of International Management, Journal of World Business, International Business Review*), international marketing journals (*Journal of International Marketing, International Marketing Review*), and technology and innovation management journals (*Journal of Product Innovation Management and Research Policy*). Further, we systematically screened the reference lists of existing reviews and corresponding studies.

To be incorporated a study had to report: a) one or more relationships between these constructs: international experience, international network contacts, knowledge intensity, internationalization, performance; and b) sample sizes and outcome statistics (e.g. r , univariate F or t statistics) that allowed the computation of a correlation coefficient with the formulas provided by Hunter and Schmidt (1990, 272). Based on these inclusion criteria, we were able to include 29 articles of the 69 articles identified. The 29 articles contained 31 independent samples with 16,456 firms.

We extracted and documented data on the variables of interest, including outcome statistics, sample size, statistical artifacts, and study characteristics (e.g. country of origin). A random set of 10 studies was initially read by the authors' team for purposes of developing a standard method of coding effect sizes and study artifacts. Subsequently all studies were read by authors' team and effect sizes coded independently.

We used different criteria to achieve independence among correlations. For studies with multiple independent samples, we included correlations from each sample into our analyses. When studies based on the same or partially overlapping data sets, we did not

include correlations between two identical variables from more than one study. In such cases, we preferred the correlation from the study with the larger sample size. The procedures followed are in line with Geyskens, Krishnan and Steenkamp (2009).

We computed Huffcutt and Arthur's (1995) sample-adjusted meta-analytical deviancy statistic (SAMD) to detect outlying correlations. By doing so, we identified 7 outliers. As suggested by Huffcutt and Arthur (1995), we further assessed whether the deviancy in these studies can be attributed to some unusual study feature. As we could not identify a common study feature that could be coded and used as a potential moderator, we subsequently dropped all 7 studies from the dataset.

3.2 Measurement

Table 1 gives an overview on the measurement of the focal constructs included in our meta-analysis.

 Insert Table 1 about here

International experience. International experience was either measured objectively by the number of directors with international work experience or the average number of years of international experience of the management team (e.g. Reuber and Fischer, 1997) or subjectively by measures asking about the intensity of prior experience in foreign markets (e.g. Brouthers and Nakos, 2005).

International network contacts. International network contacts are also measured including objective constructs such as the number of domestic and foreign partnerships (e.g. Dickson, Weaver and Hoy, 2006), or by subjective constructs such as the extent of network relationships, for instance, to foreign partners a firm has (e.g. Yiu, Lau and Bruton, 2007).

Knowledge intensity. Knowledge intensity was measured either by objective measures such as the percentage of R&D expenses to total expenses (e.g. Chiao, Yang and Yu, 2006), or subjectively by scales addressing the reputation of the firm for technological excellence or innovativeness (e.g., Autio et.al., 2000).

Internationalization. Two aspects of new ventures' internationalization have attracted particular attention in IE research: the degree of internationalization and the diversity of international activities (Preece, Miles and Baetz, 1998). International degree is mostly classified as the percentage of foreign sales to total sales in IE research and provides information about the importance of international business compared to domestic business. The diversity of internationalization is mostly defined as the number of foreign markets a firm has international activities with. It "denotes a firm's increased reliance on foreign markets as a means of growth" (Hitt, Hoskisson and Kim, 1997, 780).

There has been an intensive debate about which measures best reflect firm internationalization. We agree with Sullivan (1994) that internationalization is a multidimensional construct. However, depending on the type of firm investigated, the multidimensional nature of internationalization measures should vary. For instance, Sullivan (1994) argues for a multidimensional internationalization measure including dimensions such as percentage of overseas subsidiaries to total subsidiaries, foreign assets to total assets, and number of foreign direct investments. In their meta-analysis on internationalization and performance of multinational enterprises, Bausch and Krist (2007) followed a similar reasoning and measured internationalization by the foreign sales to total sales, number of foreign countries, foreign subsidiary sales to total sales, number of foreign investments, or foreign assets to total assets, which is a valid and reasonable approach while studying large firms with complex internationalization activities.

However, a measure including such resource demanding internationalization investments may be inappropriate while conducting a meta-analysis in the field of IE. Independently founded small and young firms mostly do not have the resources to undertake intensive internationalization investments or to build up foreign subsidiaries. Most of the internationalization activities of firms in IE research focus on lower control-modes such as exporting, foreign distributors, or foreign cooperations (e.g. Burgel and Murray, 2000). Including dimensions such as the amount of foreign subsidiaries to total subsidiaries would increase the risk to include firms which were not founded independently and, hence, would not comply with our definition of IE. Therefore, we decided for a narrow measurement for internationalization including the degree and diversity of internationalization. This is in line with previous studies in IE research and best represents the nature of the firms in our sample.

Performance. The performance measures include quantitative indicators, such as sales, growth, EBIT or ROI (e.g. Chen and Martin, 2001) as well as qualitative measures based on subjective ratings and self-reported indicators (e.g. Dhanaraj and Beamish, 2003).

3.3 Analytical approach

We used Hedge and Olkin's (1985) meta-analytic techniques to analyze the data. Within the two statistical models used in the general meta-analytic approach, the current study employed a random effects model, rather than a fixed-effects model, to provide a more conservative estimate of the relationships of interest. In contrast to fixed-effects models, random-effects models not only account for the within-study variability but also for the variability arising from differences between studies (Hedges and Vevea 1998). Thus, standard errors in the random-effects model are much larger than in fixed-effects models resulting in more conservative significance tests (Field 2001). We calculated weighted mean correlations by adopting the inverse variance weights and applying Fisher's Z transformation procedures in order to avoid undesirable statistical properties of the product-moment correlation coefficient

(Hedge and Olkin, 1985; Lipsey and Wilson, 2001). We calculated 95 percent confidence intervals around the weighted correlation as measures of accuracy of the effect sizes (Whitener, 1990). We also calculated the Q -statistic to test for homogeneity of effect sizes (Hedge and Olkin, 1985). The Q -statistic determines whether the effect sizes from a series of studies exhibit any variability beyond that variability which could be expected to result from sampling error. Thus, a significant Q indicates the likelihood of moderators that explain variability in correlations over studies (Lipsey and Wilson, 2001).

Moderator analysis. When Q was significant, we conducted detailed moderator analyses to determine whether contextual variables were related to the heterogeneity of effect sizes (Hedge and Olkin, 1985; Lipsey and Wilson, 2001). In accordance with Geyskens et al. (2009), we tested the categorical moderators (i.e., country of origin, industry) with subset analysis. The logic of the categorical model moderator test is analogous to analysis of variance (ANOVA). This technique portions the total homogeneity statistic (Q) into the portion explained by the categorical variable (Q_B) and the residual pooled within groups portion (Q_W) (Lipsey and Wilson, 2001). Q_B is analogous to a main effect in an ANOVA, and Q_W indicates homogeneity within each group in an ANOVA.

For continuous moderators (i.e., date of publication, firm age, firm size, and journal quality) we used meta-regression techniques outlined in Lipsey and Wilson (2001). Using such approach avoids the artificial categorization of continuous moderating variables. Two indexes assessing the overall fit of the weighted regression model can be calculated: Q_R which is attributable to the regression, and Q_E which is attributable to the error. Q_R is the homogeneity test for the regression model and, if significant, indicates that the regression model is significant. A nonsignificant Q_E shows that the unexplained variability is no greater than would be expected from sampling error. In a random effects model, Q_E is generally non-

significant because, by assumption, it is composed completely of sampling error and the random variation incorporated in the random variance component (Lipsey and Wilson, 2001).

3.4 Results

3.4.1 *Effects on Internationalization*

Using the meta-analytic techniques described above, we tested the main effects between international experience, international network contacts, knowledge intensity and internationalization as well as the moderating effects of contextual factors. Table 2 gives these results.

Insert Table 2 about here

For international experience, we find the strongest positive and significant relationship with internationalization ($r = .29$, 95% CI = .209 to .319). The relationship between international network contacts and internationalization is also positive and significant ($r = .14$, 95% CI = .081 to .188). Knowledge intensity has the weakest but still significant relationship with performance ($r = .13$, 95% CI = .088 to .164). Although all relationships are significant and thus support hypotheses 1-3, the results also reveal that considerable heterogeneity among effect sizes exists (as indicated by the Q -statistic). Especially the Q -values for international experience and networks are highly significant (p 's < .05), indicating that correlations vary across studies and that potential moderators might exist that can explain these variations.

Table 3 shows the results of the categorical moderators. The relationship between international experience and internationalization is not moderated by any of the categorical moderators. Thus, the country of origin ($Q_B[1] = 0.35$, $p > .10$) and industry ($Q_B[1] = 2.09$, $p > .10$) have no effect on the overall relation between international experience and internationalization.

 Insert Table 3 about here

The categorical moderating effect of country of origin on the network-internationalization relationship is highly significant ($Q_B[1] = 3.53, p < .05$). The relationship between networks and internationalization is stronger for firms from North America ($\beta = .21$) than for European ones ($\beta = .11$). In contrast, industry ($Q_B[1] = 2.05, p > .10$) cannot explain any variation in the correlations and, thus, is no significant moderator.

The results for knowledge intensity show a similar pattern. The country of origin moderates the relationship between knowledge intensity and internationalization ($Q_B[1] = 4.52, p < .05$). The effect of knowledge intensity on internationalization is significantly higher for North American ($\beta = .16$) than for European ($\beta = .10$) firms. In contrast, we find that industry ($Q_B[1] = 0.12, p > .10$) has no effect on the overall relation between knowledge intensity and internationalization.

 Insert Table 4 about here

Table 4 gives the results of the continuous moderators indicating that the effect of international experience on internationalization is moderated by the date of publication ($Q_R[1] = 4.12, p < .05$) and the mean age of the firms ($Q_R[1] = 3.03, p < .05$). The results show that the effect of international experience on internationalization becomes weaker in recent publications and with older firms under study. However, size ($Q_R[1] = 0.07, p > .10$) and journal quality ($Q_R[1] = 0.87, p > .10$) have no moderating effect.

The effect of networks on internationalization is only moderated by date of publication ($Q_R[1] = 3.18, p < .10$) showing a similar pattern as for international experience.

The relationship between networks and internationalization becomes weaker in more recent publications. Firm age ($Q_R[1] = 0.45, p > .10$), firm size ($Q_R[1] = 0.00, p > .10$), and journal quality ($Q_R[1] = 0.13, p > .10$) have no significant effect on the main relationship.

The relationship between knowledge intensity and internationalization is moderated by firm size ($Q_R[1] = 5.06, p < .05$) and journal quality ($Q_R[1] = 5.27, p < .05$) indicating that this relationship is stronger for bigger firms and in lower ranked journals. Date of publication ($Q_R[1] = 1.42, p > .10$) and firm age ($Q_R[1] = 0.33, p > .10$) have no moderating influence.

3.4.2 Effects on Performance

Table 5 summarizes the overall effect of internationalization on performance.

Insert Table 5 about here

The results show that internationalization has a positive and significant effect on performance ($\beta = .11, 95\% \text{ CI} = .080 \text{ to } .214$). However, the significant Q statistic ($Q = 39.21, p < .05$) indicates the likelihood of moderators that explain the variability in correlations over studies. The categorical moderator analyses as illustrated in Table 6 reveal that country of origin moderates the relationship between internationalization and performance ($Q_B[1] = 2.69, p < .1$). The internationalization-performance relationship is significantly higher for U.S. ($\beta = .15$) than for European firms ($\beta = .07$). The other categorical moderator industry ($Q_B[1] = 1.27, p > .10$) does not significantly influence the relationship between internationalization and performance.

Insert Table 6 about here

The continuous moderator analysis as illustrated in Table 7 shows that size ($Q_R[1] = 4.409, p < .05$) has a moderating effect indicating that the effect of internationalization on performance is stronger for bigger firms than for smaller firms. In contrast, date of publication ($Q_R[1] = 0.00, p > .10$), firm age ($Q_R[1] = 0.00, p > .10$), and journal quality ($Q_B[1] = 0.04, p > .10$) have no significant moderating effect.

 Insert Table 7 about here

5 DISCUSSION

The aim of our paper was to study a) the influence of major IE determinants on internationalization and b) to investigate the relationship between internationalization and performance using meta-analysis. Moreover, we investigated how moderators (i.e. country of origin, industry, date of publication, firm age, firm size, and journal quality) influenced the relationships under study.

Overall our findings show that international experience, international network contacts, and knowledge intensity significantly and positively influence firm internationalization supporting our hypotheses 1-3. Moreover, we find support for hypothesis 4 assuming a positive relationship between internationalization and performance in IE research. However, our empirical results suggested heterogeneity among all four relationships.

Moderator analysis provided more idiosyncratic findings. The relationship between international experience and internationalization becomes homogeneous when moderating for the date of publication and for firm age. Previous studies investigating the international experience - internationalization relationship find weaker influences than older studies. Thus,

it seems that years ago international experience was more important than nowadays. A reason for this could be that advances in technology and changes in institutional frameworks have caused a further convergence among global markets making international experience less important (Jones, 2005). This would be in line with studies by Ohmae (1989) and Fukuyama (1992) who expected increased globalization to accelerate convergence of cultures and markets, thus, making international experience less relevant for firm internationalization.

The fact that international experience has a lower influence in older firms than in younger firms is a strong support for the ‘learning advantages of newness’ concept developed by Autio et al. (2000) and which is particularly pertinent in IE research. Younger firms seem to suffer less from organizational inertia hampering knowledge flows within an organization (Criscuolo and Narula, 2007; Hannan, Laszlo and Carroll, 2002). As firms grow older, international experience becomes of lesser relevance as knowledge flows become less efficient and the organization is more inert in terms of internal information dissemination. This finding is very interesting in light of the traditional Process Theories of Internationalization in which international experience is one of the key regulators of foreign market commitment and internationalization (Johanson and Vahlne, 1977/1990/2009). We suggest that based on our findings, future research studying the concept of international experience may want to take the organization’s complexity as well as communication and knowledge dissemination issues’ into account. More complex models, including international experience and organizational criteria may be necessary in order to gain a more profound understanding on the role of international experience. Moreover, we suggest that there is no need to study the internationalization of the firm either from the International New Venture perspective (Oviatt and McDougall, 1994) or from the Process Theoretical Internationalization perspective (Johanson and Vahlne, 1977/1990/2009). Without taking the knowledge from both views into account, a full understanding on the role of international

experience is hard to achieve. Thus, we suggest more joint research efforts integrating traditional international business reasoning with more recent entrepreneurship and IE knowledge. Johanson and Vahlne (2009) – refining their process view of internationalization – have made an important step into this direction. Schwens and Kabst (2010) build up on this research and develop a complementary perspective integrating process with international new venture knowledge. Our results may encourage scholars to draw on this stream of research to develop the IE field further.

The relationship between international network contacts and internationalization is moderated by the country of origin. International network contacts have a stronger influence for firms originated from North America compared to firms from Europe. A reason for this finding might be the size of the domestic market of the firms. For European firms it is much easier to internationalize into neighboring countries, because of the regional and formal institutional closeness within the EU (House, Hanges, Javidan and Dorfman, 2004; Javidan and House, 2001). However, for North American based firms it is harder to venture abroad as internationalization requires the firm to overcome a significant amount of psychic distance. Thus, for North American based firms, international network contacts seem to be more important in order to get access to foreign markets, to overcome initial resource constraints, and to learn about the host country setting (e.g. Schwens and Kabst, 2009).

Moreover, our results suggest that the influence of international network contacts on internationalization was stronger in older studies than in more recent publications. The reason for a decline in the importance of international network contacts might lie in the increasing convergence of foreign countries and cultures making international network contacts of lesser relevance to bridge cultural differences (Freeman et al., 2006, Schwens and Kabst, 2009). However, it is doubtful if this convergence happened at a high pace, if it happened at all (Meyer, Mudambi and Narula, 2010). Future research needs to study the role of international

network contacts in IE research in more detail particularly taking the liability side of networks into account (Woolcock and Narayan, 2000; Chetty and Agndal, 2007). Moreover, the role of international network contacts and internationalization merits particular attention in light of the ‘liabilities of outsidership’ and opportunity seeking concepts (Johanson and Vahlne, 2009). Such a view combines more traditional internationalization reasoning with more recent entrepreneurial thinking. Based on our results, we suggest that the way forward in IE takes a more comprehensive view combining entrepreneurial and procedural thinking.

The relationship between knowledge intensity and internationalization is moderated by the country of origin, firm size, and journal quality. The effect of knowledge intensity on internationalization is stronger for North American based firms than for European firms. This is to a certain extent surprising as the North American market is much larger in size than any European market offering more revenue opportunities in the domestic market. A reason might be that domestic competition is particularly severe in the U.S. and that firms strive for niche markets outside their domestic market - an internationalization strategy as illustrated by Bell et al. (2003). To advance IE research with regard to the influence of knowledge intensity, studies may not only take the study of origin into account, but the institutional context of the host country may be of particular importance as well. However, studies examining how knowledge intensity influences firm internationalization in an interplay with informal institutional aspects (e.g. cultural and ideology) and formal institutional risk factors (e.g. political, legal, economic factors) dominating the host country market is largely missing (Whitley, 1999). Thus, we suggest that the way forward in this area is to examine the interactive effects of institutional factors and knowledge intensity in IE research. The relationship between knowledge intensity and internationalization is stronger for bigger than for smaller firms. Due to a stronger resource endowment, bigger firms are better able to compensate the challenges arising from firm internationalization. They have better financial

and personnel opportunities to secure the firm's inherent knowledge and to achieve property rights protection (Oviatt and McDougall, 1994). The results on the relationship between knowledge intensity and internationalization seem to depend on the quality of the journal. Lower ranked journals provide stronger results opposed to higher ranked journals. Journal quality reflects the methodological and analytical rigor as well as the theoretical contribution of the articles. Conceptual and measurement issues varying between journals of different qualities seem to have an impact on the strength of well-known relationships. A potential source for this finding is that the measurement of knowledge intensity in lower ranked journals does not represent the complex structure of technology or knowledge intensity (Franko, 1989; Bloodgood et al., 1996). Moreover, it might be that in lower ranked journals, there is a bias towards more 'desired' results.

The internationalization performance relationship is moderated by the country of origin as well as by firm size. North American firms seem to be more successful in their internationalization compared to European firms. A reason could be that due to the large domestic market and due to the fact that foreign markets are more distant and harder to enter than in Europe, North American firms prepare their internationalization in more detail leading to better success. In this regard, it would be interesting to find out if North American firms take a slower road to internationalization due to their larger domestic market increasing their performance. This would in a way give support to the traditional Process Theories of Internationalization (e.g. Johanson and Vahlne, 1977/1990/2009) assuming internationalization to unfold in an incremental manner. Unfortunately, our meta-analysis does not allow for studying this moderator as the number of studies was too limited. Moreover, bigger firms seem to be more successful in their internationalization than smaller firms. Bigger firms have a better resource endowment which is particularly important in IE research (Schwens and Kabst, 2009). Better resource endowment allows the firms to better

deal with the liabilities of newness, size, and foreignness finally increasing the performance of the firms.

6 LIMITATIONS OF THE STUDY

As is the case with most empirical studies and meta-analyses, our study faces some limitations. First, being the first to quantitatively synthesize the literature, we had to exclude qualitative case study research and conceptual papers from our study. This has to be taken into consideration while assessing the scope and implications of our meta-analysis. IE literature, to date, is primarily qualitative and conceptual. Thus, our meta-analysis is more limited in scope than qualitative reviews and can only add to prior literature synthesizes, but not replace them. Second, our paper is limited in scope regarding the number of factors under study. However, given that the primary literature is largely fragmented and only few studies incorporated the same determinants, we had to focus on the major determinants of internationalization (i.e. international experience, international network contacts, knowledge intensity) in our meta-analysis. Third, we were only able to include those studies, which reported the necessary statistical information to conduct a meta-analysis. Following Tihanyi, Griffith and Russell (2005), we recommend that authors and editors include basic statistics, such as means, standard deviations, and correlations, in published articles or submit the missing statistics upon demand. Fourth, efforts to maximize the number of studies included can sometimes come at the cost of precision. We attempted to reduce this through a priori decision rules which have been frequently applied in previous meta-analyses. Fifth, as with many other meta-analyses, moderator analysis is often limited to how often potential moderators have been studied in the primary studies. Some potential moderators, such as ‘age at internationalization’ could not be tested for this reason. Sixth, as is the case with most studies examining the performance of the firm, our research was only able to include the

‘survivors’. Without detailed information on failed firms in IE research, the distribution is biased towards survivors.

REFERENCES

Studies with an asterisk (*) included in our analyses

- *Autio, E., Sapienza, H. J., Almeida, J. G., 2000. Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal*, 43(5), 909-924.
- Autio, E., 2005. Creative tension: the significance of Ben Oviatt's and Patricia McDougall's article "Toward a theory of international new ventures", *Journal of International Business Studies*, 36 (3), 9-19.
- Bausch, A., Krist, M., 2007. The effect of context-related moderators on the internationalization - performance relationship: evidence from meta-analysis. *Management International Review*, 47 (3), 319-347.
- Bell, J., McNaughton, R., Young, S., 2001. Born-again global firms: an extension to the "born global" phenomenon, *Journal of International Management*, 7, 173-189.
- Bell, J., McNaughton, J., Young, R., Crick, D., 2003. Towards an integrative model of small firm internationalization, *Journal of International Entrepreneurship*, 1(4), 339-362.
- Bloodgood, J., Sapienza, H. J., Almeida, J. G., 1996. The internationalization of new high-potential U.S. ventures: antecedents and outcomes. *Entrepreneurship Theory and Practice*, 20(4), 61-76.
- Boter, H., Holmquist, C., 1996. Industry characteristics and internationalization processes in small firms, *Journal of Business Venturing*, 11(6), 471-487.
- Brouthers, K. D., Nakos, G., 2004. SME entry mode choice and performance: a transaction cost perspective, *entrepreneurship: theory and practice*, 28(3), 229-247.
- Brouthers, L. E., Nakos, G., 2005. The role of systematic international market selection on small firms' export performance. *Journal of Small Business Management*, 43 (4), 363-381.
- *Brouthers, L. E., Nakos, G., Hadjimarcou, J., Brouthers, K. D., 2009. Key factors for successful export performance for small firms. *Journal of International Marketing* 17 (3), 21-38.
- Brush, C., 1992. Factors motivating small firms to internationalize: the effect of firm age. Doctoral Dissertation, Boston University.
- Burgel, O., Murray, G. C., 2000. The international market entry choices of start-up companies in high-technology industries. *Journal of International Marketing*, 8(2), 33-62.
- Carayannopoulos, S., 2009. How technology-based new firms leverage newness and smallness to commercialize disruptive technologies. *Entrepreneurship Theory and Practice*, 33(2), 419-438.
- Cavusgil, S. T., Zou, S., 1994. Marketing strategy-performance relationship: an investigation, *Journal of Marketing*, 58(1), 1-21.
- *Chen, R., Martin, M. J., 2001. Foreign expansion of small firms: the impact of domestic alternatives and prior foreign business involvement. *Journal of Business Venturing*, 16, 557-574.
- Chetty, S., Agndal, H., 2007. Social capital and its influence on changes in internationalization mode among small and medium-sized enterprises. *Journal of International Marketing*, 15(1), 1-29.
- *Chiao, Y.-C., Yang, K.-P., Yu, C.-M. J., 2006. Performance, internationalization, and firm-specific advantages of SMEs in a newly-industrialized economy. *Small Business Economics*, 26 (5), 475-492.

- *Coombs, J. E., Mudambi, R., Deeds, D. L., 2006. An examination of the investments in U.S. biotechnology firms by foreign and domestic corporate partners. *Journal of Business Venturing*, 21 (4), 405-428.
- Coviello, N. E., McAuley, A., 1999. Internationalization and the smaller firm: a review of contemporary empirical research. *Management International Review*, 39(3), 223-256.
- Coviello, N. E., Jones, M. V., 2004. Methodological issues in international entrepreneurship research. *Journal of Business Venturing*, 19, 485-508.
- Coviello, N. E., 2006. The network dynamics of international new ventures. *Journal of International Business Studies*, 37 (5), 713-731.
- Covin, J. G., Slevin, D. P., Covin, T. J., 1990. Content and performance of growth- seeking strategies: a comparison of small firms in high- and low- technology industries. *Journal of Business Venturing*, 5, 391-412.
- Crick, D., Spence, M., 2005. The internationalisation of 'high performing' UK high-tech SMEs: a study of planned and unplanned strategies. *International Business Review*, 14, 167-185.
- Criscuolo, P., Narula, R., 2007. Using multi-hub structures for international R&D: organisational inertia and the challenges of implementation. *Management International Review*, 47 (5), 1-22.
- Crook, T. R., Ketchen D. Jr., Combs, J. G., Todd, S.Y., 2008. Strategic resources and performance: A meta-analysis. *Strategic Management Journal*, 29, 1141-1154.
- *Dhanaraj, C., Beamish, P. W., 2003. A resource-based approach to the study of export performance. *Journal of Small Business Management*. 41 (3), 242-261.
- *Dickson, P. H., Weaver, K. M., Hoy, F., 2006. Opportunism in the R&D alliances of SMES: the roles of the institutional environment and SME size. *Journal of Business Venturing*, 21 (4), 487-513.
- *Dimitratos, P., Lioukas, S., Carter, S., 2004. The relationship between entrepreneurship and international performance: the importance of domestic environment. *International Business Review*, 13 (1), 19-41.
- Dow, D., Larimo J., 2009. Challenging the conceptualization and measurement of distance and international experience in entry mode choice research. *Journal of International Marketing*, 17 (2), 74-98.
- Dunning, J., 1980. Toward an eclectic theory of international production: some empirical tests. *Journal of International Business Studies*, 11(1), 9-31.
- Eriksson, K., Johanson, J., Majkgard, A., Sharma, D. D., 1997. Experiential knowledge and cost in the internationalization process. *Journal of International Business Studies*, 28(2), 337-360.
- *Fernhaber, S. A., Gilbert, B. A., McDougall, P. P., 2004. The impact of geographic location on the internationalization of new ventures. Working Paper, Indiana University.
- *Fernandez, Z., Nieto, M. J., 2006. Impact of ownership on the international involvement of SMEs. *Journal of International Business Studies*, 37 (3), 340-351.
- Field, A. P., 2001. Meta-analysis of correlation coefficients: a Monte Carlo comparison of fixed- and random-effects methods. *Psychological Methods*, 6 (2), 161-180.
- Franko, L. G., 1989. Global corporate competition: who's winning, who's losing, and the R&D factor as one reason why. *Strategic Management Journal*, 10 (5), 449-474.
- Freeman, S., Edwards, R., Schroder, B., 2006. How smaller born-global firms use networks and alliances to overcome constraints to rapid internationalization. *Journal of International Marketing*, 14(3), 33-63.
- Fukuyama, F., 1992. *The End of History and the Last Man*. The Free Press, New York.

- *George, G., Wiklund, J., Zahra, S. A., 2005. Ownership and the internationalization of small firms. *Journal of Management*, 31 (2), 210-233.
- Geyskens, I., Steenkamp, J.-B. E.M., Kumar, N., 2006. Make, buy, or ally: a transaction cost theory, meta-analysis. *Academy of Management Journal*, 49(3), 519-534.
- Geyskens, I., Krishnan, R., Steenkamp, J.-B. E.M., Cunha, P.V., 2009. A review and evaluation of meta- analysis practices in management research. *Journal of Management*, 35 (2), 393-419.
- Haleblian, J., Finkelstein, S., 1999. The influence of organizational acquisition experience on acquisition performance: a behavioral learning perspective. *Administrative Science Quarterly*, 44, 29-56.
- Hannan, M. T., Laszlo, P., Carroll, G. R., 2002. Structural inertia and organizational change revisited: the evolution of organizational inertia. *Research Paper Series*, Stanford, California: Stanford University, Graduate School of Business.
- *Harveston, P. D., Kedia, B. L., Davis, P. S., 2000. Internationalization of born global and gradual globalizing firms: the impact of the manager. *Advances in Competitiveness Research*.
- Harzing, A.W., 2009. Publish or Perish Software Version 2.6.3354. Available from: URL: www.harzing.com [Accessed March 28, 2009].
- Hayward, M. L. A., 2002. When do firms learn from their acquisition experience? Evidence from 1990-1995. *Strategic Management Journal*, 23, 21-39.
- Hedges, L.V., Olkin, I.O., 1985. *Statistical Methods for Meta-analysis*. Academic Press, New York.
- Hedges, L.V., Vevea, J.L., 1998. Fixed and random-effects models in meta-analysis. *Psychological Methods*, 3, 486-504.
- Hirsch, J.E., 2005. An index to quantify an individual's scientific research output, arXiv:physics/0508025 v5 29 Sep 2006.
- Hitt, M. A., Hoskisson, R. E., Kim, H. 1997. International diversification: effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40(4), 767-798.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., Gupta, V. (Eds.), 2004. *Culture, Leadership, and Organisations: The GLOBE Study of 62 Societies*. SAGE Publications, Thousand Oaks, CA.
- Huffcutt, A.I., Arthur, W., 1995. Development of a new outlier statistic for meta-analytic data. *Journal of Applied Psychology*, 80, 327-334.
- Hunter, J. E., Schmidt, F. L., 1990. *Methods of Meta – analysis: Correcting Error and Bias in Research Findings*. SAGE Publications, Newbury Park.
- Hunter, J. E., Schmidt, F. L., 2004. *Methods of Meta-analysis: Correcting Error and Bias in Research Findings*, 2. Edition. SAGE Publications, Thousand Oaks, CA.
- Hymer, S., 1960. *The international operations of national firms: A study of direct foreign investment*. MIT Press, Cambridge, MA.
- Javidan, M., House, R. J., 2001. Cultural acumen for global managers: lessons from project GLOBE. *Organizational Dynamics*, 29 (4), 289-305.
- Johanson, J., Vahlne, J.-E., 1977. The internationalization process of the firm – A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23-32.
- Johanson, J., Vahlne, J.-E., 1990. The mechanism of internationalization. *International Marketing Review*, 7(4), 11-24.
- Johnson, E. J., 2004. Factors influencing the early internationalization of high-technology start-ups: US and UK Evidence. *Journal of International Entrepreneurship*, 2, 139-154.

- Johanson, J., Vahlne, J.-E., 2009. The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40(9), 1411–1431.
- Jones, V. M., 1999. The internationalization of small high-technology firms. *Journal of International Marketing*, 7(4), 15–41.
- Jones, G. 2005. *Multinationals and Global Capitalism: from the Nineteenth Century to the Twenty-first Century*, Oxford: Oxford University Press.
- Keupp, M. M., Gassmann O., 2009. The past and the future of international entrepreneurship: A review and suggestions for developing the field. *Journal of Management*, 35 (3), 600–633.
- Klein, S., 1989. A transaction cost explanation of vertical control in international markets. *Academy of Management Science*, 17 (3), 253–62.
- Knight, G. A., Cavusgil, S. T., 2004. Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies*, 35(2), 124–141.
- Kundu, S. U., Katz, J. A., 2003. Born-international SMEs: Bi-level impacts of resources and intentions. *Small Business Economics*, 20, 25–47.
- Levitt, T., 1983. The globalization of markets, *Harvard Business Review*, 61(3), 92–102.
- Li, D., Eden, L., Hitt, M. A., Ireland, R. D., 2008. Friends, acquaintances or strangers? Partner selection in R&D alliances. *Academy of Management Journal*, 51(2), 315–334.
- Lindqvist, M., 1991. *Infant multinationals. The internationalization of young, technology-based Swedish firms. Doctoral Dissertation, Stockholm.*
- Lipsey, M. W., Wilson, D. B., 2001. *Practical Meta-Analysis. Applied Social Research Methods Series. Vol. 49. SAGE Publications Thousand Oaks.*
- Madsen, T. K., Servais, P., 1997. The internationalization of born globals: an evolutionary process? *International Business Review*, 6(6), 561–583.
- *Majocchi, A., Zucchella, A., 2003. Internationalization and performance. *International Small Business Journal*, 21 (3), 249–268.
- McDougall, P. P., 1989. International versus domestic entrepreneurship: new venture strategic behavior and industry structure. *Journal of Business Venturing*, 4(6), 387–400.
- *McDougall, P. P., Oviatt, B. M., 1996. New venture internationalization, strategic change, and performance: a follow-up study. *Journal of Business Venturing*, 11(1), 23–40.
- McDougall, P. P., Oviatt, B. M., Shrader, R. C., 2003. A comparison of international and domestic new ventures. *Journal of International Entrepreneurship*, 1, 59–82.
- Meyer, K.E., Mudambi, R., Narula, R., 2010 Multinational enterprises and local contexts: the opportunities and challenges of multiple embeddedness, *Journal of Management Studies*, in press.
- *Minguzzi, A., Passaro, R., 2000. The network of relationships between the economic environment and the entrepreneurial culture in small firms. *Journal of Business Venturing*, 16 (2), 181–207.
- Ohmae, K., 1989. Managing in a borderless world. *Harvard Business Review*, 67(3), 152–61.
- Ojala, A., Tyrväinen, P., 2007. Market entry and priority of small and medium-sized enterprises in the software industry: an empirical analysis of cultural distance, geographic distance, and market size, *Journal of International Marketing*, 15(3), 123–149.
- Oviatt, B. M., McDougall, P. P., 1994. Toward a theory of international new ventures. *Journal of International Business Studies*, 3, 30–44.
- Oviatt, B. M., McDougall, P. P., 1995. Global start-ups: entrepreneurs on a worldwide stage. *Academy of Management Executive*, 9(2), 30–44.
- Oviatt, B. M., McDougall, P. P., 2005. Defining international entrepreneurship and modelling the speed of internationalization. *Entrepreneurship Theory & Practice*. September 2005, 537–553.

- *Preece, S. B., Miles, G., Baetz, M. C., 1998. Explaining the international intensity and global diversity of early-stage technology-based firms. *Journal of Business Venturing*, 14, 259-281.
- *Qian, G., 2002. Multinationality, product diversification, and profitability of emerging small- and medium-sized enterprises. *Journal of Business Venturing*, 17 (6), 611-633.
- *Qian, G., Li, L., 2003. Profitability of small- and medium-sized enterprises in high-tech industries: the case of biotechnology industry. *Strategic Management Journal*, 24, 881-887.
- Rennie, M., 1993. Global competitiveness: born global. *McKinsey Quarterly*, 4, 45-52.
- *Reuber, A. R., Fischer, E., 1997. The influence of the management team's international experience on the internationalization behaviors of SMEs. *Journal of International Business Studies*, 4, 807-825.
- Rialp, A., Rialp, J., Knight, G. A., 2005. The phenomenon of early internationalizing firms: what do we know after a decade (1993-2003) of scientific inquiry? *International Business Review*, 14 (2), 147-166.
- *Saarenketo, S., 2002. Born globals – Internationalization of small and medium-sized knowledge-intensive firms. Doctoral Dissertation, Lappeenranta University of Technology.
- *Sapienza, H. J., De Clercq, D. D., Sandberg, W. R., 2005. Antecedents of international and domestic learning effort. *Journal of Business Venturing*, 20, 437 - 457.
- Sapienza, H. J., Autio, E., George, G., Zahra, S. A., 2006. A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review*, 31(4), 914-933.
- Schwens, C., Kabst, R., 2009. How early opposed to late internationalizers learn: experience of others and paradigms of interpretation. *International Business Review*, 18(5), 509-522.
- Schwens, C., Kabst, R. 2010. Internationalization of young technology firms: A complementary perspective on antecedents of foreign market familiarity. *International Business Review*, forthcoming.
- Singh, J., Tucker, D., House, R., 1986. Organizational legitimacy and the liability of newness. *Administrative Science Quarterly*, 31(2), 171-193.
- Shrader, R.C., 2001. Collaboration and performance in foreign markets: the case of young high-technology manufacturing firms. *Academy of Management Journal*, 44, 45–60.
- Sullivan, D., 1994. Measuring the degree of internationalization of a firm. *Journal of International Business Studies*, 25(2), 325-342.
- Tihanyi, L., Griffith, D. A., Russell, C. J., 2005. The effect of cultural distance on entry mode choice, international diversification, and MNE performance: a meta-analysis. *Journal of International Business Studies*, 36 (3), 233-238.
- *Tuppura, A., Saarenketo, S., Puumalainen, K., Jantunen, A., Kyläheiko, K., 2008. Linking knowledge, entry timing and internationalization strategy. *International Business Review*, 17 (4), 473-487.
- von Hippel, E., 1998. *The Sources of Innovation*. Oxford University Press, Oxford.
- Weerawardena, J., Mort, G. S., Liesch, P. W., Knight, G., 2007. Conceptualizing accelerated internationalization in the born global firm: a dynamic capabilities perspective. *Journal of World Business*, 42(3): 294-306.
- Westhead, P., Wrigth, M., Ucbasaran, D., 2001. The internationalization of new and small firms: a resource-based view. *Journal of Business Venturing*, 16, 333-358.
- Whitener, E. M., 1990. Confusion of confidence intervals and credibility intervals in meta-analysis. *Journal of Applied Psychology*, 75, 315–321.
- Whitley, R., 1999. *Divergent Capitalisms: The Social Structuring and Change of Business Systems*. Oxford University Press, New York, USA.

- Woolcock, M., Narayan, D., 2000. Social capital: implications for development theory, research, and policy. *The World Bank Observer*, 15(2), 225-249.
- *Yiu, D. W., Lau, C., Bruton, G. D., 2007. International venturing by emerging economy firms: the effects of firm capabilities, home country networks, and corporate entrepreneurship. *Journal of International Business Studies*, 38, 519-540.
- Yli-Renko, H., Autio, E., Sapienza, H. J., 2001. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22, 587-613.
- Yli-Renko, H., Autio, E., Tontti, V., 2002. Social capital, knowledge, and the international growth of technology-based new firms. *International Business Review*, 11, 279-304.
- Zaheer, S., 1995. Overcoming the liabilities of foreignness. *Academy of Management Journal*, 38(2): 341-363.
- *Zahra, S. A., Neubaum, D. O., Huse, M., 1997. The effect of the environment on export performance among telecommunications new ventures. *Entrepreneurship: Theory & Practice*, 22 (1), 25-46.
- *Zahra, S. A., Garvis, D. M., 2000. International corporate entrepreneurship and firm performance: the moderating effect of international hostility. *Journal of Business Venturing*, 15, 469-492.
- Zahra, S. A., Ireland, R. D., Hitt, M. A., 2000. International expansion by new venture firms: international diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal*, 43(5), 925-950.
- *Zahra, S. A., 2003. International expansion of U.S. manufacturing family businesses: the effect of ownership and involvement. *Journal of Business Venturing*, 18 (4), 495-512.
- *Zahra, S. A., Matherne, B. A., Carleton, J. M., 2003. Technological resource leveraging and the internationalisation of new ventures. *Journal of International Entrepreneurship*, 1, 163-186.
- Zahra, S. A., 2005. A theory of international new ventures: A decade of research. *Journal of International Business Studies*, 36, 20-28.
- *Zahra, S. A., Neubaum, D. O., Naldi, L., 2007. The effects of ownership and governance on SMEs' international knowledge-based resources. *Small Business Economics*, 29 (3), 309-327.
- *Zhou, L., Wu, W.-P., Luo, X., 2007. Internationalization and the performance of born-global SMEs: the mediating role of social networks. *Journal of International Business Studies*, 38(4), 673-690.

TABLES

Table 1: Measurement of the dependent, independent, control, and moderator variables

| Focal Constructs | Definition and Measures |
|--------------------------------|---|
| International experience | <p><i>Construct definition:</i> Subjective and objective indicators of international experience measured on the individual- (management team) and firm-level, such as number of directors with international work experience or number of years of international experience of the firm</p> <p><i>Representative measures:</i> Reuber & Fischer (1997), Sapienza, De Clercq & Sandberg (2005)</p> |
| International network contacts | <p><i>Construct definition:</i> Mutually beneficial relationships with [a firm's] suppliers, buyers, other companies, trade associations, universities and research centers in international markets</p> <p><i>Representative measures:</i> Dickson, Weaver & Hoy (2006), Yiu, Lau & Bruton (2007)</p> |
| Knowledge intensity | <p><i>Construct definition:</i> The extent to which a firm depends on the knowledge inherent in its activities and outputs as a source of competitive advantage</p> <p><i>Representative measures:</i> Chiao, Yang & Yu (2006), Fernandez & Nieto (2006)</p> |
| Internationalization | <p><i>Construct definition:</i> The Scale and scope of internationalization by means of the degree and diversity of the international activities of the firms, such as ratio of foreign sales to total sales or the number of foreign countries in which a firm sells its products</p> <p><i>Representative measures:</i> Qian (2002), Zahra & Garvis (2000)</p> |
| Performance | <p><i>Construct definition:</i> Includes quantitative performance measures that objectively measurable, such as sales growth, EBIT or ROI and qualitative performance measures based on subjective ratings and self-reported indicators</p> <p><i>Representative measures:</i> Chen & Martin (2001), Dhanaraj & Beamish (2003)</p> |

Table 2: Overall results

| Variable | <i>k</i> | <i>n</i> | | | 95% Confidence Interval | <i>Q</i> |
|-----------------------------|----------|----------|------|------|-------------------------------|----------|
| International Experience | 9 | 1,304 | .286 | .294 | .209 : .319 | 15.90** |
| Networks | 12 | 12,696 | .134 | .135 | .081 : .188 | 24.86 ** |
| Knowledge Intensity | 20 | 13,948 | .125 | .126 | .088 : .164 | 29.80* |

** $p < .05$; * $p < .1$

Table 3: Categorical Moderator analysis

| Variable | Moderator | <i>k</i> | <i>n</i> | | 95% Confidence Interval | Q_B | Q_W |
|-----------------------------|----------------------|----------|----------|------|-------------------------------|---------|---------|
| International Experience | Country of Origin | | | | | 0.346 | 5.939 |
| | <i>USA</i> | 4 | 632 | .335 | .184 : .486 | | |
| | <i>Europe</i> | 4 | 470 | .276 | .128 : .424 | | |
| | Industry | | | | | 2.091 | 6.439 |
| | <i>High-Tech</i> | 3 | 248 | .390 | .235 : .546 | | |
| | <i>Other</i> | 6 | 1,056 | .258 | .170 : .347 | | |
| Networks | Country of Origin | | | | | 3.533* | 12.548* |
| | <i>USA</i> | 5 | 731 | .214 | .117 : .310 | | |
| | <i>Europe</i> | 4 | 11,106 | .111 | .030 : .193 | | |
| | Industry | | | | | 2.047 | 13.114 |
| | <i>High-Tech</i> | 5 | 471 | .203 | .095 : .310 | | |
| | <i>Other</i> | 7 | 12,225 | .113 | .053 : .173 | | |
| Knowledge Intensity | Country of Origin | | | | | 4.516** | 12.945 |
| | <i>USA</i> | 11 | 1,244 | .163 | .107 : .220 | | |
| | <i>Europe</i> | 5 | 11,281 | .102 | .084 : .121 | | |
| | Industry | | | | | 0.115 | 19.191 |
| | <i>High-Tech</i> | 10 | 1,633 | .135 | .071 : .199 | | |
| | <i>Other</i> | 10 | 12,315 | .121 | .072 : .171 | | |

** $p < .05$; * $p < .10$

Table 4: Continuous Moderator Analysis.

International Experience

| Moderator | β | SE | 95% Confidence Interval | Q_R |
|----------------------------|---------|------|-------------------------------|----------|
| Date of Publication | -.020** | .010 | -.039 : -.001 | 4.229 ** |
| Age | -.008* | .004 | -.016 : .001 | 3.033* |
| Size | .000 | .002 | -.003 : .004 | 0.071 |
| Journal Quality h-Index | .001 | .001 | -.001 : .004 | 0.866 |

* $p < .10$; ** $p < .05$; *** $p < .01$

Networks

| Moderator | β | SE | 95% Confidence Interval | Q_R |
|----------------------------|---------|------|-------------------------------|--------|
| Date of Publication | -.016* | .009 | -.034 : .002 | 3.176* |
| Age | .002 | .004 | -.005 : .010 | 0.448 |
| Size | .000 | .004 | -.008 : .008 | 0.004 |
| Journal Quality h-Index | -.000 | .001 | -.002 : .001 | 0.125 |

* $p < .10$; ** $p < .05$; *** $p < .01$

Knowledge Intensity

| Moderator | β | SE | 95% Confidence Interval | Q_R |
|----------------------------|---------|------|-------------------------------|---------|
| Date of Publication | -.008 | .007 | -.021 : .005 | 1.420 |
| Age | -.002 | .003 | -.008 : .004 | 0.329 |
| Size | .001** | .000 | .000 : .002 | 5.059** |
| Journal Quality h-Index | -.001** | .000 | -.001 : -.000 | 5.272** |

* $p < .10$; ** $p < .05$; *** $p < .01$

Table 5: Overall results Internationalization → Performance

| Variable | <i>k</i> | <i>n</i> | | | 95% Confidence Interval | <i>Q</i> |
|----------------------|----------|----------|------|------|-------------------------------|----------|
| Internationalization | 20 | 4,776 | .110 | .110 | .080 : .214 | 39.21** |

** $p < .05$; * $p < .1$

Table 6: Categorical Moderator Internationalization → Performance

| Variable | Moderator | <i>k</i> | <i>n</i> | | 95% Confidence Interval | <i>Q_B</i> | <i>Q_W</i> |
|----------------------|-------------------|----------|----------|------|-------------------------------|----------------------|----------------------|
| Internationalization | Country of Origin | | | | | 2.691* | 22.279* |
| | <i>USA</i> | 11 | 1,577 | .147 | .080 : .214 | | |
| | <i>Europe</i> | 4 | 1,320 | .069 | -.228 : .162 | | |
| | Industry | | | | | 1.269 | 18.745 |
| | <i>High-Tech</i> | 7 | 1,334 | .068 | -.021 : .158 | | |
| | <i>Other</i> | 13 | 3,441 | .129 | .073 : .185 | | |

** $p < .05$; * $p < .10$

Table 7: Continuous Moderator Internationalization → Performance

| Moderator | β | SE | 95% Confidence Interval | <i>Q_R</i> |
|-------------------------|---------|------|-------------------------------|----------------------|
| Date of Publication | .000 | .008 | -.015 : .016 | 0.004 |
| Age | .000 | .003 | -.006 : .006 | 0.000 |
| Size | .001** | .001 | .000 : .002 | 4.409** |
| Journal Quality h-Index | .000 | .000 | -.001 : .001 | 0.043 |

* $p < .10$; ** $p < .05$; *** $p < .01$