

**INTERNATIONAL NEW VENTURES:
EMERGENCE, INTERNATIONALIZATION PATTERNS,
GROWTH ENABLERS AND CONTEXTUALIZATION**

Doctoral Dissertation

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I. Introduction

About two decades ago researchers turned to the empirical phenomenon of firms starting internationalization right from or close to inception. These international new ventures (INVs) could only hardly be explained by conventional internationalization theories, such as process theories (Johanson & Vahlne, 1977), as INVs often start international encounters without a profound resource base and without having experiential knowledge about international markets. Yet, INVs were found to play an increasingly important role in today's global economy (Shrader, Oviatt & McDougall, 2000; Zahra, 2005), which is why research on this topic remains of high relevance. According to Oviatt and McDougall, an INV can be defined as 'a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries' (Oviatt & McDougall, 1994: 49).

Whilst numerous studies about INVs have been conducted so far, there are still some "blank spots" which require further investigation. In this work we try to resolve some of the remaining questions about INVs concerning INVs' emergence, internationalization patterns, growth enablers and contextual factors. The work is divided into four parts besides the introduction and conclusion section. Each part caters a specific aspect of INVs and was written in co-authorship with Christian Schwens and Ruediger Kabst. Later versions of the first two parts are published in the *International Small Business Journal* and the *Journal of Small Business Management* (at the time of publication of this doctoral thesis).

In the first part, we emphasize on the question of why some young firms venture into foreign markets early in their lifecycle while others decide to capitalize on the domestic market. We introduce a contingency perspective on INV emergence in order to shed light on inconsistencies among prior studies concerning determinants of INVs. Thereby we show that barriers to internationalization moderate the impact of INV determinants.

In the second part, we test for differences between INV strategies which were identified by Oviatt and McDougall (1994). Our aim is to show that types of INVs –

adapted from Oviatt and McDougall's framework (1994) – indeed vary from each other in terms of firm and founder related characteristics. Knowing which resources propel specific internationalization strategies allows for fostering these resources and, thus, to more efficiently pursue a targeted INV strategy (Westhead, Wright & Ucbasaran 2001; Tuppuru, Saarenketo, Puumalainen, Jantunen & Kylaheiko, 2008). Depending on the scale and scope of international activities, INVs face different barriers to internationalization with a diverging resource base and differentiated managerial cognitions (Pulkinen & Larimo, 2007). Thus, unraveling the determinants of different INV types is an important contribution to IE literature. This knowledge is also helpful for managers and policy makers, since it provides a better understanding of entrepreneurial firms with regard to their internationalization behavior and strategic decisions.

In part three, we further emphasize the differences in internationalization patterns. Therefore, we forge a link between two internationalization theories formerly seen as opposing: The process theories (e.g. Johanson & Vahlne, 1977) and the international new venture framework by Oviatt and McDougall (1994). Combining these frameworks allows for a more fine-grained perspective on differences among INV internationalization patterns. Rather than proposing arbitrary thresholds, we use the most frequently applied strategy indicators in the INV literature (time to internationalization, international scale, international scope, entry mode behavior, institutional and cultural distance (between home and host country market)) to identify strategy groups by means of latent class analysis (LCA). We categorize four different INV strategies: 1) born-again globals, 2) born globals, 3) geographically focused exporters, and 4) gradually internationalizing INVs. Second, we study antecedents of these four INV strategies to provide a more detailed understanding on frequently studied strategy predictors. As such, we examine the impact of international growth orientation, learning orientation, product differentiation, prior international experience and international network contacts as antecedents for INVs' internationalization pattern.

Part four caters with the interplay of knowledge intensity and international network structures and how it influences the international expansion of INVs. Arguing

from an economic perspective, knowledge, being an important specific asset for INVs, requires protection. Networks are dominantly described as panacea for new ventures' internationalization, since allowing for higher control over resources and security without stressing the own limited resource base (Weerawardena, Mort, Liesch & Knight, 2007; Young, Dimitratos & Dana, 2003; Zahra, Matherne & Carleton, 2003). Nevertheless, recent studies argue that networks may have a liability side as well (Chetty & Agndal, 2007). Accordingly, a differentiated analysis is required with regard to networks, knowledge intensity, and international new venturing. In this part, we assume that knowledge exploitation in international markets depends on the international network context in which an INV operates. The empirical findings suggest that the impact of knowledge intensity on international expansion increases with international network strength and decreases with international network size. Thus, international networks also have a liability side. A loosely connected big network may lead to counterproductive results and may negatively influence the internationalization activities of the firm. This is of particular importance for technology firms, since they might lose their unique assets if they operate in international networks which are difficult to monitor.

Each of the four parts entails an empirical analysis of the respective research questions. While the methods, the subsamples and variables vary among the different parts, the employed database is the same. The data for this doctoral thesis was collected via mail survey from March 2007 until May 2007. A total population of 1,944 German high-technology firms was surveyed from four different areas: biotechnology, nanotechnology, microsystems, and renewable energy. Questionnaires were sent to CEOs, chief strategy officers or export managers, as they are perceived to have the most profound knowledge about the firm's internationalization practices and strategic decisions. In total, the response rate was about 17%, or 340 questionnaires. The data collection procedure is explained in detail in Schwens (2008) and the subpopulations, which entered the analyses of the four parts within this doctoral dissertation, are outlined in the respective sections. The complete questionnaire can be found in the appendix (Appendix 3).

II. Part one:

International as opposed to domestic new venturing: The moderating role of perceived barriers to internationalization

Abstract

This study examines determinants of international new venturing as opposed to domestic new venturing and discusses how the impact of these determinants is moderated by perceived barriers to internationalization. To test the theoretically derived hypotheses we apply event history analysis on a sample of technology firms. The results show that prior international experience, growth orientation, and international network contacts positively influence international new venturing. Further, the findings illustrate that direct relationships are moderated by perceived financial barriers. Thus, this paper provides a contingent perspective to the research field and contrasts the quite categorical discussion about determinants of international new venturing.

1. Introduction

Firms venturing into foreign markets right from inception, so called International New Ventures (INVs)¹, have become an extensively explored phenomenon over the past decade (for a review see e.g. Coviello & Jones, 2004; Keupp & Gassmann, 2009; Rialp, Rialp & Knight, 2005). INVs venture into foreign markets from inception, in contrast to Domestic New Ventures (DNVs), which limit their operations entirely to the domestic

¹ The phenomenon of international new venturing has been attributed with different labels such as Early internationalizers (Johnson, 2004), Global Start-ups (Oviatt & McDougall 1995), Global High-tech Firms (Jones, 1999), High Technology Start-ups (Jolly, Alahuta & Jeannet, 1992), Innate Exporters (Ganitsky, 1989) or Born Globals (Madsen & Servais, 1997). Differing between international and domestic new ventures, the label applied in this study is in line with the seminal framework developed by Oviatt and McDougall (1994).

market (McDougall, Oviatt & Shrader, 2003). At the current state of knowledge, the question of *why* some young firms venture into foreign markets early in their lifecycle while others decide to capitalize on the domestic market remains largely unanswered, as “the behavior of firms prior to internationalization has not received commensurate research attention” (Tan, Brewer & Liesch, 2007: 294). The few studies focusing on this question (Burgel, Fier, Licht & Murray, 2004; McDougall, 1989; McDougall & Oviatt, 1996; McDougall et al., 2003) are quite categorical in their analyses. They argue that firms endowed with specific resources, such as international network contacts, venture into foreign markets early in their lifecycle, while firms lacking such resources remain domestic. However, ample evidence shows that relationships between firm resources and internationalization are contingent upon different environmental conditions (Bluedorn, Johnson, Cartwright & Barringer, 1994) such as financial or market-based barriers to internationalization. Thus, a more detailed and contingent perspective is necessary when observing differences between INVs and DNVs.

The present study has two major aims. First, we empirically examine the impact of growth orientation, prior international experience, international network contacts, and knowledge intensity on international new venturing (as opposed to domestic new venturing). We chose these variables in accordance with international entrepreneurship (IE) literature as well as the seminal International New Venture Theory by Oviatt and McDougall (1994), which describe these factors as major determinants for international new venturing (Oviatt & McDougall, 1994; Sapienza, Autio, George & Zahra, 2006; Zahra & George, 2002). Thus, we contribute to the discussion of why some firms venture abroad right from inception, while others stay domestic.

Second, we investigate the moderating effect of perceived market-based barriers and perceived financial barriers on the relationship between determining factors and international (as opposed to domestic) new venturing. This way we contribute to IE theory by introducing a more contingent perspective to contrast the quite categorical discussion of the determinants of international new venturing (Kunkel, 1991; McDougall, Robinson & DeNisi, 1992; McDougall et al., 2003; Robinson & McDougall, 2001; Zahra & George, 2002).

To achieve the given research aims we first outline our theoretical arguments based on INV research (Oviatt & McDougall, 1994). Afterwards, we deduce hypotheses, test them on a sample of 272 German technology firms applying event history analysis (EHA), and we discuss the empirical results and their implications for managers and policy makers. Finally, we point out limitations to this study as well as suggestions for future research.

2. *Development of the research model*

Comparing international and domestic new venturing requires a clear distinction of INVs from DNVs. IE research is largely fragmented, with various classifications of INVs (e.g. Oviatt & McDougall 1994; Shrader, 1996; McDougall, 1989; Zahra, 1996; Covin, Slevin & Covin, 1990; Lindquist, 1991). Focusing on the firm's revenue side, the widely established definition of an INV is a business unit that seeks to derive significant competitive advantage from the sale of outputs in multiple countries from its inception (Oviatt & McDougall, 1994). In concurrence with this definition, INVs are here distinguished from DNVs by the "internationalization event", occurring when a firm receives its first international revenues (Burgel et al., 2004). Research supports our definition, showing that the "internationalization event" has major strategic importance for the firm (Tan et al., 2007).

Oviatt and McDougall (1994) developed the INV Theory, a theoretical framework to explain the emergence of INVs. INV Theory is based on four elements to explain INVs emergence and survival: (1) the internalization of some transactions, (2) the use of alternative governance structures such as networks, (3) the establishment of foreign location advantages, and (4) the creation and combination of unique resources. (1) and (2) place elements of TCE into INV Theory, arguing that factor specificity and uncertainty influence a firm's internationalization and that INVs rely on alternative governance structures such as networks to overcome uncertainty. (3) is related to Learning Theory and implies the role of knowledge intensity in the internationalization of new ventures. Finally, (4) Oviatt and McDougall (1994) introduce RBV reasoning, stating that only INVs with unique resources, such as prior relevant experience, are able

to achieve sustainable success and survive in an international environment. Thus, INV Theory implies structural differences between INVs and DNVs in terms of strategic orientation and resource endowment (McDougall et al., 2003).

This reasoning as well as prior IE research leads us to assume that INVs rather than DNVs will have a distinct growth orientation (Acedo & Jones, 2007), a stronger endowment with prior international experience (Kundu & Katz, 2003), more profound international network contacts (Freeman, Edwards & Schroder, 2006), and a higher knowledge intensity (Autio, Sapienza & Almeida, 2000). However, the explanatory power of these constructs may differ depending on environmental factors (Zahra & George, 2002). Recent international entrepreneurship studies support a more contingent perspective of internationalization and its determinants rather than a mere universal approach for a better understanding of the internationalization process (Robinson & McDougall, 2001; Stam & Elfring, 2008).

Organizational outcomes are not only determined by internal resources but also by the way these resources “fit” with environmental conditions (Sirmon, Hitt & Ireland, 2007). To perform at the highest possible level, firms will therefore pursue diverging strategies and foster different sets of resources depending on their perception of contextual factors (Porter, 1980; Sandberg, 1986). The perception of the foreign environment and its inherent uncertainties is of great importance for a firm considering internationalization. Even though international markets are generally described as hostile, due to differing cultures and prevailing legal regulations (Hitt, Hoskisson & Kim, 1997), the perceived uncertainty and risks may still vary (Suárez-Ortega, 2003). Thus, the degree of perceived environmental barriers is likely to have a moderating effect on the influence of INV determinants (Carpenter & Fredrickson, 2001).

Environmental barriers to foreign-based companies are often subsumed under the label of “barriers to internationalization” (Leonidou, 1995; 2004). These result from the fact “that a firm conducting transactions in a foreign country has certain disadvantages compared to indigenous firms, such as governmentally instituted barriers

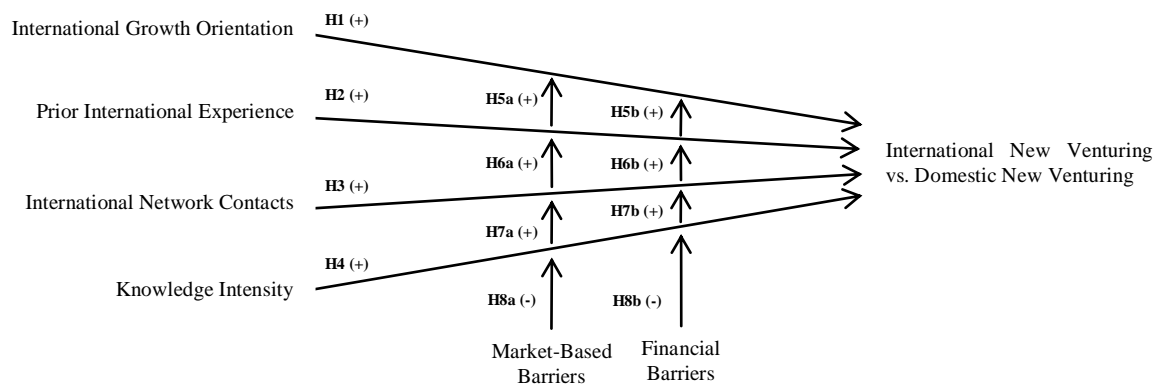


Figure 1: Direct Effects and Moderators for International versus Domestic New Venturing

to trade and an incomplete understanding of laws, language, and business practices” (Oviatt & McDougall, 1994: 55).

While liabilities of foreignness (Zaheer, 1995) hamper foreign market development post-entry, the perception of barriers to internationalization has a pre-entry impact on the decision to internationalize (Leonidou, 2004). Perceived barriers to internationalization may be essential for comparisons of INVs and DNVs as they can also be traced among firms not operating internationally. They often reflect the decision-makers’ subjective opinions (Leonidou, 1995).

Recent research discusses numerous internationalization barriers (i.e., differing rules and laws in the foreign environment) and two types of barriers consistently show a high impact among most studies: perceived financial barriers (i.e., perceived costs of operating abroad) and perceived market-based barriers (i.e., perceived cultural differences). Thus, in our research model we emphasize a diametric approach to perceived barriers to internationalization by including perceived market-based barriers as well as perceived financial barriers as moderating variables.

Our research model (Figure 1) thus presents four independent variables: Growth orientation, prior international experience, international network contacts, and knowledge intensity which impact international (as opposed to domestic) new venturing in addition to the moderating influences of perceived market-based barriers and perceived financial barriers.

3. *Hypotheses*

3.1. *Direct effects on international as opposed to domestic new venturing*

Growth orientation. Already Oviatt and McDougall (1994: 49) stated that “new ventures begin with a proactive international strategy” in contrast to DNVs. The observation that growth orientation is a strong prerequisite for firms’ growth and (international) expansion (Moreno & Casillas, 2008) supports this statement. The pivotal role of growth orientation has often been asserted in prior research (Acedo & Jones, 2007; Coviello & McAuley, 1999; Dimitratos & Jones, 2005; Gilbert, McDougall & Audretsch, 2006; Nummela, Saarenketo & Puumalainen, 2004; Saarenketo, Kuivalainen & Puumalainen, 2001; Zahra & George, 2002). Research shows that besides capabilities, attitudes such as proactivity are essential for the internationalization strategy of the firm (Chetty & Campbell-Hunt, 2004; Oviatt & McDougall, 1995). Thus, INVs have often been reported to possess a distinctive and proactive growth orientation to spot windows of opportunity on a global scale (Knight & Cavusgil, 1996). Madsen and Servais (1997) support this assumption towards internationalization by stating that INVs see opportunities rather than obstacles in international markets. A proactive attitude towards internationalization is reflected in growth seeking behavior (Covin et al., 1990) which leads to earlier internationalization (Autio et al., 2000), higher levels of foreign sales, and a larger commitment to foreign markets (Shrader et al., 2000). According to this we hypothesize:

Hypothesis 1:

Growth orientation is positively related to international new venturing (as opposed to domestic new venturing).

Prior international experience. Another enabler for international new venturing is prior international experience (Bloodgood, Sapienza & Almeida, 1996; Burgel et al., 2004; Kundu & Katz, 2003; McDougall et al., 2003). Since new ventures do not possess international experience on an organizational level due to their infancy (Oviatt & McDougall, 1994; Saarenketo et al., 2001), prior information about foreign markets is

most likely contributed at the individual level. Prior international experience is positively related to international new venturing as “managers who have lived abroad are more likely to sell internationally” (Burgel & Murray, 2000: 52). Prior international experience enhances the awareness of emergent opportunities (Westhead et al., 2001), the pace of internationalization (Zahra, Ireland & Hitt, 2000; Oviatt & McDougall, 2005), the degree of internationalization (Reuber & Fischer, 1997), and export performance (Kundu & Katz, 2003; Cavusgil & Zou, 1994). Hence, there is reason to assume that prior international experience may determine a new venture’s absorptive capacity, which is the ability to identify, value, select, and assimilate new knowledge (Cohen & Levinthal, 1990). Firms with a higher absorptive capacity may be able to acquire new knowledge in foreign markets more efficiently, and thus better cope with liabilities of foreignness (Eriksson, Johanson, Majkgård & Sharma, 1997; Zaheer, 1995). Accordingly, prior international experience reduces uncertainties of operating abroad and helps to avoid shortfalls. This increases the probability that a firm will venture abroad (Autio et al., 2000; Oviatt & McDougall, 2005). Therefore, we hypothesize:

Hypothesis 2:

Prior international experience is positively related to international new venturing (as opposed to domestic new venturing).

International network contacts. International network contacts play an important role in the IE literature (see e.g. Coviello, 2006). Van Wijk, Jansen, and Lyles (2009) differentiate between relational and structural social capital. Structural social capital refers to the number of network relations that a firm possesses. Relational social capital refers to the nature of the relationships themselves and the assets that are rooted in them, and manifests itself in tie strength and trust. Referred to internationalizing firms, relational networks may constitute a mechanism to substitute lacking “own knowledge” and resources by the knowledge and resources of the network partner (e.g. in a close relationship of mutual dependence such as a joint venture). Structural networks, on the other hand, may provide a vehicle for young firms to gain initial access to foreign

markets (Coviello, 2006). This work focuses on the initial decision for or against internationalization and applies a structural networks argumentation to the discussion of international network contacts. We define international network contacts as the number of beneficial relationships between a firm and, for instance, its suppliers, buyers or other companies allowing for initial foreign market access (Zahra et al., 2003). International network contacts may reduce uncertainty related to international commitment (Freeman et al., 2006). They 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). Therefore, international network contacts forward international new venturing (Oviatt & McDougall, 1994). Hence, we hypothesize:

Hypothesis 3:

International network contacts are positively related to international new venturing (as opposed to domestic new venturing).

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”² (Autio et al., 2000: 913). INV Theory identifies knowledge as a unique resource and as one of the four elements critical to INV survival. The influence of knowledge intensity on the decision to internationalize is manifold. On one hand, knowledge intensity is a key source of international competitive advantage fostering international new venturing (e.g. Autio et al., 2000; Bell, McNaughton, Young & Crick, 2003; Coviello & McAuley, 1999; Jones, 1999). Knowledge intensity may effect a differentiation or cost advantage for foreign companies compared to firms that are

² Drawing on the definition of knowledge intensity from Autio et. al (2000) merits a further comment. Conceptualizing knowledge intensity in our paper, we do not mean the absolute level of knowledge intensity expressed by, for example, the height of R&D expenses of the firm. Firms may have high R&D expenses; however, these may not be important for their international competitive position. Our perspective on knowledge intensity is based on the perceived rating from the firm’s key informant, and how important he/she considers knowledge intensity for the firm.

already established in the foreign market. On the other hand, creating a superior and competitive knowledge base often necessitates fundamental financial expenditures. Hence, knowledge intensive firms may be forced to pursue international new venturing in order to amortize initial expenditures and to generate sufficient revenues to finance ongoing development activities (Burgel & Murray, 2000). Therefore, we hypothesize:

Hypothesis 4:

Knowledge intensity is positively related to international new venturing (as opposed to domestic new venturing).

3.2. Moderating effects of barriers to internationalization

Interaction between growth orientation and barriers to internationalization. The extent to which characteristics such as attitudes influence internationalization behavior partially depends on the perception of environmental conditions (Henisz & Delios, 2001; Robinson & McDougall, 2001; Zahra & George, 2002; Zahra et al., 2000). If a young company perceives high market-based barriers in the foreign market, it will be deterred from internationalization, unless the firm proactively seeks growth (Khandwalla, 1976). Growth oriented firms are less risk averse (Covin & Slevin, 1989; Lumpkin & Dess, 2001) and are more likely taking the hurdles related to international operations (Oviatt & McDougall, 1994). “Firms in hostile environments [...], are more likely to benefit from competitive aggressiveness” (Lumpkin & Dess, 1996: 430). In turn, firms which perceive high barriers to internationalization but do not have a distinct growth orientation will be less likely to venture abroad and remain domestic. Such firms will take a “slow road” and start international activities at a later stage of their existence. Thus the impact of growth orientation on international new venturing will be higher if perceived market-based and financial barriers are on a high rather than low level.

Hypothesis 5a:

Perceived market-based barriers moderate the relationship between growth orientation and international new venturing, so that the higher the perceived market-based barriers, the higher the impact of growth orientation on international new venturing (as opposed to domestic new venturing).

Hypothesis 5b:

Perceived financial barriers moderate the relationship between growth orientation and international new venturing, so that the higher the perceived financial barriers, the higher the impact of growth orientation on international new venturing (as opposed to domestic new venturing).

Interaction between prior international experience and barriers to internationalization.

The entrepreneurship literature repeatedly states the interactive effect between prior international experience and economic determinants (Carpenter & Fredrickson, 2001; McDougall & Oviatt, 2003; Zahra & George, 2002). The dominating assumption is that prior international experience helps to overcome perceived barriers to internationalization and therefore facilitates a firm's internationalization. Prior international experience is of high importance for a company's propensity to internationalize if constraints are perceived as high. Therefore, prior international experience may affect international new venturing quite differently at various levels of perceived market-based barriers (Carpenter & Fredrickson, 2001). Extensive knowledge about foreign market structures and customer needs due to prior international experience may facilitate internationalization at an early stage (Burgel et al., 2004). In situations characterized by high financial constraints and risks a well-balanced distribution of investments is essential for a firm's survival (Arping & Diaw, 2008). Firms relying on prior international experience will have profound insights into foreign markets. This disposes them to deal better with opportunities and potential pitfalls of the investment abroad. Therefore, firms with prior international experience may be able to manage the hurdles if perceived market-based and financial barriers are high. Such firms can better cope with the financial risks (Carpenter, Pollock & Leary, 2003) by profiting from their market knowledge, and therefore exceed firms which have lesser experience. Hence:

Hypothesis 6a:

Perceived market-based barriers moderate the relationship between prior international experience and international new venturing, so that the higher the perceived market-based barriers, the higher the impact of prior international experience on international new venturing (as opposed to domestic new venturing).

Hypothesis 6b:

Perceived financial barriers moderate the relationship between prior international experience and international new venturing, so that the higher the perceived financial barriers, the higher the impact of prior international experience on international new venturing (as opposed to domestic new venturing).

Interaction between international network contacts and barriers to internationalization.

For entrepreneurial firms international networks are helpful to gain insights into foreign markets, to spot market opportunities, to gain information about cultural issues, and to penetrate the focal market (Nerkar & Paruchuri, 2005; Oviatt & McDougall, 1994). Networks become especially important if entry barriers like unknown legal or cultural practices exist. When a new venture perceives these barriers to be high, international network contacts may be vitally important for it to expand international activities and to overcome the perceived barriers successfully (Selnes & Sallis, 2003). Additionally, international network contacts may increase security against monetary pitfalls by providing a financial back-up (Shane & Cable, 2002). This security is particularly meaningful if internationalization is in line with high factor specificity and, therefore, a higher risk of failure. In situations when high perceived market-based and financial barriers exist, a new venture will more likely enter foreign markets if it has international network contacts (Weerawardena et al., 2007). Thus, we hypothesize:

Hypothesis 7a:

Perceived market-based barriers moderate the relationship between the international network contacts and international new venturing, so that the higher the perceived market-based barriers, the higher the impact of international network contacts on international new venturing (as opposed to domestic new venturing).

Hypothesis 7b:

Perceived financial barriers moderate the relationship between international network contacts and international new venturing, so that the higher the perceived financial barriers, the higher the impact of international network contacts on international new venturing (as opposed to domestic new venturing).

Interaction between knowledge intensity and barriers to internationalization. The impact of knowledge intensity on international new venturing is influenced by environmental factors, such as market-based and financial barriers. In particular, knowledge intensive firms need a secure environment to minimize the risk of patent infringement or product piracy (Miller & Shamsie, 1996). If legal, market- or culture-based uncertainties overshadow the internationalization efforts, knowledge intensive new ventures will be more deterred from venturing abroad than firms which offer less knowledge intensive products and services. Moreover, financial barriers may endanger successful international new venturing especially for knowledge intensive firms. Knowledge intensity often goes along with high expenditures. Financial barriers hamper the firm's ability to amortize initial expenditures and secure revenues necessary to finance ongoing development costs (Burgel & Murray, 2000). Therefore, knowledge intensity will be less useful for international new venturing if high financial barriers are perceived. In summary, taking controversial notions about the impact of knowledge intensity on international new venturing into consideration (e.g. Johanson & Vahlne, 1977), we hypothesize:

Hypothesis 8a:

Perceived market-based barriers moderate the relationship between knowledge intensity and international new venturing, so that the higher the perceived market-based barriers, the lower the impact of knowledge intensity on international new venturing (as opposed to domestic new venturing).

Hypothesis 8b:

Perceived financial barriers moderate the relationship between knowledge intensity and international new venturing, so that the higher the perceived financial barriers, the lower the impact of knowledge intensity on international new venturing (as opposed to domestic new venturing).

4. Methodology

4.1. Sample

We test the presented hypotheses on empirical data collected via mail survey from March 2007 until May 2007. A total population of 1,944 German companies was surveyed from four technology areas: biotechnology, nanotechnology, microsystems, and renewable energy. Questionnaires were sent to CEOs, chief strategy officers or export managers, as they are perceived to have the most profound knowledge about the firm's internationalization practices and strategic decisions. In total, the response rate was about 17%, or 340 questionnaires. After drop-out, a sample of 272 firms finally entered our analyses. On average, the firms were 9.7 years old, with a founding team size of four members, and employed about 26 coworkers at the time of data collection. 72% of the firms began their international activities at an average of 1.9 years after inception and reported an average of 38.5% of their annual sales abroad. Operations were conducted in an average of nine foreign countries.

Controlling for non-response bias according to Armstrong and Overton (1977), we compared the firms that responded immediately with those firms that responded at the end of the survey. Our assumption was that the late respondents were similar to companies which did not respond at all. However, the test for non-response did not show any significant differences between early and late respondents, suggesting that there is no problem of non-response bias.

A retrospective recall was applied in our survey. The obvious disadvantages of this methodology merit further comment. In organizational research, retrospective reports have been used extensively to study strategic decision-making processes (Mintzberg, Raisinghani & Theoret, 1976). The primary problem is that key informants may not be able to recall the past accurately. As Golden (1992), Huber and Power (1985), Wolfe and Jackson (1987), and many others have suggested, inaccurate recall in retrospective reporting can result from inappropriate rationalization, oversimplifications, faulty post hoc attributions, and simple lapses of memory. Asking for information about internationalization activities of the firms in our dataset could have been a problem due to the age of some of the companies. However, descriptive

statistics revealed that the vast majority of the technology firms in our sample had conducted their internationalization activities in the last few years (mean = 7 years; standard deviation = 5.6). This significantly reduces the risk of informant fallibility (Golden 1992; Miller, Cardinal & Glick 1997), and leads to higher retrospective accuracy in our data.

4.2. *Assessing common method variance*

As the measures applied in our study are self-reported and collected from a single source, there could have been a problem of common method variance, in which a bias in the source might contaminate all measures in the same direction. For this reason it was critical to identify any systematic error in the data. Thus, we undertook several procedures recommended by Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to reduce and evaluate the magnitude of common method bias.

First, separate questionnaires were sent to collect data from two informants. The first questionnaire was mailed to the firm's CEO as he is perceived to have the most profound knowledge of the firm strategy as well as internationalization decisions taken by the firm. The second questionnaire – depending on the firm's organizational structure – was sent to an informant with expert knowledge about a firm's internationalization, such as the head of strategy, sales, or export. We then assessed the interrater reliabilities for the 44 firms in which data from two respondents was obtained. Intraclass correlation coefficients (ICC) for our scales exhibited high interrater reliability (Shrout & Fleiss, 1979), all at the 0.000 level: for instance, network strength (ICC = 0.71) and international experience (ICC = 0.74).

In order to examine the extent of common method variance in our data we followed Podsakoff and Organ (1986) using the Harman's one-factor test. A substantial amount of common method variance is present, either if a single factor will emerge from the factor analysis, or if one general factor will account for the majority of the covariance among the variables (Podsakoff & Organ, 1986; Podsakoff et al., 2003). We executed a principal component factor analysis based on the variables of interest. This analysis revealed four factors with an eigenvalue greater than 1, which together account

for 58.2% of the total variance. The presence of several factor loadings, combined with the relatively low percentage of the first and second factor – only 17% and 16% respectively – indicate that the data do not suffer from common method variance.

Further, to minimize common method bias, we checked firm website information, brochures, and other available information (Cloninger & Oviatt, 2007). We additionally collected secondary data from three different databases (Hoppenstedt, Markus firm directory, and Factiva) to verify the information from our survey.

4.3. *Measurement*

The variables in our model have been adapted from established items in the entrepreneurship, international business, and management literature. Whenever possible, we used multiple-item measurements to minimize measurement error and to enhance the content coverage for the constructs in our analyses. We measured statement-style items on 5-point Likert-scales ranging from 1 = strongly disagree to 5 = strongly agree.

International new venturing. The dependent variable, international (as opposed to domestic) new venturing was measured by the “internationalization event” which distinguishes INVs from DNVs at the point at which the firm generates its first international revenues. This definition is consistent with other research comparing INVs with DNVs (e.g. Burgel et al., 2004, Licht, Murray & Woywode, 2009; McDougall et al., 2003). The internationalization event is coded “1” if a firm received international revenues during the observation period and, hence, experienced the “internationalization event” and coded “0” if the firm focused entirely on the domestic market during the observation period. There is an ongoing debate about the age at which a firm can be considered as an international new venture. This is seen by the number of different classifications used in the literature (e.g. Zahra et al, 2000; Johnson, 2004). As every classification suffers from arbitrariness, we applied event history analysis to control for timing of internationalization. In our study, we control for entry age by means of the analytic procedure and compare ventures which have become international in the course of time with those that focus solely on the domestic market.

International growth orientation. To measure international growth orientation, we used multi-item measurement including the items “we have to internationalize in order to succeed in the future” and “The growth we are aiming at can be achieved mainly through internationalization” (Autio et al., 2000; Nummela et al., 2004; Yli-Renko, Autio & Tontti, 2002). To increase reliability, the item “The domestic market still offers sufficient growth potential” (Cavusgil, 1984; Johnston & Czinkota, 1985; Kirpalani & Macintosh, 1980; Moini, 1992) was added (recoded). The three items load on one factor (see appendix) and show good reliability (Cronbach’s $\alpha = 0.79$).

Adapted from Reuber and Fischer (1997), *prior international experience* was defined as whether a member of the top management had a) worked in an internationally operating company and/or b) worked abroad. Binary coding was applied, as “the relationship between international experience and organizational outcomes is unlikely to be linear across time or across individuals and strategic management literature suggests that exposure to a particular type of experience, regardless of its length, is likely to be consequential” (Reuber & Fischer, 1997: 816).

International network contacts. To measure international network contacts, we follow the conceptualization of structural social capital proposed by Van Wijk et al. (2009), which refers to the number of network relations. We measure international network contacts in a quantitative manner by merging two questions about the number of partnerships and network ties that a new venture has established with foreign companies (SMEs, or MNEs respectively) into one index, as suggested by several authors (Baum, Calabrese & Silverman, 2000; Reuber & Fischer, 1997).

Knowledge intensity. To measure knowledge intensity, we adapted items by Yli-Renko et al. (2002) and Knight and Cavusgil (2004). Informants have been asked to rate the following statements: “we are known for our excellent technological expertise and knowledge”, “Knowledge intensity is characteristic for our company”, and “Our products and services have a strong knowledge component”. The items load on one factor (see appendix) delivering a scale with reasonable internal consistency (Cronbach’s $\alpha = 0.71$).

Barriers to internationalization. Indices were also created for the barriers to internationalization. We decided to measure the perceived barriers rather than objective ones for two reasons. First, being interested in the determinants of international as opposed to domestic new venturing, we had to restrain from using established institutional indices such as the economic freedom index, because DNVs do not have international revenues. Second, as we observed new ventures, firm development is largely dependent on the individual characteristics and perceptions of the management (Shaw & Darroch, 2004). “Perceptual measures [...] provide a better view of how managers deal with the environment than objective ones” (Matanda & Freeman, 2009: 98). Understanding managers’ perceptions of internationalization barriers is particularly important as “managerial attitudes and preferences are at the core of a venture’s internationalization activities” (Zahra et al., 2000: 945).

The index for perceived market-based barriers is composed of four items (Cronbach’s $\alpha = 0.71$) covering perceived cultural differences, perceived lack of protection of patents and property rights, perceived political risks, as well as perceived legal uncertainty (Ramaseshan & Soutar, 1996; Shaw & Darroch, 2004). Thus, by using multiple items, we considered the sources which might result from market-based barriers. In order to verify the index formation, factor analysis was conducted showing all items loading on one factor.

Perceived financial barriers mainly occur through investments which are perceived to be very specific, as they imply high sunk costs. Perceived subsidies or governmental assistance may dilute the constraining effect of highly specific investments and, therefore, have to be taken into consideration when measuring financial barriers. This is supported by Preece, Miles, and Baetz (1998), showing that governmental assistance is positively related to new ventures’ internationalization. Therefore, we constructed an index composed of the two items “necessity of high specific investments” and “lack of support for the foreign market” to measure perceived financial barriers (Cronbach’s $\alpha = 0.64$).

Measuring perceived barriers to internationalization may have some drawbacks. The perception of barriers to internationalization may depend on a) prior relevant

experiences (Leonidou, 2000), b) the growth prospects of the domestic market (Bilkey, 1978) or c) the financial strength of the firm (Leonidou, 2004). Leonidou (2000) showed that young firms are generally more sensitive to barriers compared to those that have been in the market for a long time. Additionally, “firms whose decision-makers are rather incompetent, risk-averse, and inward-looking are very likely to perceive export obstacles in a more intense and severe manner than firms with capable, risk-taking, and foreign-oriented managers” (Leonidou, 2004: 284).

To assess if this was a problem for our measures of perceived financial and market-based barriers, a robustness check was conducted. We regressed perceived financial and market-based barriers (as dependent variables) on international growth orientation, prior international experience, international network contacts, knowledge intensity, prior founding experience, and firm size (independent variables) to determine how far perceived financial and market barriers depend on these covariates. International growth orientation is a good indicator to control for whether the domestic market still offers enough growth potential or whether the firm has to internationalize, because of a limited domestic market (Lumpkin & Dess, 1996). Firm size is an established indicator to measure resources availability of the firm and, hence, allows for (implicitly) controlling whether the financial strength of the firm has an impact on perceived financial barriers. Furthermore, prior international experience and prior founding experience enables the assessment of whether prior relevant experience influences the perception of financial and market-based barriers. Knowledge intensity regularly bears the risk of patent infringement and product piracy. Firms for which knowledge plays a crucial role for survival may be more sensitive towards foreign market risks. Thus, knowledge intensity may influence how barriers to internationalization are perceived. However, we did not find any of the covariates to have a significant influence on the barriers to internationalization. This finding, hence, supports the measurement of our moderator variables.

Control variables. We included team size at foundation (McNaughton, 2003; Shrader et al., 2000) as control variable. This frequently applied indicator of the firm’s assets and resource endowment is often considered critical in entrepreneurship research

(e.g. Chandler & Hanks, 1994). It is directly measured by asking for the number of founders involved. Further, we controlled for the influence of prior founding experience, since this kind of experience potentially influences the capability to cope with the complexity of international operations (McDougall et al., 2003). We applied a dichotomous measurement asking whether prior founding experience existed or not. Finally, we controlled for the sales ratio devoted for R&D spending as firms with higher R&D spending may internationalize in order to more quickly amortize their R&D investments (Zahra et al., 2003).

4.4. *Analytical approach*

Event history analysis

We used EHA to test our hypotheses. EHA is well-established in the management context to explain employee turnover decisions (Trevor, 2001; Weller, Holtom, Matiaske & Mellewig, 2009), firm survival chances (Barnett & Woywode, 2004) or the timing of foreign market entry (Licht et al., 2009; Tan & Vertinsky, 1996).

EHA analyzes the chance or hazard that a defined event will occur to the unit of interest (e.g. a firm) after a given period of time. We define the event as the firm's first receipt of international revenues, and assume that the chance of the occurrence of this event is influenced by the covariates and interaction terms. Besides taking timing effects into account, EHA has the advantage that it can control for censoring. Referred to our study, censored cases comprise firms that had not internationalized before the end of our survey, but might experience the internationalization event in the future. This is relevant for our study as the chance to experience the internationalization event is dependent on time. A firm founded in 1980 is more likely to have experienced the "internationalization event" in 2007 than a firm which was just founded in 2006. Standard regression models do not control for this bias (Allison, 1984).

We applied two different types of hazard models to estimate the relative impact of the observed covariates and interactions: a semi-parametric Cox-model and a generalized exponential model (Weibull regression). This was done for two reasons. First, it allows checking the robustness of our estimates and thus underlines our

findings. Second, a Weibull regression gives further information about the impact of firms' age (Burgel et al., 2004) on the hazard to internationalize by specifying the baseline hazard function. Since both models provided virtually the same results, we only report the results of the Weibull regression. The hazard functions of the applied hazard models are defined by $h(t, x) = h(t) \exp(\beta X)$, where $h(t)$ equals the baseline hazard, X equals the covariates, and β denotes the estimated regression coefficients (Blossfeld & Rohwer, 1995; Cox, 1972). Using a Weibull distribution we further specified the baseline hazard rate into $h(t) = \lambda t^{\alpha-1}$ allowing us to identify hazard rate differences over time. This means that we can detect if the hazard of becoming international increases as a firm ages (if $\alpha > 1$), or if it decreases with firm age (if $\alpha < 1$). Thus, prior to adding interaction terms, our estimated model is defined as:

$$h(t, x) = h(t) \exp [\beta_1(X_{Growth\ orientation}) + \beta_2(X_{Prior\ international\ experience}) + \beta_3(X_{International\ network\ contacts}) + \beta_4(X_{Knowledge\ intensity}) + \beta_5(X_{Market-based\ barriers}) + \beta_6(X_{Financial\ barriers})].$$

To test the hypotheses, we set up our hazard models applying a multiple-step approach (Cohen, Cohen, West & Aiken, 2003). As proposed by Aiken and West (1991), establishing different models allows a comparison between alternative models with or without interaction terms by showing changes in model fit and, therefore, delivers an indicator for the explanatory power of all three kinds of variables (control, predictor, and moderator variables). In order to analyze the hypothesized moderator effects, we standardized the variables before creating interaction terms to avoid multicollinearity.

The first model includes the effects of the control variables on international new venturing. Model 2 analyzes the impact of the control variables, the independent variables, and the moderator variables on international new venturing. In models 3 to 10 we included each interaction variable separately in order to compare between the alternative models and to analyze variance explanation of each single interaction term. The final model 11 includes all control, independent, moderator, and interaction variables.

In order to better interpret the interaction terms, we followed Trevor (2001) and supplemented his analytical procedure with plots as suggested by Jaccard (2001) and Hoetker (2007). “A graphical presentation provides the reader with the most complete understanding of interaction effects” and provides assistance to interpret the complex associations related with interactions in non-linear models (Hoetker, 2007: 337). Following Jaccard (2001), we selected a low, medium, and high score on the moderator variable to illustrate the curves. The low level condition was defined as a standard deviation below the mean of the moderator, the medium level condition was defined as the mean, and the high level condition as a standard deviation above the mean of the moderator. Following Trevor (2001), we plotted the baseline hazard ratio for a fixed time and calculated changes in this ratio due to the moderating effects. To plot the interaction effects, we had to fix a time frame (Trevor, 2001) and decided for six years, as this is a commonly used timing definition for INVs. We checked the results and plots for alternative time frames, which produced virtually the same plots. Hence, the results are robust for changes in this arbitrary time frame. The baseline hazard ratio after six years is 63%, meaning the chances that a firm is still domestic after six years is 37% ($1 - 0.63$).

5. *Results*

Table 1 reports means, standard deviations, and zero-order correlations among the dependent, independent, moderating, and control variables. Significant correlations exist between internationalization and growth orientation, prior international experience, and international network contacts. A significant correlation between perceived market-based barriers and perceived financial barriers ($r=0.38$, $p<0.01$) indicates that to a large extent, firms facing one impediment also face the other one. No correlation among the independent variables exceeds 0.7, showing no serious risk for multicollinearity (Anderson, Sweeney & Williams, 1996). To further test for multicollinearity, we calculated the variance inflation factor (VIF), however we did not find significant problems for multicollinearity (all VIF values are < 1.5), since all values stayed below 2.5 (Allison, 1999).

Variable	Mean	s.d.	Internationalization	International growth orientation	Prior international experience	International network contacts	Knowledge intensity	Market-based barriers	Financial barriers	Firm age	Team size at foundation	R&D Spending
Internationalization	0.72	0.44	1.000									
International growth orientation	3.14	1.11	0.403 ^a	1.000								
Prior international experience	0.46	0.50	0.138 ^b	0.078	1.000							
International network contacts	4.16	6.77	0.284 ^a	0.207 ^a	0.106 ^c	1.000						
Knowledge intensity	4.22	0.61	0.070	0.073	0.042	-0.064	1.000					
Market-based barriers	2.42	0.85	-0.094 ^c	0.117 ^b	-0.102 ^c	0.015	-0.075	1.000				
Financial barriers	2.71	1.12	-0.145 ^a	0.050	-0.145 ^a	-0.039	-0.033	0.380 ^a	1.000			
Firm age	9,70	7,08	0.214 ^a	0.151 ^a	-0.102 ^c	0.043	0.030	0.165 ^a	0.052	1.000		
Team size at foundation	4.07	8.92	0.084	0.090	0.103 ^c	0.080	0.012	0.009	0.027	0.039	1.000	
R&D Spending	22.01	29.21	-0.173 ^a	0.068	0.121 ^b	-0.105 ^c	0.210 ^a	-0.133 ^b	-0.016	-0.248 ^a	-0.035	1.000
Prior founding Experience	0.43	0.50	-0.038	0.026	0.218 ^a	0.091	0.009	0.020	0.049	-0.182 ^a	0.107 ^c	0.086

Note: ^a Correlation is significant at the 0.01 level (2-tailed). ^b Correlation is significant at the 0.05 level (2-tailed). ^c Correlation is significant at the 0.10 level (2-tailed).

Table 1: Means, Standard Deviations and Correlations

Hypotheses	Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
		<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Shape Parameters												
	log(α)	-0.32	-0.20	-0.20	-0.19	-0.20	-0.20	-0.20	-0.19	-0.20	-0.20	-0.17
	α	0.73	0.82	0.81	0.83	0.82	0.81	0.82	0.82	0.82	0.82	0.85
	Size of the Founding Team	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **	1.02 **
	R&D Spending	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Prior Founding Experience	1.13	0.92	0.92	0.91	0.92	0.93	0.93	0.93	0.91	0.93	0.93
H1	International Growth Orientation (IGO)	-	1.43 ***	1.43 ***	1.49 ***	1.44 ***	1.43 ***	1.43 ***	1.42 ***	1.43 ***	1.43 ***	1.51 ***
H2	Prior International Experience (PIE)	-	1.88 ***	1.89 ***	1.94 ***	1.89 ***	1.89 ***	1.90 ***	1.94 ***	1.87 ***	1.87 ***	2.02 ***
H3	International Network Contacts (NWC)	-	1.02 *	1.02 *	1.02 †	1.02 †	1.02 †	1.02 †	1.02 *	1.02 *	1.02 †	1.02 †
H4	Knowledge Intensity (KI)	-	1.14	1.14	1.13	1.14	1.14	1.16	1.14	1.14	1.12	1.11
	Perceived Market Based Barriers (MBB)	-	0.75 ***	0.73 ***	0.73 ***	0.74 ***	0.74 ***	0.75 ***	0.76 ***	0.74 ***	0.74 ***	0.75 ***
	Perceived Financial Barriers (FB)	-	0.89	0.89	0.85 *	0.89	0.89	0.89	0.88 †	0.89	0.90	0.84 *
H5a	Mod IGO * MBB	-	-	1.04								0.97
H5b	Mod IGO* FB	-	-	-	1.17 **	-	-	-	-	-	-	1.21 **
H6a	Mod PIE * MBB	-	-	-	-	1.09	-	-	-	-	-	1.17
H6b	Mod PIE * FB	-	-	-	-	-	1.05	-	-	-	-	0.94
H7a	Mod NWC * MBB	-	-	-	-	-	-	0.99	-	-	-	0.99
H7b	Mod NWC * FB	-	-	-	-	-	-	-	1.02 *	-	-	1.02 *
H8a	Mod KI * MBB	-	-	-	-	-	-	-	-	0.91	-	1.01
H8b	Mod KI * FB	-	-	-	-	-	-	-	-	-	0.85 †	0.79 †
	Log-likelihood	-550.35	-421.62	-421.49	-418.37	-421.49	-421.55	-421.43	-419.42	-421.42	-420.23	-413.79
	Chi-square	9.3	85.62	85.89	92.12	85.88	85.75	86	90.02	86.03	88.39	101.27
	df	3	9	10	10	10	10	10	10	10	10	17
	Δ Chi-square	9.30	76.32 ^{(1)*}	0.27 ⁽²⁾	6.5 ^{(2)*}	0.26 ⁽²⁾	0.13 ⁽²⁾	0.38 ⁽²⁾	4.4 ^{(2)*}	0.41 ⁽²⁾	2.77 ^{(2)†}	15.65 ^{(2)*}

Note: n=272; *b* = exponentiated coefficients (1.1 equals an increase in the hazard to face the event “internationalization” at a given time; 0.9 equals a decrease in the hazard to face the event “internationalization” at a given time; Significance Levels: *** ≤ 0.001 ; ** ≤ 0.01 ; * ≤ 0.05 ; † ≤ 0.10 ; ⁽¹⁾ = compared to model 1; ⁽²⁾ = compared to model 2

Table 2: Event History Analysis (Weibull Regression): Determinants of International New Venturing

Table 2 shows that the determinants highly contribute to international new venturing, highlighted by a significant improvement of the log-likelihood and chi-square statistics for both, model 2 (without interaction terms) and model 11 (with all interaction terms) compared to model 1 which only comprises the control variables. While team size has a significant positive impact on internationalization the control variables R&D spending and prior founding experience do not affect international new venturing significantly. However, our results regarding R&D spending need to be treated with caution, since our sample only covers technology firms.

Hypothesis 1, which assumed that growth orientation would influence international new venturing (opposed to domestic new venturing), is supported by a significant positive relationship between growth orientation and international new venturing (model 2: $b=1.43$, $p<0.001$). In Hypothesis 2, we predicted prior international experience to have a positive impact on international new venturing. This is supported by a significant positive association between prior international experience and international new venturing (model 2: $b=1.88$, $p<0.01$). Hypothesis 3, implying international network contacts to significantly influence international new venturing, was also supported (model 2: $b=1.02$, $p<0.01$). Surprisingly, we did not find a significant relationship between knowledge intensity and international new venturing (model 2: $b=1.14$, n.s.) so that Hypothesis 4 needed to be rejected. Thus, three of the four predictors significantly contribute to international new venturing (as opposed to domestic new venturing).

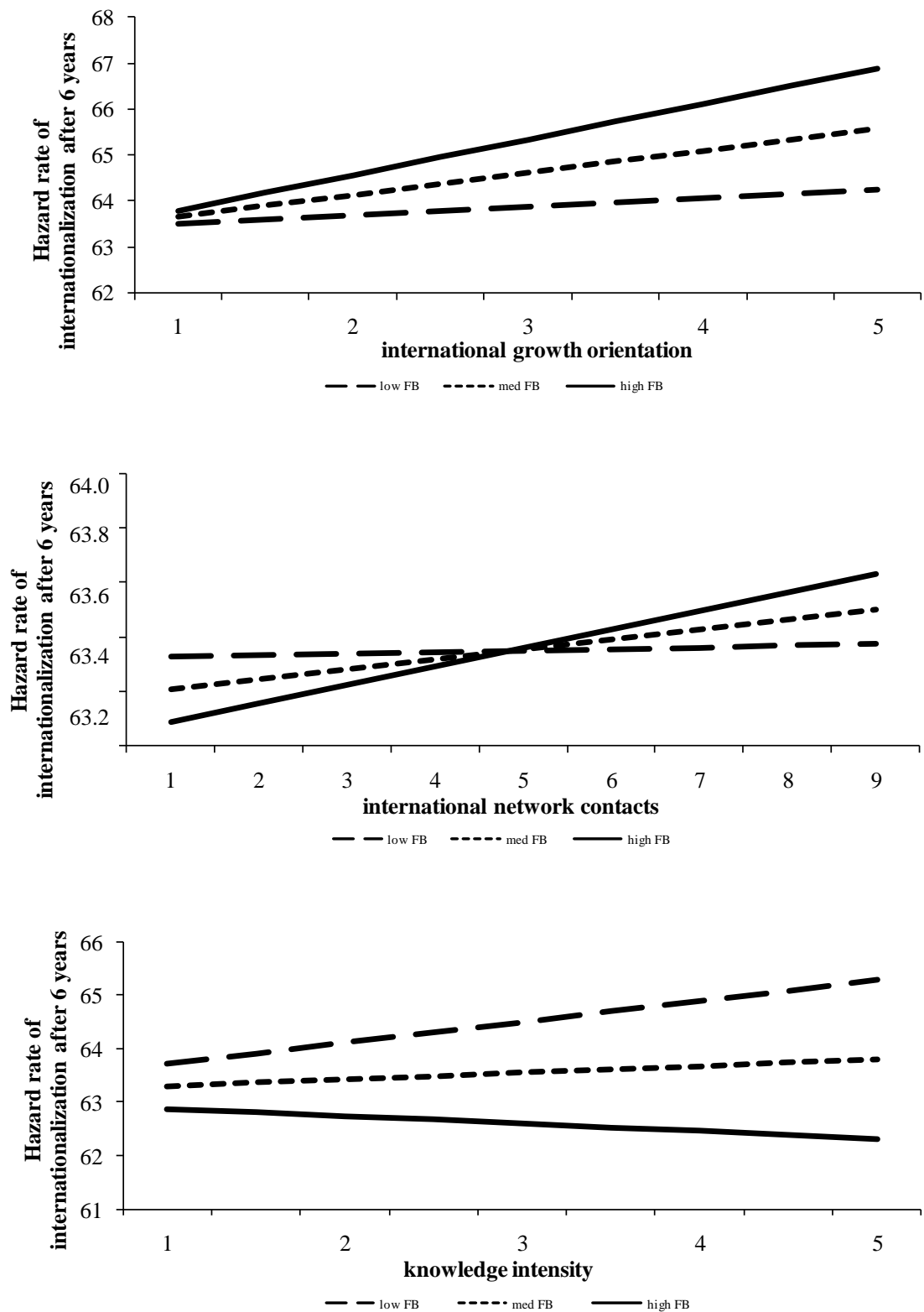
Before having a look at the results regarding the interaction terms, we briefly discuss the direct effects of the perceived barriers to internationalization on international new venturing (model 2). Perceived market-based barriers have a significant and negative influence on international new venturing (model 2: $b=0.75$, $p<0.001$), whereas perceived financial barriers do not have a significant influence (model 2: $b=0.89$, n.s.). Even though the “hazard” of internationalization decreases with ascending financial barriers, the effect is not significant on common significance levels.

In model 1, we included all interaction terms into the EHA to test our moderator hypotheses. The significant increase in model fit highlights the contribution of the moderators to the explanation of international new venturing ($\Delta\text{Chi-square}=15.65$, $p<0.05$). To show each interaction effect’s contribution to variance explanation and to further validate results from model 11, we included each interaction term separately into models 3 to 10. These models

support the results from model 11 as all significant moderator effects from model 11 remain stable.

Regarding the proposed moderating effects, three moderators are significant on common significance levels. Hypothesis 5a stipulates a positive effect on internationalization from the interaction between growth orientation and perceived market-based barriers. As shown in model 11, the coefficient of the interaction term is not significant (model 11: $b=0.97$, n.s.). Thus, Hypothesis 5a cannot be accepted. Hypothesis 5b receives support, since the interaction between growth orientation and perceived financial barriers is significantly positive (model 11: $b=1.21$, $p<0.05$). Hypotheses 6a and 6b, which assume the barriers to internationalization to moderate the relationship between international experience and international new venturing are both not supported (model 11: $b=1.17$, n.s.; $b=0.94$, n.s.). Hypothesis 7a, which assumes that the relationship between international network contacts and international new venturing is moderated by perceived market-based barriers does not receive support as well (model 11: $b=0.99$, n.s.). However, the interaction term between international networks and perceived financial barriers has a significant positive effect on international new venturing supporting Hypothesis 7b (model 11: $b=1.02$, $p<0.05$). Regarding the interaction terms between knowledge intensity and perceived market-based (model 11: $b=1.01$, n.s.) and perceived financial barriers (model 11: $b=0.79$, $p<0.1$), only Hypothesis 8b can be accepted.

To facilitate further interpretations of the interaction effects, we plotted the significant interaction effects (Figure 2). In accordance with Trevor (2001), Figure 2 depicts the change in the hazard rate to internationalize due to the respective predictor at low, medium, and high values of the moderator. The figures underline our assumptions made in Hypotheses 5b, 7b, and 8b. International network contacts and growth orientation become more important if new ventures encounter high perceived financial barriers, while perceived financial barriers negatively moderate the relationship between knowledge intensity and international new venturing.



Note: MBB = market-based barriers; FB = Financial barriers

Figure 2: Significant Moderating Effects of Perceived Financial Barriers

6. *Discussion*

The aim of our study was twofold. First, we empirically examined the impact of growth orientation, prior international experience, international network contacts, and knowledge intensity on international new venturing as opposed to domestic new venturing. Second, we investigated how perceived market-based and financial barriers moderate the relationship between these determinants and international new venturing.

Our study shows that prior international experience, growth orientation, and international network contacts have an impact on international new venturing (Acedo & Jones, 2007; Coviello & McAuley, 1999). Our results may open a more detailed discussion with regard to prior international experience and the firm's absorptive capacity (Cohen & Levinthal, 1990; Zahra & George, 2002). Recent studies focus on absorptive capacity and interorganizational learning (e.g. Lane & Lubatkin, 1998; Lyles & Salk, 1996), intraorganizational knowledge transfer (e.g. Gupta & Govindarajan, 2000), the role of absorptive capacity in innovation processes (e.g. Tsai, 2001), organizational antecedents of absorptive capacity (e.g. Jansen, van den Bosch & Volberda 2005), as well as on business performance (e.g. Lane, Salk & Lyles, 2001). In the context of INVs, different scholars such as Autio (2005) and Zahra (2005) point out the important role of absorptive capacity to the process of foreign market knowledge acquisition especially in small internationally operating firms. Hence, transferring the findings and discussion of absorptive capacity to the INV literature and relating it to the prior international experience may be a promising avenue for future research. Based on our results, we argue that those firms which can rely on international experience are able to develop a higher absorptive capacity and, hence, are better able internationalize. This perspective is further underlined by our moderator analyses. The impact of prior international experience was not found to be significantly moderated by barriers to internationalization. Hence, this determinant of international new venturing seems to be of high relevance in any situation, no matter if perceived barriers to internationalization might be on a high or on a low level.

Additionally, international network contacts have shown to be an integral part of successful internationalization (Liesch, Welch, Welch, McGaughey, Petersen & Lamb, 2002) because of their contribution to lower risks and uncertainty of international operations (Weerawardena et al., 2007). Interestingly, knowledge intensity is not directly related to

international new venturing, even though it is mentioned to be one of the major determining factors (Oviatt & McDougall, 1994). However, this may be due to our sample, since the observed companies are working in high-tech industrial sectors. Thus, since most observed companies are characterized by high knowledge intensity, this variable may not be appropriate to differentiate between INVs and DNVs in our sample (Bell, Crick & Young, 2004).

Concerning moderating effects, our findings show that the positive impact of growth orientation and international network contacts increases if high perceived financial barriers emerge. This underlines the eminent role of both predictors and their potential for surmounting perceived financial barriers. However, by plotting the interaction terms, both predictors appear to have a divergent impact on international new venturing. Growth orientation will have a positive impact on international new venturing on every level of perceived financial barriers, even though the impact significantly increases if the barrier is perceived to be high. In contrast to this, international network contacts completely lose their facilitating role if perceived financial barriers are low. Therefore, our analyses reveal a structural difference of growth orientation and international network contacts concerning the impact on international new venturing. While growth orientation can be considered as a fundamental prerequisite for international new venturing, international network contacts are mechanisms to reduce barriers of entering foreign markets. Recent literature (Oviatt & McDougall, 1994; Sapienza, De Clercq & Sandberg, 2005) argues that international venturing and international growth is directly driven by the motivation to expand business activity. A growth oriented strategy and motivation to grow are essential for new ventures' expansion (Baum, Locke & Smith, 2001; Moreno & Casillas, 2008). One avenue for expansion is to venture into foreign markets. Plotting the growth orientation interaction, we find that growth orientation is not only positively moderated by perceived financial barriers, but that the impact is still significantly positive even if only low barriers are perceived. This shows that the motivation to grow is essential in any circumstance for the initial decision to internationalize. This finding therefore contributes to the existing discussion about growth orientation. Further, our results show that the impact of international network contacts on international new venturing is virtually absent when financial barriers are perceived as low. That means that international networks are only needed if barriers need to be surmounted.

This is in line with findings from the liabilities of foreignness literature (LoF), which argue that networks are central for rendering the negative effects of LoF (Zaheer, 1995). International network contacts reduce LoF in several ways. They provide better access to important local resources, assist learning from foreign partners about how to do business abroad, help improving business–government relations, and may reduce transaction costs (Luo & Mezas, 2002). According to this reasoning, international network contacts become especially beneficial for internationalization if perceived barriers have to be curtailed.

With regard to knowledge intensity, we find that if new ventures perceive low financial barriers, knowledge intensity is positively associated with international new venturing, because they benefit from the mobility of their knowledge (Autio et al., 2000). When perceiving high financial barriers, the mobility of knowledge is restricted, because patent infringements or product piracy become more likely as uncertainty rises. In such a situation, the effect of knowledge intensity on internationalization will diminish since firms with knowledge intensive products and services are particularly exposed to high risks in case of failure. However, the interpretation of the results needs to be treated with caution since we only tested this hypothesis on a sample of knowledge intensive technology firms.

7. Limitations and implications for further research

As is the case for most empirical studies, some limitations apply to our study as well. First, internationalization is more a process than a state, resulting in measurement problems, especially when comparing INVs and DNVs. Lacking “real” longitudinal data, we were unable to fully address this limitation. However, applying EHA allows controlling for the time dependency of the internationalization event. In addition, this study cannot draw conclusions about the impact of international new venturing on the survival of companies. Nevertheless, we hope to make a major contribution to current literature in this area despite the lack of more powerful longitudinal data. Developments over time, such as changes in a firm’s profitability and the impact of the covariates on a firm’s long-term survival and development, can only be analyzed in depth when longitudinal data are available. Moreover, longitudinal data could provide insights into the causal structure and if the covariates influence internationalization or if there is a reverse causality. Future research should be encouraged to address these shortcomings by conducting panel surveys on new ventures’

development. Mudambi and Zahra's (2007) study is a first laudable step in this regard. Second, and related to this, our data suffer from left-hand censoring in that firms which have gone bankrupt or were acquired before the period of our data collection have not been included in our study. Although this is an issue in many cross-sectional empirical papers, it remains a limitation for our study. Third, testing knowledge intensity on a sample of technology firms may have some drawbacks. It may be due to this that no significant direct effect of knowledge intensity on international compared to domestic new venturing could be identified. Future research may want to study the role of knowledge intensity using samples with less homogenous types of firms. However, we found interesting results with regard to knowledge intensity when we moderated for perceived financial barriers to internationalization. Hence, we think our findings can offer an add-on value to the literature in this regard. Another limitation is that this study focuses only on German technology-based companies so that comparisons on an international scale are not possible. Fourth, relying on a firm's international revenues to define the "internationalization event" is arbitrary to a certain extent. However, we decided for this classification to define internationalization because prior research has shown that the first "internationalization event" is a major strategic decision for the firm (Tan et al., 2007). Moreover, applying EHA makes it possible to control for time aspects of internationalization. This eliminates previous research limitations which resulted from selecting arbitrary time frames for internationalization within six years (e.g. Shrader, 1996), eight years (Zahra, 1996) or even 25 years (Lindquist, 1991) after firm inception to classify INVs.

With regard to our research model, it could seem reasonable to assume a reverse causality, meaning that barriers to internationalization have a direct influence on international new venturing moderated by firm capabilities. However, we decided against such a model for various reasons: First, our paper draws on INV Theory reasoning (Oviatt & McDougall, 1994). INV Theory focuses on how young firms are able to venture into foreign markets right from inception. Hence, the theory emphasizes enablers rather than barriers to international new venturing (Autio, 2005). Second, the way we conceptualize our research model is in line with previous studies speculating about how different environmental factors may change the explanatory power of international new venturing enablers (Zahra & George, 2002). Third, a similar discussion about enablers and institutional barriers to internationalization exists in the

entry mode literature (see e.g. Dow & Larimo, 2009; Dikova & van Witteloostuijn, 2007). However, recent empirical evidence suggests that institutional barriers act as moderators rather than predictors for entry mode choice (see e.g. Brouthers, Brouthers & Werner, 2008). In line with this research, the present study focuses on the moderating rather than the direct impact of barriers to internationalization.

Our study has some major implications for managers and policy makers. As our results show, it is important for managers to take a broader perspective including the firm's inherent characteristics as well as the possible barriers to internationalization when considering venturing abroad. For instance, international network contacts may be an enabler for the firm to venture abroad; however, financial barriers in particular have to be taken into account by the management when making use of international network contacts. Technology firms' managers may want to consider that even if internationalization is a valuable means to amortize expenditures resulting from high knowledge intensity, knowledge intensity may have a negative impact on international new venturing due to financial barriers. Hence, early examination of the focal market is necessary to avoid post-entry shock effects (Pedersen & Petersen, 2004). We observed structural differences with regard to the impact of international growth orientation and international network contacts on international new venturing. In all circumstances international new venturing is supported by growth orientation, while international networks only become of importance if high barriers to internationalization have to be overcome. This underlines the importance of attitudes for new ventures' strategic decisions. Moreover, managers are well advised to foster a big international network if financial barriers are perceived. If financial barriers only play a minor role, international networks are less critical when venturing abroad.

For policy makers it is important to note that it is very important to reduce the financial barriers and market-based barriers in order to promote young firms to venture into foreign markets. Both barrier types have been shown to limit the chance of going international to a large extent. Market-based barriers directly hamper internationalization for new ventures. Thus, policy makers may want to put additional efforts into establishing supporting agencies which help to render market-based barriers. Such agencies may support internationalization by establishing contact to potential foreign partners or by providing educational measures (e.g. intercultural training). Additionally, public support agencies could reduce financial

barriers by assisting young technology firms to develop long-lasting and good relationships with financial activists such as venture capitalists, business angels, or other commercial institutions (Loane, Bell & McNaughton, 2007). Moreover, the establishment of export promotion agencies could provide valuable support for technology firms to gain foreign market access and overcome barriers to internationalization.

III. Part two:

A typology of international new ventures: Empirical evidence from high technology industries

Abstract

We examine determinants of different types of International New Ventures (INVs), namely Export Start-up, Geographically focused Start-up, Multinational Trader and Global Start-up. Whereas this typology of INVs established by Oviatt and McDougall (1994) has been widely accepted in the literature, empirical testing of the determinants of INV types is largely missing. Theoretically our arguments build on the International New Venture Theory (INVT; Oviatt & McDougall, 1994). Hypotheses generated from our framework are tested on 195 German high-tech enterprises. Results show that international growth orientation, prior international experience, knowledge intensity, product differentiation and learning orientation distinguish significantly between the different INV types.

1. *Introduction*

With the growing importance of young entrepreneurial firms entering the international marketplace, the amount of international entrepreneurship (IE) literature has continuously increased (McDougall et al., 2003). The main body of IE research compares early and late internationalizing firms and primarily investigates the determinants of international new venturing (for a review of these studies see for example Johnson, 2004; Keupp & Gassmann, 2009; Rialp et al., 2005).

Oviatt and McDougall (1994) suggested that within the group of International New Ventures (INVs), different typologies prevail. They identify four INV types in detail: Export Start-up, Geographically Focused Start-up, Multinational Trader, and Global Start-up. Each of these types reflects a specific strategic approach toward internationalization (Chetty & Campbell-Hunt, 2004). Some new ventures embrace rapid, large scale internationalization right from inception, whereas others focus their internationalization strategy on just a few international markets (Pulkkinen & Larimo, 2007). This suggests that INVs are a

heterogeneous rather than homogeneous group of firms. If INVs pursue different internationalization strategies, there is reason to believe that the determinants of the applied international strategy differ significantly as well. However, current research falls short of a systematic investigation of determinants for the different INV types. We still need empirical evidence for Oviatt and McDougall's (1994) premise that different types of INVs are determined by different factors (Zahra, 2005).

Knowing whether firm characteristics account for different INV strategies allows better interpretation of divergent results from prior studies. The fact that some studies found that determinants such as prior international experience had a strong impact on international new venturing (for example Reuber & Fischer, 1997), while others reported only marginal effect sizes (for example Kundu & Katz, 2003) may be due to the INV types observed. The samples across studies may differ with regard to the proportion of INV types, and effect sizes may differ depending on which types of INVs prevail in the sample. When the sample has a large proportion of globally acting INVs, prior international experience may have an effect on international new venturing since these INVs may be more dependent on prior international experience than an INV which pursues a geographically focused internationalization strategy. Consequently, comparing INV studies – without differentiating INV types – is problematic. Different internationalization strategies are confounded under the label of INV, and studies may misspecify the impact that the variables of interest have on international new venturing depending on the types of INVs observed.

The aim of the present paper is to contribute to the extant IE literature by elaborating on the determinants of different types of INVs. We examine the effect of international growth orientation (for example Acedo & Jones, 2007), prior managerial international experience (for example Reuber & Fischer, 1997), knowledge intensity (Yli-Renko et al., 2002), product differentiation (for example Bloodgood et al., 1996), and learning orientation (for example Emden, Yaprak & Cavusgil, 2005) on the different INV types. We chose these variables because they are established predictors of INVs.

We contribute to IE literature with a fine-grained analysis which shows that the types of INVs – adapted from Oviatt and McDougall's framework (1994) – indeed vary from each other in terms of firm- and founder- related characteristics. Knowing which resources propel specific internationalization strategies allows these resources to be fostered and thus to more

efficiently pursue a targeted INV strategy (Westhead et al., 2001; Tuppuru et al., 2008). Depending on the scale and scope of international activities, INVs face different barriers to internationalization, with a diverging resource base and differentiated managerial cognitions (Pulkkinen & Larimo, 2007). Thus, unraveling the determinants of different INV types is an important contribution to IE literature. This knowledge is also helpful for managers and policy makers, since it provides a better understanding of entrepreneurial firms with regard to their internationalization behavior and strategic decisions.

The remainder of the paper is structured as follows. Next, we develop our research model and derive hypotheses. We test our hypotheses on a dataset of 195 German INVs. After reporting and discussing the results, we highlight the limitations and further research implications.

2. *Development of the research model*

The predominant definition of INVs was first introduced by Oviatt and McDougall, who describe an INV as “a business unit that, from inception, seeks to derive significant competitive advantages from the use of resources and the sale of outputs in different countries” (Oviatt & McDougall, 1994: 49). Their seminal work has challenged traditional stage models of internationalization by stating that foreign markets are not only entered by large and internationally experienced multinational enterprises (MNEs) but also by start-ups at or near their inception (Autio et al., 2000). They identify four different INV typologies, namely: (1) Export-Import Start-ups, which coordinate a limited number of mostly logistic activities abroad and operate in few international markets. (2) Multinational Traders, which only internationalize to a limited degree but have a high level of international diversification in terms of the markets served. (3) Geographically Focused Start-ups, which are geographically concentrated but coordinate multiple operations abroad, and (4) Global Start-ups, which serve a huge number of foreign markets and coordinate many activities across countries.

Conceptualizing different types of INVs requires an understanding of prior research on how internationalization is measured. We chose a narrow conceptualization of INV types including the scale and scope of internationalization. This is in line with prior studies in IE research (for example Preece et al., 1998) and best represents the nature of the firms in our

sample. We do not aggregate different internationalization dimensions into an index, but treat scale and scope of internationalization as separate dimensions, because using an index “might conceal important information about the process of internationalization” (Hassel, Höpner, Kurdelbusch, Rehder & Zugehör, 2003: 709).

However, our conceptualization requires further comment. There has been an intensive debate about which measures best reflect firm internationalization (for example Hassel et al., 2003; Sullivan, 1994). We agree with Sullivan (1994) that internationalization is a multidimensional construct. However, depending on the type of firm investigated, the internationalization measures should vary. Hassel et al. (2003) apply two dimensions of internationalization: a real dimension which covers the activities of firms abroad and a financial dimension which refers to the proximity of the firm to international capital markets and to a firm’s corporate governance issues. Some internationalization indicators from MNE research may be inappropriate to determine INV internationalization strategies. INVs only have a small resources endowment, making them reluctant to pursue intensive internationalization investments or to build up foreign subsidiaries. Accordingly, most of the internationalization activities of firms in IE research focus on lower control modes such as exporting or foreign distributors rather than foreign subsidiaries (for example Burgel & Murray, 2000). Thus, adding indicators such as the amount of foreign subsidiaries to total subsidiaries into the internationalization measurement would not comply with inherent INV characteristics. Discussing the corporate governance dimension of internationalization is important in the context of large multinationals. However, it may not be the primary focus in INV research.

Although we build on established internationalization concepts, we can only partly adopt indicators from extant frameworks. Summing up, we decided for two indicators of the real internationalization dimension of Hassel et al. (2003): the scale and the scope of international activities³. These two aspects of new venture internationalization have attracted particular attention in IE research (for example Preece et al., 1998). International scale is mostly classified as the percentage of foreign sales to total sales and provides information about the importance of international business compared to domestic business. We define the

³ we excluded the third indicator, the foreign employees to total employees ratio. This indicator is less appropriate in INV research, because INVs primarily internationalize without a global presence in their workforce (Burgel & Murray, 2000).

scope of internationalization as the number of foreign markets a firm has international activities with as it “denotes a firm’s increased reliance on foreign markets as a means of growth” (Hitt et al., 1997: 780). Figure 3 illustrates the different types of INVs along the dimensions of international scale and international scope.

Percentage of foreign sales on total sales	high	Geographically Focused Start-up	Global Start-up
	low	Export Start-up	Multinational Trader
		few	many
		Number of countries involved	

Figure 3: The Classification of International New Ventures

In order to identify the determinants of each INV type we apply International New Venture Theory (INVT). Originally, INVT focused on the question of how companies could venture into foreign markets from inception and studies focused on the determinants of international new venturing. However, these studies did not distinguish between different INV types (Zahra, 2005). According to Oviatt and McDougall (1994), the determinants and their impact vary significantly depending on INV type. Export Start-ups and Multinational Traders are seen as INVs which are most comparable to each other. Their success depends on the ability to spot and act on emerging opportunities before competition increases. Thus, a stronger learning orientation prevails for these INVs. Geographically Focused Start-ups operate in selected foreign markets on a large scale. In order to serve very specialized needs, they are characterized by very knowledge intense products and services as well as highly differentiated products. Global Start-ups, which are the most difficult INVs to develop, derive

significant competitive advantages from coordinating multiple organizational activities in various countries. Their intense international activity at a young age predominantly results from a distinctive growth oriented attitude of the management, and will be facilitated if a high degree of prior international experience of the management team prevails. The next section develops these relationships in more detail.

3. *Hypotheses*

International growth orientation. Management's pivotal role in new venture development has been extensively explored in prior research (for example Acedo & Jones, 2007; Dimitratos & Jones, 2005; Gilbert et al., 2006; Nummela et al., 2004; Zahra & George, 2002). Management characteristics not only include capabilities, but also attitudes, such as the international growth orientation by which international activities are approached (Chetty & Campbell-Hunt, 2004). Oviatt and McDougall (1994: 49) state that "new ventures begin with a proactive international strategy" in contrast to domestic new ventures. Thus, INVT suggests that founders or decision makers possess a distinctive proactive orientation enabling them to spot windows of opportunity on a global scale (Knight & Cavusgil, 1996). Madsen and Servais (1997) promote this view towards internationalization by stating that INVs perceive international markets as providing opportunities rather than obstacles, or generally speaking: "To be global, one must first think globally" (Oviatt & McDougall, 1995: 35). A proactive attitude towards internationalization is reflected in growth-seeking behavior (Covin et al., 1990) leading to earlier internationalization (Autio et al., 2000), higher levels of foreign sales, and an increased commitment to foreign markets (Shrader et al., 2000).

By definition, Global Start-ups are characterized by a large scale and broad scope of international activities, meaning a higher commitment towards foreign markets than other INV types. This, in turn, may result in higher risks, in particular for young, financially constrained ventures (Acedo & Jones, 2007). In order to achieve such intense and diverse international operations despite the risks of failure, a proactive attitude towards internationalization is essential (Preece et al., 1998). Compared to other types of INVs – especially Export Start-ups which have a small international scale and operate only in few international markets – a growth-oriented attitude towards internationalization is of major importance for Global Start-ups. This leads us to the following hypothesis:

Hypothesis 1:

The greater the international growth orientation of the firm, the greater the likelihood of establishing a Global Start-up as INV type.

Prior international experience. Another key variable linked to INVs is prior international experience among management personnel (Bloodgood et al., 1996; Kundu & Katz, 2003; McDougall et al., 2003). Due to increased ability as a result of knowledge acquisition, internationally experienced managers can spot and exploit growth opportunities in foreign markets more easily than those without prior international experience. This results in faster international growth and a higher level of internationalization (Bloodgood et al., 1996). Therefore, prior international experience will increase the chances of accomplishing a higher percentage of international sales.

At the same time, we state that prior international experience not only yields higher international revenues, but also facilitates entrance into multiple foreign countries. A first foray into a foreign market is a costly learning process since the firm lacks experience in solving problems encountered in the foreign market (Eriksson et al., 1997). Management with prior international experience brings in routines for entering and serving foreign markets, (Sapienza et al., 2006) insuring a better understanding of foreign market structures and international business routines (Shrader et al., 2000). Thus, prior experience “substantially decreases costs of experimentation with new solutions or trial attempts to arrive at optimal solutions [...] and decreases the time taken to enact internationalization plans and can reduce the number of opportunities lost or missed” (Sapienza et al., 2006: 923). Accordingly, international experience reduces the uncertainty of operating abroad, and increases the likelihood of entering additional countries (Autio et al., 2000; Oviatt & McDougall, 2005). This is particularly the case for Global Start-ups which, compared to the other types of INVs, have the greatest international involvement in terms of both scale and scope. Therefore, we assume that:

Hypothesis 2:

The greater the prior international experience of the management team, the greater the likelihood of establishing a Global Start-up as INV type.

Knowledge intensity. In Oviatt and McDougall's INVT (1994), knowledge has been identified as a unique resource and as one of the four elements necessary for sustainable INV development. Several IE scholars recognize knowledge intensity as a key to international competitive advantage (for example Autio et al., 2000; Bell et al., 2003; Coviello & McAuley, 1999; Jones, 1999). Due to the mobility of knowledge, firms can exploit international growth opportunities more flexibly and are less constrained by national boundaries (Autio et al., 2000; McNaughton, 2001; 2003). 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).

However, defining the different types of INVs on both international scale and international scope necessitates a more differentiated analysis for the impact of knowledge intensity on the different types of INVs. On the one hand, knowledge intensive firms mostly operating in niche markets have to internationalize quickly in order to achieve sufficient demand from niche customers. Thus, a large international scale is necessary so that knowledge intensive firms secure regular incomes. As the domestic market is often too limited for sufficient demand of knowledge intensive products or services, a large international scale of operation is likely for knowledge intensive firms.

On the other hand, internationalization often involves different hurdles and risks. Each foreign market has its own institutional particularities and differs in issues, such as intellectual property rights protection. This is of particular importance for knowledge intensive firms, as the risk of product piracy and illegal replication endangers the firm's unique position and might damage sustainable firm development. Accordingly, the firm's inherent knowledge base needs to be protected. However, operating in many international markets increases costs of control and protection. Therefore, a large international scope of operation is less feasible for knowledge intensive INVs. Oviatt and McDougall (1994: 57) support this view, stating that "it should be noted that these same characteristics [knowledge intensity] that block

competitors' imitations may constrain the spread of such intangible assets [...] into multiple cultures.”

Summarizing these arguments, knowledge intensity is a major determinant for Geographically Focused Start-ups as they achieve high international revenues from few international markets. Thus, costs of control to secure a firm's unique knowledge base are limited to selected countries. We summarize our arguments in the following hypothesis:

Hypothesis 3:

The greater the knowledge intensity of a firm, the greater the likelihood of establishing a Geographically Focused Start-up as INV type.

Product differentiation. We assume that a firm's strategy toward its product differentiation affects INV typology. The degree of product differentiation enables a firm to use its technological expertise to develop new and innovative products. Prior studies often argued that customized products lead to competitive advantages and thus foster international expansion and performance (Dhanaraj & Beamish, 2003; Lu & Beamish, 2001; Lu, Zhou, Bruton & Li, 2010). However, the effect of product differentiation on internationalization is not a simple “the more-the better” relationship but requires a nuanced view. On one hand, product differentiation may be a source of international competitive advantage (McDougall, 1989) as it allows products to be adapted to meet the needs of specific foreign markets (Bloodgood et al., 1996). Firms which better tailor their products to local markets might achieve superior sales performance in these markets compared to firms which offer less adapted, “more global” products. A product differentiation strategy may therefore improve internationalization and increase a firm's foreign market sales. On the other hand, product differentiation may also restrict international expansion to a certain degree in terms of international scope. Foreign markets are more hostile than domestic ones, resulting in liabilities of foreignness (Zaheer, 1995). Zahra and Bogner (1999) mention that “the need to refrain from developing and introducing radically new products will grow as hostility rises” (2000: 145). Moreover, product differentiation is a strategy that calls for protective measures such as high control entry modes (Czinkota, Grossman, Javalgi, & Nugent, 2009). These high control modes are connected with high costs. New ventures, which are notoriously short in

financial resources, are not able to apply high control modes in multiple countries. Summing up these arguments, we hypothesize that:

Hypothesis 4:

The greater the product differentiation of a firm, the greater the likelihood of establishing a Geographically Focused Start-up as INV type.

Learning orientation. As already mentioned, knowledge is a major determinant in the creation and development of INVs (Schwens & Kabst, 2010). Not only existing knowledge, but also the learning orientation plays a pivotal role in the internationalization pattern and, therefore, the “process of assimilating new knowledge into the organization’s knowledge base” (Autio et al., 2000: 911).

According to Sinkula, Baker and Noordewier (1997), learning orientation is a key determinant of a firm’s propensity to generate new knowledge, and leads to a higher knowledge base. A strong learning orientation implies two major aspects. On the one hand, learning orientation leads the firm to continuously search for new alternatives in established settings and “to discover imbalances of resources between countries and in creating markets where none existed” (Oviatt & McDougall, 1994: 58). Learning orientation helps to improve established marketing effectiveness, and thus ultimately provides superior value to customers (Day, 1994). On the other hand, learning binds resources which might be needed to develop new markets in other geographical areas. A high learning orientation is then linked to a more “age-old type of firm” (Oviatt & McDougall, 1994: 58), developing established markets in a stepwise and incremental manner.

Export Start-ups, which act at a low international scale and scope, especially need to gather specific knowledge about the few markets they serve. Only then can they spot emerging opportunities before other ventures do, and, combined with their knowledge about the market structure and suppliers, build up sustaining competitive advantages. Additionally, “learning orientation builds on the notion that a learning organization improves its understanding of the environment over time” (Hult & Ferrell, 1997: 101), indicating the incremental process of knowledge acquisition. Export-Start-ups might be most in line with incrementally internationalizing enterprises described by Johanson and Vahlne (1977) tending

to learn more intensively about existing markets before committing to additional foreign markets. Therefore, we hypothesize that:

Hypothesis 5:

The greater the learning orientation of a firm, the greater the likelihood of establishing an Export Start-up as INV type.

4. Methodology

4.1. Sample

Our sample focuses on firms from four different technology areas: Nanotechnology, Biotechnology, Microsystems, and Renewable Energy. In cooperation with experts from the Association of German Engineers (VDI) (for the populations of Nanotechnology, Biotechnology, and Microsystems) and industry experts from the German Energy Agency (for the Renewable Energy population), we identified a sample with a total number of 1,944 relevant firms. To increase validity of our data, we collected data from multiple sources. First, we collected secondary information from the 1,944 firms. As such, we searched different databases (“Creditreform Markus database” and “Hoppenstedt database”) for information about, for example, the year of company foundation or the number of employees of each of the firms. Moreover, we screened every firm’s website to verify the secondary information gathered from the databases. This was followed by twelve informant interviews (with CEOs from three firms from each technology area) as input for our questionnaire construction. Afterwards we tested our questionnaire on another twelve representative firms (again, three firms from each technology area) prior to the survey (Schwens & Kabst, 2010).

The questionnaire-based survey took place between February and April 2007. We sent questionnaires to CEOs, export managers, and firm owners, as they are considered to have the most profound knowledge about the firm’s internationalization practices and strategic decisions. The response rate was about 17 percent, n=340 questionnaires. As we surveyed the total populations of German Nanotechnology (n=305), Biotechnology (n=526), Microsystems (n=292), and Renewable Energies (n=821) firms, our sample included both international firms and firms only active in the domestic market. Due to the research aim of our study we had to

eliminate those firms with explicit activities restricted to the domestic market only ($n=87$)⁴. Further, in order to include firms in our analysis which fulfill the characteristics of an INV, we included only those which started international activities within ten years after inception (Burgel & Murray, 2000). Applying these selection criteria, a sample of $n=195$ remained for our analysis. The average firm age of the companies in our sample was nine years and the average age at first internationalization was two years, with the firms realizing an average of 28.6 percent of their annual sales abroad. The firms in our sample internationalized into an average of twelve foreign markets. These statistics show very proactive internationalization behavior among the young firms in our sample.

To assess nonresponse bias, we followed Armstrong and Overton (1977) and controlled for differences between early and late respondents under the assumption that late respondents are more similar to nonrespondents than early respondents to nonrespondents. We conducted t-Tests for the variables of interest in our analysis (for example knowledge intensity) which yielded insignificant results across early and late respondents ($p>0.1$). Furthermore, we used the secondary data we collected prior to the survey and conducted a Kolmogorov-Smirnov two-sample test according to Siegel and Castellan (1988) in order to assess possible differences between the responding firms and the firms in the whole sample. we compared between true respondents and true nonrespondents for the number of employees and firm age. The test yielded no significant results for number of employees ($p=0.34$) and firm age ($p=0.26$) showing that nonresponse bias is not a problem for our analyses.

4.2. *Measurement*

Types of International New Ventures. To measure the dependent variable “types of International New Ventures”, we used two metric scales. First, the percentage of foreign market sales on total sales and second, the number of foreign countries served. This two-scale measurement is an adaptation of Oviatt and McDougall’s model (1994), which employed the coordination of value chain activities abroad and the number of countries involved to

⁴ we also ran our analyses with domestic new ventures (DNVs) as a fifth group. We computed a five-group multinomial logistic regression comparing DNVs with each INV type. Our results indicate that growth orientation, prior international experience, knowledge intensity and international networks significantly increase the likelihood that new ventures internationalize rather than staying domestic. However, as our research focus is on different types of INVs rather than a comparison between INVs and DNVs, we decided not to report these findings in detail. Doing so would go beyond the scope of the present paper. However, empirical results of analyses which include DNVs can be obtained from the authors upon request.

distinguish the different INV types from each other. Applying the value chain dimension in order to classify INVs can cause some problems (Jones & Tagg, 1999; Saarenketo et al., 2001). Young firms especially pursue individual combinations of foreign activities and international development paths, making it difficult to classify them according to value chain criteria (Jones, 1999). Moreover, a classification based on the mere number of value chain activities does not assess the relative importance of each activity. An INV may be acting globally while coordinating only a few important activities abroad (such as logistics, marketing, R&D, etc.). To avoid these measurement problems and to obtain a more meaningful and established measure for the international scale, we changed the value chain dimension into the percentage of foreign market sales to total sales in this study⁵. The scale and scope of international activities played an important role in earlier research as well. For example, Hassel et al. (2003) use these dimensions to conceptualize the “real” internationalization of the firm.

Another challenge that occurs when adapting the Oviatt and McDougall (1994) model is the nonexistence of a defined threshold, differentiating between the INV types on the scales. The thresholds for both scale and scope of internationalization used by other authors also vary largely. Kannadasaami and Huang (2000) define a start-up as global if it realizes at least 10 percent of its turnover abroad, whereas Johnson (2004) sets the threshold at 20 percent, Madsen, Rasmussen and Servais (2000) at 25 percent, McKinsey (1993) at 75 percent and Lummaa (2002) even calls for 90 percent of foreign sales to define a Global Start-up. In terms of the scope of international action, opinions vary on whether to take the number of different cultures, geographical regions, or countries worked in to differentiate Global Start-ups from other types of INVs. In accordance with Kandasami (1998), we chose five countries as the threshold for the international-scope dimension, meaning that Global Start-ups and Multinational Traders act in at least five foreign countries. The threshold of the international scale was set at 30 percent. We conducted a median-split which confirmed both thresholds as medians for each scale. Table 3 presents the mean scores and standard deviation of international scale and scope for each INV type.

⁵ The MNE literature often applies entry mode to measure degree of internationalization (Kuivalainen, Sundquist & Servais, 2007). We decided against this measurement as rapidly internationalizing small firms are unlikely to make notable use of foreign direct investments (Dalli, 1994).

	International Scale (% of foreign sales to total sales)		International Scope (number of foreign markets)	
	Mean	s.d.	Mean	s.d.
Export Start-up (n=59)	10.01	6.64	2.54	0.97
Multinational Trader (n=26)	15.85	7.63	7.85	3.22
Geographically Focused Start-up (n=26)	55.74	22.73	2.78	1.01
Global Start-up (n=84)	59.75	20.17	17.24	14.53

Table 3: Characteristics of the INV Types

To further validate our classification we conducted a robustness check and compared the four INV types in terms of the institutional distance between the domestic market (that is Germany) and the foreign markets served by the firm. A firm having international activities in multiple cultural regions (for example Asia, Europe, and South-America) would seem more global than a firm with international activities in, for instance, ten European countries. As an example, in conducting our robustness check we wanted to ensure that Global Start-ups opposed to Geographically Focused Start-ups are not only operating in more countries, but also in more distant countries, indicating their global nature. It would otherwise be possible that Global Start-ups and Multinational Traders serve a larger proportion of countries than Geographically Focused Start-ups or Export Start-ups, but only in a limited geographic area. Thus, we compared the four groups with t-tests for significant differences in institutional distance. To measure institutional distance, we applied the Economic Freedom Index (EFI). The index is well-known and has frequently been applied in institutions literature (for example Estrin, Baghdasaryan & Meyer 2009). EFI includes several subindices. We used the subindices for property rights protection, trade regulations, business regulations, and freedom from corruption, as they are the most suitable for INVs. We then computed the institutional distance as the mean value of the sum of differences between the EFI values of the home country (Germany) and the host countries entered. We applied the EFI values for the respective year of foreign market entry.

The Results in Table 4 show that Global Start-ups enter significantly more distant markets than Export Start-ups ($\Delta\text{EFI}=6.30$, $p\leq 0.05$) and Geographically Focused Start-ups ($\Delta\text{EFI}=5.51$, $p\leq 0.05$). Multinational Traders also enter more distant markets than Export Start-ups ($\Delta\text{EFI}=3.78$, $p\leq 0.10$) and Geographically Focused Start-ups ($\Delta\text{EFI}= 2.99$, $p\leq 0.10$) even though the results are less significant. Moreover, there are neither significant differences between Export Start-ups and Geographically Focused Start-ups nor between Global Start-ups and Multinational Traders. This shows that each of the two pairs of INV types operates in comparably distant foreign markets. Therefore, we assume that our typology is valid with regard to our research question.

Distance Index (Economic Freedom Index)					
	Mean	s.d.	ES	MNT	GFS
Export Start-up (n=59)	12.52	7.33	-		
Multinational Trader (n=26)	16.30	9.40	3.78 *	-	
Geographically Focused Start-up (n=26)	13.31	7.88	0.79	2.99 *	-
Global Start-up (n=84)	18.82	9.63	6.30 **	2.52	5.51 **

* p < .10
 ** p < .05
 *** p < .01

ES= Export Start-up
 MNT= Multinational Trader
 GFS= Geographically Focused Start-up

Table 4: Distance Index: T-Test for Significant Differences amongst INV Types

International growth orientation. To form this scale, the items “We will have to internationalize in order to succeed in the future” and “The growth we are aiming at can be achieved mainly through internationalization” were adapted (Autio et al., 2000; Nummela et al., 2004; Yli-Renko et al., 2002). To increase reliability, the item “The domestic market still offers sufficient growth potential” (Cavusgil, 1984; Johnston & Czinkota, 1985; Kirpalani & Macintosh, 1980; Moini, 1992) was added. The scale was also checked by factor analysis and Cronbach’s alpha to determine its validity and reliability, showing that all items load on the same factor and that the reliability is sufficient with an alpha of 0.78.

Prior international experience in top management. Due to the young age at the timing of internationalization, prior international experience for INVs is more likely at the individual level than in the organization itself (Saarenketo et al., 2001; Schwens & Kabst, 2009). Thus, we decided to measure prior international experience on the individual level rather than on the organizational level. We adapted two questions from Bloodgood et al. (1996) asking (a) whether or not the person with the most international experience has already worked in an internationally operating firm and (b) if the person with the most international experience has already worked abroad. The two items are entered separately into the regression model and not merged into an index. This is in accordance with prior studies, which showed that separated facets of prior international knowledge can affect international new venturing quite differently (for example Bloodgood et al., 1996; Burgel & Murray, 2000). Both items are coded binary (0 if no international experience exists and 1 if the respective aspect was answered positively). This type of coding is applied since “the relationship between international experience and organizational outcomes is unlikely to be linear across time or across individuals and strategic management literature suggests that exposure to a particular type of experience, regardless of its length, is likely to be consequential” (Reuber & Fischer, 1997: 816).

Knowledge intensity. To measure knowledge intensity we adapted a three-item scale developed by Yli-Renko et al. (2002). Questions yielded the technological excellence of the firm such as “We are known for our excellent technological expertise and knowledge.” We applied multi-item measurement covering the different aspects of knowledge intensity. The items highly load on one factor delivering a scale with an alpha of 0.78.

Product Differentiation is measured by three items which were adapted from established scales measuring the degree of unique product development (Knight & Cavusgil, 2004; Porter, 1980). One example item is “Our products are customized to a specific need of the respective customer”. All items load on one factor and Cronbach’s Alpha is reasonable (0.75).

Learning orientation is measured by a three-item scale. Sample items include “Learning in this organization is viewed as key to organizational survival” (Emden et al., 2005; Hult & Ferrell, 1997; Sinkula et al., 1997). All items load on one factor. The high

Cronbach's alpha value of 0.83 shows internal consistency and, therefore, underlies the formation of this scale.

Control Variables. We included international network contacts (Oviatt & McDougall, 2005; Selnes & Sallis, 2003), firm age (McNaughton, 2003; Preece et al., 1998), and team size at foundation (McNaughton, 2003; Shrader et al., 2000) as control variables in our analyses. These variables are very important in prior entrepreneurial research (for example Chandler & Hanks, 1994). We measured the international network by combining two questions about the number of foreign partnerships and the quality of network ties a new venture has established with foreign companies (SMEs or MNEs respectively). This measurement was adapted from various authors (Baum et al., 2000; Reuber & Fischer, 1997). To determine the total number of partnerships a new venture holds abroad, we merged the two measurements into one index. Age and founding team size can be seen as proxies for the firm's assets and resource endowment, which is particularly important when it comes to the early internationalization discussion of INVs. We measured these items by asking for the year of foundation and the number of persons involved as main decision makers in the foundation process.

5. *Analysis and results*

To test our hypotheses we applied multinomial logistic regression (MLR) analysis. This procedure is a variant of maximum likelihood-based estimation, which is employed if the dependent variable is categorical and has more than two values. MLR requires that one of the dependent variable categories be selected as a reference group. Effects are then computed and assessed in comparison to the reference group. MLR shows how the chance of belonging to a group other than the reference category is affected by independent variables. Thus, MLR is an appropriate means to examine the organizational characteristics that distinguish between different types of INVs.

Before conducting multinomial regression analysis, we tested the independent variables for multicollinearity by calculating zero-order correlations as well as variance inflation factors (*VIF*) for all independent variables (see Table 5). The results show no significant risk for multicollinearity since no correlation exceeds 0.7 (Anderson et al., 1996),

and all *VIF* values stay below 4.0 (Neter, Wassermann and Kutner 1983) and even below 2.5 (Allison, 1999).

As the measures applied in our study are self-reported and collected from an identical source, there could be a problem of common method variance (*CMV*), in which a bias in the source might contaminate all measures in the same direction. For this reason it was critical to identify whether a systematic error existed in the data. To examine the extent of *CMV* in our data, we followed Podsakoff and Organ (1986), using the Harman one-factor test. A substantial amount of *CMV* is present, if a single factor emerges from the factor analysis, or if one general factor accounts for the majority of covariance among the variables (Podsakoff & Organ, 1986; Podsakoff et al., 2003). We executed a principal component factor analysis based on the variables of interest. This analysis revealed four factors with an eigenvalue greater than one which together account for 58.6 percent of the total variance. The presence of several factor loadings, combined with the relatively low percentage of the four factors – only 19 percent, 16 percent and 12 percent and 11.6 percent, respectively – indicate that the data does not suffer from *CMV*.

Table 6 shows the results of the MLR. As can be seen, the employed determinants significantly contribute to the prediction of the different INV types, highlighted by a pseudo R-square value of 0.42.

	Variables	Mean	s.d.	VIF	1	2	3	4	5	6	7	8
1	Firm Age	10.02	6.66	1.1	1.00							
2	Team Size at Found	4.05	9.08	1.1	0.02	1.00						
3	International Network	4.53	21.60	1.1	0.11 *	0.05	1.00					
4	International Growth Orientation	3.13	1.12	1.1	0.15 **	0.07	0.11	1.00				
5	Prior International Experience (worked in an international operating firm)	0.46	0.49	1.0	-0.02	0.12 **	0.02	0.00	1.00			
6	Prior International Experience (worked abroad)	0.17	0.49	1.0	-0.04	-0.05	0.03	-0.01	0.01	1.00		
7	Knowledge Intensity	4.27	0.67	1.4	0.00	0.00	-0.08	0.06	0.07	0.00	1.00	
8	Product Differentiation	3.59	1.19	1.3	0.00	-0.03	-0.01	0.03	0.15 **	-0.07	0.42 ***	1.00
9	Learning Orientation	4.37	0.70	1.2	-0.14 **	0.04	-0.08	0.02	0.10	0.03	0.33 ***	0.26 ***

*** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.10 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

Table 5: Means, Standard Deviations, Variance Inflation Factors (VIF) and Correlations

Reference category		ES			MNT		GFS
		MNT	GFS	GS	GFS	GS	GS
control variables	With						
	Constant	-1.66 ***	-0.25	-0.42	1.41 **	1.23 **	-0.17
	Firm Age	0.08 *	0.00	0.08 **	-0.16 ***	0.00	0.16 ***
	Team Size at Found	0.05	-0.06	0.04	-0.10	0.00	0.10
	International Network	0.08 **	0.00	0.08 **	-0.08	0.00	0.08 *
	H1 International Growth Orientation	0.04	0.69 ***	0.95 ***	0.65 **	0.91 ***	0.26
	H2 Prior International Experience						
	- worked in an international operating firm	0.94 *	-0.16	0.79 **	-1.10 *	-0.15	0.95 *
	- worked abroad	-0.05	1.61 **	0.76 *	1.66 **	0.81	-0.85
	H3 Knowledge Intensity	0.87 **	1.05 **	0.69 **	0.19	-0.18	-0.37
H4 Product Differentiation	-0.35	1.44 ***	0.24	1.79 ***	0.58	-1.21 ***	
H5 Learning Orientation	-0.64 *	-0.91 **	-0.77 **	-0.28	-0.14	0.14	

Note: Overall model fit: $-2LL = 492.101$, Chi-square = 95.254, AIC = 498.101, Nagelkerke pseudo R-square = .420

* $p < .10$

** $p < .05$

*** $p < .01$

Unstandardized coefficients are reported

ES= Export Start-up

MNT= Multinational Trader

GFS= Geographically Focused Start-up

GS= Global Start-up

Table 6: Multinomial Regression Results

Results partially support hypothesis 1, arguing that the greater the international growth orientation of the firm, the greater the likelihood of a Global Start-up INV. INVs are significantly more likely to become a Global Start-up as opposed to an Export-Start-up if growth orientation is high (Table 6, $b=0.95$, $p<0.01$). Results further show that this is also true compared with Multinational Traders ($b=0.91$, $p<0.01$), but not with Geographically Focused Start-ups ($b=0.26$, n.s.). Therefore, growth-oriented behavior does not differentiate Global Start-ups significantly from all other INV types, but only from Export-Start-ups and Multinational Traders. Hypothesis 2 suggests that the more prior international experience of the management, the greater the likelihood of a Global Start-up INV. Our results show some evidence for this assumption, although the two kinds of prior international experience have divergent impacts on INV strategies. In general, our results indicate that prior international experience allows for “more international” INV types, as at least one kind of experience at a time significantly differentiates between Export Start-ups and other INV types. Furthermore, a Global Start-up strategy seems to be especially favored by prior international experience since it is the only type which profits from both kinds of experience; managers that worked in internationally operating firms ($b=0.79$, $p<0.05$), as well as managers who worked abroad ($b=0.76$, $p<0.10$). Thus, the result is consistent with the assumption that Global Start-ups will both need and benefit greatly from internationally experienced managers. Prior international experience among management personnel reduces uncertainty and, therefore, the risk of entering many foreign markets at a high scale and broad scope.

Results support hypothesis 3, indicating that greater knowledge intensity increases the likelihood of becoming a Geographically Focused Start-up. Compared to Export-Start-ups, Geographically Focused Start-ups have more distinct knowledge intensity ($b=1.05$, $p<0.01$). However, results reveal that knowledge intensity is also positively related to Multinational Traders and Global Start-ups. This needs to be taken into consideration when interpreting the results for hypothesis 3.

Our results support hypothesis 4, in which we stipulated that a product differentiation strategy propels a geographically focused internationalization strategy, increasing the likelihood of a Geographically Focused Start-up INV. The degree of product differentiation significantly increases the chance of a Geographically Focused Start-up compared to Export-Start-ups ($b=1.44$, $p<0.01$), Multinational Traders ($b=1.79$, $p<0.01$), and Global Start-ups ($b=1.21$, $p<0.01$).

Finally, the results support hypothesis 5. The higher the learning orientation, the greater the likelihood of establishing an Export Start-up. A high learning orientation decreases the propensity of INVs to act on a large international scale and broad scope. Thus, we argue that INVs which are characterized by a high learning orientation are more likely to act only on a small international scale and scope in the first years of their existence, indicating a rather incremental internationalization process for these new ventures.

The control variable firm age shows a significant positive relationship with Global Start-ups compared to Export Start-ups. Thus, the older the firm, the greater the likelihood of becoming a Global Start-up. This is intuitively plausible as firms increase their resource fungibility with growing firm age, allowing internationalization on a broader scale and scope. In contrast, the size of the founding team does not have a significant impact on the choice of a particular INV type. INV types seem to be rather homogenous in terms of their founding team size. Regarding networks, our results show small, but significant positive values for Global Start-ups and Multinational Traders compared to Export Start-ups. Networks appear to allow for international expansion in terms of scope and scale, which is in line with prior research (for example Weerawardena et al., 2007).

6. Discussion

The aim of this part was to elaborate on factors which determine the different types of INVs, namely Export Start-up, Geographically Focused Start-up, Multinational Trader, and Global Start-up. Major determinant factors were derived from INVT and were tested with multinomial regression analysis on a sample of 195 German high-tech firms. By doing so, we demonstrated that the determinants impact the four INV types differently.

Our findings contribute to the extant literature about INVs, by showing that INVs are a more heterogeneous than homogenous group of firms. The four INV types elaborated in our study reflect different internationalization strategies (Chetty & Campbell-Hunt, 2004). Based on our results, we argue that the internationalization strategy pursued by INVs is not a random choice, but depends on the firm's inherent characteristics (Mudambi & Zahra, 2007). Thus, we add a more detailed perspective to earlier research on determinants of early internationalization (for an overview of these studies see for example Keupp & Gassmann, 2009) illustrating that different types of INVs have to be taken into consideration when

analyzing INVs' strategic approach to internationalization. Our results contribute to the discussion on internationalization, demonstrating which resources are conducive to specific internationalization strategies, and which resources might also restrict strategy choice. This knowledge is important to better manage and understand an entrepreneurial firm with regard to its internationalization behavior and the strategic decisions behind it.

Our findings illustrate that Global Start-ups predominantly depend on a very growth-oriented and internationally experienced management team to succeed in international markets. Establishing such an INV is connected with high impediments requiring a proactively spirited management team. Thus, we contribute to earlier research which demonstrated that growth seeking behavior influences the timing to internationalization (for example Autio et al., 2000) by showing that the international growth orientation can significantly determine the internationalization strategy of the firm as well.

We further contribute to the discussion about the value of prior international experience (for example Kundu & Katz, 2003) by showing that different INV types depend to a different extent on prior international experience. Previous studies have either emphasized the role of different kinds of prior international experience on international new venturing (Bloodgood et al., 1996; Burgel & Murray, 2000) or of prior international experience per se on different types of internationalizing firms (Chetty & Campbell-Hunt, 2004). We now provide a more nuanced understanding of the role of various international experiences on the different INV types. It seems that different kinds of international experience are conducive to different strategies. Multinational Traders, which pursue a high-scope, low-scale internationalization strategy (thus acting in multiple countries) profit from managers who have worked in internationally operating firms. A possible explanation is that managers from those firms can coordinate multiple country operations more capably because they have likely been exposed to global operations in their previous positions. On the other hand, acquiring prior international experience directly through working abroad seems to propel a high-scale low-scope strategy, inherent to Geographically Focused Start-ups. This type of experience enables managers to exploit growth opportunities more efficiently. Our results provide evidence that INV types with a strong international presence - Global and Geographically Focused Start-ups - primarily have internationally experienced managers who worked abroad. One may conclude that this type of international experience is advantageous for more efficient

market penetration and exploitation of growth opportunities because foreign business practices and customer needs are better known and understood. Thus, rapid international growth in the foreign markets is possible.

We conclude that prior international experience gathered from working in internationally operating firms boosts international scope, while experience through working abroad favors the international scale. This conclusion is in line with our finding that a strategy emphasizing both high-scale and high-scope internationalization, as pursued by Global Start-ups, becomes more likely if an INV has managers experienced in both areas. This suggests that an INV can best overcome the risks of entering into multiple countries while exploiting growth opportunities efficiently in these markets if both types of experience are present.

We were able to contribute to the discussion of the impact of knowledge intensity on early internationalization (Autio, 2005) by showing that the influence varies with INV type. We hypothesized that knowledge intensity mainly drives INVs to act in a geographically focused way. This assumption is based on the rationale that firms providing knowledge-intensive products suffer from a trade-off between the cost of control and the need for expansion. Although our results support this statement, our findings merit further comments.

While knowledge intensity has a positive impact on the likelihood of becoming a Geographically Focused Start-up, this is also true for Global Start-ups and, at a less significant level, for Multinational Traders. Moreover, if Geographically Focused Start-ups are chosen as a reference category, we do not find significant differences in the probability of becoming a Multinational Trader or a Global Start-up, respectively. Thus, knowledge intensity does not deter INVs from entering multiple countries while increasing international sales. However, knowledge intensity is more positively related to the formation of Geographically Focused Start-ups than to Multinational Traders and Global Start-ups, as indicated by higher significance levels and a stronger coefficient. Thus, even though we do not find significant differences, our analysis indicates that knowledge intensity is particularly related to Geographically Focused Start-ups. On one hand, a focused international expansion helps knowledge intensive firms evading product piracy and patent infringement and to restrict control costs (Luo, 2001). On the other hand, this kind of expansion fosters revenues from international markets that help to amortize research and development costs connected with knowledge intensity (Burgel & Murray, 2000). Thus, we contribute to resolving the

ongoing discussion about the role of knowledge intensity in the INV literature. Some argued that knowledge intensive firms have to quickly internationalize in order to amortize initial R&D expenditures based on a high international scale and scope of the firm (for example Burgel & Murray, 2000). Others argued that knowledge intensity hampers the international development of the firm due to the risk of knowledge diffusion (for example Li, Eden, Hitt & Ireland, 2008). We show that a geographically focused internationalization strategy seems to be appropriate to cope with the trade-off between control costs and the need to expand.

As far as product differentiation is concerned, our results show that Geographically Focused Start-ups are positively related to this variable. Prior studies argue that product differentiation is a vehicle for international competitive advantage (McDougall, 1989) as it allows products to be adapted to the needs of specific foreign markets (Bloodgood et al., 1997). Therefore, product differentiation is advantageous to internationalization and foreign market entry at an early stage.

These findings may be influenced by competitive advantages firms gain through their degree of product differentiation. But another rationale may simultaneously apply: Adapting the products to specific customer needs is expensive. Hence, it is reasonable to assume that Geographically Focused Start-ups are dependent on high international revenues in order to amortize the costs of product adaptation. This is also in line with our finding that Geographically Focused Start-ups only act in a few international markets. Since these INVs emphasize product differentiation, they devote most of their scarce resources to this strategy. Entering multiple foreign markets right from a firm's inception requires financial as well as managerial backup. Simultaneously emphasizing international scope while devoting resources for product differentiation may simply overburden an INV's limited financial and managerial resource base. Accordingly, a geographically focused internationalization strategy seems to be appropriate for firms with a high degree of product differentiation as shown by our empirical findings.

As postulated by Oviatt and McDougall (1994), Multinational Traders have the most in common with Export Start-ups. Both types show a similarly growth-oriented management and a comparable degree of product differentiation. However, Export Start-ups are significantly more devoted to learning than Multinational Traders, as indicated by their greater learning orientation. Even though learning orientation is often associated with a

greater propensity to internationalize (for example Oviatt & McDougall, 2005; Chetty & Campbell-Hunt, 2004), it seems to restrict rather than facilitate international expansion. One may conclude that Export Start-ups especially need an intense learning orientation in order to better serve the few markets they are operating in and to identify opportunities more efficiently. Only this allows them to achieve sustainable firm development and competitive advantages. Whereas Export Start-ups may concentrate their learning efforts on few markets which they develop incrementally, other INVs, especially Global Start-ups, venture into foreign markets at a high pace. Learning binds resources just as international expansion does.

As INVs are typically characterized by a limited resource endowment, a high degree of learning and global expansion may be contradictory rather than complementary in early years. Export Start-ups must continuously search for and discover resource imbalances. Their sustaining competitive advantages depend on the ability to faster spot and act on emerging opportunities in foreign markets than on the knowledge of foreign markets and suppliers (Oviatt & McDougall, 1994). We show that to achieve these competitive advantages, a strong learning orientation is essential for Export Start-ups. On the other hand, Global Start-ups act proactively to acquire resources and to sell their output wherever they have the greatest value. A strong degree of learning orientation tracking and tracing new opportunities in already established markets is at conflict with such a strategy. Therefore, Global Start-ups, as well as Multinational Traders and Geographically Focused Start-ups are less likely to be as learning oriented as Export Start-ups, which have to devote more time and resources to intensive learning about the markets they are serving. Thus, our research adds a strategic perspective to the existing debate about learning in the field of IE (for example Schwens & Kabst, 2009).

In summary, our findings may help a firm to find the most appropriate internationalization strategy according to its profile, and encourage researchers (at least) to control for the type of INV being observed, since results may vary among them. For policy makers, this study may help to better distinguish between INV types and thus more efficiently distribute resources and promotion programs among them. Policy makers have an ongoing interest in how to best influence firm growth and in how firms with growth potential can be identified to maximize the value of policy intervention (Freel, 1998). Internationalization per se is a strategy for firm growth (Sapienza et al., 2006). However, our study shows that firms with specific resources, such as prior international experience, have a greater ability to pursue

strong growth internationalization by venturing into multiple countries at a high scale. Therefore, policy makers could apply these findings for more efficiently selecting those firms, which have the highest international growth potential.

Moreover, our findings suggest that policy makers should emphasize subsidy programs for knowledge intensive firms' internationalization. We demonstrate that in particular these firms face resource constraints and potential shortfalls if internationalization fails. This limits their international endeavors to a restrained geographical scope. However, extant research suggests that knowledge intensive firms might profit from an early global expansion due to risk-diversification and increased market potential (Autio et al., 2000). Therefore, public programs could help knowledge intensive firms to overcome the initial resource constraints and fully exploit their knowledge base on a broader international scope, which may result in eligible firm development and subsequent economic upturn.

7. *Limitations and implications for further research*

As is the case for most empirical studies, several limitations apply to our study. First, because internationalization is more a process than a state, the lack of longitudinal data creates problems in measuring the INV phenomenon. Longitudinal research designs could delineate changes over time, and show if INVs develop gradually from one type to another, or if the choice of one type is stable over time. Moreover, changes in international activities' scale and scope or management cognition, and their impact on the long-term survival and development of the firm can only be analyzed in depth when powerful longitudinal data is available. This would help to identify if change in the determinants really results in a change of INV type, which may prove the results found in this study.

Second, although multiple technologies were included, this study was focused on German technology-based companies, and therefore lacks a comparative value on an international scale. Thus, we cannot state if influential factors vary across different countries or cultural regions.

Third, a more detailed observation of the cultural distance between an INV's country of origin and the focal market, as recently shown on a sample of German SMEs (Schwens, Eiche & Kabst, 2010), could identify differences between INV types. We addressed this limitation by calculating the institutional distance for each INV type and compared the mean values across groups. As shown, Global Start-ups are indeed more "global" than for example, Geographically Focused Start-ups in terms of expanding into more distant countries. However, companies acting in a very restricted geographical area for example, Europe may be less dependent on prior founder experience than INVs that primarily act in culturally disperse areas. Cultural distance should therefore receive considerable attention in future INV research.

The measurement of prior international experience also has some limitations. Although we adapted well-established measures of this construct, we do not know the countries in which the prior international experience was gathered. For future research it would be interesting to assess whether the impact of prior international experience on international new venturing depends on the congruence between the "source" country and the "target" country. Dow and Larimo (2009) challenged the conceptualization and measurement of distance and international experience, stating that prior international experience gathered from earlier operations in Europe might impact subsequent internationalization into other European countries more likely than into Asia. Prior international experience could even raise problems if source and target location are not concurrent since managers could make false

conclusions about unknown market structures by transferring their international experience into incongruous environments. This indicates that prior international experience can be misapplied, as illustrated by Halebian and Finkelstein (1999). Therefore, particular attention should be given to the role of prior international experience in future research.

Another limitation of this study is the small size of some INV groups. Two of the groups, namely the Multinational Traders and the Geographically Focused Start-ups, only account for 26 companies, resulting in less significant results. Therefore, future research is in need of larger samples in order to compare the four INV types. However, our results have shown that applying a more nuanced view on INVs and separating between different types yields more idiosyncratic findings and allows for a deeper understanding of different internationalization strategies.

IV. Part three:

There is more than one way to skin a cat: A latent class analysis of international new venturing strategies

Abstract

The International New Venture (INV) literature falls short of differentiating between internationalization strategies. Linking traditional process argumentations with INV reasoning, the present paper empirically validates four different INV strategies (born-again globals, born globals, geographically focused exporters, and gradually internationalizing INVs) as well as the strategies' antecedents by means of latent class analysis (LCA). The contribution of our work is a) on the intersection between process views and INV theory showing that INVs are a rather heterogeneous than homogenous group of firms varying in their internationalization strategy and b) providing evidence that the internationalization strategy of young firms depends on the firm's inherent characteristics.

1. Introduction

International Entrepreneurship (IE) topics have been widely discussed in the International Business, Management, and Entrepreneurship community over the last two decades (for reviews see e.g. Coviello & Jones, 2004; Keupp & Gassmann, 2009; Rialp et al., 2005). In particular research on international new ventures (INVs) – mostly defined as firms engaged in international business right from inception (Oviatt & McDougall, 1994) – dominated the IE literature.

Although many valuable contributions have been made to the field, research differentiating between internationalization strategies pursued by new ventures is rather scant. Lacking a consistent definition, IE studies neither provided a clear demarcation nor did they develop sound classifications for different INV strategies. For example, to define INVs, authors chose many arbitrary thresholds for international strategy indicators (e.g. firm's age at first internationalization or the scale of internationalization). It is obvious that the INV literature embraces different types of new ventures unfolding various strategic approaches; however, the field falls short of theoretically grounding and empirically differentiating between the various INV strategies.

The lack of theoretical grounding and distinction between different INV strategies is problematic, because antecedents and their statistical influence may vary significantly depending on how INVs are conceptualized and defined. If a distinction between different INV strategies is not being made, studies may misspecify the influence of INV determinants. For example, the fact that some studies found determinants like prior international experience to have a strong impact on international new venturing (e.g., Reuber & Fischer, 1997), while others reported only marginal effect sizes (e.g., Kundu & Katz, 2003) may be due to differences in the strategy pursued by the INVs under study. This means that comparing results among INV studies without taking different INV strategies into account is like comparing apples with oranges.

The present study aims at examining internationalization strategies dominating *within a group of young technology firms*. To fulfill our aim, the procedure is twofold. First, drawing on traditional process and INV reasoning we propose that different internationalization strategies prevail among young technology firms. Rather than proposing arbitrary thresholds, we use the most frequently applied strategy indicators in the INV literature (time to internationalization, international scale, international scope, entry mode behavior, and institutional and cultural distance (between home and host country market)) to identify strategy groups by means of latent class analysis (LCA). We identify four different INV strategies: 1) born-again globals, 2) born globals, 3) geographically focused exporters, and 4) gradually internationalizing INVs. Second, we study antecedents of these four INV strategies to provide a more detailed understanding on frequently studied strategy predictors. As such, we examine the impact of international growth orientation, learning orientation, product differentiation, prior international experience, and international network contacts as antecedents for INV strategy.

The theoretical contribution of our work is on the intersection between traditional process theoretical reasoning (e.g. Johanson & Vahlne, 1977, 1990, 2009) and international new venture theory (e.g. Oviatt & McDougall, 1994). Forging a link between these two views on internationalization strategy allows us to show that some young technology firms pursue incremental internationalization strategies as heralded by traditional process views (i.e. gradually internationalizing INVs) while some pursue a proactive and rapid internationalization strategy as proclaimed in INV theory (i.e. born globals), whereas others follow a mixed strategic approach (i.e. born-again globals or geographically focused exporters). Thus, linking two important theoretical frameworks and testing their predictions of different internationalization strategies in a multivariate and confirmatory manner offers

insights which go beyond the “arbitrary threshold approach” currently holding back the literature on INV strategies.

Additionally, we contribute to the literature, because our findings suggest that the different internationalization strategies vary significantly in terms of firm- and founder-related characteristics. Knowing which resources propel specific internationalization strategies allows fostering these resources and thus to more efficiently pursue a targeted INV strategy (Tuppura et al., 2008; Westhead et al., 2001). Thus, unraveling the determinants of different INV strategies helps resolving heterogeneous findings with regard to INV determinants and makes an important contribution to the extant IE literature.

The remainder of the paper is structured as follows: the next section reviews the background literature and develops hypotheses. We then test our hypotheses applying latent class analysis with covariates on a dataset of 248 German internationally acting technology firms. Finally, we discuss our findings and outline limitations and implications.

2. *Background literature and theoretical framework*

International entrepreneurship (IE) research and studies on INVs respectively have intensively discussed two different internationalization theories: The Process Theories of Internationalization (PTI) and the International New Venture Theory (INVT). Most of the discussions, to date, view the PTI and the INVT as contradictory, because the two theories take quite different perspectives. Thereby, the potential cross-fertilization is often neglected.

Originating from the internationalization of manufacturing firms in the 1970s, PTI assumes internationalization to unfold incrementally out of an established domestic market (e.g. Johanson & Vahlne, 1977, 1990, 2009). The firm gradually expands its international activities whereby prior international market engagements function as “stepping stones” into new markets. Accordingly, the firm’s international behavior is driven by two assumptions. First, the establishment chain logic, which implies that firms increase their foreign market commitment over time by moving from export via agents to wholly-owned overseas subsidiaries. The second central element is the psychic distance concept (Johanson & Wiedersheim-Paul, 1975) which is defined as “the sum of factors preventing the flow of information from and to the market” (Johanson & Vahlne, 1977: 24). Through gradual internationalization from psychically close to more psychically distant markets, the firm reduces the frictions resulting from psychic distance.

Opposed to PTI, INVT focuses on a proactive internationalization strategy, in which firms view international markets as providing opportunities rather than risky endeavors

(McDougall, 1989; Oviatt & McDougall, 1994; Shrader, 1996; Zahra, 1996). Accordingly, INV research predominantly emphasizes enablers to internationalization such as a strong international growth orientation (e.g. Acedo & Jones, 2007), prior international experience (e.g. Reuber & Fischer, 1997), international network contacts (e.g. Coviello, 2006; Freeman et al., 2006) and product differentiation (e.g. Bloodgood et al., 1996; Shrader et al., 2000). Various INV studies have reported that some firms venture abroad early in their life-cycle while generating a significant amount of international revenues from a high number of foreign markets right after firm inception (e.g. Freeman et al., 2006).

	Process Theories of Internationalization (PTI)	International New Venture Theory (INVT)
Empirical origin	Swedish <i>manufacturing</i> firms in mid-1970s	<i>Knowledge-intensive</i> firms in mid-1990s
Major focus	Primarily focuses on <i>constraints to internationalization</i> (e.g. psychic distance) and on the firm's <i>learning orientation</i>	Primarily focuses on enablers to internationalization (prior international experience, international network contacts, international growth orientation, knowledge intensity, product differentiation)
Timing to internationalization	Late internationalization after a stable domestic market has been established	Early internationalization mostly right after firm inception
International scale	Incremental increase of international revenues	Significant amount of international revenues from early on
International scope	Gradual development of additional foreign markets; prior foreign markets function as "stepping stones"	Significant amount of foreign markets served from the beginning
Entry mode behavior	Firms start off with low commitment modes and incrementally increase commitment along the establishment chain	No sequential foreign market development; multiple and different modes used (dominated by low commitment modes); "leap-frogging" as a key characteristic
Distance	Firms move gradually from less to more psychic distant host countries	Firms move to countries where they spot "windows of opportunity" regardless how psychic distant those countries are

Table 7: Comparison between Process Theories (PTI) and International New Venture Theory (INVT) (adapted from Schwens, 2008: 8)

As illustrated in Table 7, PTI and INVT provide theoretical backing for quite different internationalization strategies. PTI was most dominantly criticized for not being able to capture the early and rapid internationalization behavior of young firms (Mudambi & Zahra, 2007). However, with a closer look at existing IE research (e.g. Brouthers, Nakos, Hadjimarcou & Brouthers, 2009; Gabrielsson, Kirpalani, Dimitratos, Solberg & Zucchella, 2008; Tuppara et al., 2008), it becomes obvious that the new ventures under study by no

means pursue a consistent internationalization approach and that PTI reasoning may be fruitful to explain some new ventures' internationalization behavior as well.

A closer examination of the empirical IE literature (see Table 8) demonstrates the large variety of INV definitions and conceptualizations currently dominating the field. Researchers have applied various definitions and a huge amount of arbitrarily chosen criteria to classify INVs along the most frequently applied strategy indicators such as a) time to internationalization, b) international scale, c) international scope, d) entry mode behavior, and e) distance. The internationalization strategies behind these arbitrary thresholds are very often not proactive and international from the outset as would be suggested by INVT. For example, the international scale dimension ranges from very low (5% of foreign sales to total sales) to high (90% of foreign sales to total sales).

Internationalization dimension	Value/Measurement	Studies
Time to internationalization (Firms had to internationalize within X years after inception)	at the outset	Fan & Phan, 2007; Lopez, Kundu & Kiravegna, 2009; Loustarinen & Gabrielsson, 2006; Oviatt & McDougall, 1994; Yeoh, 2004
	1 year	Brush, 1992; Contractor, Hsu & Kundu, 2005; Schwens & Kabst, 2009
	2 years	Andersson, 2004; Chetty & Campell-Hunt, 2004; Knight & Cavusgil, 1996; Knight & Cavusgil, 2004; Shrader, 2001
	3 years	Coviello, 2006; Harveston et al., 2000; Knight & Cavusgil, 1996; Knight & Cavusgil, 2004; Madsen et al., 2000; McDougall et al., 2003; Nordman & Melén, 2008; Presutti, Boari & Fratocchi, 2007; Tuppura et al., 2008; Zhou, Wu & Luo, 2007; Zahra et al., 2003
	5 years	Acedo & Jones, 2007
	6 years	Fernhaber, McDougall & Oviatt, 2007; Oviatt & McDougall, 1994; Shrader, 1996; Shrader et al., 2000
	8 years	McDougall, 1989; Zahra, 1996
	10 years	Gassmann & Keupp, 2007
	12 years	Covin et al., 1990
	25 years	Lindquist, 1991
International scale (mostly measured by percentage of foreign sales to total sales) needs to be as high as X%	5%	McDougall & Oviatt, 1996; Yeoh, 2004; Zahra et al., 2000
	10%	Kandasaami & Huang, 2000; McDougall, 1989; Zhou et al., 2007
	20%	Fan & Phan, 2007; Johnson, 2004;
	25%	Andersson, 2004; Harveston et al., 2000; Knight et al., 2004; Knight & Cavusgil, 1996; Knight & Cavusgil, 2004; Madsen et al., 2000; Tuppura et al., 2008
	30%	Minguzzi & Passaro, 2000
	50%	Luostarinen & Gabrielsson, 2006
	75%	Rennie, 1993
	90%	Lopez et al., 2009; Lummaa, 2002
International scope (mostly measured by the number of foreign markets or country clusters a firm has international activities in. To be classified as INVs firms had to serve X countries)	≥ 1	Gassmann & Keupp, 2007
	countries, mean 2.17 (S.D. 1.08)	Zahra et al., 2000
	continents: mean 1.75 (S.D.1.08)	Fernhaber, Gilbert & McDougall, 2008
	countries, mean 3.89 (S.D. 10.88)	George, Wiklund & Zahra, 2005
	≥ 5	Kandasaami & Huang, 2000
	countries, mean 14.44 (S.D 14.77)	Tuppura et al., 2008
	countries, mean 14.51 (S.D 9.68)	Zahra, Neubaum & Huse, 1997
	countries, mean 16.81	Majocchi & Zucchella, 2003
	countries, mean 18.8 (S.D. 16.9)	Aspelund & Moen, 2005
	countries, median: 20	Knight & Cavusgil, 2004
Entry mode behavior	export	Acedo & Jones, 2007; Aspelund & Moen, 2005; Brouthers & Nakos, 2005; Brouthers et al., 2009; Contractor et al., 2005; Dhanarai & Beamish, 2003; Fernandez & Nieto, 2006; Knight & Cavusgil, 1996; Knight & Cavusgil, 2004; Kundu & Katz, 2003; Lopez et al., 2009; Majocchi & Zucchella, 2003; Minguzzi & Passaro, 2000; Tuppura et al., 2008; Yeoh, 2004; Zahra et al., 2000; Zhou et al., 2007
	co-operations	Tuppura et al., 2008

	(licensing, franchising)	
	interfirm alliances	Coombs, Mudambi & Deeds, 2006; Leiblein & Reuer, 2004; Majocchi & Zucchella, 2003
	strategic alliances	Coombs et al., 2006; Leiblein & Reuer, 2004; Majocchi & Zucchella, 2003; Preece et al., 1998
	joint venture or equity investment	Dickson et al., 2006
	foreign plants or subsidiaries	Chen & Martin, 2001
	combinations	Coviello & McAuley, 1999; Jones & Coviello, 2005
	countries with higher psychic distance (key markets)	Aspelund & Moen, 2005; Lopez et al., 2009
	cultural clusters (as defined by Hofstede (1980)), and geographical regions	Lummaa, 2002
	low-risk developed countries more frequently entered (sample: U.S. firms)	Shrader et al., 2000
	three areas: Europe, North-America, rest of the world (sample: Italian firms)	Majocchi & Zucchella, 2003
Distance	physic distance concept for Sweden (Denmark 1; ...; Portugal 15)	Andersson, 2004
	Hofstede's classification of national cultures	Yeoh, 2004; Yli-Renko et al., 2002; Zahra et al., 2000;
	"global vision at inception"	Gabrielsson et al., 2008
	Measures for countries in sample: GLOBE: Institutional collectivism; Uncertainty avoidance; Assertiveness	Dickson et al., 2006

Table 8: Major INV Strategy Indicators and the Arbitrary Thresholds Applied in IE Research

The heterogeneous classifications and arbitrary thresholds chosen may be an important reason for the diversified empirical findings with regard to antecedents of international new venturing currently holding back the field. Different determinants of international new venturing have been studied in previous research (for an overview see e.g. Johnson, 2004) with findings remaining largely inconclusive. For example, international network contacts have played a dominant role in IE research (Coviello, 2006) and researchers widely agreed that INVs benefit from international network contacts (e.g. Schwens & Kabst, 2009;

Weerawardena et al., 2007). However, others exhibited a liability side of network contacts as well (Chetty & Agndal, 2007; Woolcock & Narayan, 2000). Additionally, some studies found prior international experience had a strong impact on international new venturing (e.g. Reuber & Fischer, 1997), while others reported only marginal effect sizes (e.g. Kundu & Katz, 2003). Beyond other reasons, the diversity in empirical findings may be a result of the misspecifications in the classification and definitions of the firms under study. Thus, to forward IE research, it is important to resolve these ambiguities.

3. *Hypotheses*

We argue that PTI and INVT reasoning can complement each other in order to provide a more holistic view on young firm internationalization and to explain different INV strategies. The PTI perspective emphasizes the concept of distance and market entry mode, whereas INVT focuses on the age at internationalization as well as scale and scope of international activities. Combining both theories therefore provides a more complete frame for internationalization patterns.

PTI does not only provide additional indicators for measuring international new venturing (e.g. institutional and cultural distance), but also allows for a more nuanced profile of INVs. Some INVs may pursue a genuine born global approach with high international revenues from multiple countries right from inception. Other INVs may decide to venture abroad at a young age but more reactive, starting internationalization with a low commitment and in cultural or institutional adjacent countries.

Therefore, we assume that different INV strategies exist. This is in line with Jones (1999) who identified different types of internationalization routes followed in terms of market entry mode. Bell and colleagues (2003) studied “born-again globals” characterizing firms that internationalized rapidly after start-up, then withdrew from international markets, and then recommenced overseas activities. Crick (2009) identified differences between “born globals” and “INVs”. He argues that born globals have a presence in at least the world’s triad regions, whereas INVs internationalize quickly but not necessarily with a global presence. In summary we come to the following hypothesis:

Hypothesis 1:

Different classes, including INVs with different strategies exist.

Antecedents of INV Strategy Classes

In the following we derive hypotheses for the determinants of INV strategy classes as illustrated in Figure 4.

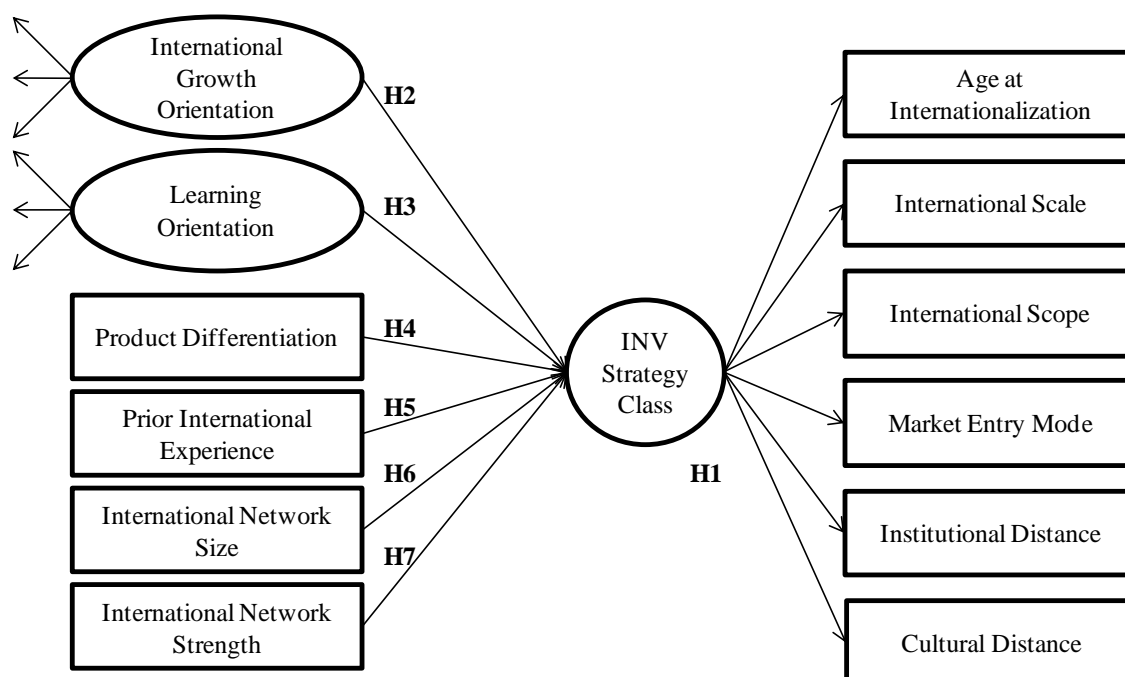


Figure 4: Research Model – Latent Class Analysis

International Growth orientation. We assume the INV strategy class to depend on the firm's international growth orientation. Research has shown that new ventures' development highly depends on the firm's orientation towards international growth (Tuppura et al., 2008). Oviatt and McDougall (1994: 49) already stated that "new ventures begin with a proactive international strategy". Various other studies consider managerial perceptions and strategic orientation as pivotal for firms' internationalization and expansion (e.g. Acedo & Jones, 2007; Coviello & McAuley, 1999; Gilbert et al., 2006; Zahra & George, 2002). A proactive attitude towards internationalization is reflected by growth seeking behavior (Covin et al., 1990) impacting, for instance, the time to internationalization (Autio et al., 2000), international

scale, and entry mode behavior (Shrader et al., 2000). International growth orientation may not only trigger internationalization (Tuppura et al., 2008) but also significantly distinguish between the different INV strategies. Thus, we hypothesize:

Hypothesis 2:

International growth orientation significantly influences the INV strategy.

Learning Orientation. We assume the INV strategy to depend on the firm's learning orientation. Knowledge is a major determinant for the creation and development of INVs (Oviatt & McDougall, 1994). According to Sinkula and colleagues (1997), learning orientation influences a firm's propensity to generate new knowledge. A strong learning orientation of the firm implies two major aspects. On the one hand, learning orientation leads the firm to continuously search for new alternatives in established settings and "to discover imbalances of resources between countries and in creating markets where none existed" (Oviatt & McDougall, 1994: 58). On the other hand, learning binds resources which might be necessary to develop new (international) markets, hence, influencing INV strategy. INVs with a high learning orientation aim at building specific knowledge about the markets they already serve rather than expanding their business into multiple areas. This may influence the extent of resources committed to international markets. Therefore, we hypothesize that:

Hypothesis 3:

The firm's learning orientation significantly influences the INV strategy.

Product differentiation. We assume the INV strategy to depend on the product differentiation of the firm. Prior studies often argued that customized products lead to competitive advantages and thus foster international expansion and performance (Dhanaraj & Beamish, 2003; Lu & Beamish, 2001; Lu et al., 2010). However, the effect of product differentiation on internationalization is not a simple "the more - the higher" relationship but requires a detailed view. On one hand, product differentiation may be a source of international competitive advantages (McDougall, 1989) as it allows for adapting products to the needs of specific foreign markets (Bloodgood et al., 1997). Product differentiation may help to pursue internationalization and to enter foreign markets at an early stage. On the other hand, product differentiation may also restrict international expansion to a certain degree especially in terms of global scope and foreign market distance. Culturally or institutionally distant foreign

markets are more hostile than adjacent markets resulting in higher liabilities of foreignness. Moreover product differentiation is a strategy that calls for protective measures, like high control entry modes (Czinkota et al., 2009). Thus, the degree of product differentiation of the firm may significantly influence its internationalization strategy. In summary we hypothesize:

Hypothesis 4:

The firm's degree of product differentiation significantly influences the INV strategy.

Prior international experience. We assume the INV strategy to depend on the prior international experience of the firm's management. Research has shown that prior international experience enhances the firm's awareness of emergent opportunities (Westhead et al., 2001), the pace of internationalization (Oviatt & McDougall, 2005; Zahra et al., 2000), the degree of internationalization (Reuber & Fischer, 1997), and export performance (Cavusgil & Zou, 1994; Kundu & Katz, 2003). Due to an increased ability of knowledge acquisition, internationally experienced managers will more easily spot and exploit growth opportunities in foreign markets than those without prior international experience. Firms with prior international experience cope more efficiently with liabilities of foreignness (Eriksson et al., 1997; Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975; Zaheer, 1995). Accordingly, prior international experience reduces uncertainties of operating abroad and helps to avoid shortfalls. This increases the probability that a firm will venture abroad (Autio et al., 2000; Oviatt & McDougall, 2005). Thus:

Hypothesis 5:

Prior international experience significantly influences the INV strategy.

International networks. We assume the INV strategy to depend on the international network contacts of the firm. Networks play an important role for new ventures' internationalization (Coviello, 2006). A wealth of studies emphasizes the impact of international networks on the pace, the intensity, and the scope of international new venturing (Weerawardena et al., 2007; Young et al., 2003; Zahra et al., 2003). Networks influence foreign market entry (Nerkar & Paruchuri, 2005), reduce uncertainty (Freeman et al., 2006), provide financial backup (Shane & Cable, 2002), and support learning in and about foreign markets (Schwens & Kabst, 2009; Yli-Renko et al., 2002).

Regarding networks, especially two aspects are highlighted in extant literature: The size of a network (Baum et al., 2000; Reuber & Fischer, 1997) and the strength of inter-organizational network contacts (Dyer & Singh, 1998; Kale, Singh & Perlmutter, 2000). Strong contact with foreign network partners “contributes to lowering risk and uncertainty inherent in international operations” (Weerawardena et al., 2007: 301). Hence, strong relations are a powerful tool to facilitate international new venturing (Oviatt & McDougall, 2005; Selnes & Sallis, 2003) by yielding security and financial back-up (Shane & Cable, 2002). The number of network contacts, on the other hand, may provide a vehicle for young firms to gain initial access to foreign markets (Coviello, 2006). A network of large size forwards internationalization in general by providing visibility and legitimacy (Choi & Shepherd, 2005; Gulati, 1995) as well as innovative capabilities (Chetty & Agndal, 2007; Nahapiet & Goshal, 1998). Moreover a big international network facilitates 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). Therefore, international networks influence the INV strategy (Oviatt & McDougall, 1994) leading us to assume that:

Hypothesis 6:

The size of the international network significantly influences the INV strategy.

Hypothesis 7:

The strength of the international network significantly influences the INV strategy.

4. Methodology

4.1. Sample

Our database covers German firms from four different technology areas: nanotechnology, biotechnology, microsystems, and renewable energies. We collected data from multiple sources to establish the validity of our measures. First, we used secondary data to identify the relevant firms from the four technology areas. In close cooperation with industry experts from the Association of German Engineers (VDI) and industry experts from the German Energy Agency, we identified a sample with a total number of 1,944 firms. We used different databases (“Hoppenstedt” and “The Creditreform Markus Database”) to gather quantitative firm information such as the number of employees or the year of foundation of the relevant firms. Moreover, we used the “Factiva” database to gain qualitative information about, for

instance, the internationalization actions taken by the firms. Furthermore, in line with Cloninger and Oviatt (2007), we checked every firm's website and collected other available firm information. Second, we conducted twelve informant interviews (with three firms from each technology area) as input for our questionnaire construction. Third, we tested the questionnaire on another twelve representative firms (again, three firms from each technology area) prior to the survey.

We collected the primary data of our study in 2007. We sent two questionnaires to collect data from two informants. The first questionnaire was sent to the firm's CEO as he is perceived to have the most profound knowledge of the firm strategy as well as internationalization decisions taken by the firm. The second questionnaire - depending on the firm's organizational structure - was sent to an informant with expert knowledge about a firm's internationalization, such as the head of strategy, sales, or export. To maximize our response rate, we undertook several measures as suggested by Dillmann (2000). Firms received a letter stating the purpose and importance of the research project and subsequently a phone call in which they were requested to participate. We received 340 questionnaires (17.2%) of which 44 firms had two respondents. As we surveyed the total populations of German nanotechnology, biotechnology, microsystems, and renewable energy firms, our sample included both international firms and firms with activities exclusively in the domestic market. Our final sample after dropout includes $n=234$ firms with international activities.

To test for non-response bias, we followed Armstrong and Overton (1977), examining differences between respondents and non-respondents, and compared early and late respondents with regards to our predictor variables and the internationalization strategy indicators. A *t*-test showed no significant differences for all variables. Thus, results do not indicate problems of non-response bias. Furthermore, we used the secondary data we collected prior to the survey and conducted a Kolmogorov-Smirnov two-sample test according to Siegel and Castellan (1988) to assess possible differences between the responding firms and the firms in the whole sample. We compared true respondents and true non-respondents for the number of employees and firm age with results showing that non-response bias is not a problem for our analyses.

We applied a retrospective recall in our survey. Retrospective data have been extensively used to study strategic decision-making processes (Mintzberg et al., 1976). However, retrospective reports are susceptible to inaccurate recall due to inappropriate rationalization, oversimplifications, faulty post hoc attributions, or and simple memory flaws (Huber & Power 1985; Miller et al., 1997; Wolfe & Jackson, 1987). Asking for information

about internationalization activities of the firms in our dataset could have been a problem due to the age of some of the companies. However, descriptive statistics revealed that the vast majority of the technology firms in our sample had conducted their internationalization activities in the last few years (Mean=7 years; S.D=5.6). This significantly reduces the risk of informant fallibility (Golden, 1992; Miller et al., 1997), and leads to higher retrospective accuracy in our data.

4.2. Measurement

Measurement of internationalization strategy

To measure the dependent variable *INV strategy*, we treat international new venturing as a latent construct, which manifests itself in different observable indicators. We apply latent class analysis (LCA) exploring different latent classes of INVs, which hold a unique pattern of internationalization indicators. Taking such a multivariate approach allows for identifying different strategies of INVs without choosing arbitrary thresholds and thus advances our understanding of international new venturing.

To conceptualize INV strategy classes, we use multiple indicators. The measurement of internationalization has been widely discussed resulting in many valuable contributions about potential indicators of internationalization behavior (e.g. Sullivan, 1994). However, these concepts mainly focus on large MNEs which show different characteristics than INVs making some of the applied indicators less appropriate for INV studies. Rather, the dominating dimensions frequently applied in INV research – a) age at internationalization, b) international scale, c) international scope, d) market entry mode and e) distance (cultural and institutional) – are more appropriate. Although we do not claim to be exhaustive with the indicators chosen, we argue that these strategy indicators are among the most frequently applied factors in IE research and, hence, allow for identifying valid INV strategies.

Age at internationalization was measured as the difference, in years, between foundation and the first internationalization (Autio et al., 2000). *International scale* was measured by the ratio between foreign sales and total sales (Preece et al., 1998). To measure the *international scope* we asked the responding firms for the number of markets they have international activities in (Brouthers et al., 2009; Hitt et al., 1997; Tallman & Li, 1996). *Entry mode behavior* was measured with a scale ranging from low control entry modes (direct export, long-term contracts, foreign distributor, contractual cooperation) to higher control modes (joint venture, foreign sales subsidiary, foreign subsidiary including production). As studies are inconclusive about measuring entry mode in a metric (in terms of amount of

control or commitment to a foreign market), a multinomial (different unordered choices) or a dichotomous manner (low vs. high control mode), we checked all alternatives. As there were no differences in our findings we defined the entry mode scale as metric. *Distance* has been observed under varying labels and by taking different perspectives, such as cultural distance or institutional distance. In line with recent research (e.g. Ghemawat, 2007; Xu & Shenkar, 2002) we consider two aspects of distance for this work: Cultural distance and institutional distance. We decided for these two aspects, since decisions to venture abroad may be influenced by cultural aspects as well as institutional parameters, such as property rights protection. To measure the *cultural distance* between home and host country we apply Kogut and Singh's (1988) formula. While the original index included Hofstede's four culture dimension, we used GLOBE's nine cultural dimensions (House, Hanges, Javidan, Dorfman, & Gupta, 2004) and adapted the formula accordingly. We selected the 'practices' rather than the 'values' indices, because INVs will mainly be concerned with the cultural conditions that they actually encounter in the host country. To measure *institutional distance* we applied the Economic Freedom Index using the sub-indices for property rights protection, trade regulations, business regulations and freedom from corruption for the year when the respective market entry of the firms in our sample occurred (Estrin et al., 2009). We then computed the distance as the difference between the measures of the home country (Germany) and host country.

Measurement of strategy predictors

The strategy predictors are adapted from established scales in the entrepreneurship, international business, and management literature. Whenever possible, we used multiple-item measurements to minimize measurement error and to enhance the content coverage of the constructs. We measured statement-style items on 5-point Likert-scales ranging from 1=strongly disagree to 5=strongly agree.

To measure *international growth orientation*, we used the items "We have to grow in order to succeed in the future" and "Our firm aims can be achieved mainly through further growth" (Autio et al., 2000; Nummela et al., 2004; Yli-Renko et al., 2002). To increase reliability, the item "The markets we are currently serving still offer sufficient growth potential" (Cavusgil, 1984; Johnston & Czinkota, 1985; Kirpalani & Macintosh, 1980; Moini, 1992) was added (recoded). The three items load on one factor (see appendix) and show good reliability (Cronbach's $\alpha = 0.79$).

Learning orientation is measured by a three-item scale. One example item is “Learning in this organization is viewed as key to organizational survival” (Emden et al., 2005; Hult & Ferrell, 1997; Sinkula et al., 1997). All items load on one factor. The high Cronbach’s alpha value of 0.83 shows internal consistency underlining the formation of this scale.

Product Differentiation is measured by three items (Knight & Cavusgil, 2004; Porter, 1980). One example item is “our primary product caters to a specialized need that is difficult for our competitors to match”. All items load on one factor and Cronbach’s Alpha is reasonable (0.71).

Adapted from Reuber and Fischer (1997), *prior international experience* was defined as whether a member of the top management had a) worked in an internationally operating company and/or b) worked abroad. Binary coding was applied, as “the relationship between international experience and organizational outcomes is unlikely to be linear across time or across individuals and strategic management literature suggests that exposure to a particular type of experience, regardless of its length, is likely to be consequential” (Reuber & Fischer, 1997: 816).

We measure *international network contacts* in terms of two aspects: the size as well as the strength of international network contacts (Van Wijk et al., 2009). The *size* is measured by combining two questions about the number of partnerships or network ties a new venture has with foreign companies (SMEs, or MNEs respectively) which is suggested by various authors (Baum et al., 2000; Reuber & Fischer, 1997). To determine the total number of partnerships a new venture holds abroad, the two measurements are merged into one index. The *strength* is measured by asking for the frequency of contact with international cooperation partners (Dyer & Singh, 1998; Kale et al., 2000).

5. *Analysis*

5.1. *Scale validation*

When latent constructs and composite scores are used in analyses, it is important to assess the validity and reliability of the applied scales (Anderson & Gerbing, 1988). Selection of scale items on the basis of prior literature and pretesting of the survey instrument helped ensure content validity. To assess scale reliability, we computed Cronbach’s alpha for each multiple scale item and found these to be well above the cut-off value of 0.7 in each case (Nunnally, 1978). To control for multicollinearity we computed zero-order correlations between the independent variables and variance inflation factors (VIFs). Table 9 outlines the results

indicating no major risk for multicollinearity as VIFs and correlations only have low values. International growth orientation and learning orientation are reflective latent constructs. To validate their measurement structure we conducted a confirmatory factor analysis (CFA). The CFA with two latent constructs performed best and had a good model fit (CFI=0.98; TLI=0.97; RMSEA=0.04). In addition, all factor loadings scored above 0.7, underlining the measurement quality.

Variables	Mean	S.D.	VIF	International growth orientation	Learning orientation	Product differentiation	Prior international experience	International network size
International growth orientation	3.39	1.05	1.03	1				
Learning orientation	4.38	0.72	1.08	.040	1			
Product differentiation	3.59	1.19	1.10	.031	.263 **	1		
Prior international experience	0.52	0.50	1.01	-.006	.091	.073	1	
International network size	4.81	7.21	1.05	.025	-.002	.081	.032	1
International network strength	2.27	1.04	1.07	.128 †	-.041	-.005	-.009	.200 **

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

† Correlation is significant at the 0.10 level (2-tailed).

Table 9: Means, Standard Deviations, Correlations and Variance Inflation Factors (VIF) of the Independent Variables

5.2. *Assessing common method variance*

As the measures applied in our study are self-reported there could be a problem of common method variance (CMV), in which a bias in the source might contaminate all measures in the same direction. For this reason it was critical to identify any systematic error based on CMV in the data (Brannick, Chan, Conway, Lance & Spector, 2010). In accordance with Chang, Van Witteloostuijn and Eden (2010) we apply multiple strategies to assess CMV and combine *ex ante* survey and *ex post* survey strategies. *Ex ante*, when we constructed our questionnaire, we separated independent and dependent variables in terms of space. Furthermore, we added some questions which we did not aim at in our study and placed them between independent and dependent variables. *Ex post* we first tried to reduce the likelihood of CMV by the complexity of our theoretically derived model. Complex models are less prone to CMV than simple models, since the relations between the observed variables are less obvious to the individual rater. Observing latent classes is a very demanding and complex procedure which makes contamination resulting from CMV less likely. In addition, we used two recommended statistical approaches. First, we assessed the interrater reliabilities for the 44 firms in which we obtained data from two respondents. Intraclass correlation coefficients (ICC) for our scales exhibited high interrater reliability (Shrout & Fleiss, 1979), all at the 0.001 level: for instance, international growth orientation (ICC=0.77) and learning orientation (ICC=0.71). Second, following Podsakoff and Organ (1986), we used the Harman's one-factor test to assess the influence of common method bias. Principle component factor analysis based on the dependent, independent, and control variables of our model revealed three factors with an eigenvalue above 1. These three factors accounted for 57.3% of the total variance (first factor: 29.3%, second factor: 15.1%, third factor: 12.9%).

5.3. *Latent class analysis (LCA) as analytical procedure*

We apply latent class analysis (LCA) to test our hypotheses. LCA is an empirically based statistical approach for explaining the heterogeneity in response-profiles in terms of underlying latent classes (Kreuter, Yan & Tourangeau, 2008; Reboussin, Ip & Wolfson, 2008). In the LCA framework, patterns of internationalization behavior are assumed to result from underlying (latent) classes. This means that an unobserved class membership is reflected, and thus indicated in observable internationalization behavior. Recently, the LCA perspective has been applied not only to sociology (Reboussin et al. 2008; Roeder, Lynch & Nagin, 1999) but also increasingly to the management context. Examples comprise network

embeddedness research (Grewal, Lilien & Mallapragada, 2006) or market segmentation studies (Bassi, 2007).

Corresponding to this broadening interest, latent class regression models have been developed that incorporate covariates as predictors of class membership (Huang & Bandeen-Roche, 2004), which we will also apply in this study. However, in a first step, we perform an ordinary LCA without covariates to test for sample heterogeneity, and thus the existence of different latent classes of INVs.

In order to identify the appropriate number of classes, recent research argues to consider theoretical reasoning in combination with statistical criteria (Nylund, Asparouhov & Muthén, 2007). Concerning the INV phenomenon no clear definition exists: neither theoretically, nor empirically (Hashai & Almor, 2004). Some IE studies follow a diametric approach separating between born-globals and traditional firms (e.g. Weerawardena et al., 2007). Tuppura and colleagues argued on the basis of three different INV strategy classes: born-globals, born-again globals and traditional (Tuppura et al., 2008). According to Oviatt and McDougall (1994) four types of INVs exist: export-import start-ups, geographically focused start-ups, multinational traders and global start-ups. As extant research is fragmented and inconclusive about the number and definition of INV strategy classes, it does not provide a sound grounding for a certain class solution. Therefore, we apply statistical tests to decide on the number of INV strategy classes.

6. Results

Hypothesis 1 assumed different latent classes of INV strategies to exist. Therefore we evaluated our sample for heterogeneity applying a BLRT which tests for the assumption that a proposed class number (k classes) is superior to a model with one class less ($k-1$ classes). In the first place we compared a two class solution with a one class solution. Results from Table 10 show, that the two class solution is significantly better than the one class solution. Hence, hypothesis 1, assuming different INV strategy classes, is supported as there is more than one class of INV strategies in our data.

To guide the decision on the number of classes we apply several goodness-of-fit indicators. A recent monte carlo simulation study from Nylund et al., (2007) provides evidence that the BIC is superior to AIC. In addition, the application of bootstrap likelihood ratio tests (BLRTs) is proposed. Accordingly we choose the BIC, the sample size adjusted BIC and BLRT to evaluate model fit and to measure the overall classification quality.

Results from LCA suggest a four class solution being superior to other class numbers. As shown in Table 10 the BIC and the adjusted BIC have their minimum at the four class solutions. The BLRT is significant at the four class solution, meaning that a four class solution is significantly better than a 3 class solution. Moreover the BLRT is not significant for comparing the five class solution with the four class solution, meaning that four classes suffice to divide the sample.

Number of Latent Classes	BIC	Adjusted BIC	BLRT
1 class solution	7257.07	7193.68	-
2 class solution	7197.94	7083.84	0.00
3 class solution	7187.47	7022.66	0.00
4 class solution	7144.57	6929.04	0.00
5 class solution	7267.94	7001.70	0.63

Table 10: Information Criteria and Statistical Indices for Different (INV Strategy) Classes

Table 11 gives the four INV strategy classes and their scores on the respective strategy indicators. Class 1 accounts for 11.6% of the sample. We chose the label “born-again globals” for this class, because the firms venture abroad at a later stage than other INVs, thereby realizing a medium range of international sales in few foreign markets. They decide for the highest control entry mode among all INV strategy classes and also venture into institutionally distant markets, while internationalizing into intermediate cultural distant environments. Class 2 denotes for the “classic” born-global firm realizing a high amount of revenues from multiple countries and starting internationalization very early after inception. These firms rather choose a low control mode but also venture into institutionally distant markets. Therefore, these firms have the most proactive internationalization strategy. Class 3 also realizes a huge amount of sales abroad, but on a restricted international scope. These characteristics indicate a geographically focused start-up described by Oviatt and McDougall (1994). As this firm class enters foreign markets with low control modes, such as exporting, we labeled class 3 “geographically focused exporters”. The final INV strategy class denotes for nearly half of the firms in our sample. In comparison to the other INV strategy classes, the firms from this class pursue a slower internationalization track. This class internationalizes later than born-globals or geographically focused exporters and only has low international

revenues from a limited number of markets. In addition, they start internationalization in adjacent foreign markets, with a low institutional and cultural distance. As this internationalization pattern is in accordance with the PTI perspective, we labeled these firms “gradually internationalizing INVs”. Interestingly the INV strategy classes differ with regard to the institutional distance of countries entered, but only marginally regarding the cultural distance.

	Proportion (in %)	International Scale	International Scope	Age at Inter- nationalization	Entry mode (Level of Control)	Institutional Distance	Cultural Distance
Class 1 (born-again globals)	11.6	28.1 (medium)	6 (low)	9.8 (high)	4.8 (medium)	12.9 (high)	0.6 (medium)
Class 2 (born globals)	14.9	59.1 (high)	26 (high)	1.4 (low)	2.6 (low)	13.7 (high)	0.6 (medium)
Class 3 (Geographically focused Exporters)	24.8	67 (high)	7 (low)	1.3 (low)	3.1 (low)	8.5 (medium)	0.5 (medium)
Class 4 (Gradually internationalizing INVs)	48.7	17.5 (low)	5 (low)	2.5 (medium)	3.1 (low)	6.9 (low)	0.4 (medium)

Table 11: INV Strategy Classes Derived from LCA and Respective Strategy Indicator Scores

To test hypotheses 2-7 we ran a LCA with covariates (LCAWC). Table 12 gives these results. The statistical reasoning of a LCAWC is comparable to a multinomial logistic regression, with the difference that latent classes are regressed on the covariates. This is why the reported coefficients can be interpreted as odds ratios. As outlined in Table 12, most of our hypotheses are supported. Hypothesis 2, assuming an impact of international growth orientation on INV strategy, is confirmed. International growth orientation significantly influences the odds of belonging to specific INV strategy classes. Especially born-globals and geographically focused exporters are growth oriented compared to born-again globals and gradually internationalizing INVs. Hypothesis 3, assuming an impact of learning orientation on INVs’ strategy, is supported as well. Learning orientation increases the chance that a rather slow or incremental internationalization route is chosen and that an INV becomes a gradually internationalizing INV. Hypothesis 4, assuming product differentiation to impact INVs’ strategy, is supported. Results suggest that geographically focused exporters become more likely when a firm increases its product differentiation. The other INV strategy classes do not

differ from each other with respect to this covariate. Hypothesis 5, assuming an impact of prior international experience on INVs' strategy, is also supported. International experience forwards the chances of pursuing a geographically focused or a born-global strategy. Both strategies become significantly more likely (compared to gradually internationalizing INVs and born-again globals) if prior international experience exists. On the contrary, prior international experience does not significantly differentiate between gradually internationalizing INVs and born-again globals.

Our network hypotheses only partly hold true. Hypothesis 6, assuming an impact of international network size on INVs' class membership, needs to be rejected. All INV strategy classes are quite equally influenced by network size. We only see a marginally significant difference on the 10%-level between late INVs and geographically focused exporters. This can be interpreted as follows: the chance to pursue a geographically focused rather than a born-again global strategy increases by 2% with every additional international network contact. Hypothesis 7, proposing an impact of international network strength on INV strategy, is at least partially supported, since there is a significant change in the odds ratio between geographically focused exporters and born-again globals due to network strength. Interestingly, network strength works conversely to network size as it increases the likelihood of a born-again global rather than a geographically focused strategy.

Reference group	Class 1 (born-again globals)			Class 2 (born globals)		Class 3 (gfe)
	class 2 <i>b</i>	class 3 <i>b</i>	class 4 <i>b</i>	class 3 <i>b</i>	class 4 <i>b</i>	class 4 <i>b</i>
International Growth Orientation	5.30 ***	5.00 ***	0.78	0.94	0.15 ***	0.16 ***
Learning Orientation	0.61	0.67	2.36 *	1.10	3.86 ***	3.52 *
Product Differentiation	0.97	3.20 *	0.73	3.31 *	0.75	0.23 **
Prior International Experience	15.03 *	28.88 ***	1.17	1.92	0.08 ***	0.04 **
International Network Size	0.99	1.02 †	0.99	1.02	1.01	0.99
International Network Strength	0.64	0.68 *	0.73	1.06	1.13	1.07
Intercept	-0.03	0.30	1.41 ***	0.33	1.44 ***	1.11 **

Note: n=234; *b* = exponentiated coefficients (1.1 equals an increase of 10% in the chance of belonging to in class X compared to the reference class due to a one unit increase in the covariate; 0.9 equals a 10% decrease in the chance of belonging to in class X compared to the reference class; Significance Levels: *** ≤ 0.001 ; ** ≤ 0.01 ; * ≤ 0.05 ; † ≤ 0.10 ; gfe = geographically focused exporter

Table 12: Results from LCA with Covariates

7. Discussion

With this study we aimed at empirically proving that INVs pursue multiple strategies influenced by different factors. We thereby wanted to provide a sound classification of INVs which was lacking in IE research so far. Further, we address the problem that extant research is largely fragmented and inconclusive with regard to INV strategy. Therefore, we applied statistical tests to decide on the number of INV strategy classes and how to differentiate them from each other.

We contribute to IE theory by forging a link between PTI and INVT rationale for examining different INV strategic approaches. Many IE studies (e.g. Freeman et al., 2006; Shrader et al., 2000) assert PTI to be inappropriate to explain new ventures internationalization strategies due to the risk-averse and incremental nature of process theories. We showed that PTI reasoning allows for a broader perspective on international new venturing. Including PTI to explain INV strategy gave us the opportunity to apply a broader set of indicators to describe a firm's internationalization than a sole INVT reasoning would have provided. Linking these two theoretical frameworks also helps us to better interpret several internationalization patterns. As the results of the LCA show, about half of the technology firms observed pursues a rather reactive and incremental road to internationalization. These gradually internationalizing INVs significantly differ from other INVs such as born-globals. They start internationalization early in their lifecycle - which is in

line with INVT - but prefer to step into foreign markets in an incremental manner as forwarded by PTI.

We furthermore add to the IE literature by suggesting that different INV strategies exist and that each INV strategy unfolds a unique pattern of internationalization behavior. Prior studies often agglomerated different INV strategies under one label. Our study hints that this might conceal important differences among rather heterogeneous internationalization strategies and that a differentiated perspective on INVs is eligible. In addition, studies about INVs or born global firms struggle with arbitrary thresholds to define the phenomenon. We contribute to the literature by applying a multivariate statistical approach to identify different INV strategies. Thus, we advance the understanding of international new venturing by exploring different latent classes of INVs. Identifying four INV strategy classes and their configurations, allows future research on INVs to properly control for class membership and to take varying strategic approaches to internationalization into account (Chetty & Campbell-Hunt, 2004).

Moreover our results allow for some inferences about the applied internationalization indicators. While our results reveal differences among INV strategy classes for most internationalization indicators, we do not find any outstanding difference regarding cultural distance. This is especially interesting as we simultaneously controlled for institutional distance, for which INV strategy classes are quite heterogeneous.

This implies that institutional aspects are more important for the internationalization of entrepreneurial firms, since they directly impact interaction with foreign business partners. For entrepreneurial firms from high technology areas formal institutions such as the level of property rights protection or governmental regulations seem to be more substantial for foreign market entry than informal cultural aspects. Even though culture is an important facet of internationalization per se (Hofstede, 2007), it seems to be less pivotal for an initial step into a foreign market. This may also be explained by chosen entry modes, since INVs often perform internationalization via export or intermediary distributors (Burgel & Murray, 2000) and thus without having frequent interaction with own staff or consumer markets.

Our work further aimed at contributing to the IE field by studying the antecedents for INV strategies. Based on our results, we argue that the internationalization strategy pursued by INVs is not a random choice, but depends on the firm's inherent characteristics (Mudambi & Zahra, 2007). We illustrate that different strategy classes have to be taken into consideration when analyzing INVs' internationalization strategy and its antecedents. Our results contribute to the discussion on internationalization, demonstrating which resources are

conducive to specific internationalization strategies, and which resources might also restrict several strategic choices.

Regarding *born-globals* our results suggest that an orientation towards growth is an essential predictor for this INV strategy. INVs do not only need the ability to efficiently manage high scale internationalization but also a growth devoted orientation to pursue a “fast and high” internationalization strategy. Such a strategy provides higher chances but also increased risk of failure. This finding is in line with prior conclusions on INVs. Oviatt and McDougall already mentioned that born-globals may be considered to have an “international vision [...] from inception” (Oviatt & McDougall, 1994: 47). Our results further show that born-globals primarily have internationally experienced managers. One may conclude that international experience allows for a more efficient market penetration and exploitation of growth opportunities as foreign business practices and customer needs are better known and understood. Thus, rapid international growth at a high scale is forwarded, even in institutional distant markets.

Gradually internationalizing INVs are significantly more devoted to learning than other INV types, as indicated by their higher learning orientation. Even though learning orientation is often associated with a higher propensity to internationalize (e.g. Oviatt & McDougall, 2005; Chetty & Champbell-Hunt, 2004), it seems to be rather restricting than facilitating international expansion. One may conclude that especially gradually internationalizing INVs need to learn intensively in order to better serve the few markets they are operating in and to identify opportunities more efficiently. Only this allows them to achieve sustainable firm development and competitive advantages. Whereas gradually internationalizing INVs may concentrate their learning efforts on few markets, which they develop incrementally, other INVs, especially born-globals, venture into multiple foreign markets at a high pace. Learning binds resources just as international expansion does. As INVs are typically characterized by a limited resource endowment, a high degree of learning and global expansion may be contradictory rather than complementary in early years.

Geographically focused exporters have a distinct growth orientation and prior international experience, compared to born-globals. Moreover, they are most positively related to product differentiation. Prior studies argue that product differentiation is a vehicle for international competitive advantages (McDougall, 1989) as it allows for adapting products to the needs of specific foreign markets (Bloodgood et al., 1997). Therefore, product differentiation helps to pursue internationalization at an early stage. Our results underpin this

argument, as geographically focused exporters are the first to enter international markets, about one year after inception, and have a high proportion of international sales.

Yet, adapting the products to specific customer needs is expensive. Hence, two rationales apply simultaneously. On one hand geographically focused exporters depend on an early internationalization and realization of international revenues in order to amortize the costs of product adaptation. On the other hand product differentiation limits the scope of international expansion since adapting products in many markets is cost intensive and requires strong efforts for property-rights protection. Entering multiple foreign markets right from inception requires financial as well as managerial resources. Simultaneously emphasizing international scope while devoting resources for product differentiation, may simply overburden the limited financial and managerial resource base of INVs. Therefore geographically focused international expansion seems to be the appropriate strategy for businesses with a high degree of product differentiation.

Born-again globals have a significantly smaller proportion of growth orientation and prior international experience compared to born-globals or geographically focused start-ups. According to this initial lack of internationalization-enablers they follow a retarded internationalization pattern. To overcome these constraints, born-again globals have to develop their home market before entering foreign markets. Once established in international markets, born-again globals expand quickly (Tuppura et al., 2008). A strong international network with trustworthy partners may support this strategy. Born-again globals seem to create some close relations to foreign partners prior to or while starting international activities in order to penetrate their targeted markets more rapidly. Having strong international relations also allows for using “higher” entry modes. Born-again globals show this pattern, as they hold the highest entry mode compared to other INV types. Fostering strong relations to foreign markets therefore is a vehicle to enter markets with higher entry modes, such as long-term distribution contracts. These transaction forms require trust, as they are more resource intensive and increase mutual dependence between partners.

Accordingly, having some strong interactions with foreign partners may act as the foundation to reduce insecurity between partners and to stabilize cooperation. Moreover, the level of institutional distance is high for born-again globals, meaning that they do venture not only into adjacent markets but also into institutionally diverse environments. These environments are especially insecure. By providing information and reducing the threat of opportunism (Uzzi, 1997), intensive inter-organizational contact reduces environmental uncertainty, and thus fosters born-again globals’ foray into institutionally distant markets.

Therefore, strong international networks seem to allow for the specific combination of entering distant markets with a higher entry mode.

8. *Limitations and implications for further research*

As is the case for most empirical studies, several limitations apply to this study as well. First, as internationalization is more a process than a state, we face measurement problems of the INV phenomenon as we are lacking longitudinal data. Longitudinal research designs could delineate changes over time, and show if INVs develop gradually from one strategy to another, or if the choice of a strategy is stable over time. Moreover, changes in management's cognitions can only be analyzed in depth, as well as their impact on the long-term survival and development of the firm, when powerful longitudinal data is available. This would help to identify if a change in the determinants really results in a change of the INV strategy.

Second, even though including multiple technologies, this study only focused on German technology-based companies and, therefore, is lacking a comparative value on an international scale. Thus, we cannot state if influential factors vary across different countries.

Third, our sample has some limitations with regard to its size and emphasis on high-technology firms. Most studies on INVs have concentrated on such high-tech samples, which is why we decided to focus on this population as well. However, recent studies (e.g. Keupp & Gassmann, 2009) argue that it would be reasonable to emphasize on a broader scope of technologies rather than limiting to a certain field of technology. Therefore future research should address this issue and try to survey larger samples of multiple high and low technology industries in order to compare the different INV strategies.

For practitioners our findings may be helpful for finding the most appropriate internationalization strategy according to the firm's internationalization profile. To foster international expansion, it is reasonable to employ proactively growth seeking managers which hold some prior international experience. Firms with highly differentiated products seem to best pursue a rapid internationalization with a limited scope in order to reduce risks of patent infringement and thus to increase survival chances.

For policy makers, this study may help to better distinguish between INV strategies and thus to more efficiently distribute resources and promotion programs among them. Policy makers have an ongoing interest in how to best influence firm growth and in how firms with growth potential can be identified to maximize the value of policy intervention (Freel, 1998). Internationalization per se is a strategy for firm growth (Sapienza et al., 2006). However, our study shows that firms with specific resources, such as prior international experience, have a

greater ability to pursue strong growth internationalization by venturing into multiple countries at a high scale. Therefore, policy makers could apply these findings for more efficiently selecting those firms, which have the highest international growth potential.

V. Part four:

Are networks always beneficial? An empirical analysis on the relationship between knowledge intensity and international new venturing

Abstract

Knowledge intensity is a specific asset requiring protection during international new venturing. Drawing on an integrated framework of Transaction Cost Economics and Structural Embeddedness, we study how the impact of knowledge intensity on international scale and scope is moderated by international network strength and size. Findings suggest that the impact of knowledge intensity on international scale and scope increases with international network strength and decreases with international network size. Hence, we contribute to the extant literature by forging a link between networks and knowledge intensity in the internationalization of new ventures.

1. Introduction

International new venturing describes a young and small firm's early foray into foreign markets - sometimes unfolding even right after the firm's inception (Oviatt & McDougall, 1994). According to International Entrepreneurship (IE) literature, knowledge intensity is a pivotal factor of international new venturing (Autio et al., 2000; Bell et al., 2003; Coviello & McAuley, 1999; Jones, 1999). On one hand knowledge intensive International New Ventures (INVs) have to expand internationally in order to amortize high initial R&D expenditures and to find sufficient demand for their products to survive and grow (Autio et al., 2000). On the other hand, the risk of losing the firm's most valuable asset – its knowledge – may grow significantly with increasing scale and scope of internationalization (Li et al., 2008).

Arguing from an economic perspective, knowledge is an important specific asset for INVs which requires protection. However, for INVs – mostly suffering from limited resources and facing liabilities of newness, size, and foreignness (Hymer, 1960; Singh, Tucker & House, 1986; Zaheer, 1995) – internalizing their specific knowledge (for instance, by choosing a higher-order entry mode such as wholly-owned subsidiary) as suggested by economic theories (Williamson, 1985, 1996, 2010) - is hard to achieve. Research has shown that INVs have to rely on alternative governance structures such as networks to overcome

their resource constraints (Oviatt & McDougall, 1994). As such, international network contacts have been shown to enable access to foreign markets (Weerawardena et al., 2007) and to develop knowledge in trustworthy relationships (Yli-Renko et al., 2002). Moreover, researchers found that management teams with access to foreign market networks are better able to overcome the liabilities of foreignness (Zaheer, 1995) and to secure a firm's proprietary knowledge in foreign environments (Yli-Renko et al., 2002). Hence, international network contacts allow young and internationally operating firms to compensate their liabilities of newness, size, and foreignness. International networks may provide the opportunity to achieve fast international coverage for a firm while at the same time securing the firm's proprietary knowledge.

However, while networks are dominantly described as panacea for new ventures' internationalization (Weerawardena et al., 2007; Young et al., 2003; Zahra et al., 2003), recent studies argue that networks may have a liability side as well (Chetty & Agndal, 2007). For instance, Woolcock and Narayan (2000) incorporate both the benefits and the costs of social capital in their research. Accordingly, a differentiated analysis is required with regard to networks, knowledge intensity, and international new venturing. Different characteristics of networks, such as size and interaction strength, may impact knowledge exploitation in international markets differently. However, a systematic analysis taking both positive and negative aspects of networks into account are largely missing to date.

The aim of the present paper is to study the moderating influence of network strength and size on the relationship between knowledge intensity and the internationalization of young technology firms. Thus, the theoretical contribution of our work is on the link between the network literature and the important construct of knowledge intensity as a specific asset that needs to be safeguarded during international new venturing. We draw on TCE (Williamson, 1985, 1996) combined with Structural Embeddedness reasoning (Granovetter, 1985) to provide a more contingent view on the role of knowledge intensity, international network contacts, and international new venturing. We argue that strong international network contacts provide a beneficial governance structure for INVs securing a firm's specific knowledge and making it exploitable for means of international expansion. On the contrary, network size may cause liabilities for INVs, because a large network is harder to control and increases the risk of opportunistic behavior and unintended knowledge diffusion. Knowledge diffusion is particularly severe for small and young firms for which knowledge is one of the most important assets (Sapienza et al., 2006). Hence, the detailed economic and structural

perspective taken in this paper allows identifying a beneficial and liability side of international network contacts, which is novel and important to the extant literature on INVs.

The remainder of the paper is structured as follows: Next, we set the theoretical basis of our reasoning and link TCE with Structural Embeddedness to outline the impact of knowledge intensity in interaction with international network strength and size on international scale and scope. We then present our INV sample as well as results from moderated linear regression. Finally, we discuss the results and draw some implications for research and practice as well as limitations of our study.

2. Theory

To forge the link between the role of networks and knowledge intensity in the internationalization of young firms, we enrich Transaction Cost Economics (TCE) with elements of Structural Embeddedness drawing on network concepts from the field of New Economic Sociology.

TCE considers economic activities in the light of efficiency. Three basic assumptions characterize the behavior of the actors: bounded rationality, opportunism, and foresight (Williamson, 1985). Transactions seem to be efficient if they have the, comparatively, lowest accumulated production and transaction costs. Besides uncertainty and frequency, asset specificity is the central element in TCE. “Asset specificity is the big locomotive to which transaction cost economics owes much of its predictive content” (Williamson, 1985: 56). According to TCE, specific assets need protection. They are most efficiently governed in hierarchical structures designed to reduce behavioral and environmental uncertainty (Williamson, 1996).

TCE found widespread acceptance in the internationalization literature and has been highly appreciated as a tool to study economic factors of internationalization (Brouthers & Hennart, 2007). However, the role of opportunism, the isolated unit of analysis, and a static set-up inherent in economic approaches have been criticized for not facilitating the study of inter-organizational issues (Calof & Beamish 1995; Gulati, Nohria & Zaheer, 2000; Ramanathan, Seth & Thomas, 1997; Schwens, 2008; Zafarullah, Ali & Young, 1998; Zajac & Olsen, 1993). “Like most influential theories, transaction cost theory was not fully developed at the outset. It has been and continues to be refined and reformulated, corrected and expanded, in response to new theoretical and empirical developments” (Geyskens, Steenkamp & Kumar, 2006: 519).

The concept of embeddedness forwarded by new economic sociology (e.g. Granovetter, 1985) refers to the criticism of TCE (Schwens, 2008). In contrast to TCE, the concept of embeddedness assumes economic actors as „being socially constructed – shaped and constrained by the groups to which they belong” (Pressman & Montecinos, 1996: 878). Networks enable long-term relationships between two or more transaction partners and can additionally produce learning effects (Richter, 2002). This way, relationships of mutual dependence develop which are less prone for opportunistic behavior. In addition, restrictions can be overcome and information asymmetries and uncertainties can be reduced (Brouthers & Brouthers, 2003; Rooks, Raub, Selten & Tazelaar, 2000). Supplementing TCE with elements of Structural Embeddedness creates an integrative perspective allowing us to study the relationships between knowledge intensity, networks, and international scale and scope of INVs.

Referred to our research context, knowledge is a specific asset which needs protection in international markets in order not to fall into the hands of, for instance, competitors (Amara Landrya & Traoré, 2008; de Faria & Sofka, 2010; Park, 2008). TCE suggests internalization of transactions as appropriate means for asset protection (Williamson, 1996). However, for INVs – suffering from limited resources and experience – it is hard to protect their specific assets through internalization. Internalization is often cost and resource intensive and INVs are mostly not able to stem these resource requirements. For example, establishing a wholly-owned subsidiary as mode choice for foreign market entry requires substantial financial investments, which a young firm is very unlikely to take (Schwens, 2008). Hence, INVs have to rely on alternative governance structures such as networks in order to achieve fast internationalization without losing their specific knowledge.

Networks have proven to play an important role in new venture internationalization and as an alternative governance mechanism (Coviello, 2006). A wealth of studies emphasize the impact of international networks on the intensity and scope of international new venturing (Weerawardena et al., 2007; Young et al., 2003; Zahra et al., 2003). Networks facilitate foreign market entry (Nerkar & Paruchuri, 2005), reduce uncertainty (Freeman et al., 2006), provide financial backup (Shane & Cable, 2002), and support learning in and about foreign markets (Schwens & Kabst, 2009; Yli-Renko et al., 2002). Regarding networks, especially two aspects are highlighted in extant network and IE studies: The size of a network (Baum et al., 2000; Reuber & Fischer, 1997) and the strength of interpersonal network contact (Dyer & Singh, 1998; Kale et al., 2000). Both aspects may encourage international new venturing, even though their effectiveness results from different mechanisms.

Strong contact with foreign network partners “contributes to lowering risk and uncertainty inherent in international operations” (Weerawardena et al., 2007: 301). Hence, strong relations are a powerful tool to facilitate international new venturing (Oviatt & McDougall, 2005; Selnes & Sallis, 2003) by yielding security and financial back-up (Shane & Cable, 2002). This is why new ventures with strong networks are more likely to benefit from innovation (Rao, Chandy & Prabhu, 2008) compared to new ventures lacking these relations. By providing information and reducing the threat of opportunism (Uzzi, 1997), intensive inter-organizational contact reduces transaction costs and environmental uncertainty, and thus fosters the distribution of knowledge-intensive products and services abroad.

The number of network contacts, on the other hand, may provide a vehicle for young firms to gain initial access to foreign markets (Coviello, 2006). A big network supports internationalization in general by providing visibility and legitimacy (Choi & Shepherd, 2005; Gulati, 1995; Suchman, 1995) as well as innovative capabilities (Chetty & Agndal, 2007; Nahapiet & Ghoshal, 1998). Moreover a large international network facilitates 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). However, even though international network size may forward international new venturing in the first place (Oviatt & McDougall, 1994), it may also limit the exploitation of knowledge intensive products abroad, because large networks provide ground for increased opportunistic behavior as control becomes more difficult.

We propose that knowledge intensity fosters international new venturing (Autio et al., 2000; Sapienza et al., 2006), but also bears the risk of opportunistic behavior and sunk costs (Miller & Shamsie, 1996). Although knowledge intensity provides an opportunity for international growth (Yli-Renko et al., 2002) its impact may be restricted if risks of patent infringement or product piracy arise. The strength of international networks has an impact on the power to exploit knowledge intensive resources at an international level (Dyer & Singh, 1998; Levinson & Asahi, 1995; Powell, 1996). Thus, knowledge intensive firms are particularly in need of a secure environment to minimize risks and to exploit their knowledge and abilities on a full scale.

A large network may be facilitating internationalization in the first place but also leaves room for opportunistic acting, since monitoring of specific network partners becomes more difficult. Under these circumstances, specific knowledge is much harder to protect. In contrast, strong international networks are characterized by mutual commitment and less prone to opportunistic behavior encouraging an effective international firm expansion. Based

on these argumentations, we assume the relationship between knowledge intensity and the scale and scope of new ventures' internationalization to be moderated differently by international network strength and size. Figure 5 summarizes our theoretical reasoning and research model. In the following we develop our research model's underlying hypotheses.

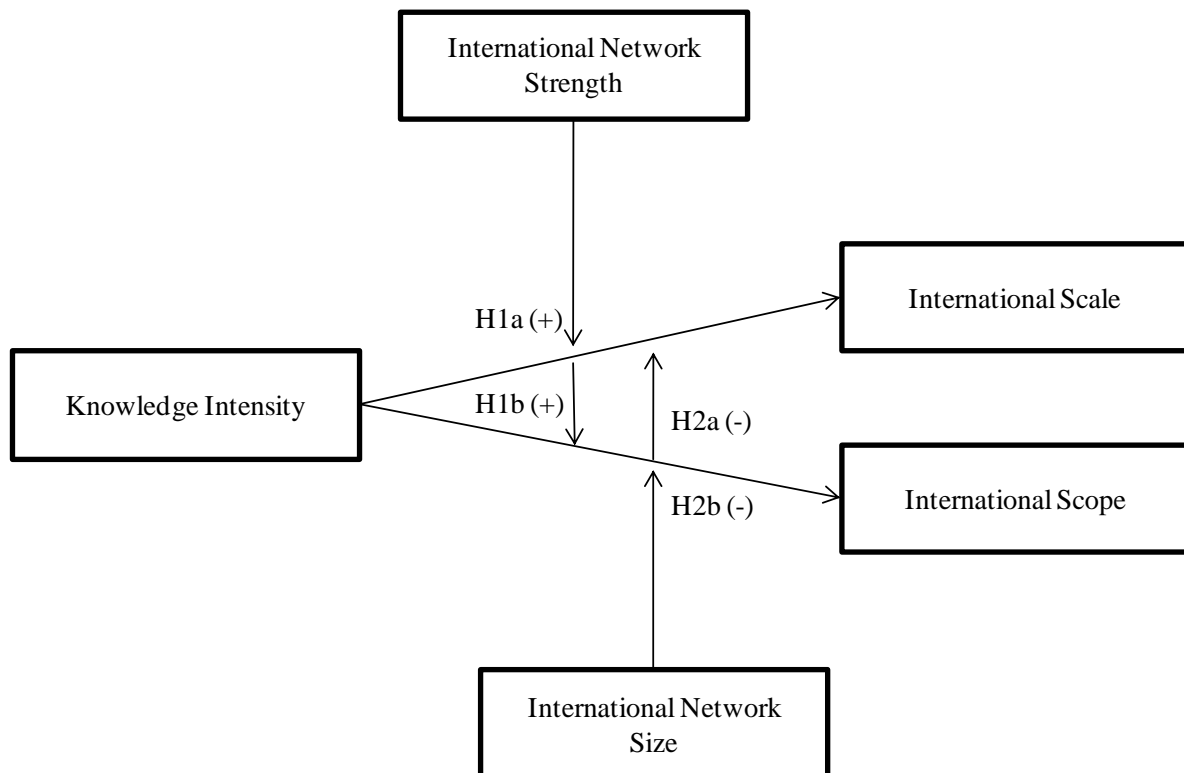


Figure 5: Research Model – Moderating Role of International Networks

3. Hypotheses

We assume international network strength to positively moderate the relationship between knowledge intensity and the scale and scope of international operations. Strong networks foster the transition of knowledge-intensive products and services into international markets. Strong networks imply a high intensity of interaction and the information exchange is “more proprietary and tacit than the price and quantity data [...] traded in” loosely connected networks (Uzzi, 1997: 45). A strong international network provides rich chunks of information that strengthen internationalization and security better than sequential bits of dissimilar price and quantity data.

The high interaction rate, inherent to strong networks, limits opportunistic behavior (Ahuja, 2000; Kogut, Shan & Walker, 1992) since the close interaction enhances the “ability

to recognize and effectively evaluate information” (Atuahene-Gima & Murray, 2007: 7) and it is essential for the sharing of vital information (Cowan & Jonard, 2009). Managers, for example, more comfortably exchange their knowledge with other organizations if they are connected by strong relationships (Kelley, Peters & O’Connor, 2009; Perry-Smith & Shalley, 2003). This is particularly true when knowledge involves a high level of complexity (Hansen, 1999). Therefore, a constant interaction “between partners is often cited as a critical [network] element that in turn enhances the quality of the resource flows” (Hoang & Antoncic, 2003: 166).

International network strength fosters the exploitation of knowledge intensive products in multiple countries since strong contact with foreign network partners “contributes to lowering risk and uncertainty inherent in international operations” (Weerawardena et al., 2007: 301). Strong network contacts reduce the complexity of international market development and facilitate international new venturing into a multitude of countries right from inception (Oviatt & McDougall, 2005; Selnes & Sallis, 2003) by yielding information and financial security (Shane & Cable, 2002). Therefore, intensive inter-organizational contact reduces transaction costs and environmental uncertainty, and thus fosters the distribution of knowledge-intensive products and services abroad.

Strong international networks increase the impact of knowledge intensity on international scale. Strong network contacts promote opportunities for market development and help to identify international business opportunities (Oviatt & McDougall, 1995) as well as economies of time (Uzzi, 1997). With close international partners INVs may more easily identify and contact key customers. Therefore, knowledge intensive firms with strong networks can efficiently penetrate a foreign market and increase their international sales. Moreover, close partners are less capable to pursue opportunistic behavior and free riding as their activity can be monitored. This increases the efficiency of cooperation as risks of unintended knowledge dissemination are reduced. Oviatt and McDougall (1994: 57) support this view, stating that “using network governance structures may limit the expropriation of venture knowledge. To a certain extent, the network structure tends to control the risk of knowledge dissemination and intellectual property violence.”

Thus, strong international networks help to exploit knowledge intensity on an international level by providing increased market knowledge and higher transaction security (Filaster & Spiess, 2008). Strong international networks help firms to overcome obstacles to internationalization and to increase both international scale and international scope.

Hypothesis 1a:

The strength of a firm's international network moderates the impact of knowledge intensity on international scale in such that the stronger the network, the stronger the relation between knowledge intensity and international scale.

Hypothesis 1b:

The strength of a firm's international network moderates the impact of knowledge intensity on international scope in such that the stronger the network, the stronger the relation between knowledge intensity and international scope.

In contrast to the effect of international network strength, we argue that the size of an international network negatively moderates the relationship between knowledge intensity and scale and scope of internationalization. Although a big network supports internationalization in general by providing visibility and legitimacy (Choi & Shepherd, 2005; Gulati, 1995; Suchman, 1995) as well as innovative capabilities (Chetty & Agndal, 2007; Nahapiet & Goshal, 1998), it may also cause severe problems which outweigh the benefits, particularly for knowledge intensive firms (Adler & Kwon, 2002; Atuahene-Gima & Murray, 2007). Extant literature emphasizes the positive effect of big networks by referring to the internal network visibility and information dissemination (Nahapiet & Goshal, 1998), which is meant to increase innovative capabilities. In some cases, however, an INV does not aim for full visibility, especially with regard to its technological base, because knowledge dissemination and product piracy become more likely as a company's visibility increases (Carayannopoulos, 2009).

Moreover, as networks grow its members become more disperse and connections between network partners become weaker. The manageability of the individual network companies may diminish with weakening bonds. This effect is further enforced by the remoteness of international network partners. Compared to 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 (Carayannopoulos, 2009; von Hippel, 1998).

A big network offers more room for opportunistic behavior since network partners do not interact as closely with each other as in a strongly integrated network making monitoring more difficult. Relationships are more likely to be quickly established, and equally quickly dissolved, while rigorous behavioral control is difficult (Williamson, 1996). Accordingly, proprietary knowledge cannot be safeguarded efficiently via this conduit and knowledge dissemination becomes more likely. This is why networks of a large size may "help to speed

up projects when knowledge complexity is low, but slow down projects when knowledge complexity is high” (Hansen, 1999: 82). Following a TCE rationale, knowledge intensive INVs may be hindered from further internationalization if they have a wealth of international contacts, since knowledge cannot be safeguarded in a loose network due to increased monitoring costs. Therefore, an INV will benefit less from its knowledge intensity during its internationalization if it holds numerous international network contacts.

Hypothesis 2a:

The size of a firm's international network moderates the impact of knowledge intensity on international scale in such that the bigger the network, the weaker the relation between knowledge intensity and international scale.

Hypothesis 2b:

The size of a firm's international network moderates the impact of knowledge intensity on international scope in such that the bigger the network, the weaker the relation between knowledge intensity and international scope.

4. Methodology

4.1. Sample

We test our hypotheses on a dataset of German firms from four different technology areas: Nanotechnology, Biotechnology, Microsystems, and Renewable Energies. Although the phenomenon of international new venturing is not restricted to technology firms, a large number of studies in this area focus on this type of firm (Bell et al., 2003; Bloodgood et al., 1996; Boter & Holmquist, 1996; Crick & Spence, 2005; Preece et al., 1998).

We collected data from multiple sources to establish the validity of our measures. First, we used secondary data to identify the relevant firms from the four technology areas. In close cooperation with industry experts from the Association of German Engineers (VDI) (for the populations of Nanotechnology, Biotechnology, and Microsystems) and industry experts from the German Energy Agency (for the Renewable Energy population), we identified a sample with a total number of 1,944 firms. We used different databases (“Hoppenstedt” and “The Creditreform Markus Database”) to gather quantitative firm information such as, for instance, the number of employees or the year of foundation of the relevant firms. Moreover, we used the “Factiva” database to gain qualitative information about, for instance, the internationalization actions taken by the firms. Furthermore, in line with Cloninger and Oviatt (2007), we checked each firm’s website and collected other available firm information and company brochures. Second, we conducted twelve informant interviews (with three firms

from each technology area) as input for our questionnaire construction. Third, we tested the questionnaire on another twelve representative firms (again, three firms from each technology area) prior to the survey.

We collected the primary data of our study in 2007. We sent two questionnaires to collect data of the independent, moderator, and dependent variables from two informants. The first questionnaire was sent to the firm's CEO as he is perceived to have the most profound knowledge of the firm strategy as well as internationalization decisions taken by the firm. The second questionnaire - depending on the firm's organizational structure - was sent to an informant with expert knowledge about a firm's internationalization, such as the head of strategy, sales, or export. To maximize our response rate, we undertook several measures as suggested by Dillman (2000). Firms received a letter stating the purpose and importance of the research project and subsequently a phone call in which they were requested to participate. We received 340 questionnaires (17.2%) of which 44 firms had two respondents. As we surveyed the total populations of German Nanotechnology, Biotechnology, Microsystems, and Renewable Energy firms, our sample included both international firms and firms with activities exclusively in the domestic market. After drop-out our sample includes $n = 248$ firms with international activities and $n = 87$ firms with explicit activities only on the domestic market. This is a percentage of 74% internationally acting and 26% domestically acting firms, which is consistent with the secondary information that we collected in databases and on the firms' websites prior to the questionnaire-based survey.

In order to define INVs we refer to existing literature. The most dominant threshold applied to define INVs is internationalization within six years after company foundation (e.g. Shrader, 1996; Zahra et al., 2000). This time span is largely regarded as appropriate, because it balances between validity of available firm data and distinguishing power from SME internationalization. Therefore, "the operational definition of a new venture within the entrepreneurship literature is up to 6 [...] years of age (Fernhaber et al., 2008: 272)". Accordingly, we follow this stream of research and apply the same reasoning to define INVs as independent firms, which enter foreign markets within the first six years after inception. We included only those firms into our analyses which complied with this definition resulting in a final sample of $n = 138$. The average firm age of the companies in our sample was about nine years and the average age at first internationalization was two years, realizing on average 39.6% of their annual sales abroad. On average, the firms in our sample internationalized into nine foreign markets. These statistics show a very proactive internationalization behavior among the firms in our sample.

We controlled the returned questionnaires for non-response bias according to Armstrong and Overton (1977). We compared early and late respondents in terms of selected constructs, such as size and age. A t-test showed no significant differences ($p > 0.1$). Thus, results indicate that differences between respondents were not related to non-response bias. Furthermore, in order to assess possible differences between the responding firms and the firms in the whole sample we conducted a Kolmogorov-Smirnov two-sample test according to Siegel and Castellan (1988) on secondary firm data. We compared true respondents and true non-respondents for the number of employees and firm age. The test yielded no significant results for number of employees ($p=0.34$) and firm age ($p=0.26$) showing that non-response bias is not a problem for our analyses.

4.2. *Assessing common method variance*

The assessment of common method variance (CMV) has lately received considerable attention (Brannick et al., 2010). As the measurements in our study are self-reported we could face problems CMV, which might contaminate all measures in the same direction. For this reason it was critical to identify any systematic error in the data. In accordance with Chang and colleagues (2010) we apply multiple strategies to assess CMV.

We undertook several procedures recommended by Podsakoff et al. (2003) to reduce and evaluate the magnitude of common method bias. First, we assessed the inter-rater reliabilities for the 44 firms in which we obtained data from two respondents. Intra-class correlation coefficients (ICC) for our scales exhibited high inter-rater reliability (Shrout & Fleiss, 1979), all at the 0.000 level: for instance, network strength (ICC = 0.71) and international experience (ICC = 0.74). Second, following Podsakoff and Organ (1986), we used the Harman's one-factor test to assess the influence of common method bias. Principle component factor analysis based on the dependent, independent, moderator, and control variables of our model revealed three factors with an eigenvalue above 1. These three factors accounted for 49.0% of the total variance; the first factor accounted for 19%, the second factor for 16% and the third factor for 14% of the total variance. Thus, no single factor emerged, nor did one factor account for most of the variance. A substantial amount of CMV is present either if a single factor will emerge from the factor analysis or if one general factor will account for the majority of the covariance among the variables (Podsakoff & Organ, 1986; Podsakoff et al., 2003). Third, we checked the firm's website information, brochures, and other available firm information (Cloninger & Oviatt, 2007) to verify the information from our survey. Furthermore, we used available secondary information on the number of

employees worldwide and the year of foundation for the firms in our sample from the Markus database. We performed statistical tests to compare our primary data with these pieces of secondary source information. Paired-sample t-tests showed that the differences in means between the information collected by survey and the Markus data were insignificant ($p > 0.1$). Overall, these results suggested little threat of common method bias and provided support for the validity of our measures. Fourth, our analyses include several interaction terms which “is likely to reduce CMV because such a complex relationship is, in all likelihood, not part of the respondents’ theory in use” (Chang et al., 2010, p. 180).

4.3. *Measurement*

International scale and international scope. In addition to the pace of internationalization two aspects of new ventures’ internationalization have attracted particular attention: the scale of internationalization and the scope of international activities (Preece et al., 1998). International scale is mostly classified as the percentage of foreign sales to total sales in INV research and provides information about the importance of international business compared to domestic business. The scope 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 and financial performance” (Hitt et al., 1997: 780). Prior studies often confounded both dimensions into one index to measure the degree of internationalization (e.g. Hitt et al., 1997; Tallman & Li, 1996). This might be reasonable when observing large multinational enterprises’ (MNEs) internationalization (Sullivan, 1994) but has shortfalls with regard to INVs. Studies argued that merging international scale and scope measurement is problematic regarding INVs since international acting firms are not necessarily global acting firms (Hordes, Clancy & Baddaley, 1995). INVs may venture in multiple countries at a high scale, but also might restrict their activities on just a few markets. Scope and scale of international activities also have different implications for INVs’ resource commitment and risk diversification. Acting in numerous foreign markets on a low scale usually binds more resources than focusing internationalization on few markets on a high scale (Brouthers et al., 2009). International scope increases managerial complexity and transaction costs (Hitt, Hoskisson & Ireland, 1994). Moreover, cross-national differences in government regulations, trade policies, and currency fluctuations create additional risks (Brouthers et al., 2009). On the contrary, high international scope makes a venture less vulnerable to demand fluctuations or structural changes in single foreign markets. Because of those differences between international scale and international scope we follow recent IE

studies (e.g. Hordes et al., 1995; Preece et al., 1998) and decided not to merge the two dimensions into one index but to observe them separately to study INV internationalization.

Our dependent variables are measured with established indicators. For international scale we applied the percentage of foreign market sales to total sales as proposed by various scholars (Brouthers et al., 2009; Preece et al., 1998). To measure international scope we used the number of foreign countries served (Shrader et al., 2000). We decided for this measurement since it provides more fine grained information than only measuring the number of continents as proxy for international scope (Preece et al., 1998). As some studies combined both dimensions into one index to measure the degree of internationalization (Hitt et al., 1997; Tallman & Li, 1996), we checked zero-order correlation between both variables. The intermediate correlation of 0.42 underpins our decision to separately evaluate international intensity and scope for our sample of INVs even though the two variables might be interconnected to a certain degree.

Knowledge intensity. To measure knowledge intensity, we adapted a three-item scale developed by Yli-Renko et al. (2002). Questions yielded the technological excellence of the firm such as “we are known for our excellent technological expertise and knowledge” (Likert scale from “1=do not agree” to “5=strongly agree”). We applied multi-item measurement covering the different aspects of knowledge intensity. Factor analysis shows the items loading on one factor delivering a scale with a Cronbach’s alpha of 0.78.

International network contacts. We measure international network contacts in terms of two aspects: the size as well as the strength of international network contacts. The *size* is measured by combining two questions about the number of partnerships or network ties a new venture has with foreign companies (SMEs, or MNEs respectively), as suggested by various authors (Baum et al., 2000; Reuber and Fischer, 1997). To determine the total number of partnerships a new venture holds abroad, the two measurements are merged into one index. The *strength* is measured by asking for the frequency of contact with the most important international cooperation partners (Dyer & Singh, 1998; Kale et al., 2000). This is also in line with the findings by Uzzi (1997) stating that constant communication is an indicator for strong networks.

Control variables. We included firm age, age at internationalization, the team size at foundation, prior founding experience, prior international experience, international growth orientation, and learning orientation as control variables since these covariates have proven their explanatory value for the phenomenon of INVs. Firm age and team size at foundation have high importance in prior entrepreneurship research (Chandler & Hanks, 1994). Both can

be seen as proxies for the firm's resource endowment, which is of particular interest when focusing on the internationalization of new ventures. Firm age is measured by subtracting the year of firm foundation from the year of data collection (2007). Team size at foundation is directly measured by asking about how many persons constituted the founding team of the firm. Age at internationalization has been shown to impact international expansion and growth (Sapienza et al., 2006). Hence, it is important to include this variable into our model. Age at internationalization is measured by subtracting the year of company foundation from the year of first internationalization of the firm. Prior founding experience potentially influences the capability to cope with the complexity of international operations (McDougall et al., 2003). We applied a dichotomous measurement asking whether prior founding experience existed or not. In order to measure prior international experience we adapted two questions from Bloodgood et al. (1996). One example is whether or not the person with the most international experience has already worked in an internationally operating company. Both items are merged and binary coded ("0" if no international experience exists and "1" if at least one aspect was answered positively). This type of coding is applied, since "the relationship between international experience and organizational outcomes is unlikely to be linear across time or across individuals and strategic management literature suggests that exposure to a particular type of experience, regardless of its length, is likely to be consequential (Reuber & Fischer, 1997: 816)". International growth orientation was measured with a three items scale (Autio et al., 2000; Nummela et al., 2004; Yli-Renko et al., 2002) with a Cronbach's alpha of 0.75. An example item is "The growth we are aiming at can be achieved mainly through internationalization". Learning orientation was also measured with three items (Emden et al., 2005; Hult & Ferrell, 1997; Sinkula et al., 1997), resulting in a scale with a Cronbach's alpha of 0.85. One example item is "Learning in this organization is viewed as key to organizational survival". International growth orientation and learning orientation have both been shown to play an important role for international new venturing and this is why we decided to control for these variables in our models (Tuppura et al., 2008).

4.4. Analytical approach

In advance of conducting regression analysis, we tested the independent variables for multicollinearity by calculating zero order correlations as well as variance inflation factors (VIF) for all independent variables (table 13). The results show no significant risk for multicollinearity since no correlation exceeds 0.7 (Anderson et al., 1996). Moreover, all VIF values stay below 4.0 (Neter et al., 1983) and even below 2.5 (Allison, 1999).

To test our set of hypotheses, we applied hierarchical regression analysis (Cohen et al., 2003). As proposed by Aiken and West (1991), establishing different models allows for a comparison between alternative models with or without interaction terms by showing changes in R^2 and, therefore, delivers an indicator for the explanatory power of the moderator effects. To analyze the hypothesized moderator effects, we mean-centered the variables before creating interaction terms in order to avoid multi-collinearity (Aiken & West, 1991).

In order to provide richer information about the interaction terms, we plotted the significant interactions and calculated simple slope analysis (Cohen et al., 2003). As suggested, we selected a low and a high score on the moderator variable to illustrate the curves. The low level condition was defined as a standard deviation below the mean of the moderator, and the high level condition as a standard deviation above the mean of the moderator

Variables	Mean	S.D.	International Scale	International Scope	Knowledge intensity	International network strength	International network size	Firm age	Age at internationalization	Teamsize	Prior founding experience	Prior international experience	International growth orientation
International Scale	39.60	28.89	1										
International Scope	9.23	10.30	0.42 **	1									
Knowledge intensity	4.36	0.65	0.14 †	0.11	1								
International network strength	2.27	1.04	0.02	0.02	-0.11	1							
International network size	4.81	7.21	0.00	0.01	-0.11	0.25 **	1						
Firm age	9.17	6.21	0.12	0.34 **	0.04	-0.06	-0.09	1					
Age at internationalization	2.00	1.74	-0.34 **	-0.17 *	-0.08	-0.07	-0.12	0.26 **	1				
Teamsize	3.01	1.71	-0.07	0.02	0.06	0.20 *	0.22 **	-0.12	0.10	1			
Prior founding experience	0.41	0.49	-0.08	-0.04	-0.03	0.01	0.17 *	-0.23 **	-0.03	0.14 †	1		
Prior international experience	0.52	0.50	0.12	0.18 *	0.00	-0.08	-0.03	0.05	-0.28 **	-0.03	0.05	1	
International growth orientation	3.39	1.05	0.46 **	0.17 *	0.11	0.17 *	0.18 *	0.11	-0.08	-0.01	0.00	-0.04	1
Learning orientation	4.38	0.72	-0.10	-0.22 **	0.31 **	-0.04	0.05	-0.05	-0.13 †	0.06	-0.11	0.08	0.02

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). † Correlation is significant at the 0.10 level (2-tailed).

Table 13: Means, Standard Deviations and Correlations

		Dependent Variable: International Scale		Dependent Variable: International Scope		
		Model 1a	Model 1b	Model 2a	Model 2b	
Step 1: Control, Independent and Moderator Variables	Firm age	0.18 *	0.21 **	Firm age	0.40 ***	0.42 ***
	Age at internationalization	-0.38 ***	-0.42 ***	Age at internationalization	-0.24 *	-0.26 **
	Teamsize	0.04	0.05	Teamsize	0.14	0.15 †
	Prior founding experience	-0.07	-0.06	Prior founding experience	-0.04	-0.04
	Prior international experience	-0.01	-0.02	Prior international experience	0.13	0.12
	International growth orientation	0.42 ***	0.42 ***	International growth orientation	0.03	0.02
	Learning orientation	-0.20 *	-0.26 **	Learning orientation	-0.24 **	-0.28 **
	Knowledge intensity (KI)	0.10	0.21 *	Knowledge intensity (KI)	0.13	0.19 †
	International network strength (STR)	-0.06	-0.10	International network strength (STR)	0.03	0.00
	International network size (SIZE)	-0.09	-0.13	International network size (SIZE)	0.03	0.02
Step 2: Interaction Variables	KIxSTR		0.22 *	KIxSTR		0.18 *
	KIxSIZE		-0.26 *	KIxSIZE		-0.13
R ²		0.39 ***	0.43 ***	0.24 ***	0.27 ***	
Change in R ²			0.04 *		0.03 †	

Note: Standardized coefficients are reported; *** Coefficient is significant at the 0.001 level (2-tailed). ** Coefficient is significant at the 0.01 level (2-tailed). * Coefficient is significant at the 0.05 level (2-tailed). † Coefficient is significant at the 0.10 level (2-tailed).

Table 14: Results of the Linear Regression Analysis

5. *Results*

Table 14 shows the results of the hierarchical regression analysis. Model 1 provides the results for the dependent variable international scale, model 2 for international scope. In Model 1a and 2a, we included the control and predictor variables, which together explain a significant proportion of the variance in the dependent variable (Model 1a: $R^2=0.39$, $p<0.001$; Model 2a: $R^2=0.24$, $p<0.001$). In Model 1b and 2b, we entered the interaction terms to test our moderator hypotheses. The model leads to higher variance explanation compared to the models without interaction terms (Model 1b: $\Delta R^2=0.04$, $p<0.05$; Model 2b: $\Delta R^2=0.03$, $p<0.10$) supporting our assumption that the interaction effects have a significant impact on the scale and scope of new ventures' internationalization. To better understand the interaction effects we plotted them according to the procedure proposed by Cohen et al. (2003). Figures 6 and 7 show the two-way interaction plots.

In Hypothesis 1 we argued that international network strength will positively moderate the impact of knowledge intensity on the international scale and scope. As shown in Models 1b and 2b the interaction terms have a significant positive value supporting our hypotheses 1a and 1b. The plots shown in Figure 6 as well as simple slope analysis supplement the numerical information. As outlined, knowledge intensity only positively impacts international scale and international scope if accompanied by high network strength. The slope of knowledge intensity is significantly positive for international scale and international scope. At low levels of international network strength, knowledge intensity does not impact international scale and international scope.

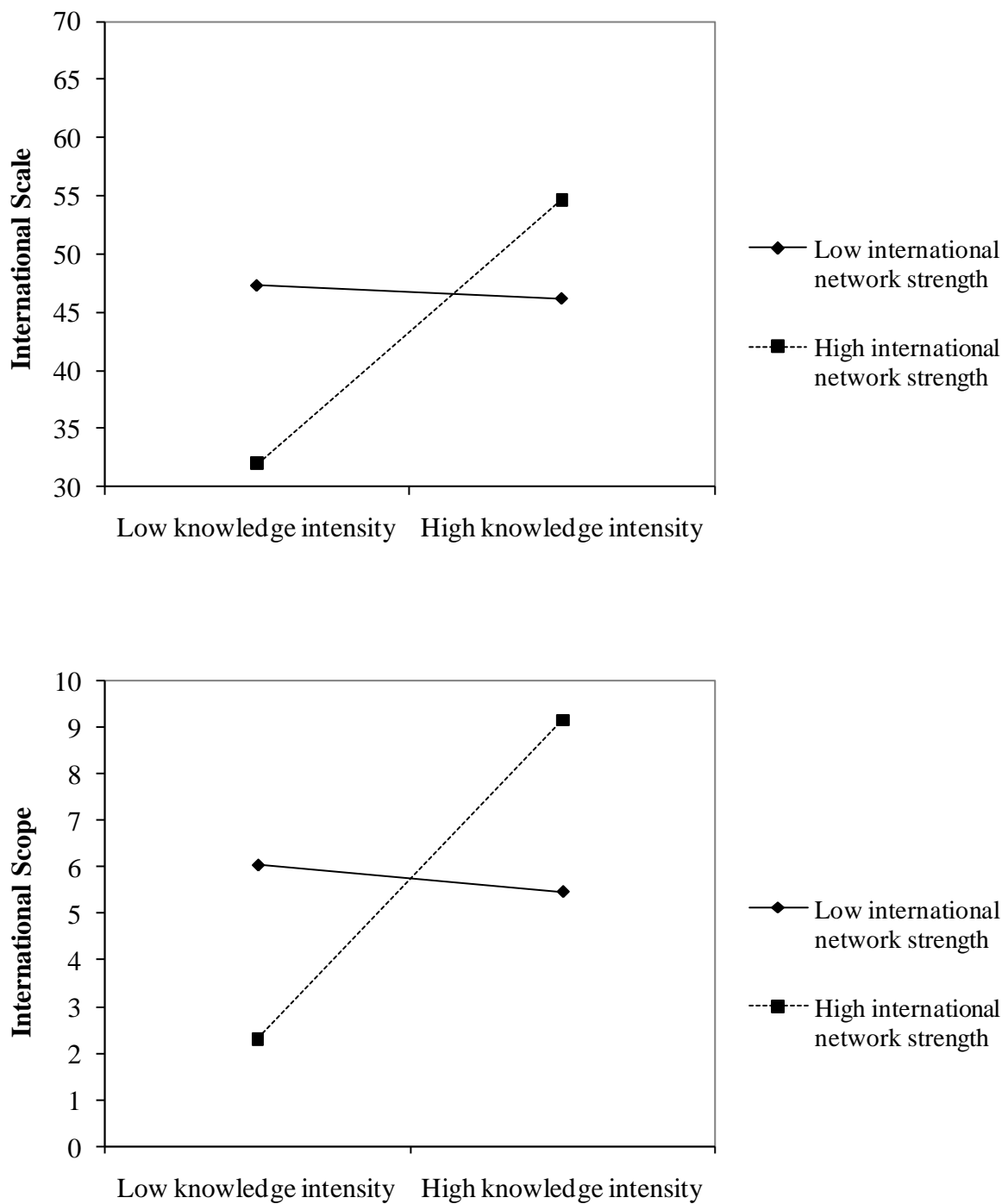


Figure 6: Significant Interaction Effects between International Network Strength and Knowledge Intensity

As hypothesized in H2a and H2b, international network size negatively influences the relationship between knowledge intensity and international scale and scope. Supporting hypothesis 2a, the results in Model 1b show that the interaction between knowledge intensity and international network size has a negative effect on international scale. Hypothesis 2b has

to be rejected. Although the interaction term between network size and knowledge intensity has a negative influence on international scope, the effect is not significant. Figure 7 provides a more detailed perspective on the relationship between knowledge intensity, network size, and international scale. As illustrated knowledge intensity impacts international scale only if the international network has a restrained size. This is underlined by simple slope analysis. The slope at a low level of international network size is significantly positive while the slope for high network size is not significantly different from zero. Hence, when the size of the network becomes too big and consequently too loosely connected such a network has a counterproductive influence on the scale of a firm's internationalization.

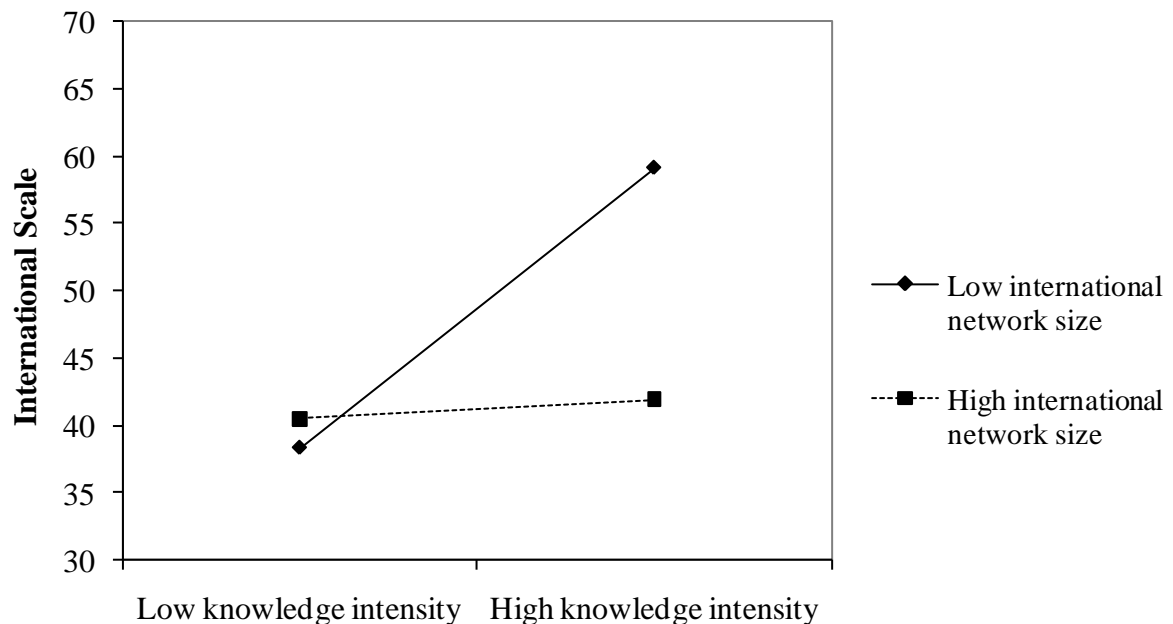


Figure 7: Significant Interaction Effect between International Network Size and Knowledge Intensity

6. Discussion

The aim of our study was to investigate the moderating effects of international network strength and size on the relationship between knowledge intensity and international new venturing. We found that several significant effects could be attributed to the moderating role of international networks, enriching the theoretical as well as practical discussions about knowledge intensity and INVs.

We add to the previous literature, because our results suggest that international networks also have a liability side for international new venturing. Nourishing a big international network does not provide the same level of security than a closely related network and even increases the propensity for opportunistic behavior. In a loose network,

large size could more easily cause diffusion of the knowledge base, eroding an INV's competitive advantage. Previous researchers already mentioned that alliance scope aggravates the protection of technological assets as mutual exposure of core technologies increases (Khanna, 1998; Li et al., 2008; Oxley & Sampson, 2004; Sampson, 2007). The same rationale seems to apply to international network size: As the network grows, technologies can more easily disseminate as more contact points to external firms exist. An INV will recognize this threat and restrain international activity to avoid this disadvantageous outcome.

As to the liability side of international networks we enrich prior findings from the social capital literature suggesting partial negative effects of networks. According to recent studies, some network characteristics are meant to potentially increase organizational inertia (Maurer & Ebers, 2006) and restrain innovative capabilities (Leonard-Barton, 1992). However, most studies that mention a liability side of networks conclude that these mainly occur to closely held ties and less open networks. These studies assert that a big and loosely connected network supplies firms with more information and a higher information diversity providing a fruitful ground for innovative ideas (Maurer & Ebers, 2006). Moreover, a close network may foster undesired obligations and normative pressure reducing a firm's flexibility (Knoke, 2009).

Our results show, that in particular strong networks and close interactions help knowledge intensive firms to expand international activities, and thus to amortize initial R&D expenditures more quickly and to better reduce risk by diversifying internationalization. We add to previous literature by forging the link between knowledge intensity and international networks and based on our empirical findings we suggest that different rules apply to INVs than for other firms. Most previous research draws on traditionally internationalizing firms and MNEs, which pursue different internationalization patterns and face less resource limitations (Tuppura et al., 2008). Hence, our study offers new insights which earlier works were unable to provide due to their empirical focus.

We state that for INVs having a considerable knowledge base which needs protection a close international network better helps to benefit from internationalization. Having close partners in international markets provides security and prevents problems that "arise from transaction-cost opportunism" (Knoke, 2009: 1695). A higher degree of interaction lowers monitoring costs and prevents unintended knowledge appropriation among the international network.

A big network is harder to monitor, especially for INVs. A profound monitoring of network partners binds financial as well as managerial resources. INVs lack these resources,

making it eventually impossible to have an eye on every network partner in big, loosely connected networks. MNEs on the other hand may have the required resource base to monitor a big network and thus avoid its shortfalls while profiting from its innovative benefits. Moreover, MNEs have better capacities to cope with patent infringements. While an INV may face bankruptcy, an MNE may still have enough resources to initiate legal countermeasures and to survive the costs due to product piracy and legal charges. Therefore, INVs may better pursue small, but closely related networks to protect their inherent knowledge.

Our paper makes theoretical contributions as well. To theoretically ground our assumptions about the relationships between knowledge intensity, networks, and internationalization we augmented traditional economic reasoning from TCE with elements of Structural Embeddedness. Despite multiple attempts to extend TCE towards a more holistic view (e.g. Brouthers, 2002; Delios & Beamish, 1999; Erramilli & Rao, 1993; Makino & Neupert, 2000), only few studies have applied sufficient theoretical rigor and foundation. Developing a holistic framework based on TCE as well as Structural Embeddedness, the present paper offers a valuable contribution to the pertinent literature. The framework developed has proven worthwhile for studying the relationship between knowledge intensity, networks, and internationalization.

7. Limitations and implications for further research

As is the case for most empirical studies, several limitations apply to our study. First, as internationalization is more a process than a state, a lack of longitudinal data for the INV phenomenon created measurement problems. Longitudinal research designs could delineate changes over time, and show if INVs develop gradually in terms of international scale and international scope. Changes in the international scale and scope or management cognition can only be analyzed in depth when powerful longitudinal data is available. This would help to clarify if changes in the variables used really result in a change of international scale and scope.

Second, even though multiple technologies were included, this study only focused on German technology-based companies, and therefore lacks comparative value on an international level. We cannot state if influential factors vary across different countries or cultural regions. Third, an observation of the cultural distance between an INV's country of origin and the focal markets could provide further information. Companies acting in a very restricted geographical area (e.g., Europe) do not have to cope with such psychically distant cultures, laws, and business practices as firms acting in geographically as well as culturally

distant markets. Such firms may be more dependent on the prior experience of their founders or strong networks than INVs which mainly act in culturally close areas.

One could also criticize the high level of knowledge intensity in our sample, eroding its direct effect on international scale and scope due to limited variance. It is true that our sample mostly consists of high technology firms. However, our focus is not on the direct effect of knowledge intensity or international network strength and size on international scale and scope but we emphasize the interaction of these effects. Measuring the direct impact of our core variables certainly would require a more comprehensive sample including traditional manufacturing industries or even service firms. The direct effects of knowledge intensity and international networks on INVs' internationalization have been asserted and found by many studies (e.g. Autio et al., 2000; Weerawardena et al., 2007). The present study set an emphasis on the interaction between knowledge intensity and international networks. More specifically, we observed how knowledge intensive firms can best exploit their inherent knowledge base for internationalization and if the network size or the network strength provide the ground for effective international knowledge exploitation. Accordingly, focusing on high technology firms is rather a strength than a limitation of this study since we need firms with both, inherent knowledge and international activities at a young age to make suggestions about the interactive impact of knowledge intensity and international networks on new ventures' internationalization.

Our paper has some implications for management practice. The results show that it is important for managers of technology firms to foster strong and closely interrelated network contacts if they aim at international expansion and a high international diversification. A loosely connected big network may even lead to counterproductive results and may negatively influence the internationalization activities of the firm. This is of particular importance for technology firms, since they might lose their unique assets if they are operating in international networks which are hardly to monitor. Management practice may want to pay particular attention to this issue.

Furthermore, we provide insights into liability aspects of networks which still require further investigation. A growing body of literature (Chetty & Agndal, 2007; Nahapiet & Ghoshal, 1998) mentions concerns regarding a too positive view on the effects of firm networks, omitting the potential problems arising from network embeddedness. Instead, most research addresses the problem of being over-embedded and less open for new input and innovation capabilities (Maurer & Ebers, 2006). More research is needed to show which

network characteristics may be potential risks for firms, at what levels and under which circumstances.

Our contribution to IE research is a more differentiated view of the effect of networks on internationalization. Networks are meant to be an integral part of INVs, as already proposed by the seminal framework developed by Oviatt and McDougall (1994). Alternative governance structures such as networks facilitate internationalization by enabling opportunity spotting, reducing liabilities of foreignness, and generating learning advantages. Against the largely dominating positive view of networks in IE research (e.g. Coviello, 2006), we show that networks may also be problematic for internationalization and may hamper the exploitation of knowledge intensity in foreign markets. In particular, knowledge intensive firms require international expansion in order to amortize R&D expenditures (Knight & Cavusgil, 2004). It is worthwhile to know about influential factors which deter the exploitation of knowledge intensity in foreign markets, as they may have direct implications for INV growth and subsequent survival. Thus, more research is needed on the interplay between networks and international new venturing to recognize which network characteristics provide opportunities for internationalization and which may be problematic under some conditions. Accordingly, research should increasingly be devoted to the liabilities of networks, and how these liabilities might be overcome.

VI. Conclusion

1. *Summary and contribution*

The aim of this dissertation was to contribute to the discussion about INVs, their emergence, internationalization patterns, growth and the contextual factors influencing these processes. To investigate these issues and in order to deduce theory based hypotheses we applied and combined several theoretical avenues, such as INVT, PTI, TCE and Structural Embeddedness. Then, we empirically analyzed the hypothesized relations on a sample of German high-technology firms and discussed the findings in the respective part.

Overall, this work has four main contributions concerning research on INVs. First, we were able to show that INV emergence does not only depend on new ventures internal and network resources, but that their impact is partly contingent on barriers to internationalization. A growth oriented management and international networks become significantly more important, when financial barriers are encountered. However, the analyses also reveal a structural difference of growth orientation and international network contacts concerning the impact on international new venturing. While growth orientation can be considered as a fundamental prerequisite for international new venturing, international network contacts are mechanisms to reduce barriers of entering foreign markets. With regard to knowledge intensity, we find that if new ventures perceive low financial barriers, knowledge intensity is positively associated with international new venturing, because firms may benefit from the mobility of their knowledge (Autio et al., 2000). When perceiving high financial barriers, the mobility of knowledge is restricted because patent infringements or product piracy become more likely as uncertainty rises. In such a situation, the effect of knowledge intensity on internationalization will diminish since firms with knowledge intensive products and services are particularly exposed to high risks. These findings enable a better understanding of the initial decision to internationalize and show that a contextualization allows for a more detailed picture of this strategic decision. Future studies should therefore further emphasize the moderating influence of environmental factors such as cultural or institutional distance.

A second contribution of this dissertation is the empirical validation of the INV typology proposed by Oviatt and McDougall (1994). Our findings show that INVs are a more heterogeneous than homogenous group of firms. The four INV types elaborated in our study reflect different internationalization strategies (Chetty & Campbell-Hunt, 2004). Thus, we add a more detailed perspective to former research on determinants of early internationalization as we illustrate that different types of INVs have to be taken into consideration when analyzing INVs' strategic approach to internationalization. The results furthermore demonstrate which

resources are conducive to specific internationalization strategies, and which resources might also restrict strategy choice.

Our findings underscore that Global Start-ups predominantly have to depend on a very growth-oriented and internationally experienced management team to succeed in international markets. Establishing such an INV is connected with high impediments requiring a proactively spirited management team. We furthermore try to add to the discussion about the value of prior international experience (for example Kundu & Katz, 2003) by showing that various INV types depend to a different extent on prior international experience. We conclude that prior international experience gathered from working in internationally operating firms boosts international scope, while experience through working abroad favors the international scale. This conclusion is in line with the finding that a strategy emphasizing both high-scale and high-scope internationalization, as pursued by Global Start-ups, becomes more likely if an INV has managers experienced in both areas. This suggests that an INV can best overcome the risks of entering into multiple countries if both types of experience are present.

In the second part of this work we also show that the impact of knowledge intensity and product differentiation on early internationalization (Autio, 2005) vary among the different INV types. The results suggest that on the one hand, a focused international expansion helps firms with knowledge intensive or highly differentiated products to evade product piracy and patent infringement and to restrict control costs (Luo, 2001). On the other hand, a focused expansion still fosters revenues from international markets that help to amortize research and development costs connected with knowledge intensity (Burgel & Murray, 2000). Thus, a geographically focused internationalization strategy seems to be appropriate to cope with the trade-off between control costs and the need to expand.

Multinational Traders have the most in common with Export Start-ups. Both types show a similarly growth-oriented management and a comparable degree of product differentiation. However, as indicated by their greater learning orientation, Export Start-ups are significantly more devoted to learning than Multinational Traders. Even though learning orientation is often associated with a greater propensity to internationalize (for example Oviatt & McDougall, 2005; Chetty & Champbell-Hunt, 2004), it seems to restrict rather than facilitate international expansion. One may conclude that Export Start-ups especially need an intense learning orientation in order to better serve the few markets they are operating in and to identify opportunities more efficiently. Only this allows them to achieve sustainable firm development and competitive advantages.

The third main contribution of this work is forging a link between PTI and INVT rationale for examining different INV strategic approaches. Many IE studies (e.g. Freeman et al., 2006; Shrader et al., 2000) assume PTI to be inappropriate to explain new ventures internationalization strategies due to the risk-averse and incremental nature of process theories. We showed that PTI reasoning allows for a broader perspective on international new venturing. Including PTI to explain INV strategy gave us the opportunity to apply a broader set of indicators to describe a firm's internationalization than a sole INVT reasoning would have provided. Linking these two theoretical frameworks also helps to better interpret several internationalization patterns. As the results of the LCA show, about half of the technology firms observed pursues a rather reactive and incremental road to internationalization. These gradually internationalizing INVs significantly differ from other INVs such as born-globals. They start internationalization early in their lifecycle - which is in line with INVT- but prefer to step into foreign markets in an incremental manner as forwarded by PTI.

With these findings, we furthermore add to the IE literature by applying a multivariate statistical approach to identify different INV strategies. Thus, we try to advance the understanding of international new venturing by exploring different latent classes of INVs. Identifying four INV strategy classes and their configurations, allows future research on INVs to properly control for class membership and to take varying strategic approaches to internationalization into account (Chetty & Campbell-Hunt, 2004). Moreover, the results allow for some inferences about the applied internationalization indicators. While the results reveal differences among INV strategy classes for most internationalization indicators, we do not find any outstanding difference regarding cultural distance. This is especially interesting as we simultaneously controlled for institutional distance, for which INV strategy classes are quite heterogeneous. This implies that institutional aspects are more important for the internationalization of entrepreneurial firms, since they directly impact interaction with foreign business partners. For entrepreneurial firms from high technology areas, formal institutions such as the level of property rights protection or governmental regulations seem to be more substantial for foreign market entry than informal cultural aspects. Even though culture is an important facet of internationalization per se, it seems to be less pivotal for an initial step into a foreign market. This may also be explained by chosen entry modes, since INVs often perform internationalization via export or intermediary distributors (Burgel & Murray, 2000) and thus without having frequent interaction with own staff or consumer markets.

Finally, this dissertation adds to the previous literature by showing that international networks have a liability side for international new venturing by putting it into relation with knowledge intensity and thus forging a link between these determinants of international new venturing. The results show that in particular strong networks and close interactions help knowledge intensive firms to expand international activities, and thus to amortize initial R&D expenditures more quickly and to better reduce risk by diversifying internationalization. Nourishing a big international network does not provide the same level of security as a closely related network and even increases the propensity for opportunistic behavior. In a loose network, large size could more easily cause diffusion of the knowledge base, eroding an INV's competitive advantage. Based on the empirical findings we suggest that different rules apply to INVs as for other firms. Most previous research draws on traditionally internationalizing firms and MNEs, which pursue different internationalization patterns and face less resource limitations (Tuppura et al., 2008). MNEs may therefore have the required resource base to monitor a big network and avoid its shortfalls while profiting from its innovative benefits. Moreover, MNEs have better capacities to cope with patent infringements. While an INV may face severe financial damage, an MNE may still have enough resources to initiate legal countermeasures and to survive the costs of product piracy and legal charges. Therefore, INVs better pursue small, but closely related networks to protect their inherent knowledge.

Part four holds a theoretical contribution as well. To ground the assumptions about the relationships between knowledge intensity, networks, and internationalization we augmented traditional economic reasoning from TCE with elements of Structural Embeddedness. This theoretical framework has proven worthwhile for studying the relationship between knowledge intensity, international networks, and internationalization. Combining these theories to a holistic framework allows for a better understanding of how network embeddedness moderates the impact of knowledge intensity on international expansion. Thus, this framework enables a contingency perspective on the relation between networks, knowledge intensity and international expansion advancing the pertinent literature in the field of IE.

2. Limitations and theoretical implications

As is the case for most empirical studies, some limitations apply to this empirical work as well. First, internationalization is more a process than a state, resulting in measurement problems, especially when comparing INVs and DNVs or different INV strategy classes. We tried to deal with this problem by pursuing different strategies. In part one we applied EHA which allows controlling for the time dependency of the internationalization event. In the part two and part four we applied well established definitions of INVs and conducted robustness checks (e.g. for different timing definitions) in order to validate our results. Yet, lacking longitudinal data, we were not able to fully address this limitation.

In addition, this study cannot draw conclusions about the impact of international new venturing on the survival of companies. Nevertheless, we hope to make a major contribution to current literature in this area despite the lack of more powerful longitudinal data. Developments over time, such as changes in a firm's profitability and the impact of the covariates on a firm's long-term survival and development, can only be analyzed in depth when longitudinal data are available. Moreover, longitudinal data could provide insights into the causal structure and if the covariates influence internationalization or if there is a reverse causality. Future research should be encouraged to address these shortcomings by conducting panel surveys on new ventures' development. Mudambi and Zahra's (2007) study is a first laudable step in this regard.

Moreover, testing knowledge intensity hypotheses on a sample of technology firms may have some drawbacks. It may be due to this issue that no significant direct effect of knowledge intensity could be identified on international compared to domestic new venturing in part one and on international scale and scope in part three. Future research may want to study the role of knowledge intensity using samples with less homogenous types of firms. However, we found interesting results with regard to knowledge intensity when we moderated for perceived financial barriers to internationalization. Moreover we were able to show that knowledge intensity can be better exploited, when international networks are strong rather than of large size. Hence, we think our findings can offer an add-on value to the literature in this regard.

The measurement of prior international experience also has some limitations. Although we adapted well-established measures of this construct, we do not know the countries in which the prior international experience was gathered. For future research it would be interesting to assess whether the impact of prior international experience on international new venturing depends on the congruence between the "source" country and the

“target” country. Dow and Larimo (2009) challenged the conceptualization and measurement of distance and international experience, stating that prior international experience gathered from earlier operations in Europe might impact subsequent internationalization into other European countries more likely than into Asia. Prior international experience could even raise problems if source and target location are not concurrent since managers could make false conclusions about unknown market structures by transferring their international experience into incongruous environments. This indicates that prior international experience can be misapplied, as illustrated by Halebian and Finkelstein (1999). Therefore, particular attention should be given to the role of prior international experience in future research.

We applied different tests showing that various types of INVs exist. In part two, we applied INVT to define different INV types. In part three, we augmented this theoretical framework by PTI reasoning, allowing for an even more fine grained view on different internationalization patterns and their predictors. By empirically showing that divergent internationalization patterns depend on different predictors, we propose that future studies on INVs should address this issue. If studies do not control for the different INV classes, researchers might misjudge the impact of internationalization predictors, since predictors such as prior international experience vary in impact among INV classes. Thus, future research should further emphasize this topic and take differences among INVs into consideration when analyzing and interpreting empirical findings.

Furthermore, we provide insights into liability aspects of networks which still require further investigation. A growing body of literature (Chetty & Agndal, 2007; Nahapiet & Ghoshal, 1998) mentions concerns regarding a too positive view on the effects of firm networks, omitting the potential problems arising from network embeddedness. Instead, most research addresses the problem of being over-embedded and less open for new input and innovation capabilities (Maurer & Ebers, 2006). More research is needed to show which network characteristics may be potential risks for firms, at what levels and under which circumstances.

A further contribution to IE research is a more differentiated view of the effect of networks on internationalization. Networks are meant to be an integral part of INVs, as already proposed by the seminal framework developed by Oviatt and McDougall (1994). Alternative governance structures such as networks facilitate internationalization by enabling opportunity spotting, reducing liabilities of foreignness, and generating learning advantages. Against the largely dominating positive view of networks in IE research (e.g. Coviello, 2006), we show that networks may also be problematic for internationalization and may hamper the

exploitation of knowledge intensity in foreign markets. In particular, knowledge intensive firms require international expansion in order to amortize R&D expenditures (Knight & Cavusgil, 2004). It is worthwhile to know about influential factors which deter the exploitation of knowledge intensity in foreign markets, as they may have direct implications for INV growth and subsequent survival. Thus, more research is needed on the interplay between networks and international new venturing to recognize which network characteristics provide opportunities for internationalization and which may be problematic under some conditions. Accordingly, research should increasingly be devoted to the liabilities of networks, and how these liabilities might be overcome

3. Implications for managers and policy makers

Our study has some major implications for managers and policy makers. As our results show, it is important for managers to take a broader perspective including the firm's inherent characteristics as well as the possible barriers to internationalization when considering venturing abroad. For instance, international network contacts may be an enabler for the firm to venture abroad; however, financial barriers in particular have to be taken into account by the management when making use of international network contacts. Technology firms' managers may want to consider that even if internationalization is a valuable means to amortize expenditures resulting from high knowledge intensity, knowledge intensity may have a negative impact on international new venturing due to financial barriers. Hence, early examination of the focal market is necessary to avoid post-entry shock effects (Pedersen & Petersen, 2004). We observed structural differences with regard to the impact of international growth orientation and international network contacts on international new venturing. In all circumstances international new venturing is supported by growth orientation, while international networks only become of importance if high barriers to internationalization have to be overcome. This underlines the importance of attitudes for new ventures' strategic decisions. Moreover, managers are well advised to foster a big international network if financial barriers are perceived. If financial barriers only play a minor role, international networks are less critical when venturing abroad.

Our work also shows that it is important for managers of technology firms to foster strong and closely interrelated network contacts if they aim at international expansion and a high international diversification. A loosely connected big network may even lead to counterproductive results and may negatively influence the internationalization activities of the firm. This is of particular importance for technology firms, since they might lose their

unique assets if they are operating in international networks which are hardly to monitor. Management practice may want to pay particular attention to this issue.

For policy makers it is important to note that it is very important to reduce the financial barriers and market-based barriers in order to promote young firms to venture into foreign markets. Both barrier types have been shown to limit the chance of going international to a large extent. Market-based barriers directly hamper internationalization for new ventures. Thus, policy makers may want to put additional efforts into establishing supporting agencies which help to render market-based barriers. Such agencies may support internationalization by establishing contact to potential foreign partners or by providing educational measures (e.g. intercultural training). Additionally, public support agencies could reduce financial barriers by assisting young technology firms to develop long-lasting and good relationships with financial activists such as venture capitalists, business angels, or other commercial institutions (Loane, et al., 2007). Moreover, the establishment of export promotion agencies could provide valuable support for technology firms to gain foreign market access and overcome barriers to internationalization.

Policy makers could also apply the findings of this doctoral thesis for more efficiently selecting those firms, which have the highest international growth potential. Policy makers have an ongoing interest in how to best influence firm growth and in how firms with growth potential can be identified to maximize the value of policy intervention (Freel, 1998). Internationalization per se is a strategy for firm growth (Sapienza et al., 2006). However, our study shows that firms with specific resources, such as prior international experience, have a greater ability to pursue strong growth internationalization by venturing into multiple countries at a high scale. Therefore, applying these findings could lead to a more efficient resource allocation of subsidies and public programs.

Moreover, our findings suggest that policy makers should emphasize subsidy programs for knowledge intensive firms' internationalization. We demonstrate that in particular these firms face resource constraints and potential shortfalls if internationalization fails. This limits their international endeavors to a restrained geographical scope. However, extant research suggests that knowledge intensive firms might profit from an early global expansion due to risk-diversification and increased market potential (Autio et al., 2000). Therefore, public programs could help knowledge intensive firms to overcome the initial resource constraints and fully exploit their knowledge base on a broader international scope, which may result in eligible firm development and subsequent economic upturn.

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Appendix

- Appendix 1: Factor Analysis (Part one)
- Appendix 2: Factor Analysis (Part two)
- Appendix 3: Questionnaire

Appendix 1: Factor Analysis (Part one)

Item	Factor loadings				
	1	2	3	4	5
We will have to internationalize in order to succeed in the future		0.57			
The growth We are aiming at can be achieved mainly through internationalization		0.73			
The domestic market still offers sufficient growth potential (recoded)		0.96			
How many cooperative relationships/ partnerships does your company hold with SME's abroad			0.97		
How many cooperative relationships/ partnerships does your company hold with MNE's abroad			0.93		
We are known for our excellent technological expertise and knowledge	0.66				
Knowledge-intensity is characteristic for our company	0.84				
Our products and services have a strong knowledge-component	0.79				
Lack of protection of patents and property rights				0.42	0.31
Cultural differences				0.54	
Political risks				0.79	
Legal uncertainty				0.66	
Necessity of high specific investments					0.43
Lack of support for the foreign market entry					0.94
Eigenvalue	1.93	1.84	1.84	1.74	1.30
cumulated % variance			57.70		

Note: Rotation method: Varimax.

Appendix 2: Factor Analysis (Part two)

Item	Factor			
	1	2	3	4
We will have to internationalize in order to succeed in the future			0.64	
The growth we are aiming at can be achieved mainly through internationalization			0.69	
The domestic market still offers sufficient growth potential (recoded)			0.87	
We are known for our excellent technological expertise and knowledge		0.74		
Knowledge-intensity is characteristic of our company		0.81		
Our Products and services have a strong knowledge-component		0.67		
Our Products are technologically unique				0.59
Our Products are unique with regards to their design				0.69
Our products are customized to a specific need of the respective customer				0.59
Learning in this organization is viewed as key to organizational survival	0.82			
The sense around here is that our ability to learn is key to remaining competitive	0.93			
In our management it is the predominant opinion, that the learning of our employees is an investment rather than an expenditure	0.63			
Eigenvalue	3.02	1.71	1.23	1.18
cumulated % variance		59.81		

Note: Rotation method: Varimax

Appendix 3: Questionnaire



Studie zu Wachstum und Internationalisierung von Technologieunternehmen

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Teil I: Fragen zum UNTERNEHMENSPROFIL

1. In welchem Jahr wurde Ihr Unternehmen gegründet? Jahr: _____

2. Ihr Unternehmen wurde gegründet als (**keine Mehrfachnennung**)...

...unabhängiges neues Unternehmen. ...Spin-off eines bestehenden Unternehmens.

...Management-buy-out. ...Sonstiges, und zwar: _____.

3. Wie groß war das Gründungsteam Ihres Unternehmens? _____ Personen

4. Waren Sie persönlich Mitglied des Gründungsteams Ihres Unternehmens? Ja Nein

5. Welche Position bekleiden **Sie** derzeit innerhalb Ihres Unternehmens?

Geschäftsführer Leiter der Strategieabteilung

Leiter der Verkaufsabteilung Sonstiges, und zwar: _____

6. Hatten einzelne Mitglieder des Gründungsteams bereits vorherige **Gründungserfahrung**? Ja Nein

7. Über welche Art von **internationaler Erfahrung** verfügte der Unternehmensgründer mit der meisten internationalen Erfahrung zum Zeitpunkt der Gründung (**Mehrfachnennungen möglich**).

Keine internationale Erfahrung vor der Gründung.

Vorherige Tätigkeit mit Auslandsbezug in einem international agierenden Unternehmen. Dauer: ____ Jahre

Vor der Gründung Tätigkeit im Ausland. Dauer: ____ Jahre

Sonstiges, und zwar: _____ . Dauer: ____ Jahre

8. Erzielt Ihr Unternehmen **Umsätze aus ausländischen Märkten**?

Ja ⇒ In welchem Jahr erzielte Ihr Unternehmen erstmals Auslandsumsätze? Jahr: _____

Wie hoch ist derzeit der Anteil der ausländischen Umsätze am Gesamtumsatz? _____ %

Aus wie vielen unterschiedlichen Ländern erzielte Ihr Unternehmen Umsätze? _____ Länder

Nein ⇒ Beabsichtigen Sie in Zukunft Umsätze aus ausländischen Märkten?

Ja, innerhalb eines Jahres Ja, innerhalb von 2 Jahren Ja, in mehr als 2 Jahren Nein

9. Bitte bewerten Sie, inwieweit die folgenden Internationalisierungshemmnisse auf Ihr Unternehmen zutreffen, bzw. diese Ihr Unternehmen bisher davon abgehalten haben zu internationalisieren?

	sehr geringes Hemmnis	1	2	3	4	5	sehr großes Hemmnis
Mangelnde internationale Wettbewerbsfähigkeit der eigenen Produkte	(1)	(2)	(3)	(4)	(5)		
Notwendigkeit hoher spezifischer Investitionen	(1)	(2)	(3)	(4)	(5)		
Umfangreiche Anpassungen der Produkte an den Auslandsmarkt	(1)	(2)	(3)	(4)	(5)		
Mangelnde Förderangebote für den Auslandsmarkt	(1)	(2)	(3)	(4)	(5)		
Mangelnder Schutz von Patenten und Marken im Ausland	(1)	(2)	(3)	(4)	(5)		
Kulturelle Unterschiede	(1)	(2)	(3)	(4)	(5)		
Politische Risiken	(1)	(2)	(3)	(4)	(5)		
Rechtliche Unsicherheiten	(1)	(2)	(3)	(4)	(5)		

10. Wie viele Mitarbeiter hatte/hat Ihr Unternehmen (Eigentümer eingeschlossen) zum Zeitpunkt der

a) Gründung? _____ b) ersten Internationalisierung (falls zutreffend)? _____ c) heute? _____

11. Wie viele Patente hat Ihr Unternehmen? _____ Patente.

12. In welchen der folgenden Technologiesektoren betreibt Ihr Unternehmen Forschung und Entwicklung? Wie hoch ist jeweils der Anteil der Ausgaben am Gesamtumsatz (GU)? **(Mehrfachnennungen möglich)**

Nanotechnologie, _____ % vom GU

Erneuerbare Energien, _____ % vom GU

Multi-Media, _____ % vom GU

Keine eigene Forschung und Entwicklung

Mikrosystemtechnik, _____ % vom GU

Biotechnologie, _____ % vom GU

Sonstiges: _____, _____ % vom GU

13. Wie viel hat Ihr Unternehmen anteilmäßig für Forschung und Entwicklung ausgegeben

a) zum Zeitpunkt der ersten Internationalisierung (falls zutreffend)? _____ % vom Gesamtumsatz

b) im aktuellen Geschäftsjahr? _____ % vom Gesamtumsatz

14. Wie viele Ihrer Mitarbeiter (Eigentümer eingeschlossen) waren/sind in der Forschung und Entwicklung Ihres Unternehmens beschäftigt zum Zeitpunkt der

a) Gründung? _____ b) ersten Internationalisierung (falls zutreffend)? _____ c) heute? _____

15. Welche Position hat Ihr Unternehmen innerhalb der Wertschöpfungskette? **(Mehrfachnennungen möglich):**

Zulieferer

System-Zulieferer

Produzent

Projektierer

Anwender

Sonstiges, und zwar: _____

16. Wie viele kooperative Beziehungen/Partnerschaften pflegt Ihr Unternehmen...

a) ...mit klein- und mittelständischen Unternehmen im Heimatmarkt? _____

b) ...mit Großunternehmen im Heimatmarkt? _____

c) ...mit klein- und mittelständischen Unternehmen im Ausland? _____

d) ...mit Großunternehmen im Ausland? _____

17. Zu wie viel Prozent verteilen sich die Geschäftsaktivitäten (GA) Ihres Unternehmens auf die folgenden Technologien? **(Mehrfachnennungen möglich)**

Nanotechnologie, _____ % der GA

Erneuerbare Energien, _____ % der GA

Multi-Media, _____ % der GA

Mikrosystemtechnik, _____ % der GA

Biotechnologie, _____ % der GA

Sonstige: _____, _____ % der GA

18. Wie erfolgreich ist/war Ihr Unternehmen – **im Vergleich zu anderen Unternehmen aus demselben Haupttechnologiefeld** – in Bezug auf jede der folgenden Kennzahlen?

	a) ...im letzten Geschäftsjahr					b) ...zum Zeitpunkt der ersten Internationalisierung				
	viel schlechter				viel besser	viel schlechter				viel besser
Ertragslage:	①	②	③	④	⑤	①	②	③	④	⑤
Cash-flow:	①	②	③	④	⑤	①	②	③	④	⑤
Umsatz:	①	②	③	④	⑤	①	②	③	④	⑤
Umsatzwachstum:	①	②	③	④	⑤	①	②	③	④	⑤
Marktanteil:	①	②	③	④	⑤	①	②	③	④	⑤

19. Um wie viel Prozent haben sich die **Gesamtumsätze** Ihres Unternehmens in den letzten **drei Jahren** verändert?
 %, positiv (+) negativ (-)

20. Um wie viel Prozent haben sich die Umsätze Ihres Unternehmens **auf dem Heimatmarkt** in den letzten **drei Jahren** verändert? %, positiv (+) negativ (-)

21. Um wie viel Prozent haben sich die Umsätze Ihres Unternehmens **aus dem Ausland** in den letzten **drei Jahren** verändert (falls Auslandsumsätze vorhanden)? %, positiv (+) negativ (-)

22. Wie beurteilen Sie die derzeitige Ertragslage Ihres Unternehmens insgesamt
 ① hohe Verluste ② geringe Verluste ③ Break-Even ④ geringe Gewinne ⑤ hohe Gewinne

23. Inwieweit stimmen Sie mit den folgenden Aussagen zur Wichtigkeit von Wachstum in Ihrem Unternehmen überein?

	Stimme überhaupt nicht zu	1	2	3	4	5	Stimme absolut zu
Starkes Wachstum ist essentiell für die zukünftige Positionierung unseres Unternehmens.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die derzeitige Größe unseres Unternehmens ist optimal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wir streben nach moderatem Wachstum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Der Heimatmarkt bietet noch immer ausreichend Wachstumspotenzial.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Risiken einer Internationalisierung sind zu groß.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unser Unternehmen muss internationalisieren, um in Zukunft erfolgreich zu sein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wir werden Partner benötigen, um internationalisieren zu können.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wir haben ausreichend Ressourcen, um zu internationalisieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unser Wachstum kann hauptsächlich durch Internationalisierung erreicht werden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Inwieweit stimmen Sie mit den folgenden allgemeinen Aussagen zur Kultur in Ihrem Unternehmen überein?

	Stimme überhaupt nicht zu	1	2	3	4	5	Stimme absolut zu
Lernen wird in unserem Unternehmen als Schlüssel für die Überlebensfähigkeit des Unternehmens angesehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In unserem Unternehmen herrscht die allgemeine Auffassung, dass die Fähigkeit zu lernen ein Schlüsselfaktor für nachhaltige Wettbewerbsfähigkeit ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In unserem Managementteam herrscht die allgemeine Auffassung, dass das Lernen der Mitarbeiter eine Investition und keine Ausgabe ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Inwieweit stimmen Sie mit den folgenden Aussagen zur Wichtigkeit von (Fach)Wissen in Ihrem Unternehmen zu?

	Stimme überhaupt nicht zu	1	2	3	4	5	Stimme absolut zu
Unser Unternehmen ist für seine exzellente technologische Expertise bekannt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eine starke (Fach-)Wissensbasis ist charakteristisch für unser Unternehmen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unsere Produkte und Services haben eine starke Wissenskomponente.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unsere Produkte sind technologisch einzigartig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unsere Produkte sind einzigartig in Bezug auf ihr Design.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unsere Produkte sind spezifisch auf die Bedürfnisse des jeweiligen Kunden angepasst.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Inwieweit stimmen Sie mit folgenden Aussagen bezüglich Ihres Unternehmens überein?	Stimme überhaupt nicht zu	Stimme absolut zu		
Verglichen mit unseren Wettbewerbern ist unser Unternehmen bei der Einführung neuartiger Produktionspraktiken eher unter den Vorreitern.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Unser Unternehmen betreibt aktive Beobachtung von „Best Practices“ und aktive Anpassung an „Best Practices“ in unserem Technologiefeld.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Unser Unternehmen erkennt frühzeitig die technologischen Veränderungen, die einen nachhaltigen Einfluss auf unser Geschäftsfeld haben könnten.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Unser Unternehmen ist in der Lage, unerwartete Gelegenheiten schnell zu verfolgen und auszunutzen.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Unser Unternehmen experimentiert regelmäßig mit neuen Geschäftspraktiken.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Wenn Ihr Unternehmen nicht international tätig ist, beenden Sie den Fragebogen an dieser Stelle und senden Sie ihn bitte zurück! Verwenden Sie hierzu bitte den Antwortbogen auf der letzten Seite des Fragebogens. Ansonsten bitten wir Sie, den Fragebogen weiter auszufüllen.

Teil II: Fragen zur ERSTEN INTERNATIONALISIERUNG Ihres Unternehmens

Zur Beantwortung der Fragen zu Ihrer **ersten Internationalisierung** möchten wir Sie bitten, als erste Internationalisierung denjenigen Auslandsmarkt zu wählen, in dem Ihr Unternehmen erstmals **systematisch Auslandsumsätze** generiert hat. Falls der Zeitpunkt der ersten Internationalisierung schon lange zurückliegt, bitten wir Sie, entweder einen langjährigen Mitarbeiter zu Rate zu ziehen oder die Antwortkategorien gemäß Ihrer qualifizierten Schätzung zu beantworten.

27. In welchem **Land** war Ihr Unternehmen zum ersten Mal international tätig? (Bitte beschränken Sie Ihre Antwort auf ein Land, d.h. nennen Sie nicht Europa, sondern wählen Sie z.B. Frankreich): Land: _____

28. In welchem **Jahr** hat Ihr Unternehmen zum ersten Mal Umsätze aus ausländischen Märkten erzielt? Jahr: _____

29. Bitte nutzen Sie die **Marktbearbeitungsformen** in der **Box** um die folgenden Fragen zu beantworten.

- | | |
|--------------------------------|--|
| a) Direkter Export | f) Vertragliche Kooperationen |
| b) Langfristige Lieferverträge | g) Joint Venture Unternehmen |
| c) Ausländischer Distributor | h) Ausländische Verkaufsgesellschaft |
| d) Lizenzvereinbarung | i) Ausländische Tochtergesellschaft (mit Produktion) |
| e) Franchise Vereinbarung | j) Sonstiges, und zwar: _____ |

Welche **Marktbearbeitungsform** haben Sie für den **ersten ausländischen Markteintritt Ihres Unternehmens** gewählt? _____

Ist Ihr Unternehmen **noch immer** in seinem ersten Auslandsmarkt **aktiv**? Ja Nein (bei Nein ⇒ **Frage 30**)

Haben Sie die erste **Marktbearbeitungsform** bis heute **verändert**? Ja Nein (bei Nein ⇒ **Frage 30**)

Wie lautet die **derzeitige** Marktbearbeitungsform in Ihrem **ersten Auslandsmarkt**? _____, seit Jahr: _____

30. Inwieweit stimmen Sie mit den folgenden Aussagen zum Erfolg Ihres ersten Auslandsengagements überein?	Stimme überhaupt nicht zu	Stimme absolut zu							
Grundsätzlich sind wir zufrieden mit dem Erfolg unseres ersten ausländischen Marktes.	(1)	(2)	(3) (4) (5)							
Wir haben die für den ersten Auslandsmarkt gesetzten Umsatzziele erreicht.	(1)	(2)	(3) (4) (5)							
Wir haben unsere Ziele für den Marktanteil des ersten ausländischen Marktes erreicht.	(1)	(2)	(3) (4) (5)							
Die erste Internationalisierung hat einen positiven Einfluss auf den Gesamtgewinn.	(1)	(2)	(3) (4) (5)							
Die erste Internationalisierung hat einen positiven Einfluss auf die Entwicklung von Expertise in unserem Unternehmen.	(1)	(2)	(3) (4) (5)							
Die Investitionen für die erste Internationalisierung haben sich ausgezahlt.	(1)	(2)	(3) (4) (5)							
31. Wie schätzen Sie den Erfolg Ihres Unternehmens im ersten Auslandsmarkt insgesamt ein?										
nach dem ersten Jahr: (1) hohe Verluste (2) geringe Verluste (3) Break-Even (4) geringe Gewinne (5) hohe Gewinne										
heute: (1) hohe Verluste (2) geringe Verluste (3) Break-Even (4) geringe Gewinn (5) hohe Gewinne										
32. Wie erfolgreich war/ist Ihre erste Internationalisierung im Hinblick auf die folgenden Kennzahlen...	a) ...ein Jahr nach der ersten Internationalisierung?					b) ...heute (falls noch im Markt aktiv)?				
	Überhaupt nicht erfolgreich	Sehr erfolgreich	Überhaupt nicht erfolgreich	Sehr erfolgreich				
Ertragslage:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Cash-flow:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Umsatz:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Umsatzwachstum:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Marktanteil:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Erlernen neuer Technologien:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Erlernen neuer Praktiken:	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)

Teil III: Fragen zum GRÖSSTEN AUSLANDSMARKT Ihres Unternehmens

33. Ist der erste Auslandsmarkt Ihres Unternehmens (aus Teil II) auch zugleich der größte Auslandsmarkt Ihres Unternehmens? <input type="radio"/> Ja <input type="radio"/> Nein (bei Nein ⇒ Frage 34)
Bei „Ja“ beachten Sie bitte folgenden Hinweis!!!
WICHTIG: Wir möchten Unterschiede zwischen Ihrem ersten und größten Auslandsmarkt erfragen. Dies ist nicht möglich, wenn der erste auch zugleich der größte Auslandsmarkt ist. Da Sie Frage 33. mit „Ja“ beantwortet haben, möchten wir Sie bitten, für die Beantwortung ALLER folgenden Fragen nach dem größten Auslandsmarkt, den <u>ZWEITGRÖSSTEN AUSLANDSMARKT</u> Ihres Unternehmens heranzuziehen. Sollte Ihr Unternehmen bisher nur einen Auslandsmarkt erschlossen haben, gehen Sie bitte direkt zu Teil IV des Fragebogens (S 7).
34. In welchem Land befindet sich der größte Auslandsmarkt Ihres Unternehmens? Land: _____
35. In welchem Jahr hat Ihr Unternehmen erstmals Umsätze aus diesem Markt generiert? Jahr: _____

36. Bitte nutzen Sie die **Marktbearbeitungsformen** in der **Box** um die folgenden Fragen zu beantworten.

- | | |
|---------------------------------------|---|
| a) Direkter Export | f) Vertragliche Kooperationen |
| b) Langfristige Lieferverträge | g) Joint Venture Unternehmen |
| c) Ausländischer Distributor | h) Ausländische Verkaufsgesellschaft |
| d) Lizenzvereinbarung | i) Ausländische Tochtergesellschaft (mit Produktion) |
| e) Franchise Vereinbarung | j) Sonstiges, und zwar: _____ |

Welche Marktbearbeitungsform haben Sie für den ersten Eintritt in **den größten** Auslandsmarkt gewählt?

Haben Sie die erste **Marktbearbeitungsform** bis heute **verändert**? Ja Nein (bei Nein ⇒ **Frage 37**)

Wie lautet die derzeitige Marktbearbeitungsform für **den größten** Auslandsmarkt? _____, seit Jahr: _____

37. Inwieweit stimmen Sie mit den folgenden Aussagen zum **Erfolg** des größten Auslandsengagements überein?

Stimme überhaupt nicht zu Stimme absolut zu

Grundsätzlich sind wir zufrieden mit dem Erfolg unseres größten Auslandsmarktes.	①	②	③	④	⑤
Wir haben die für den größten Auslandsmarkt gesetzten Umsatzziele erreicht.	①	②	③	④	⑤
Wir haben unsere Ziele für den Marktanteil im größten Auslandsmarkt erreicht.	①	②	③	④	⑤
Unser größter Auslandsmarkt hat einen positiven Einfluss auf den Gesamtgewinn.	①	②	③	④	⑤
Unser größter Auslandsmarkt hat einen positiven Einfluss auf das Image unseres Unternehmens.	①	②	③	④	⑤
Unser größter Auslandsmarkt hat einen positiven Einfluss auf die Entwicklung von Expertise in unserem Unternehmen.	①	②	③	④	⑤
Die Investitionen im größten Auslandsmarkt haben sich ausgezahlt.	①	②	③	④	⑤

38. Wie schätzen Sie den Erfolg Ihres Unternehmens im **größten Auslandsmarkt** insgesamt ein?

nach dem ersten Jahr: ① hohe Verluste ② geringe Verluste ③ Break-Even ④ geringe Gewinne ⑤ hohe Gewinne
heute: ① hohe Verluste ② geringe Verluste ③ Break-Even ④ geringe Gewinne ⑤ hohe Gewinne

39. Wie erfolgreich war/ist Ihr **größter Auslandsmarkt** im Hinblick auf die folgenden Kennzahlen...

a) **...ein Jahr nach Markteintritt?**
 Überhaupt nicht erfolgreich Sehr erfolgreich

b) **...heute?**
 Überhaupt nicht erfolgreich Sehr erfolgreich

Ertragslage:	①	②	③	④	⑤	①	②	③	④	⑤
Cash-flow:	①	②	③	④	⑤	①	②	③	④	⑤
Umsatz:	①	②	③	④	⑤	①	②	③	④	⑤
Umsatzwachstum:	①	②	③	④	⑤	①	②	③	④	⑤
Marktanteil:	①	②	③	④	⑤	①	②	③	④	⑤
Erlernen neuer Technologien:	①	②	③	④	⑤	①	②	③	④	⑤
Erlernen neuer Praktiken:	①	②	③	④	⑤	①	②	③	④	⑤

Teil IV: Vergleich zwischen dem ERSTEN und dem GRÖSSTEN Auslandsmarkt

Zum Abschluss möchten wir **Veränderungen in den Internationalisierungsentscheidungen zwischen dem ersten Auslandsmarkt (aus Teil II) und größten Auslandsmarkt (aus Teil III)*** Ihres Unternehmens vertiefen. **Abweichungen in Ihren Antworten** für das erste und das größte Auslandsengagement sind somit **möglich!** Sollte Ihr Unternehmen nur auf einem ausländischen Markt aktiv sein, bitten wir Sie die Fragen nur für den ersten Auslandsmarkt zu beantworten.

* **WICHTIG:** Sollte der erste Auslandsmarkt Ihres Unternehmens zugleich auch der größte Auslandsmarkt sein, bitten wir Sie - ebenso wie in Teil III - für ALLE Fragen nach dem größten Auslandsmarkt **Ihren zweitgrößten Auslandsmarkt heranzuziehen**. Nur so sind Vergleiche zwischen den Märkten möglich!

40. Wie wichtig waren die folgenden Faktoren für den Eintritt in den jeweiligen Auslandsmarkt?	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Überhaupt nicht wichtig		sehr wichtig			Überhaupt nicht wichtig		sehr wichtig		
	1	2	3	4	5	1	2	3	4	5
	Zugang zu neuen Kunden					Zugang zu neuen Kunden				
	Zugang zu Wissen					Zugang zu Wissen				
	Kostenreduktion					Kostenreduktion				
	Risikodiversifikation					Risikodiversifikation				
	Internationale Vermarktung einer geschützten Technologie					Internationale Vermarktung einer geschützten Technologie				
	Beratung durch (staatliche) Fördereinrichtungen					Beratung durch (staatliche) Fördereinrichtungen				
Internationale Erfahrung des Gründer-/Managementteams					Internationale Erfahrung des Gründer-/Managementteams					
Ein einzigartiges Produkt gegenüber der Konkurrenz					Ein einzigartiges Produkt gegenüber der Konkurrenz					
41. Inwieweit stimmen Sie den folgenden Aussagen zu den Netzwerkkontakten Ihres Unternehmens für den jeweiligen Auslandsmarkt zu?	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Stimme überhaupt nicht zu		Stimme absolut zu			Stimme überhaupt nicht zu		Stimme absolut zu		
	1	2	3	4	5	1	2	3	4	5
	Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden waren wichtig für den Eintritt in den jeweiligen Markt.					Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden waren wichtig für den Eintritt in den jeweiligen Markt.				
	Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Zulieferern waren wichtig für den Eintritt in den jeweiligen Markt.					Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Zulieferern waren wichtig für den Eintritt in den jeweiligen Markt.				
Enge kooperative Beziehungen zwischen unserem Unternehmen und einer Forschungseinrichtung /Universität waren wichtig für den Eintritt in den jeweiligen Markt.					Enge kooperative Beziehungen zwischen unserem Unternehmen und einer Forschungseinrichtung /Universität waren wichtig für den Eintritt in den jeweiligen Markt.					
Enge kooperative Beziehungen zwischen unserem Unternehmen und einem ausländischen Distributor waren wichtig für den Eintritt in den jeweiligen Markt.					Enge kooperative Beziehungen zwischen unserem Unternehmen und einem ausländischen Distributor waren wichtig für den Eintritt in den jeweiligen Markt.					
42. Inwieweit stimmen Sie den folgenden Aussagen zum Erfolg der Kooperationen Ihres Unternehmens zu?	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Stimme überhaupt nicht zu		Stimme absolut zu			Stimme überhaupt nicht zu		Stimme absolut zu		
	1	2	3	4	5	1	2	3	4	5
	Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden haben die Entwicklung und Produktion unserer Produkte erleichtert.					Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden haben die Entwicklung und Produktion unserer Produkte erleichtert.				
Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden haben den Verkauf der Produkte im Auslandsmarkt erleichtert.					Enge kooperative Beziehungen zwischen unserem Unternehmen und unseren Kunden haben den Verkauf der Produkte im Auslandsmarkt erleichtert.					
Eine enge kooperative Beziehung zwischen unserem Unternehmen und unseren Zulieferern haben den Verkauf der Produkte im Auslandsmarkt erleichtert.					Eine enge kooperative Beziehung zwischen unserem Unternehmen und unseren Zulieferern haben den Verkauf der Produkte im Auslandsmarkt erleichtert.					

42. Inwieweit stimmen Sie den folgenden Aussagen zum Erfolg der Kooperationen Ihres Unternehmens zu? (Fortsetzung von voriger Seite)	a) <u>erster</u> Auslandsmarkt					b) <u>größter</u> Auslandsmarkt					
	Stimme über- haupt nicht zu		Stimme absolut zu			Stimme über- haupt nicht zu		Stimme absolut zu			
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	
	Wir haben mit Hilfe unserer Kooperationspartner im jeweiligen Auslandsmarkt neue Marktsegmente erschlossen.										
	Wir haben mit Hilfe unserer Kooperationspartner neue Kunden gewinnen können.										
	Wir haben mit Hilfe unserer Kooperationspartner neues technologisches Wissen erlangen können.										
Die Geschäftskontakte unserer Kooperationspartner haben uns geholfen den Markt zu erschließen .											
Wir haben mit Hilfe unserer Kooperationspartner die Bekanntheit unseres Unternehmens im Markt gesteigert .											
43. Wie beurteilen Sie die Position Ihres Unternehmens im gesamten Kooperationsverbund (Kunde, Zulieferer, Technologiepartner, etc.) Ihres Unternehmens auf den folgenden vier Dimensionen?											
a) <input type="radio"/> zentrale Position <input type="radio"/> Randposition					b) <input type="radio"/> eher Informationsgeber <input type="radio"/> eher Informationsnehmer						
c) <input type="radio"/> leicht austauschbar <input type="radio"/> schwer austauschbar					d) <input type="radio"/> eher proaktiv <input type="radio"/> eher reaktiv						
44. Denken Sie an den für den jeweiligen Auslandsmarkt heute wichtigsten Kooperationspartner . In welchem Verhältnis steht dieser Kooperationspartner zu Ihrem Unternehmen?											
a) im ersten Auslandsmarkt					b) im größten Auslandsmarkt						
<input type="radio"/> Kunde		<input type="radio"/> Technologiepartner			<input type="radio"/> Kunde		<input type="radio"/> Technologiepartner				
<input type="radio"/> Distributor/Händler		<input type="radio"/> Produktionspartner			<input type="radio"/> Distributor/Händler		<input type="radio"/> Produktionspartner				
<input type="radio"/> Zulieferer		<input type="radio"/> Lizenzpartner			<input type="radio"/> Zulieferer		<input type="radio"/> Lizenzpartner				
Sonstiges, und zwar: _____					Sonstiges, und zwar: _____						
Wie bewerten Sie die Verhandlungsposition Ihres Unternehmens gegenüber dem Kooperationspartner?											
a) im ersten Auslandsmarkt					b) im größten Auslandsmarkt						
<input type="radio"/> stärker		<input type="radio"/> etwa gleich		<input type="radio"/> schwächer	<input type="radio"/> stärker		<input type="radio"/> etwa gleich		<input type="radio"/> schwächer		
Wie häufig haben Sie mit diesem Kooperationspartner Kontakt?											
a) im ersten Auslandsmarkt					b) im größten Auslandsmarkt						
<input type="radio"/> (fast) täglich		<input type="radio"/> wöchentlich			<input type="radio"/> (fast) täglich		<input type="radio"/> wöchentlich				
<input type="radio"/> ein- dreimal pro Monat		<input type="radio"/> seltener als einmal/Monat			<input type="radio"/> ein- dreimal pro Monat		<input type="radio"/> seltener als einmal/Monat				
45. Inwieweit stimmen Sie mit den Aussagen zum Wissensstand Ihres Unternehmens über den jeweiligen Auslandsmarkt zu?	a) <u>erster</u> Auslandsmarkt					b) <u>größter</u> Auslandsmarkt					
	Stimme über- haupt nicht zu		Stimme absolut zu			Stimme über- haupt nicht zu		Stimme absolut zu			
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	
	Unser Unternehmen besitzt umfangreiches Wissen über Geschäftsvorschriften/Rechtsfragen im Auslandsmarkt.										
	Unser Unternehmen besitzt umfangreiches Wissen über finanzielle und steuerliche Praktiken im Auslandsmarkt.										
	Unser Unternehmen besitzt umfangreiches Wissen über lokale Geschäftskulturen im Auslandsmarkt.										
Unser Unternehmen besitzt umfangreiches Wissen über die Produkte unserer <u>Kunden</u> im Auslandsmarkt.											
Unser Unternehmen besitzt umfangreiches Wissen über die Produkte unserer <u>Wettbewerber</u> im Auslandsmarkt.											

46. Inwieweit stimmen Sie mit den Aussagen zum Wissensstand Ihres Unternehmens über den jeweiligen Auslandsmarkt zu? (Fortsetzung von voriger Seite)	a) erster Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu					b) größter Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu				
Unser Unternehmen besitzt umfangreiches Wissen über neu entstehende Technologien und Trends im Auslandsmarkt.	①	②	③	④	⑤	①	②	③	④	⑤
47. Inwieweit stimmen Sie den folgenden Aussagen zum Lernverhalten Ihres Unternehmens im Auslandsmarkt zu?	a) erster Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu					b) größter Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu				
Unerwartete Herausforderungen im Auslandsmarkt hat unser Unternehmen über „trial and error“ gemeistert.	①	②	③	④	⑤	①	②	③	④	⑤
Unser Unternehmen hat über eigenes Experimentieren Herausforderungen im Auslandsmarkt gemeistert.	①	②	③	④	⑤	①	②	③	④	⑤
Unser Unternehmen hat durch die Analyse früherer Entscheidungen und Ergebnisse im gewählten Auslandsmarkt gelernt.	①	②	③	④	⑤	①	②	③	④	⑤
Bei unerwarteten Herausforderungen hat unser Unternehmen neue Dinge ausprobiert, die zuvor nicht erprobt waren.	①	②	③	④	⑤	①	②	③	④	⑤
Bei unerwarteten Herausforderungen hat unser Unternehmen so improvisiert, wie es die Situation im Markt erforderte.	①	②	③	④	⑤	①	②	③	④	⑤
Bei unerwarteten Herausforderungen erlauben wir es unseren Mitarbeitern eigene Lösungsvorschläge zu unterbreiten.	①	②	③	④	⑤	①	②	③	④	⑤
Bevor unser Unternehmen in den jeweiligen Auslandsmarkt eingetreten ist, haben wir eine umfangreiche Analyse der Marktgegebenheiten und des Marktpotenzials vorgenommen.	①	②	③	④	⑤	①	②	③	④	⑤
Bevor unser Unternehmen in den jeweiligen Auslandsmarkt eingetreten ist, haben wir eine umfassende Standortanalyse vorgenommen.	①	②	③	④	⑤	①	②	③	④	⑤
Bevor unser Unternehmen in den jeweiligen Auslandsmarkt eingetreten ist, haben wir versucht, durch umfassende Informationsbeschaffung Risiken zu minimieren.	①	②	③	④	⑤	①	②	③	④	⑤
48. Um über die ausländischen Marktbedingungen, Kunden und Wettbewerber im ausgewählten Auslandsmarkt zu lernen, hat unser Unternehmen...	a) erster Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu					b) größter Auslandsmarkt Stimme über- haupt nicht zu Stimme absolut zu				
... Handlungen unserer Wettbewerber genau beobachtet.	①	②	③	④	⑤	①	②	③	④	⑤
... Wettbewerbsanalysen bei einheimischen Unternehmen betrieben, die bereits im jeweiligen Auslandsmarkt aktiv sind.	①	②	③	④	⑤	①	②	③	④	⑤
... Wettbewerbsanalysen bei Unternehmen im ausgewählten Auslandsmarkt betrieben.	①	②	③	④	⑤	①	②	③	④	⑤
... Produkte und Marken von Wettbewerbern analysiert.	①	②	③	④	⑤	①	②	③	④	⑤
... sich an der Vorgehensweise von anderen Unternehmen im jeweiligen Auslandsmarkt orientiert.	①	②	③	④	⑤	①	②	③	④	⑤
... sich an dem Vorgehen der als „Best Practice“ wahrgenommenen Unternehmen orientiert.	①	②	③	④	⑤	①	②	③	④	⑤
... Benchmarking betrieben.	①	②	③	④	⑤	①	②	③	④	⑤

49. Bitte bewerten Sie inwieweit Ihr Unternehmen im Verlauf seiner Aktivitäten im Auslandsmarkt Wissen in den folgenden <u>Marketing</u> aufgaben erlernt hat.	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Begrenztes erlerntes Wissen		Fundiertes erlerntes Wissen			Begrenztes erlerntes Wissen		Fundiertes erlerntes Wissen		
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
Anpassen der Produkte an die Bedürfnisse des gewählten Auslandsmarktes.	1	2	3	4	5	1	2	3	4	5
Wissen/Informationen über weitere Marktsegmente neben dem ursprünglichen Marktsegment erworben.	1	2	3	4	5	1	2	3	4	5
Kompetenzen im Umgang mit ausländischen Partnern (Distributoren, Lizenzpartner, etc.) erworben.	1	2	3	4	5	1	2	3	4	5
Kompetenzen in der Nachverfolgung von Kundenbedürfnissen und Marktentwicklungstendenzen erworben.	1	2	3	4	5	1	2	3	4	5
50. Bitte bewerten Sie, inwieweit Ihr Unternehmen im Verlauf seiner Aktivitäten im Auslandsmarkt Wissen in den folgenden <u>Technologie</u> bereichen erlernt hat.	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Begrenztes erlerntes Wissen		Fundiertes erlerntes Wissen			Begrenztes erlerntes Wissen		Fundiertes erlerntes Wissen		
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
Entwicklung neuer Produktdesigns	1	2	3	4	5	1	2	3	4	5
Verbesserungen in der Produktentwicklung	1	2	3	4	5	1	2	3	4	5
Optimierung der Produktionsprozesse	1	2	3	4	5	1	2	3	4	5
Identifizierung neu aufkommender Technologien	1	2	3	4	5	1	2	3	4	5
Integration neuer Technologien in die eigenen Technologien	1	2	3	4	5	1	2	3	4	5
Technologietransfer in Auslandsmärkte	1	2	3	4	5	1	2	3	4	5
Schutz der eigenen Technologien	1	2	3	4	5	1	2	3	4	5
51. Inwieweit treffen die folgenden Aussagen auf Sie persönlich zu? Um meine eigenen Fähigkeiten zu verbessern...	a) erster Auslandsmarkt					b) größter Auslandsmarkt				
	Stimme über- haupt nicht zu		Stimme absolut zu			Stimme über- haupt nicht zu		Stimme absolut zu		
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
	1	2	3	4	5	1	2	3	4	5
...informiere ich mich über das Internet über neue Entwicklungen im jeweiligen Markt.	1	2	3	4	5	1	2	3	4	5
...informiere ich mich über Fachliteratur über neue Entwicklungen im jeweiligen Markt.	1	2	3	4	5	1	2	3	4	5
...informiere ich mich bei unseren Kooperationspartnern im jeweiligen Markt über neue Entwicklungen.	1	2	3	4	5	1	2	3	4	5
...diskutiere ich bei Bedarf mit Kollegen oder Mitarbeitern über neue Entwicklungen im jeweiligen Auslandsmarkt.	1	2	3	4	5	1	2	3	4	5
...diskutiere ich mit Freunden im jeweiligen Auslandsmarkt über neue Entwicklungen.	1	2	3	4	5	1	2	3	4	5
...probiere ich bewusst neue Techniken der ausländischen Marktbearbeitung aus.	1	2	3	4	5	1	2	3	4	5
...nehme ich mir bewusst Zeit, meine Techniken der jeweiligen ausländischen Marktbearbeitung zu verbessern.	1	2	3	4	5	1	2	3	4	5

**VIelen DANK FÜR IHRE WERTVOLLE MITARBEIT AN DER STUDIE ZU
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