

**International versus Domestic New Ventures:
The moderating role of environmental uncertainties and transaction
disincentives**

Matthias Baum
University of Giessen
Faculty of Economics and Business Administration
Chair for Business Administration and Human Resource Management
Licher Str. 66
35394 Giessen, Germany
Tel: +49 641 9922102
Fax: +49 641 9922109

Christian Schwens
University of Giessen
Faculty of Economics and Business Administration
Chair for Business Administration and Human Resource Management
Licher Str. 66
35394 Giessen, Germany
Tel: +49 641 9922103
Fax: +49 641 9922109

Rüdiger Kabst
University of Giessen
Faculty of Economics and Business Administration
Chair for Business Administration and Human Resource Management
Licher Str. 66
35394 Giessen, Germany
Tel: +49 641 9922100
Fax: +49 641 9922109

Abstract

The aim of this paper is to empirically investigate the determinants of the choice to internationalize by comparing between International New Ventures (INVs) and Domestic New Ventures (DNVs). Moreover, we elaborate the propensity for becoming an INV at different levels of environmental uncertainty and transaction disincentives by applying moderator analysis. Hypotheses are tested on a sample of 243 German high-technology start-ups. We show that prior international experience of the top management team, a proactive attitude and international network contacts significantly impact the propensity to internationalize. Further, we find that liabilities of foreignness, namely environmental uncertainties and transaction disincentives, moderate the effects on early internationalization. We challenge prior scholarly work by arguing that knowledge intensity influences the propensity to internationalize, but only at low levels of environmental uncertainties, whereas at high levels the association between knowledge intensity and early internationalization diminishes. Testing the influence of prior international experience by three-way interaction analysis, we find early internationalization to be moderated by a combined liability of foreignness effect consisting of both environmental uncertainties and transaction disincentives. The results suggest that international experience may be helpful to overcome the constraint of one barrier, but not of both barriers occurring together.

Introduction

Firms approaching foreign markets right from inception, so called International New Ventures (INVs), have become an extensively observed phenomenon in the past decade (McDougall et al., 2003). A large body of literature in the field of International Entrepreneurship focuses on the timing to internationalization, examining how it is possible that young firms venture into foreign markets right from inception (Autio et al., 2000; Bloodgood et al., 1996; DeClercq et al., 2005; Zahra et al., 2000). However, studies elaborating why some young firms venture into foreign markets while other firms, so called Domestic New Ventures (DNVs), decide to stay in the domestic market are limited so far. However, such a comparison is essential to determine whether firm or founder characteristics really trigger early internationalization.

Indeed, only few studies comparing INVs and DNVs could be identified. McDougall (1989) used discriminatory analyses to elaborate differences in strategy and industrial structure between INVs and DNVs. She found that INVs pursue more aggressive and marketing oriented strategies, whereas DNVs focus mainly on product differentiation and act in industries with lower perceived international competition. McDougall & Oviatt (1996) underlined INVs and DNVs to differ in terms of strategy. Bürgel et al. (1998) showed that age, the need for product customization, the regularity of R&D activities, and prior international experience of the founders were the key discriminatory variables. The most recent inquiry comparing INVs and DNVs was conducted by McDougall et al. (2003). Their findings suggest early internationalization to be driven by prior entrepreneurial and international experience, the global integration of the industry, and strategy variables such as aggressiveness, product innovation, and quality.

All these studies employ a universal approach and, thus, do not test if differences between INVs and DNVs remain constant under diverging environmental situations. Therefore, it remains unclear whether variables such as prior international experience of the top management team or knowledge differentiate INVs and DNVs in every situation or if their impact might change. Approaching this research gap, we inquire whether the propensity to internationalize also varies in respect to impeding factors such as environmental uncertainties or transaction disincentives.

Therefore, the aim of our study is twofold. First, we try to answer the question why some firms venture international markets right from inception, while other enterprises from the same industry decide to stay domestic, and to find evidence for facilitating factors for this decision. Thus, we empirically investigate the determinants of the propensity to

internationalize by comparing between International New Ventures (INVs) and Domestic New Ventures (DNVs). Second, we add a contingency perspective in order to shed light on priority mentioned inconsistencies of the determinants of early internationalization (Kunkel, 1991; McDougall et al., 1992; McDougall et al., 2003; Robinson & McDougall, 2001; Zahra & George, 2002) and to observe impact variation if liabilities of foreignness are perceived.

By employing International New Venture Theory (Oviatt & McDougall, 1994), we derived the attitude towards internationalization (Acedo & Jones, 2007), prior international experience (Kundu & Katz, 2003), knowledge intensity (Autio et al., 2000), and international network contacts (Yli-Renko et al., 2002) as main drivers of the propensity to internationalize. Their impact was tested on a sample of 243 German high-tech firms by applying binary logistic regression. Additionally, to understand the conditions under which individual and organizational characteristics enhance firms' propensity to internationalize, this paper elaborated the moderating role of different liabilities of foreignness, namely environmental uncertainties and transaction disincentives.

Theory

The seminal framework created by Oviatt & McDougall (1994) has challenged traditional stage models of internationalization (Johanson & Vahlne, 1977) by stating that foreign markets are not only entered incrementally by established firms, but also by start-ups at or near their inception (Autio et al., 2000). To explain the emergence of INVs, Oviatt & McDougall (1994) suggest a theoretical framework, comprehending elements from Resource Based View (RBV) as well as Transaction Cost Economics (TCE), supplemented by Learning Theory (Kabst & Schwens, 2005). Building on International New Venture Theory, we elaborate whether DNVs are lacking of critical factors which allow for internationalization right from inception.

Oviatt & McDougall (1994) suggest four essentials for INVs creation: (1) The internationalization of some transactions, (2) the use of alternative governance structures such as networks, (3) the establishment of foreign location advantages, as well as (4) the creation and combination of unique resources. (1) and (2) place elements of TCE into the International New Venture Theory delineating how factor specificity and uncertainties can influence, and particularly hamper, a firm's internationalization and how networks may help to overcome these constraints. (3) is related to Learning Theory and implies an impact of knowledge intensity on ventures' early internationalization. Finally, (4) introduces RBV reasoning into

the seminal framework, stating that only new ventures which are highly competitive can survive on an international stage. This competitiveness results from the possession and combination of unique resources, which, in turn, can exist on the organizational as well as on the individual level, also comprising managerial and international experience. The four essential factors are tied together by a general proactive attitude, which is seen as a constitutional element, inherent to every INV. Put altogether, the International New Venture Theory indicates that new ventures' development is mainly influenced by a composition of firm, entrepreneur, and environment related factors.

These drawings lead us to assume that INVs rather than DNVs will have a distinct proactive attitude towards internationalization (Acedo & Jones, 2007), prior international experience (Kundu & Katz, 2003), knowledge intensity (Autio et al., 2000), and international network contacts (Freeman et al., 2006). The explanatory power of these constructs may be contingent among environmental factors, such as liabilities of foreignness (Zahra & George, 2002).

While the general definition of INVs 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) is widely accepted, concrete specifications of INVs vary to a large extent, especially in terms of the time span until internationalization. Thus, studies consider companies as INVs when they internationalize within 6 years (Oviatt & McDougall 1994; Shrader, 1996), within 8 years (McDougall, 1989; Zahra, 1996), within 12 years (Covin et al., 1990), or even within up to 25 years (Lindquist, 1991) after inception. According to Zahra et al. (2000) and Coviello & Jones (2004), the cut-off value of 6 years is an appropriate and commonly accepted time-frame, since it is the crucial period for firms' survival (The State of Small Business, 1992). Therefore, in our study a company that derives international revenues within 6 years after inception is defined as an International New Venture.

Hypotheses

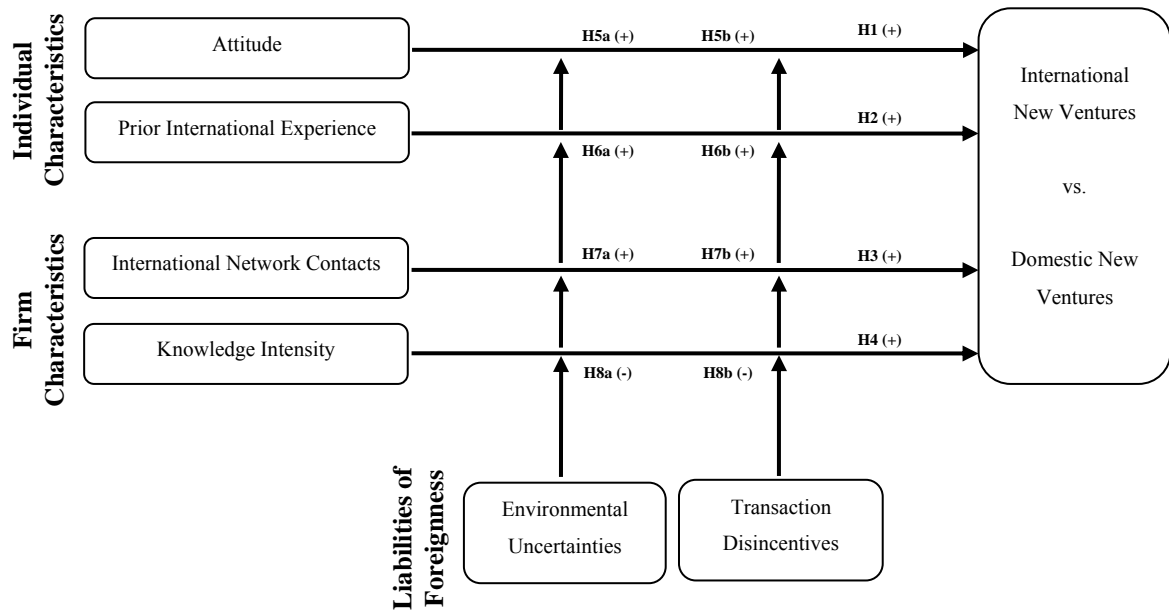


Figure 1: Direct Effects and Moderators for International vs. Domestic New Ventures

Direct effects on the decision to internationalize

Attitude. The pivotal role of the management for new ventures' development has often been asserted in prior research (Acedo & Jones, 2007; Coviello & McAuley, 1999; Dimitratos & Jones, 2005; Gilbert et al., 2006; Nummela et al., 2004; Saarenketo et al., 2001; Zahra & George, 2002). Characteristics of a top management team (TMT) do not only include capabilities, but also attitudes, such as the proactiveness by which international activities are approached (Chetty & Campbell-Hunt, 2004). Oviatt & McDougall (1994: 49) state that "new ventures begin with a proactive international strategy" in contrast to their counterparts, which stay domestic. Thus, International New Venture Theory suggests founders or decision-makers to possess a distinctive proactive orientation to spot windows of opportunity on a global scale (Knight & Cavusgil, 1996). Madsen & Servais (1997) promote this attitude 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). According to this, the proactive attitude is seen as a major predictor for new ventures' internationalization leading to the assumption that:

H1: A proactive attitude of the top management team is positively related to international new venturing rather than focusing on the domestic market in early years.

Prior international experience of the top management team. Another key variable linked to INVs is the prior international experience of the top management team (Bloodgood et al., 1996; Bürgel et al., 1998; Kundu & Katz, 2003; McDougall et al., 2003). According to Cohen & Levinthal (1990), prior international experience defines a new venture's absorptive capacity which increases the "ability to identify, value, select, and assimilate [new] knowledge" (Zahra, 2005: 25). This reduces the uncertainty of operating abroad, allows evading shortfalls, and thus, results in an increased probability to enter into additional countries (Autio et al., 2000; Oviatt & McDougall, 2005). Since new ventures, due to their infancy, do not possess international experience on an organizational level (Kabst & Schwens, 2005; Saarenketo et al., 2001), information about foreign markets must be based on the individual level of the top management team. Therefore, it is assumed that:

H2: Prior international experience of the top management team is positively related to international new venturing rather than focusing on the domestic market in early years.

International network contacts. Especially new ventures are associated with limited financial and human resources, due to their age and size (Young et al., 2003), which constrains the potential speed and scope of international expansion. The employment of social ties, and in particular international networks, may countervail this restriction for two reasons. First, international network contacts may provide insights into the foreign culture, laws, and business practices. Thus, networks allow for substituting own experience by the experience of the network (Schwens & Kabst, 2007), which in turn reduces the uncertainty connected with international commitment (Freeman et al., 2006). Networks furthermore can facilitate the 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, the network contacts or social ties a new venture fosters are meant to crucially contribute for early internationalization (Oviatt & McDougall, 1994), which is why we assume that:

H3: The size of the international network of a firm is positively related to international new venturing rather than focusing on the domestic market in early years.

Knowledge intensity. In Oviatt & McDougall's International New Venture Theory (1994), knowledge has been identified as a unique resource and as one of the four elements of

sustainable INVs. Knowledge intensity is recognized as a key source of international competitive advantages by several international entrepreneurship scholars (e.g., Autio et al., 2000; Bell et al., 2003; Coviello & McAuley, 1999; Jones, 1999). Furthermore, it was found out that knowledge-intensive firms serve international markets on a broader scope (McNaughton, 2001; 2003). Thus, they can exploit international growth opportunities more flexibly. On top of that, they are less constrained by national boundaries, due to the mobility of their knowledge (Autio et al., 2000). Therefore, we assume that:

H4: High knowledge intensity is positively related to international new venturing rather than focusing on the domestic market in early years.

Moderating effects of liabilities of foreignness

Recent entrepreneurship inquiries indicate that studying contingency models of internationalization may provide a more complete understanding of the internationalization triggers than a mere universal approach (Robinson & McDougall, 2001; Stam & Elfring, 2008). Based on strategic management literature, we state that firms will pursue diverging strategies depending on contextual factors (Porter, 1980; Sandberg, 1986). In situations of high environmental uncertainties, the influential weight of the variables determining internationalization may be different from low risk situations (Carpenter et al., 2003). Environmental obstacles to foreign based companies are often subsumed under the label of “liabilities of foreignness” (Hymer, 1976), which are based on the problem “that a firm conducting transactions in a foreign country has certain disadvantages vis-a-vis indigenous firms, such as governmentally instituted barriers to trade and an incomplete understanding of laws, language, and business practices” (Oviatt & McDougall, 1994: 55). Recent research mentions manifold matters of liabilities of foreignness. On the one hand they are said to arise from legal and cultural uncertainties and patent infringement risks (Kabst & Schwens, 2005). On the other hand they may be rooted in sunk cost or lacking governmental aid (Preece et al., 1998; Zaheer, 1995). Thus, we pursued a diametric approach of liability of foreignness by including environmental uncertainty as well as transaction disincentives.

Attitude X liabilities of foreignness interaction. How managerial characteristics, such as attitudes and traits, influence internationalization behavior depends to a certain degree on the environmental conditions the firm is facing (Henisz & Delios, 2001; Robinson & McDougall,

2001; Zahra & George, 2002; Zahra et al., 2000). If a young company recognizes high environmental uncertainties, it will be deterred from internationalization, unless its top management team is very proactive (Kabst & Schwens, 2005). Proactive firms are meant to be less risk averse than others (Covin & Slevin, 1989; Lumpkin & Dess, 2001). Therefore, firms with a proactively spirited management will be more likely to take the hurdles related to international operations (Oviatt & McDougall, 1994). Regarding this, a proactive attitude will in particular come of importance if liabilities of foreignness emerge. Thus, the influential power of a proactive attitude on the propensity to internationalize will be higher if environmental uncertainties and transaction disincentives are on a high level rather than on a low level. Therefore, we state that:

H5a: Environmental uncertainties moderate the relationship between the attitude of the top management team and the propensity to internationalize, in such that the higher the environmental uncertainties, the higher the impact of the attitude towards internationalization on the propensity to internationalize.

H5b: Transaction disincentives moderate the relationship between the attitude of the top management team and the propensity to internationalize, in such that the higher the transaction disincentives, the higher the impact of the attitude towards internationalization on the propensity to internationalize.

Prior international experience X liabilities of foreignness interaction. The interactive effect between managers' prior international experience and economic determinants has been stated several times in the entrepreneurship literature (McDougall & Oviatt, 2003; Zahra & George, 2002). The predominant opinion is that prior international experience helps to render obstacles of internationalization like environmental uncertainties and, thus, facilitates a firm's internationalization. The argumentation can also be reversed: International experience becomes even more important for a company's propensity to internationalize if constraints are encountered. Therefore, international experience might affect new ventures internationalization quite differently at varying levels of environmental uncertainty (Carpenter & Frederickson, 2001). Extensive knowledge about foreign market structures and customer needs due to prior international experience may facilitate internationalization at an early stage (Bürgel et al., 1998). In situations characterized by high financial constraints and risks a well

considered distribution of investments is essential for firms' survival (Arping & Diaw, 2008). An international experienced management will have a profound insight into foreign markets, permitting to develop an opinion about chances and potential pitfalls of the investment abroad. Therefore, especially firms with internationally experienced management teams will be likely to act internationally in situations of transaction disincentives. Such enterprises can better cope with the financial risk (Carpenter et al., 2003) by profiting from their market knowledge, and, thus, exceed firms which have less experienced managers, leading us to hypothesize that:

H6a: Environmental uncertainties moderate the relationship between the prior international experience of the top management team and the propensity to internationalize, in such that the higher the environmental uncertainties, the higher the impact of prior international experience on the propensity to internationalize.

H6b: Transaction disincentives moderate the relationship between the prior international experience of the top management team and the propensity to internationalize, in such that the higher the transaction disincentives, the higher the impact of prior international experience on the propensity to internationalize.

International network contacts x liabilities of foreignness interaction. For entrepreneurial firms international networks are helpful to gain insights into foreign markets, spot market opportunities, compensate incomplete knowledge about regulations or cultural issues, and penetrate the focal market (Nerkar & Paruchuri, 2005; Oviatt & McDougall, 1994).

Networks become especially important if entry barriers like unknown legal or cultural practices exist. If a new venture is confronted with these barriers, the existence of international network contacts may be of vital importance for the proceeding of the international expansion (Selnes & Sallis, 2003). Therefore, international network contacts are even more important if high environmental uncertainties are encountered in the foreign market. Additionally, network ties increase security against financial pitfalls. This security is particularly meaningful if internationalization goes along with high factor specificity and, therefore, a higher risk of failure. In such situations where high transaction disincentives exist, a new venture will be less deterred to enter foreign markets if it has a strong international network (Weerawardena et al., 2007). Thus, we assume that:

H7a: Environmental uncertainties moderate the relationship between the international network contacts of a firm and the propensity to internationalize, in such that the higher the environmental uncertainties, the higher the impact of international network contacts on the propensity to internationalize.

H7b: Transaction disincentives moderate the relationship between the international network contacts of a firm and the propensity to internationalize, in such that the higher the transaction disincentives, the higher the impact of international network contacts on the propensity to internationalize.

Knowledge intensity x liabilities of foreignness interaction. Knowledge intensity of the firm's resource endowment is mentioned to facilitate early internationalization (Oviatt & McDougall, 1994), since "knowledge, by virtue of its mobility, can be rapidly and flexibly combined with more fixed assets in foreign target markets" (Autio, 2003: 13) leading a firm to be less constrained by national boundaries. This mobility, however, does not work independently on early internationalization, but is influenced by environmental factors, such as uncertainties about international markets or financial risks. Highly knowledge intensive firms are particularly in need of a secure environment to minimize the risk of patent infringement or product piracy. Hence, since facing higher risks, such new ventures will be more deterred to go abroad than firms which offer less knowledge intensive products and services, if legal, market or culture based uncertainties overshadow the planned internationalization. The same relation can be expected if the foreign investment is accompanied by high financial specificity, since it has a negative impact on the mobility of the firm's knowledge. Therefore, taking controversial notions about the impact of knowledge intensity on early internationalization into consideration (e.g., Johanson & Vahlne, 1977), we assume that:

H8a: Environmental uncertainties moderate the relationship between the knowledge intensity of a firm and the propensity to internationalize, in such that the higher the environmental uncertainties, the less the impact of knowledge intensity on the propensity to internationalize.

H8b: Transaction disincentives moderate the relationship between the knowledge intensity of a firm and the propensity to internationalize, in such that the higher the transaction disincentives, the less the impact of knowledge intensity on the propensity to internationalize.

Method

Sample

The empirical data were collected via mail survey from March 2007 until May 2007. The total population of German companies in biotechnology, nanotechnology, microsystems technology, and renewable energies (N = 1944) was surveyed.¹ In total, 340 questionnaires were returned (response rate 17%). After drop out and filtering the data² a sample of n = 243 remained for further investigation. These firms have an average age of 7.5 years and an average founding team size of three members. 66% of these firms realize revenues from international markets, starting their international activities on average 1.9 years after inception realizing thereby about 38.5% of their annual sales abroad and operate in nine foreign countries on average.

In order to improve and assure the quality of the received data, we conducted several measures:

(1) In order to identify all companies, German agencies and associations were consulted, such as the German Energy Agency (dena) and the Association of German Engineers (VDI). In addition, the Creditreform Markus database, the Hoppenstedt Enterprise dictionary, and the factiva.com database were used to collect secondary data of the firms.

(2) To assure the questionnaire's comprehensibility, a pilot was tested on three companies of each of the observed technologies (N=12), including personal interviews of the recipients showing no significant problem of misunderstanding.

¹ These technologies are seen as the key technologies for the future competitiveness of the German economy (Niefert et al., 2006).

² From this sample, all firms which were founded prior to 1990 were eliminated, as the reunification of Germany has to be seen as a major change in the business environment leading to divergent conditions for firms which were founded before that period compared to those firms founded afterwards. To match the employed definition of INVs, all internationally acting ventures which have not derived international revenues within six years after inception were also eliminated. Furthermore, all companies which had a founding-team size exceeding ten members or which were founded as spin-offs were excluded since these ventures have a much higher resource-base and complexity of interactions compared to the firms at which this study is aiming. Therefore, these companies have different starting conditions compared to other new ventures which have to cope with scarce resources (Zahra, 2005).

(3) To increase the response rate, we performed two reminders: one reminder by e-mail and another one by telephone, including all firms which did not respond to the first wave.

(4) The returned questionnaires were checked for non-response-bias according to Armstrong & Overton (1977), which showed no significant result.

Measurement

Table 1: Measurement of the Dependent, Independent and Control Variables

Type of Variable	Variable	Measurement	alpha
Dependent	Internationalization	Does your company realize revenues from foreign markets (nominal-dichotomous) We will have to internationalize in order to succeed in the future (5-point Likert-scale)	-
Predictor	Attitude	The growth we are aiming at can be achieved mainly through internationalization (5-point Likert-scale) The domestic market still offers sufficient growth potential (recoded / 5-point Likert-scale)	.79
Predictor	Prior international experience of the TMT	Has the member of the founding team with the most international experience already worked in an internationally operating company? (nominal-dichotomous)	-
Predictor	International Network Contacts	How many cooperative relations / partnerships does your company hold with SME's abroad (metric) How many cooperative relations / partnerships does your company hold with MNE's abroad (metric)	.60
Predictor	Knowledge intensity	We are known for our excellent technological expertise and knowledge (5-step likert-scale) Knowledge-intensity is characteristic of our company (5-step likert-scale) Our Products and services have a strong knowledge-component (5-step likert-scale) Our primary export product caters to a specialized need that is difficult for our competitors to match (5-step likert-scale) Lack of protection of patents and property rights (5-point Likert-scale / very low impediment – very high impediment)	.71
Moderator (Liabilities of Foreignness)	Environmental uncertainties	Cultural differences (5-point Likert-scale / very low impediment – very high impediment) Political risks (5-point Likert-scale / very low impediment – very high impediment) Legal uncertainties (5-point Likert-scale / very low impediment – very high impediment)	.72
Moderator (Liabilities of Foreignness)	Transaction disincentives	Necessity of high specific investments (5-point Likert-scale / very low impediment – very high impediment) Lack of support for the foreign market entry (5-point Likert-scale / very low impediment – very high impediment)	.64
Control	Firms Age	In which year has your company been founded? (metric) (recoded)	-
Control	Size of the founding team	Of how many persons did the founding team consist? (metric)	-

The independent variables were mainly measured using Likert-scaled items, whereas the dependent variable, the new ventures' *internationalization*, was measured by the dichotomous question whether the company realizes revenues from foreign markets or not (thus differentiating between International New Ventures and Domestic New Ventures).

Attitude. 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” have been 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 three items load on one factor (appendix 1) and show a sufficient reliability (Cronbach’s $\alpha = .79$).

Prior international experience of the top management was measured by the question whether the person with the most international experience has already worked in an internationally operating company or not. Binary coding was 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 the knowledge intensity, the items utilized by Yli-Renko et al. (2002) were adapted and complemented by the item “Our primary export product caters to a specialized need that is difficult for our competitors to match” (Knight & Cavusgil, 2004). The items load on one factor (appendix 2) delivering a scale with reasonable internal consistency (Cronbach’s $\alpha = .71$).

International network contacts are evaluated quantitatively by merging into one index two questions about the number of partnerships and network ties a new venture enters with foreign companies (SMEs, or MNEs respectively) which is suggested by various authors (Baum et al., 2000; Reuber & Fischer, 1997).

Environmental uncertainties. Indices are also created for liabilities of foreignness. The index for environmental uncertainties is composed of four items (Cronbach’s $\alpha = .71$) covering cultural differences, the lack of protection of patents and property rights, political risks, as well as legal uncertainties (Shaw & Darroch, 2004). Thus, by using multiple items, tribute is paid to the manifold reasons from which environmental uncertainties might occur. In order to verify the index formation, factor analysis was conducted showing all items to load on one factor.

Transaction disincentives mainly occur through investments which are very specific, as they implicate high sunk costs. Subsidies or governmental assistance in general may dilute the constraining effect of highly specific investments and, thus, have to be taken into

consideration when measuring transaction disincentives. This is promoted by Preece et al. (1998), showing that governmental assistance is positively related to new ventures' degree of internationalization. Therefore, two items "necessity of high specific investments" and "lack of support for the foreign market" are merged into one index to measure the transaction disincentives.

Control variables. We included firm age (McNaughton, 2003; Preece et al., 1998) and team size at foundation (McNaughton, 2003; Shrader et al., 2000), which can be seen as proxies for the firm's assets, as control variables due to their importance in prior entrepreneurial research (e.g., Chandler & Hanks, 1994). They are directly measured by asking for the year of foundation and the thereby involved persons.

Table 2: Means, Standard Deviations and Correlations among Dependent, Independent, Moderator and Control Variables³

Variable	Mean	s.d.	Internationali- zation	Attitude	Prior international experience	Networks	Knowledge intensity	Environmental Uncertainties	Transaction Disincentives	Firm's age	Team size at foundation
Internationali- zation	.66	.48	1								
Attitude	3,05	1,13	.393 (***)	1							
Prior international experience	.35	.48	.195 (**)	.013	1						
Networks	3,59	6,41	.272 (***)	.189 (**)	.008	1					
Knowledge intensity	4,25	.62	.110 (†)	.091	.035	-.078	1				
Environmental Uncertainties	2,34	.85	-.123 (†)	.172 (**)	-.048	-.023	-.087	1			
Transaction Disincentives	2,74	1,16	-.166 (**)	.066	-.062	-.010	-.049	.413 (***)	1		
Firms age	7,52	4,2	.058	.068	-.028	-.029	.015	.132 (*)	.070	1	
Team size at foundation	3,03	1,74	.049	.050	-.034	.087	.125 (†)	.034	.067	.030	1

** 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).

³ To control for multicollinearity problems due to moderators, zero order correlations ($r \leq .226$) and variance inflation factors ($VIF \leq 1,8$) of the interaction terms were calculated showing no major risk for multicollinearity. To provide a clear overview, the interaction terms are not included into the correlation table.

Analytical approach

To meet the dichotomous dependent variable, binary logit models (Schnell et al., 2005) were employed. In order to analyze the hypothesized moderator effects, we applied hierarchical moderated regression and standardized the variables before creating interaction terms (Cohen et al. 2003). As proposed by Aiken & West (1991), hierarchical regression analysis allows 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 all three kinds of variables (control, predictor and moderator variables). To test for multicollinearity, we calculated the variance inflation factor (VIF), but found no significant multicollinearity problems (all VIF's < 1.5), since all values stayed below 2.5 (Allison, 1999).

Empirical Results

Table 3: Binary Logit Model: Determinants of New Ventures' Internationalization

Dependent Variable: Internationalization			
	Model 1	Model 2	Model 3
Constant	.092	.546	1.816
Firm's Age	.032	.053	-.004
Size of the Founding Team	.143	.087	.201
Attitude (A)	-	.795 (***)	.789 (***)
Prior International Experience (PIE)	-	.965 (**)	1.289 (**)
International Network Contacts (NWC)	-	.205 (**)	.442 (***)
Knowledge Intensity (KI)	-	.229	-.042
Environmental Uncertainties (EU)	-	-.683 (**)	-.902 (**)
Transaction Disincentives (TD)	-	-.250	.585 (†)
Mod A * EU	-	-	-.262
Mod A * TD	-	-	.390 (*)
Mod PIE * EU	-	-	-.353
Mod PIE * TD	-	-	.435
Mod NWC * EU	-	-	.047
Mod NWC * TD	-	-	.317 (**)
Mod KI * EU	-	-	-.813 (†)
Mod KI * TD	-	-	-.471
R ² (Nagelkerke)	.020	.407	.528
Chi-Square (Block)	3.300	68.282	26.894
Correct Classification	67.6%	81.6%	83.6%
Significance	.220	.000	.001
N	207	207	207
unstandardized coefficients are reported			

Significance Levels: *** ≤ 0.001 ; ** ≤ 0.01 ; * ≤ 0.05 ; † ≤ 0.10

Table 2 reports the means, standard deviations, and zero-order correlations among the employed variables. Significant correlations exist between internationalization and attitude, prior international experience and international network contacts. A significant correlation

among environmental uncertainties and transaction disincentives ($r = .413$, $p < .01$) indicates that firms which face one impediment also face the other one to a large extent. No correlation among the independent variables exceeds 0.5, underlining the non-existence of a serious risk for the analyses due to multicollinearity (Anderson et al., 1996).

Table 3 shows that the employed determinants highly contribute to the explanation of new ventures' internationalization, highlighted by R^2 values of .407 (without moderator effects) or .528 (including moderator effects) respectively.⁴ The correct classification value is also appropriate with 81.6% in the second block and 83.6% in the third block of the binary logistic regression⁵. The control variables age and team size do not affect internationalization significantly. These findings challenge prior research, which attested these variables as major cause for new ventures' internationalization (e.g., Bürgel et al., 1998).⁶

Hypothesis 1, assuming a proactive attitude to trigger internationalization, is supported by showing a significant positive relationship between attitude and firms' internationalization (model 2: $b = .795$, $p < .001$). Thus, a proactive attitude of the top management team positively affects the propensity to operate internationally rather than staying domestic. Hypothesis 2 is supported by a significant positive relation between the prior international experience of the TMT and new ventures' internationalization (model 2: $b = .965$, $p < .01$). Surprisingly, we did not find a significant relationship between knowledge intensity and internationalization (model 2: $b = .229$, n.s.). Therefore, Hypothesis 3 has to be rejected. In contrast, international network contacts significantly influence a new venture's propensity to internationalize (model 2: $b = .205$, $p < .01$). Hence, three of the four observed predictors significantly contribute to early internationalization.

In model 3, we included interaction terms into the regression equation in order to analyze the moderator hypotheses. The significant increase in Nagelkerke's R^2 highlights the

⁴ To pay tribute to potential differences between DNVs which have the intention to internationalize and "real" DNVs which intend to stay domestic it was controlled for this aspect by excluding firms which plan to internationalize in a separate model. This even increased the explanatory value of the calculated model (Nagelkerke R^2 of .79) and thus supports the original model.

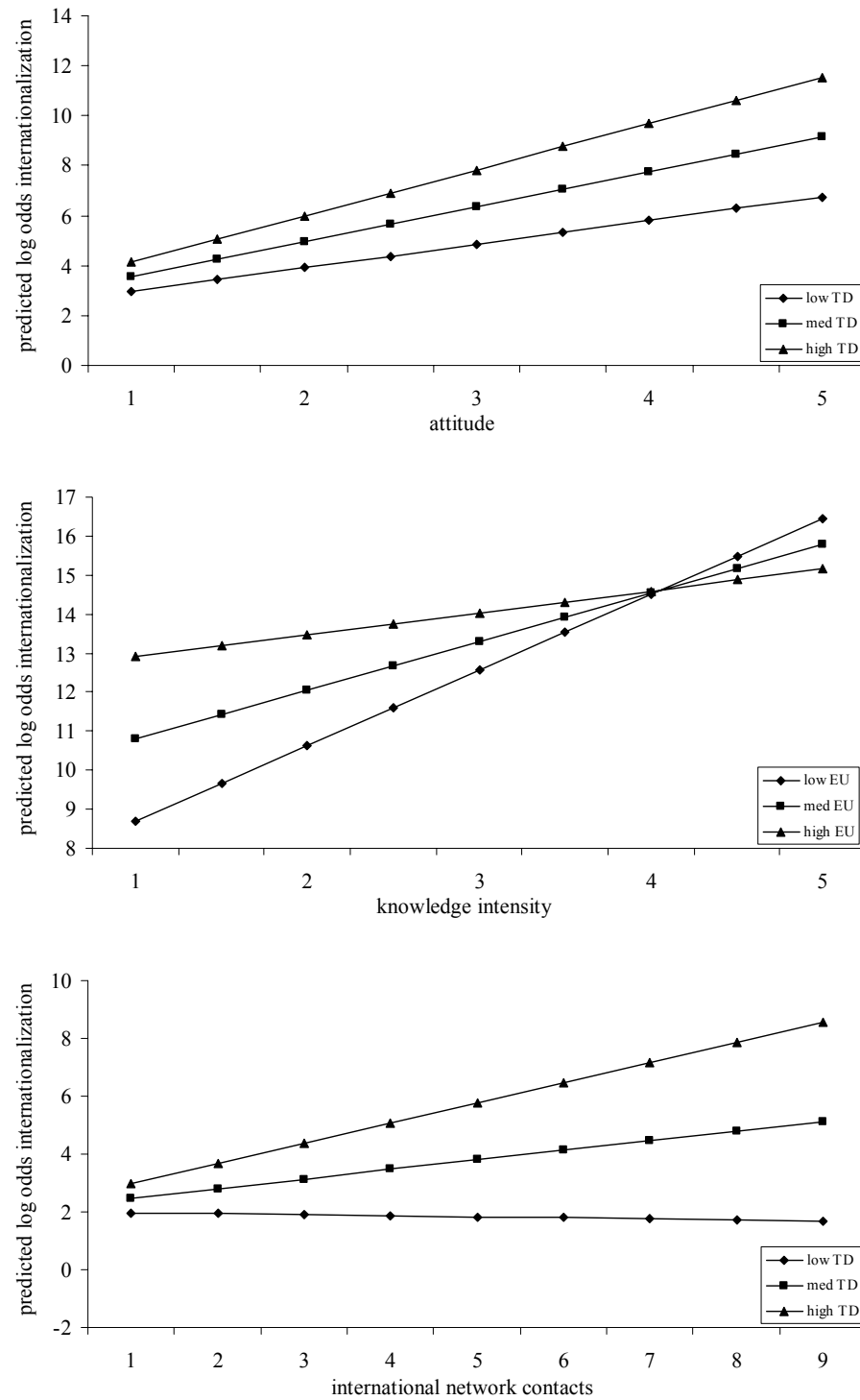
⁵ Since internationalization has to be seen as a process and in order to control for the arbitrary time definition of INVs, we checked our model for different time spans till internationalization, showing the model to decrease (increase) in strength if time till internationalization is above (below) six years, and, therefore underpinning our results.

⁶ Paying tribute to prior studies claiming industry/technology forces to be potent influences on firm internationalization (e.g. Bürgel et al., 2004; Oviatt & McDougall, 1995; Westhead et al. 2001) we also included technology as a control variable. However, no significant influences on the propensity to internationalize were found.

contribution of moderators to the explanation of early internationalization ($\Delta R^2 = .121, p < .01$).

Regarding the proposed moderating effects, only three moderators are significant on common significance levels. Hypothesis 5a stipulates a positive effect on internationalization from the interaction between a proactive attitude and environmental uncertainties. As shown in model 3, the coefficient of the interaction term is negative and not significant (model 3: $b = -.262$, n.s.). Thus, hypothesis 5a cannot be accepted. Hypothesis 5b receives support, since the interaction between attitude and transaction disincentives is significantly positive (model 3: $b = .39$, $p < .05$). Hypotheses 6a and 6b both are not supported since none of the interaction terms is significant (model 3: $b = -.353$, n.s.; model 3: $b = .435$, n.s.). Hypothesis 7a does not receive support either (model 3: $b = .047$, n.s.). The interaction term between international networks and transaction disincentives has a significant positive effect on internationalization (model 3: $b = .317$, $p < .01$). Thus, hypothesis 7b is supported. Regarding the interaction terms between knowledge intensity and environmental uncertainties (model 3: $b = -.831$, $p < .10$) and transaction disincentives, respectively, (model 3: $b = -.471$, n.s.) reveals only hypothesis 8a to be accepted, although both interaction coefficients show negative signs. To advance further interpretations of the moderator effects, we plotted the significant interaction effects (figure 2). In accordance with Cohen et al. (2003), figure 2 depicts the slopes of the predictor at one standard deviation below and one standard deviation above the mean of the moderator. The figures underline our assumptions made in hypotheses 5b, 7b, and 8a. International network contacts and proactive attitudes towards foreign expansion get more eminent if new ventures encounter high transaction disincentives.

Figure 2: Significant Moderating Effects of Environmental Uncertainties and Transaction Disincentives



IU = Environmental Uncertainties

TD = Transaction Disincentives

Discussion

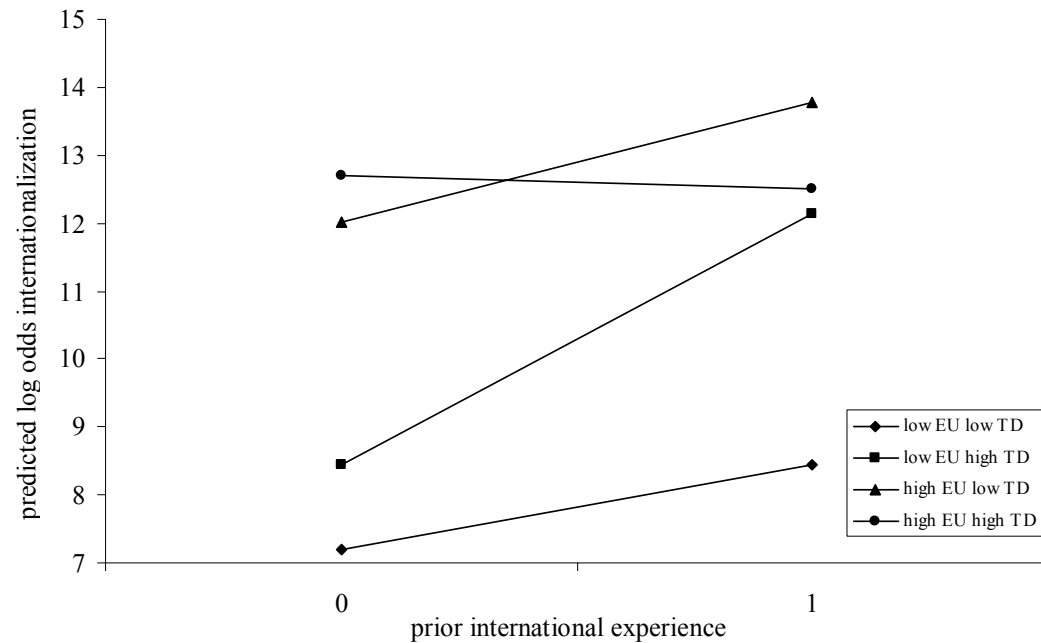
The aim of our study was twofold. First, we wanted to empirically investigate the determinants of the propensity to internationalize by comparing between INVs and DNVs. Second, we wanted to add a contingency perspective in order to shed light on priority mentioned inconsistencies of the determinants of early internationalization.

By highlighting DNVs to lack several of the so far postulated triggers of early internationalization, the determining power of prior international experience and the attitude of the top management team towards internationalization as well as the influence of international network contacts on new ventures' internationalization was demonstrated. Therefore, our inquiry underpins prior studies stating that not only capabilities but also the attitude and the perception of the top management influence early internationalization (Acedo & Jones, 2007; Coviello & McAuley, 1999). Furthermore, firms governed by internationally experienced managers have a higher absorptive capacity (Zahra, 2005). This facilitates learning, reduces risks which result from entering foreign markets and, therefore, leverages new ventures' internationalization. Accordingly, a firm which aims at an early internationalization will increasingly employ a top management with international experience. In addition, international network contacts are shown to be an integral part of successful internationalization (Liesch et al., 2002) because of their contribution to lower risks and uncertainty of international operations (Weerawardena et al., 2007). Interestingly, knowledge intensity is not significantly related to early internationalization in a direct manner, even though it is mentioned to be one of the major determining factors (Oviatt & McDougall, 1994). This may be due to industry effects. Since all observed companies are working in high-tech industrial sectors, they are ought to have distinct knowledge intensity. This homogeneity, is underpinned by the high mean value of the knowledge intensity scale (mean = 4,25). Thus, since (nearly) all observed companies are characterized by high knowledge intensity, this variable cannot differentiate between INVs and DNVs. Emphasizing on moderator effects, we uncovered the impact of knowledge intensity on internationalization to be contingent among the degree of liabilities of foreignness. If new ventures perceive low environmental uncertainties, knowledge intensity is positively associated with their propensity to internationalize because they benefit from the mobility of their knowledge (Autio et al, 2000). When perceiving high environmental uncertainties, the mobility of knowledge is restricted because patent infringements or product piracy become more likely as uncertainty rises. Thus,

in such a situation, the effect of knowledge intensity on internationalization will diminish since particularly firms with knowledge intensive products and services have a lot to lose when facing uncertainties. Concerning moderating effects, further findings show that the positive impact of a proactive attitude and international network contacts even increases if high transaction disincentives emerge. However, the remaining moderator hypotheses could not be supported. It appears that international network contacts become increasingly important for early internationalization if high environmental uncertainties have to be surmounted. Additionally, the results suggest that knowledge intensity is negatively moderated by transaction disincentives. Astonishingly, the impact of prior international experience was neither found to be significantly moderated by environmental uncertainties nor by transaction disincentives. Prior international experience even decreases in importance if environmental uncertainties approach, which is contradictory to our hypothesis. To shed light on this finding, we applied three-way interaction analysis to test whether prior international experience contributes differently to internationalization if environmental uncertainties and transaction disincentives work together. We chose this method since three-way interactions help examining the concerted interplay of several variables, providing a deeper understanding of complex interdependencies (Dawson & Richter, 2006). By forming and applying a three-way interaction term to our model ($b = -1.117$, $p < .05$), the explained variance of early internationalization increased significantly ($\Delta R^2 = .015$, $p < .05$). We suggest that the configurations of prior international experience and the two liabilities account significantly for differences in internationalization propensity among new ventures. Figure 3 depicts the three-way interaction. In particular, two contributions to our understanding of the impact of prior international experience on early internationalization in diverging impeding situations were made. First, it was shown that prior international experience positively affects internationalization if a new venture encounters at least one liability on a low scale. Especially the occurrence of transaction disincentives seems to increase the effect of prior international experience on early internationalization. Second, it is revealed that international experience loses its determining effect if both liabilities of foreignness work together, which is underlined by a simple slope analysis, proposed by Aiken & West (1991). The analysis shows that international experience' influence on internationalization is not significantly different from zero if both environmental uncertainties and transaction disincentives are highly developed ($b = -.21$, $t = .19$, n.s.). Taking these results into account, it is delineated that prior

international experience is significantly moderated by liabilities of foreignness, but only if both work together.

Figure 3: Moderating Effect of Environmental Uncertainties and Transaction Disincentives on the Relationship between Prior International Experience and the Propensity to Internationalize



Contributions

This research makes a contribution to current international entrepreneurship research by demonstrating that DNVs genuinely lack some of the proposed triggers of early internationalization. Therefore, the attitude of the management towards internationalization, prior international experience of the management team, and network contacts receive further underscoring by our results. Furthermore, it was shown that liabilities of foreignness moderate the triggers of new venture's internationalization. In particular, the varying impact of knowledge intensity, depending on the degree of environmental uncertainties, underlines the need of contingency approaches in future research. Additionally, our study shows that a combination of different liabilities may further magnify the risks connected with new ventures' internationalization (Zahra, 2003), since prior international experience completely loses its impact if multiple liabilities of foreignness occur. Moreover, examining German high-tech enterprises enabled us to shed light on the internationalization process of some of the most prospecting industries for future economic development (Niefert et al., 2006).

This study has the following managerial implications regarding the internationalization of entrepreneurial technology-based firms. First, it is shown how internationalization can be

facilitated for a new venture. Practitioners, if planning to start or expand foreign operations, are well advised to employ proactively thinking, international experienced managers or to build up international ties in order to facilitate internationalization efforts. In particular, this is true if they face high impediments, magnifying the importance of experience and network contacts. Second, if a company offers knowledge intensive products or services, our study hints that liabilities of foreignness gain impeding weight. This means that firms need to take higher investments for information and safeguards into account if internationalization shall be pursued.

Limitations and Implications for Further Research

Several limitations apply to this study. First, internationalization is more a process than a state, resulting in measurement problems, especially when comparing INVs and DNVs. Second, the definition of the timeframe till internationalization, even though shared by numerous scholars, remains arbitrary. To evaluate and reduce these problems, we controlled for DNVs which intend to internationalize within the next years, and conducted several regression analyses for different time spans supporting our results. Furthermore, even though including multiple industries, this study was only focused on German technology-based companies and, therefore, lacks of comparative value on an international scale. Thus, we cannot state if influential factors vary across different countries or cultural regions. Another limitation is the measurement of internationalization. Other studies (e.g., McDougall et al., 2003) indicate that the measurement of the degree of internationalization by assessing firms' international revenues may be incomplete, in particular for new ventures, since other internationally related actions, like foreign sourcing, manufacturing, or foreign R&D alliances also reveal internationalization. Thus, future measurements including these aspects would be appropriate. Hence, future research is well advised to address these shortfalls and thus to advance our understanding of the internationalization process of new ventures. Finally, this study cannot conclude about the impact of early internationalization on the survival of companies, since it lacks longitudinal observations. Developments over time, e.g. changes in a firm's profitability or top management team'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 are available. Therefore, future inquiry should address this shortfall by conducting panel surveys on new ventures' development.

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Appendix

Appendix 1: Factor Structure

Item	Factor				
	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 relations / partnerships does your company hold with SME's abroad			0,97		
How many cooperative relations / 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 of our company	0,84				
Our Products and services have a strong knowledge-component	0,79				
Our primary export product caters to a specialized need that is difficult for our competitors to match	0,31				
Lack of protection of patents and property rights				0,42	0,31
Cultural differences				0,54	
Political risks				0,79	
Legal uncertainties				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		