Three Essays on Early Internationalization: Antecedents, Process and Performance Outcomes

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ABSTRACT

Internationalization of firms in the early years after their start-up is a phenomenon on the rise. Scholarly work on these early internationalizing firms have made significant contributions to our understanding about the antecedents to their emergence, the process of their formation and operation, and their performance outcomes. There are, however, important gaps in our understanding about these firms due to inconsistency in findings of past research and lack of cohesive, integrative and theory-driven studies. This dissertation is an attempt to fill these gaps by integrating findings of past research and exploring processes and outcomes seldom analyzed before. The meta-analysis structural equation modelling in Chapter 2 integrates findings of past empirical research and finds support for an explanatory framework consistent with mainstream international business theories. The analysis in Chapter 3 showed that firms rely on balancing the slack in their human resources across alternative growth paths, whereby lower levels of slack motivate international product development while higher levels of slack stimulate international expansion. Lastly, the survival analysis in Chapter 4 shows that when the preparedness of firms based on their firm-specific advantages to enter international markets is accounted for, young ventures with an international presence have a higher survival rate compared with their domestic counterparts. Despite limitations, the totality of these findings have important contributions to our understanding of early internationalization. They show that mainstream international business theories can be used to explain the case of early internationalizing firms. This theoretical framework can be supplemented, rather than supplanted, by findings of empirical research on early internationalization. This dissertation also provides details about growth decisions of young firms explaining a choice of international expansion as opposed to alternative growth paths, and offers insights about the performance outcomes and survival effects of early
internationalization. The findings of these manuscript cast new light on the significant role of firm-specific advantages at the individual- and firm-level in the internationalization process of entrepreneurial firms. Besides they suggest there might be boundary conditions to a widely accepted concept in international entrepreneurship, the learning advantages of newness that can be further explored in future research.
Chapter 2 of this dissertation is based on a manuscript co-authored with my supervisor, Professor Alain Verbeke. Chapter 3 of this dissertation is based on a manuscript co-authored with Dr. Olga Petricevic and Dr. Mohammad Keyhani. Chapter 4 of this dissertation has been published as Fariborzi, H., & Keyhani, M. 2018. 'Internationalize to live: a study of the post-internationalization survival of new ventures'. *Small Business Economics*, 50(3): 607–624.

Pertaining to the requirements of Haskayne School of Business and the Faculty of Graduate Studies, I have done the majority of the writing for all of these manuscripts. In addition, in accordance with the guidelines about using copyrighted material, appropriate permission letters have been obtained from the co-authors and the publisher.
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CHAPTER 1: INTRODUCTION
INTRODUCTION

Much research in the past three decades has studied the case of firms that start international activity early in their life cycle. This *early internationalization* phenomenon became interesting for scholars in the late 1980s and early 1990s, as internationalization at or near start-up seemed to be a rising trend for many young ventures (McDougall, 1989; Rennie, 1993). The trend was due in part to the lower transportation and communications costs and the improvements in production and logistics technologies, and also to the globalization of markets that made the gap in consumer tastes across the world narrower. Early internationalization presented a curious case for scholars and practitioners: on the one hand, the internationalization of young and inexperienced firms seemed to be at odds with the slow and gradual path of internationalization predicted by some well-known international business theories (Johanson, 1986; Johanson & Vahlne, 1977). On the other hand, its prevalence was a promising phenomenon as more economies viewed entrepreneurship as a source of job creation and innovation, and more entrepreneurs perceived internationalization as a sustainable pathway to growth (Zander, McDougall-Covin, & Rose, 2015). This motivated many studies in the following years to explain the antecedents, processes and performance outcomes of early internationalization.

Research on early internationalization lies at the intersection of international business, entrepreneurship and strategic management that collectively shape the scholarly field of international entrepreneurship (IE)\(^1\).

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\(^1\) International entrepreneurship as a field was later expanded to encompass more than the mere study of early internationalizing firms. Importantly, the field also includes studies of entrepreneurial internationalization of firms that are not necessarily young or newly established, and cross-country comparisons of entrepreneurship. Recent reviews, however, show that internationalization of young ventures still shape a significant portion of research in this field (Jones et al., 2011).
Despite a plethora of research on young firms that pursue an international strategy, we still need to develop a better understanding of this phenomenon. There are inconsistencies in research findings on entrepreneur- and firm-level antecedents that drive early internationalization, the process of internationalization, the dynamics of firms’ decision making about internationalization and the performance outcomes thereof. The three essays of this dissertation contribute to filling these gaps in the extant literature on early internationalization.

The rest of this introduction chapter is organized as follows. I will first provide a brief review on the major contributions in the IE literature that have informed our understanding of early internationalization and have shaped the foundations of research in the field. I will summarize the findings of some highly cited work in the literature and mention the essence of their arguments. Analyzing these papers provides the opportunity to understand the evolution of the field through time. Building on the gaps in the extant research, I will then explain the specific research questions addressed in each of the three manuscripts that constitute this thesis and discuss their significance and potential contributions to the field. The data and the methods used for the analysis in each essay, together with their limitations, will also be discussed.

EARLY INTERNATIONALIZATION: A PHENOMENON ON THE RISE

Modern research on international business dates back to the early 1960s when there was a shift in focus on the country-level advantages as the antecedent of international transactions with little regard for firm differences, to firm-specific advantages that differentiate firms and create value across national borders (Rugman, Verbeke, & Nguyen, 2011). For almost three decades after that, most firms that were studied in the international business literature were established, large multinational enterprises that operated a network of subsidiaries internationally. In the late
1980s, some scholars along with the business press observed the emergence of a phenomenon, yet vastly unexplored in the academic literature. An increasing number of firms expanded across borders at or near start-up, without first establishing a significant domestic base of resources and experience (Oviatt & McDougall, 2005). Different studies have considered the absence of international business research on small and newly established firms, and the descriptions of internationalization in some international business theories as a gradual process that would only emerge in more mature firms (c.f. Johanson & Vahlne, 1977), as reasons to argue that early internationalizing firms are a new breed and as such require new theory (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994). This argument created significant enthusiasm in researchers to study this “new” breed of firms in the next three decades—an enthusiasm which has lingered on to this date. I will briefly present the core arguments in the significant research papers that shaped the thinking on internationalization of new and young firms. My goal here is not to provide an exhaustive review of contributions in the field, but to provide a short review of the key ideas that were highly cited in the research that later emerged on the topic. As such, I limit my review in this section to eight highly cited papers on early internationalization in the first years of research in the field (1994-2005).

Oviatt and McDougall (1994)’s paper, in the Journal of International Business Studies, is the article known by many as the academic start of early internationalization studies. They define an international new venture (INV) as a “business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sale of outputs in

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2 Earlier papers such as McDougall (1989) on the comparison of international and domestic new ventures can also be referenced as the starting point of these studies, but Oviatt and McDougall (1994) is the first major attempt at providing a theoretical explanation for this phenomenon and has created a basis for studies that appeared after that on early internationalization.
multiple countries”. Early internationalization of firms, in their idea, is a new phenomenon enabled by the reduction of costs in telecommunication and transportation industry, technological innovations and increasing number of individuals with international business experiences. The focus in their definition and theorization of the phenomenon is on the age of the firm, rather than on its size. They take process theories of international business—e.g. the Uppsala school of internationalization (Johanson & Vahlne, 1990, 1977)—as the representative of traditional international business theories and argue that they are suited to multinational enterprises (MNEs) that emerge from large domestic firms. The Uppsala theory posits that competing with international actors is a risky and uncertain move for firms requiring significant foreign market knowledge, for example about consumer tastes, supplier networks, competitors, etc. Therefore, firms increase their commitment to international markets gradually and in proportion to their knowledge of the markets gained through direct experience. Oviatt and McDougall (1994) posit that INVs have a proactive international strategy and don’t go through such a risk-averse gradual process in their internationalization. They further posit that traditional international business theories take the firm’s large size as a requirement for internationalization, and as such, suggest that a new theorization is required to explain the internationalization of young and often small firms. They present a framework, which they call a theory on international new ventures, building on the internalization theory from international business (Buckley & Casson, 1976; Hennart, 1982), and the resource-based view (Barney, 1991) from strategic management. Their framework explains the formation of a sustainable international new venture through four elements: (a) internalization of some transactions in the firm rather than the market to economize on transaction costs creates ventures; (b) the newness of firms prohibits them from governing all transactions through ownership, hence they rely on alternative governance
structures (e.g. licensing, franchising); (c) new ventures have valuable knowledge-based advantages that can be transferred across borders and create location advantages for the firm. This distinguishes international and domestic new ventures; (d) their knowledge-based advantages can be imitated by competitors and their advantage can therefore be depleted through imitation. Sustainable INVs protect their proprietary knowledge through legal protection (e.g. through patents), secrecy, imperfect imitability, licensing and governance through networks (Oviatt & McDougall, 1994: 57).

These scholars continue their discussion in another important contribution (McDougall, Shane, & Oviatt, 1994), by providing insights from 24 case studies of early internationalizing firms, extending the argument on the inapplicability of traditional international business theories. This work is especially important because they analyze five established IB theories (Monopolistic Advantage Theory, Product Cycle Theory, Stage Theory of Internationalization, Oligopolistic Reaction Theory and Internalization Theory) and argue that none of these can successfully explain early internationalization. Although their discussion sounds promising in terms of making a case for establishing an entirely new field of scholarly inquiry, namely International Entrepreneurship (IE), their arguments have been criticized for the hasty analysis of extant international business theories and the lack of empirical support (c.f. Johanson & Vahlne, 2009; Verbeke & Ciravegna, 2018)³. Nevertheless, most—if not all—studies on early internationalization have taken this argument by heart and as such have barely used modern international business theory in their analysis.

³ I will provide a criticism against the argument that traditional international business theories fail to explain early internationalization in Chapter 2 of this dissertation.
Another concept referring to early internationalizing firms is “Born Globals” (BGs), first introduced by Rennie (Rennie, 1993) and then augmented by Knight and Cavusgil (1996, 2004). Born-globals are defined as “business organizations that, from or near their founding, seek superior international business performance from the application of knowledge-based resources to the sale of outputs in multiple countries (Knight & Cavusgil, 2004)”. Similar to INVs, the focus is on the firm age. Born-globals are described to begin with a “global view of their markets, and develop the capabilities needed to achieve their international goals at or near the firm’s founding (Knight & Cavusgil, 2004: 125)”. Further analysis, however, shows that such a “global” depiction of “superior international performance” is exaggerated, as most early internationalizers in fact start their activity not at their birth (but in the first few years) and internationalize majorly through exports to nearby markets in their own region (c.f. Coviello, 2015; Rugman & Almodovar, 2011; Verbeke, Zargarzadeh, & Osiyevskyy, 2014). Even though Knight and Cavusgil later accepted some of the criticism towards the naming of early internationalizers as born-globals (Cavusgil & Knight, 2015), this term and the ideas presented in their decade-award winning paper (Knight & Cavusgil, 2004) made a significant impact on early internationalization studies. Knight and Cavusgil (2004) present a framework based on evolutionary economics and knowledge-based views to the firm. In their framework, having an entrepreneurial orientation, e.g. innovativeness and proactiveness in pursuing international opportunities, when combined with organizational capabilities such as marketing, creates innovative and knowledge-intensive firms. Such firms are particularly able in having a focus on making high quality and unique products, and having technological competence that creates an edge for them against “global” competitors. These capabilities, in addition to leveraging a
network of foreign distributors, gives these “born-global” firms an ability to have superior international performance.

Oviat & McDougall’s framework for international new ventures (Oviatt & McDougall, 1994), describe relying on alternative governance structures and importantly exploiting benefits of resources, gained through the firm’s and the entrepreneurs’ networks, as critical to international success. To expand this idea, Coviello and Munro (1995, 1997) explain the benefits of being involved in “international networks” for young and small firms that contemplate internationalization at an early stage. The completed model of the role of networks is later presented by Nicole Coviello in a study on the dynamics of network relationships for early internationalization (Coviello, 2006). She explains early internationalization as a dynamic process consisting of four stages (concept generation, commercialization, sales growth, stability). Her case studies explores the benefits and the underlying dynamics of relying on network benefits in each of these four stages by early internationalizers. Among other important contributions, this study is highly cited for arguing for networks’ being important intangible assets for early internationalizing firms by “providing market access, financing, distribution channels, referrals and a pool of contacts for both internal and external development (Coviello, 2006: 724)”.

The growing interest of entrepreneurship, international business, marketing and strategic management scholars in the early internationalizing concept led to the publication of a special issue on “international entrepreneurship” in the Academy of Management Journal in 2000. Some of the papers in that special issue became seminal papers highly drawn upon in future studies. Importantly, based on the submissions to this special issue, McDougall and Oviatt (McDougall & Oviatt, 2000) refine their definition for international entrepreneurship as follows:
“International entrepreneurship is a combination of innovative, proactive, and risk-seeking behavior that crosses national borders and is intended to create value in organizations (McDougall & Oviatt, 2000)”. Therefore, they define international entrepreneurship at the intersection of international business and entrepreneurship. They describe entrepreneurship as a set of entrepreneurial behaviors of risk-taking, proactiveness and innovativeness (Covin & Slevin, 1991; Miller, 1983), and expand it by attending to the importance of applying this behavior crossing national borders. In other words, they expand the borders of the field from the confinements of focusing on the early stages of internationalization and on the age of the firm, to the analysis of a behavior that could very well happen in firms of all age and size.

In the same special issue, Autio, Sapienza and Almeida (2000) also provide a significant contribution by analyzing the “age at entry”, that is the age of the firm when it first enters international markets. They find support, based on knowledge-based and learning views, for the role of knowledge-based capabilities in international growth of young firms. Their key contribution, however, is introducing the concept of “learning advantages of newness”. This concept suggests that “as firms get older, they develop learning impediments that hamper their ability to successfully grow in new environments and that the relative flexibility of newer firms allows them to rapidly learn the competencies necessary to pursue continued growth in foreign markets (Autio et al., 2000: 919)”. As such, they explain how new and young firms with many “liabilities of newness” (c.f. Stinchcombe & March, 1965), are able to adapt to international environments and implant an organizational culture into the firm to proactively seek and exploit international opportunities. They argue that such capability is better implanted the sooner the firm starts its first entry into international markets.
By the end of the first decade of research on early internationalization, scholars sensed a disparity in research findings and exceedingly tried to propose unifying frameworks for early internationalization (c.f. Autio, 2005; Coviello & Jones, 2004; Oviatt & McDougall, 2005; Rialp et al., 2005; Zahra, 2005a; Zahra & George, 2002). Importantly, two reviews that provided important guidance for future research on early internationalization are Zahra (2005) and Rialp, Rialp and Knight (2005). Zahra (2005)’s analysis of about a decade of research on early internationalization is an excellent retrospective on findings of research and questions that had still remained unanswered. His review shows that few studies have explained why some firms decide to internationalize in their early years after start, while others prefer domestic operations. As such more studies are needed to uncover the antecedents to the internationalization decision. He further argues that the benefits attributed to firm/entrepreneur experience in the internationalization process is overrated. In his idea, besides the knowledge and networks that experience provides, it can create a rigidity in managers encouraging them to continue doing things the way they are used to, rather than what is required for their strategic decisions.

Similarly, Rialp et al. (2005) analyze 38 empirical studies on early internationalization and report research findings and gaps. They introduce the catchall term “early internationalizing firms” to refer to international new ventures, born-globals and global-startups. Summarizing their findings, they provide a framework, whereby intangible resources including firm-level organizational, technological and relational capabilities (e.g. networks) and individual-level capabilities manifested in the human capital of entrepreneurs create an internationalization capability for the firm. Further, the combination of various intangible firm resources to create “complex interactions among them”, together with idiosyncratic international resource coordination routines creates inimitable sources of international competitive advantage for the firm (Rialp et
al., 2005: 161). These combinations of resources, moderated by environmental factors such as
industry sector, geographic settings and home and international networks, determine the firms’
internationalization path, namely pace, geographical scope and the extent of internationalization
(e.g. a niche focus or a worldwide expansion strategy).

Oviatt & McDougall (2005) continue this effort at providing unifying frameworks by
integrating past research on early internationalization and proposing a framework for the “speed
of internationalization”. In their framework, an international opportunity enabled by new
technologies (e.g. telecommunications and transportation technologies) and motivated by fierce
competition is sensed by alert entrepreneurs who perceive its potential value through their
entrepreneurial characteristics (e.g. pro-activeness) and their human capital (e.g. international
experience). Exploiting this opportunity is moderated by firms’ capabilities, importantly
knowledge-intensity and firms’ knowledge of the foreign market, and their network relationships
(e.g. network size and network strength) that together drive international speed. International
speed, in this framework, pertains to three aspects of internationalization, namely the timing of
the initial entry, the scope and the level of commitment in internationalization.

**Research Questions of This Dissertation**

Despite the large number of studies on early internationalization (c.f. Jones, Coviello, & Tang,
2011), we still need to develop a better understanding of this phenomenon. Research in this field
shows inconsistencies and has been criticized on at least three grounds, which shape the
motivation behind the research questions of my thesis. First, early internationalization research is
criticized for lacking unifying theories and is described as being “fragmented, inconsistent and
lacking in unifying paradigms and theory (Keupp & Gassmann, 2009)”. Even counters made
against this argument explain such inconsistencies and shortcomings as a normal phase in the gradual process of theory development, in a field that is still young (c.f. Jones et al., 2011; Zander, McDougall-Covin, & Rose, 2015). They accept, however, that further research is required to acknowledge inconsistencies to move towards the “development of theory and paradigmatic unity (Jones et al., 2011: 632)”. One commonly cited reason for inconsistencies in our understanding of antecedents and outcomes of early internationalization is the lack of integrative studies that can explain discrepancies in findings and provide a “bigger picture”. Many studies aim to explain what enables some firms to internationalize early whereas others get established in their domestic market either long before their international expansion or operate domestically forever (Zahra, 2005; Zander et al., 2015). As such these studies take one or two dependent variables of internationalization (e.g. international performance, or level of international commitment) and study their antecedents (e.g. firm or individual characteristics). They might carefully explain pieces of a puzzle, but without putting the pieces together, our understanding of the whole picture they make together will be limited. Besides, these studies seldom dig deeper into explaining how antecedents drive the capabilities that lead to internationalization outcomes. That is, we usually see studies taking a simplistic approach assuming a linear relationship between antecedents and internationalization, and seldom incorporating more complex relationships and analyses, such as multilevel or mediation analysis (Zhou, Wu, & Luo, 2007). The first essay in my dissertation (Chapter 2), takes on the challenge of integrating the findings of past studies in a meta-analysis to fill the gap in our understanding of early internationalization and pave the way for more successful theory building. Our goal in that essay is not to propose a new theoretical framework, but to provide a better understanding of the findings in the past three decades. Our meta-analysis and the structural equation modelling
analysis we do afterwards, help us test plausible theoretical explanations for early internationalization. As such it can contribute to the efforts towards theory making in international entrepreneurship (Knight & Liesch, 2016; Reuber, Dimitratos, & Kuivalainen, 2017).

The second gap in the early internationalization literature is connected to our understanding of new and young ventures’ decision to engage in international activity, rather than staying domestic. Early research in the field included some studies on the comparison of international new ventures and domestic new ventures (McDougall, 1989; McDougall, Oviatt, & Shrader, 2003). Later studies, however, simply assume that new ventures that internationalize soon after start are characteristically different from the ones that continue domestic operations (Jones et al., 2011: 643). As such, many early internationalization studies focus on the early vs. late internationalization question (rather than international vs. domestic operation), aiming to reject the predictions of a gradual internationalization path suggested by the process theories of internationalization (Mudambi & Zahra, 2007; Oviatt & McDougall, 2005). Therefore, there is paucity in our understanding of the decision of the firms to enter international markets. In the second essay of this dissertation (Chapter 3), I will focus on the internationalization decision of young ventures. Past literature has found inconsistent results with respect to the role of firm slack resources in making early internationalization possible (Keupp & Gassmann, 2009: 616). Both negative and positive effects for slack resources are argued. We shed light on the underlying dynamics of the decision made by some firms to expand internationally and hypothesize that young ventures balance their slack resources across different growth domains, namely internal product exploration and international expansion. We will have in our sample, both firms that have remained domestic and others who have internationalized and as such, our study can
provide a comparison in terms of antecedents of the decision and the capabilities that drive early internationalization.

A third gap in early internationalization studies, is about the consequences of the internationalization decision. In particular, internationalization exposes the firm to risks and costs in the new environment that might prove detrimental to its very existence (Sapienza, Autio, George, & Zahra, 2006). Failure in international expansion for an established firm might mean losing profits or delays in alternative strategic initiatives. But for a young venture facing liabilities of newness due to lack of experience and liabilities of smallness due to small size (Stinchcombe & March, 1965; Zahra, 2005), failure in internationalization could lead to the firm’s termination. The performance outcomes of internationalization have significant practical implications for entrepreneurs weighing the benefits of international expansion against its possible costs. As such, in the third manuscript in this dissertation (Chapter 4), we measure the impact of the internationalization decision (as opposed to purely domestic operation) on the survival rate of new ventures. One significant hurdle in understanding such effect is to account for the endogeneity of the decision to enter international markets. That is, we argue that internationalization is not the result of some unintended situations that happen to firms, but it is a strategic decision made by new ventures in light of their capabilities to handle the costs thereof. Controlling for endogeneity of the decision helps us argue that internationalization is a decision made by prepared young ventures, and as such, provides benefits for their survival that surpass its risks.
DATA AND CHOICE OF METHODS

To answer the research questions of this thesis, I used multiple research methods. As the goal in the first essay was to integrate findings of past empirical research and to propose and test a theoretical framework for early internationalization, a meta-analysis structural equation modelling (MASEM) was an appropriate method (c.f. Bergh et al., 2016; Cheung, 2009; Kirca et al., 2011; Viswesvaran & Ones, 1995). Meta-analysis provides causal effects between the variables of interest in our studies, namely firm-specific advantages that explain early internationalization, with an standard error lower than the standard error of all the primary studies included (Schmidt & Hunter, 2015). We meta-analyzed the empirical findings of 106 empirical papers and reported overall causal effects based on these studies. We then used structural equation modelling (SEM) to juxtapose and test the fit of plausible theoretical models, which are derived based on extant theory in international business and international entrepreneurship fields and that explain the relationship between different drivers, mediating variables and early internationalization. The model that finds the best support in our SEM, therefore, provides significant theoretical contribution in that it provides a parsimonious explanation for early internationalization based on theoretical and empirical findings of research in the past 30 years.

The other two manuscripts in the research aim to answer questions regarding the dynamics of the early internationalization decision and the performance outcomes thereof. Analyzing these research questions requires a database that a) has a sample of new ventures, including both domestic and international new ventures (to allow analysis of the international entry decision); b) includes sufficient data from the sample firms such as firm and entrepreneur characteristics to allow the analysis of drivers of internationalization and to control for factors
affecting it; and c) is longitudinal and tracks the characteristics and behavior of firms for a few years to allow the analysis of dynamics. This last feature makes finding of a suitable database difficult and has been cited as a major obstacle for conducting research on the dynamics of early internationalization (Jones et al., 2011; Keupp & Gassmann, 2009; Mudambi & Zahra, 2007). The database that checked all these requirements and was chosen for the analysis in this thesis was Kauffman Firm Survey (KFS) database. KFS is a database of 4,928 US-based firms, all established in 2004. The database includes a baseline survey in 2004 and seven years of follow-up thereafter (making up a total of eight data-years). Firms which responded to all these follow-up rounds (or until they were still in operation) constitute a longitudinal panel, with data from 3,140 new ventures. The sampled firms were chosen from the Dun and Bradstreet database. As one of the objectives of the survey was to study high/medium tech and woman-owned businesses, the final sample is a stratified sample which oversamples businesses in high/medium tech industries (Farhat & Robb, 2014). We used the probability weights in the final database to account for this oversampling, to eliminate selection bias, and to correct for survival or attrition bias (Litwin & Phan, 2013). I used this database for the second and the third essays in this thesis.

The focus of the second essay is to analyze the growth decisions of new ventures and the balancing of resources along alternative growth paths, namely internationalization and internal product development. We used multiple regressions and regressed these two dependent variables over the same set of independent and control variables. To estimate the regressions in this panel dataset, we used the maximum likelihood estimation of generalized estimation equations (GEE). This method has been shown to supersede both fixed-effects and random-effects estimation techniques for panel data analysis, as GEE has no restrictions in terms of assumptions on correlations of within-subject responses (Ndofor, Sirmon, & He, 2011). In our analysis, we do
not see any reason to assume that our variables follow any particular correlation patterns, i.e. remain constant over the years or change. For our International Market Expansion, which is a dichotomous variable, we used the logistic regression option (Stata’s xtgee function with the *binomial family* option).

The third essay in my thesis is a survival analysis, aiming to compare the survival rates for young ventures that have expanded internationally with their domestic counterparts. We argue that the decision to enter international markets is not an accident happening to a random set of firms, but a calculated decision made by firms depending on their resources and capabilities that make young ventures prepared for international entry. In other words, the selection of firms into the mutually exclusive treatment and control groups (i.e. international vs. domestic operation) is deliberately chosen by the firm rather than being randomly assigned and as such we have a self-selection (rather than random-selection) type of endogeneity problem. To counter endogeneity and measure the causal effect of internationalization on survival, we used the powerful potential outcomes framework or counterfactual model of causal inference (Morgan & Winship, 2007). The potential outcomes framework, extends the well-established approach to causal inference in experimental designs to the statistical analysis of non-experimental observational data (Imbens & Rubin, 2015; Morgan & Winship, 2007; Wooldridge, 2010). In non-experimental observational data, the researcher does not control the manipulation of the treatment variable (i.e. international entry in our case) and is thus not afforded the ability to randomize. The potential outcomes framework builds on the idea that there is nevertheless an underlying assignment mechanism that assigns individual firms to either the “internationalized” or "Not internationalized" groups. Information about this assignment mechanism may then be used to calculate average causal effects also known as Average Treatment Effects (ATE). In our
context, our treatment variable is firm internationalization, and we measure the effect of this
treatment on the complete sample (ATE), as well as subsamples of internationalized (treated) and
non-internationalized (not treated) firms. Further details about the methods are provided within
the chapters of the thesis.

A note on the co-authorship in the chapters

As a concluding point in this introductory chapter, I should mention that the three manuscripts
included in this thesis were co-authored with my colleagues at the Haskayne School of Business,
University of Calgary. Even though I have started all these ideas myself and have done the
majority of the writing in the final version of the papers\(^4\), I should hereby thank all the great
comments, lively discussions, revisions and writing added by my co-authors to these
manuscripts. As required by t

\(^4\) As required by the Faculty of Graduate Studies, a note will be provided by each of my co-authors to certify their permission for the use of the co-authored work in this thesis.
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CHAPTER 2: THE ANTECEDENTS AND PERFORMANCE OUTCOMES OF EARLY INTERNATIONALIZATION: A META-ANALYSIS
INTRODUCTION

There has been a plethora of research on International Entrepreneurship (IE) in the past three decades. Researchers from International Business, Entrepreneurship, Strategic Management, Marketing and other disciplines have contributed to the understanding of entrepreneurial activity across borders. Much research in IE studies the early internationalization phenomenon—that is firms that start international activity at or near inception— even though as a field, IE also encompasses cross-border and cross-cultural comparisons of entrepreneurship (Jones, Coviello, & Tang, 2011; McDougall-Covin, Jones, & Serapio, 2014). The case of young firms that start international activity in their first years of operation, has led to a lot of research, mainly to explain what enables these firms to internationalize contrary to predictions of some IB theories, and what the performance implications are of this strategy. One consistent theme in IE has been to assume that traditional IB theories cannot explain early internationalization—thereby criticizing the process theories of internationalization that predict a gradual pathway to internationalization—and as such new theories are allegedly required (McDougall, Shane, & Oviatt, 1994; Oviatt & McDougall, 2005a; Sapienza, Autio, George, & Zahra, 2006). Empirical research on early internationalization has explored the antecedents of such earliness of internationalization decision, the level of commitment of firms to international operations and the performance outcomes thereof (Keupp & Gassmann, 2009; Sapienza et al., 2006). The goal of this study is to integrate the results of this empirical work on early internationalization using a meta-analysis, and to test theory that best fits these findings using structural equation modelling. We shed light on the antecedents and performance outcomes of early internationalization, as captured by empirical research in the past three decades. Our findings show that even though research in IE has provided valuable knowledge in terms of antecedents and performance
outcomes of early internationalization, theorization in IE needs to revisit some of its assumptions about the applicability of mainstream international business theories.

The contributions of this meta-analysis structural equation modelling (MASEM) study are threefold. First, international entrepreneurship research has been criticized for being fragmented, inconsistent and for lacking unifying theories (Keupp & Gassmann, 2009; Knight & Liesch, 2016). One reason for such gaps in the field is the lack of integrative studies that can compare and report the sum of findings of extant research. MASEM is specifically powerful in proposing unifying theoretical frameworks and testing hypotheses based on past empirical findings (Bergh et al., 2016). We think a meta-analysis is timely, given the call for integrative studies and unifying frameworks by prominent researchers in the field (Cavusgil & Knight, 2015a; Coviello, 2015; Knight & Liesch, 2016; McDougall-Covin et al., 2014; Reuber, Dimitratos, & Kuivalainen, 2017; Zander, McDougall-Covin, & Rose, 2015). Second, any sampling of firms to measure a causal effect between variables is subject to a multitude of biases, importantly due to sampling errors. This often leads to inconsistent results, which hinders theory building. The power of meta-analysis is to integrate results and report casual effects that have a lower sampling error compared to the included primary studies (Schmidt & Hunter, 2015). Hence, the effect size based on a meta-analysis can be assumed to be closer to the “true” effect between the variables of interest. At the same time, meta-analyses are often criticized for using incomparable studies (Lipsey & Wilson, 2001; Schmidt & Hunter, 2015). The IE literature is an exception in this case, as an overwhelming majority of studies in IE only include firms that have a small size and a young age in their samples. Although this might hinder the IE literature from reaching its vision of contributing to research at the intersection of international business and entrepreneurship (c.f. Jones et al., 2011; Oviatt & McDougall, 2005; Zander et al., 2015), it
provides a unique set of comparable causal effects that can be integrated in a meta-analysis. Third, typical empirical research on a sample of firms in IE can hardly include all the relevant independent, dependent and control variables or test all theoretically plausible relationships between them. The reason might be the limitations of data collection, the presence of missing data or simply the fact that every single study focuses on a specific research question. For example, one study might measure the effect of international experience of the top management on the decision to internationalize and doesn’t control the effect of firm capabilities such as knowledge intensity or marketing capability, which are measured in many other studies. Meta-analysis structural equation modelling relies on the findings of all these primary studies and allow for an analysis with the presence of most variables that have theoretical significance in explaining the phenomena at hand. This is especially important in IE, as empirical studies in this literature are often criticized for being scattered, not having refined constructs, and over-relying on direct relationships rather than intervening mediating relationships (Coviello & Jones, 2004; Jones et al., 2011). The present study can, therefore, contribute to the design of new research projects that have a basis for the selection of dependent and independent variables and for formulating theoretical hypotheses.

The rest of the paper is organized as follows. We start with a review of the theories that explain the formation, the level of commitment and the performance outcomes of early internationalization. Specifically, we analyze the arguments citing the insufficiency of traditional IB theories together with the alternative explanations of the IE literature, namely the International New Venture (INV)/Born Global (BG) view (Knight & Cavusgil, 2004; Oviatt & McDougall, 1994). This leads to a discussion of the various antecedents for early internationalization and its performance outcomes. Particularly, drivers at the individual level
pertaining to the characteristics of the entrepreneur, the firm-level capabilities and some environmental and contextual effects are analyzed. We conclude this section by discussing the relevance of modern IB theory, namely internalization theory, to cover the theoretical gaps in extant studies in IE, hypothesizing four models that explain early internationalization. We will then describe the process of selecting the studies and coding their results to conduct our meta-analysis structural equation modelling (MASEM). In the results section, we report our analysis procedures including a path analysis to test the hypothesized models and to compare their fit. We will conclude with insights from the results of our analysis to lay the ground for future studies.

**Theoretical Review**

The 1980s witnessed the emergence of a phenomenon noticed by academics and the business press that appeared at odds with straightforward assumptions and some rather established theories: firms that started international activity from or near their inception. Conventional wisdom would assume that the small size and lack of experience would discourage new ventures’ internationalization. At least some IB theories supported this assumption and predicted a slow and gradual path for internationalization of firms (Johanson & Vahlne, 1977). Yet, an increasing number of new ventures were utilizing the improved telecommunication systems, lower transportation costs and the trend of globalization of markets to internationalize (Rennie, 1993). Early internationalization, therefore, was a curious case that motivated scholars from international business, entrepreneurship and strategic management fields to further investigate it.
Theoretical frameworks of early internationalization

Shortcomings of the “stage” model to predict internationalization patterns

The predictions of the “stage” theories of internationalization, famously known as the Uppsala model (Johanson & Vahlne, 1990, 1977), were inconsistent with the early internationalization of new ventures in at least two ways. First, the “stage” theories argued for using the behavioral theory of the firm (Cyert & March, 1963) and Penrose’s theory of growth (Penrose, 1959) that suggest managers show risk-averse behavior when faced with the uncertainty of internationalization, and as such, search for proximate answers in their growth initiatives. They discuss that the only way for these managers to gain international market knowledge and lower the uncertainty of international activity is through direct firm experience. This leads to a prediction of a gradual internationalization path, whereby managers increase their commitment and involvement in international markets in steps as they gain further experience. The rise of firms that had international activity at or near start, was not consistent with this prediction. Second, most MNE theories at the time used established MNEs as their case studies, which led to the misperception that firm size was a determining firm-specific advantage for international success of the MNE (Oviatt & McDougall, 1994).

An INV approach to early internationalization

The above mentioned shortcomings led Oviatt and McDougall (1994) to suggest that a new theoretical framework was required to explain early internationalization. They defined international new ventures (INVs) 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”. Their INV framework had four main pillars, namely 1) internalization of some
transactions; 2) relying on alternative governance structures; 3) creating foreign location advantage; and 4) sustaining competitive advantage through unique resources. Therefore, as opposed to “stage” theories, referred to as “traditional” IB theories, that predict a reactive, risk-averse and gradual process, the new framework depicted internationalization as a pro-active, opportunity-seeking strategy of firms (Autio, 2005). This line of research was further augmented with the introduction of the similar “Born-Global” concept, referring to firms that earned more than 25 percent of their revenue from outside their home market, within three years of operation (Knight & Cavusgil, 1996; Rennie, 1993). Knight and Cavusgil (2004) rely on evolutionary economics and knowledge based views to explain the emergence of born-globals. These firms, in their view, have an international entrepreneurial orientation leading to specific innovative, knowledge intensive capabilities that enable them to show significant international performance and become “born globals”. This term was widely used in IE research and yet widely criticized even by these authors in a retrospective (Cavusgil & Knight, 2015a; Covielo, 2015; Oviatt & McDougall, 2005b), on the account that most of these firms are neither “born” with international activities at birth, nor “global”. Rather, they start international activity at a young age (but not

5 Their explanation starts with firms internalizing economic transactions that are inefficiently governed in the market and thus forming an organization. The resource poverty of new ventures, however, does not allow them to fully internalize transactions through ownership of assets, and as such they rely on ‘alternative’ and ‘hybrid’ governance structures. Importantly, relying on network structures allows new ventures to overcome resource shortages and their inability to internalize through ownership and to lower risks of opportunism in governing through franchising, joint ventures or licensing. A minimal use of internalization and instead relying on alternative governance structures is therefore a distinguishing factor for new ventures as compared to established firms. The third element of their framework is based on IB theories’ conception of transferring valuable resources across borders. Knowledge that can be transferred internationally, is the essence of value creation in the foreign market for both MNEs and INVs. The easy dissemination of knowledge, however, creates a challenge for knowledge-based INVs due to its “public goods” nature, that makes it vulnerable to assimilation by competitors. This brings the framework to its fourth, which is protecting valuable knowledge capabilities to create a unique and “sustainable” source of competitive advantage in the international market. INVs rely on legal protection of knowledge sources (e.g. through patents), secrecy, imperfect imitability, licensing and governance through networks to protect their valuable knowledge. The four elements collectively lead to the creation of a “sustainable international new venture”.

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necessarily at birth) and they tend to expand to close markets within their geographical region, and with varying levels of international revenue (Coviello, 2015; Rugman & Almodovar, 2011).

Important in shaping early research on the early internationalization phenomenon was the claim that “neither monopolistic advantage theory, product cycle theory, stage theory of internationalization, oligopolistic reaction theory, nor internalization theory can explain the formation process of INVs (McDougall et al., 1994)”. McDougall et al.’s (1994) claim that “traditional” international business theories fail to explain the case of internationalization from or near inception, has prevailed throughout decades of research on this phenomenon, with limited challenge even in recent years (c.f. Knight & Liesch, 2016; Zander et al., 2015). Therefore, much research in international entrepreneurship has focused on finding explanations to remedy these shortcomings of the “traditional” theories. Importantly, individual capabilities and orientation of the entrepreneurs (Bloodgood, Sapienza, & Almeida, 1996; Dai, Maksimov, Gilbert, & Fernhaber, 2014; Knight & Cavusgil, 2004; Reuber & Fischer, 1997), the knowledge-base, innovative and learning capabilities of the firm (Autio, Sapienza, & Almeida, 2000; Knight & Cavusgil, 2004; Oviatt & McDougall, 2005a), and the networking capabilities of firms (Coviello & Munro, 1995, 1997; Zhou, Wu, & Luo, 2007) are cited as alternative explanations for the drivers of early internationalization. In the following section, we provide an internalization framework of early internationalization and argue that a better understanding of this theory can answer the calls for a unifying framework for international entrepreneurship.

An internalization theory approach to early internationalization

McDougall, Shane and Oviatt (1994), claim that the formation process of international new ventures cannot be explained by traditional international business theories, including internalization theory. We believe that there is value in re-reading these arguments, as they shaped
the conception (or perhaps misconception) of countless IE studies about the theoretical power of IB theories. We summarize the three arguments McDougall et al (1994) provide against internalization theory as follows: 1) INVs don’t necessarily “choose the lowest cost location for each activity” as argued in internalization theory (Buckley 1988); 2) as opposed to internalization theory predictions, INVs don’t “internalize markets up to the point where benefits of further internalization are outweighed by the costs” (Buckley 1988), but they tend to rely on hybrid governance structures such as networks; and 3) internalization theory focuses on “firm-level analysis rather than on entrepreneurs and their social networks” (McDougall et al., 1994: 478).

We believe these misconceptions can be answered by noticing that internalization theory has two main rationales: the transaction-cost economics (TCE) rationale of economizing on transaction costs due to bounded rationality and bounded reliability (Buckley & Casson, 1976; Verbeke & Greidanus, 2009); and the resource based view/entrepreneurial rationale of transferring firm-specific advantages such as tacit knowledge through the MNE and an entrepreneurial recombination of capabilities to create new, location-bound advantages in the host country (Rugman & Verbeke, 2003; Verbeke, 2013). In other words, the MNE is not just a governance mechanism to help avoid transaction costs (first rationale), but also an efficient way of transferring and creating firm-specific advantages (second rationale). This latter function of the MNE as depicted in internalization theory has received relatively less attention (Teece, 2014). The choice of location of activities therefore, depends both the transaction costs and the potential benefits to be gained by transferring firm-specific advantages to that location.

The argument that INVs rely on alternative governance structures, such as their network partners, is also not in contradiction with internalization theory. If we assume INVs are resource-limited firms bound by lack of slack resources and experience (Zahra, 2005), it is the specific
combination of INV firm-specific advantages with assets held by other parties that determine their choice of governance. Internalization theory provides a rationale for comparative governance cost optimization, conditional upon FSAs, but this doesn’t mean a specific governance structure (e.g., FDI) is necessarily the preferred mode of operation across the board. Internalization theory does not make any limiting assumptions about the size or age of the firm, nor does it predict specific patterns or timing of internationalization. It is the firm-specific advantages (FSA) that determine the decision of the firm to internationalize and the “scale, entry mode or location…. and timing” of international entry (Verbeke, Zargarzadeh, & Osiyevskyy, 2014). Therefore, the first two arguments against internalization theory are not consistent with the core of the theory.

Importantly for analysis of new ventures’ internationalization in this paper, is to note that firm-specific advantages need not be only firm level characteristics. Specifically for new ventures, the role of the entrepreneur as the expert with judgment about value-generation processes through identifying opportunities, and recombining FSAs to create advantages in the new market, is of essence for a complete understanding of internalization theory (Casson, 1982; Teece, 2014; Verbeke et al., 2014). Therefore, the third argument against the applicability of internalization theory to the case of new venture internationalization, is not accurate either.

Based on the above arguments and in line with Verbeke et al. (2014), we provide the following theoretical framework for early internationalization using internalization theory: the motivation to expand internationally is the discovery or enactment of an opportunity to access host country location advantages. Timely and affordable exploitation of this opportunity, requires transfer of a resource-base to be bundled with host country resources, including from network partners, to create new firm-specific advantages in the host country.
With this framework, it is clear that firm-specific advantages, lie at the core of early internationalization. Such a conceptualization of early internationalization does not predict a precise timing of internationalization, nor a preferred mode of entry. But it relies on the entrepreneurial ability of recombining transferrable resources with requisite resources in the host country, to meet market demands and reach national responsiveness. The transferability of resources is in part conditioned on the specific bundle of FSAs and importantly on the transaction costs due to bounded rationality and bounded reliability in the new host environment. As such, entry of entrepreneurial firms with valuable FSAs into proximate international markets, with a narrow focus, is not an unexpected phenomenon that would make them a new breed of firms (Fan & Phan, 2007). In addition, the so-called born-global firms that show significant and simultaneous commitment to markets across the globe including “distant” locations, are an exception rather than the norm (Cavusgil & Knight, 2015a; Rugman & Almodovar, 2011). In any case, the nature of the FSAs is essential in explaining the early internationalization decision, the degree of commitment to internationalization, and the performance outcomes thereof. Given the importance of firm-specific advantages in our framework, we will now have a closer look at the FSAs involved by drawing on past international entrepreneurship studies as well as internalization theory.

**Firm-specific advantages driving early internationalization**

The international entrepreneurship literature has made significant contributions to our understanding of FSAs that drive early internationalization (Reuber et al., 2017; Zander et al., 2015). Our goal in this section is not to provide an exhaustive list of those FSAs (cf. the summary by Knight and Liesch, 2016 for a rather comprehensive set of studied FSAs). We will just discuss those FSAs that have important theoretical underpinnings and that are studied in a sufficient number of empirical studies to allow us to include them in our meta-analysis. Specifically, we
discuss at the individual level, elements of the human capital of the entrepreneur, namely international experience and education level. At the firm level, we will look at entrepreneurial orientation (EO)/international entrepreneurial orientation (IEO), knowledge/innovation intensity, marketing capability, and international networking capability.

*Individual level firm-specific advantages*

Perhaps the most commonly explored characteristic of early internationalizing firms is the *international experience* of the top management team. Young firms don’t have the time to accumulate experiences *as a firm*, but the entrepreneurs managing these firms usually have significant international experience (Oviatt & McDougall, 1994; Reuber & Fischer, 1997). Managers who have gained international experience from past work in multinational enterprises or from education abroad, are more alert to international opportunities (McDougall et al., 1994), have a broader international network exposing them to market knowledge (Fernhaber & Li, 2013) and can more easily understand and adapt to the requirements of the international market (Jones & Casulli, 2014; Madsen & Servais, 1997). Some authors even contemplate that some “stages” of internationalization in the Uppsala model are experienced by founders of new ventures, in the pre-formation stage (Bacq & Coeurderoy, 2010) and that some of the FSAs are directly related to such experience (Verbeke et al., 2014).

Entrepreneurs’ *level of education* is the second element of the human capital usually associated with early internationalization. Highly educated entrepreneurs possess problem-solving capabilities that can help them overcome the risks and challenges of internationalization (Ganotakis & Love, 2012; Verbeke et al., 2014). Education is related to creating more knowledge intensive and innovative firms (Ganotakis & Love, 2012), with managers who are
self-confident, motivated and skilled in handling various challenges amid uncertainty (Cooper, Gimeno-Gascon, & Woo, 1994; Westhead, Wright, & Ucbasaran, 2001).

**Firm level firm-specific advantages**

*Knowledge/innovation intensity* is another capability usually associated with early internationalization. Knowledge intensity is commonly measured as the level of firm expenses or personnel dedicated to R&D activities, whereas innovation capability is measured through introduction of new products, or ownership of patents and proprietary technology. The role of knowledge in creating positional advantages in the new host country is widely cited by internalization theory scholars as a transferrable FSA that keeps its value when moved across borders (Buckley & Casson, 1976; Kirca et al., 2011; Rugman, 1981; Rugman & Verbeke, 2003). Similarly, in the INV framework of Oviatt and McDougall (1994), this premise of internalization theory is used to suggest INVs facing liabilities of foreignness, create advantages abroad, based on their transferrable knowledge and innovative capabilities.

Autio et al. (2000) argue that knowledge-intensive firms develop a learning capacity, which helps them adapt more easily to international environments and the movability of knowledge provides advantages that helps them perceive internationalization less costly. Similarly, Knight and Cavusgil (2004) rely on the resource-based view (RBV) to argue that knowledge intensity and innovation are sources of competitive advantage for firms in the international market. They extend the argument by claiming that as opposed to older firms relying on “financial and human resources, as well as plant, equipment, and other physical resources” to drive international performance, young internationalizers “leverage a collection of fundamental intangible knowledge-based capabilities in the cultivation of foreign markets (Knight & Cavusgil, 2004: 127)”.

Others,
however, show that there is not much difference between “new and old” internationalizing firms in terms of competitive advantage and reliance on knowledge-based capabilities (Moen, 2002).

Similarly, Marketing Capability is another FSA largely referred to in the IB literature as a source for differentiation in international markets to help overcome liabilities of foreignness. The multinational firm is essentially an efficient vehicle to transfer complex bundles of FSAs such as upstream knowledge-based and downstream marketing and branding capabilities across borders (Grøgaard & Verbeke, 2012; Kogut & Zander, 1992; Verbeke, 2003). Although not as common as knowledge intensity, the role of marketing capabilities has been assessed in many early internationalization studies. Marketing capability can manifest itself in strategic positioning within a market or strong advertising and promotion efforts (Swaminathan & Moorman, 2009). Strong marketing capabilities can help the firm in their internationalization efforts to “to transfer, assimilate, and apply advertising and promotion knowledge (Brouthers, Nakos, & Dimitratos, 2015: 1172)”. Knight, Madsen and Servais (2004) show that marketing competence manifested as “knowledge of customers, product development, distribution, and pricing, as well as market targeting and positioning” is a key driver of international performance for early internationalizers.

International Knowledge is a cornerstone of “stage” theories of internationalization, helping firms to overcome uncertainties of foreign markets (Johanson & Vahlne, 1990, 1977). The difference in IE studies is that as opposed to “stage” theories, firms’ direct experience in international markets is not the only source to acquire such international market knowledge. IE research shows that entrepreneurs’ international experience and knowledge acquired from network partners are usually used as substitutes for acquiring market knowledge through direct experience (Bruneel, Yli-Renko, & Clarysse, 2010; Li, Qian, & Qian, 2015; Weerawardena, Mort, Liesch, & Knight, 2007; Zhou, 2007). Importantly, Bruneel, Yli-Renko and Clarysse (2010), show that
experiential learning becomes a more important source of international market knowledge for firms, as market knowledge gained in this way is more recent, more targeted to the firm and more efficiently assimilated to firm routines (Bruneel et al., 2010: 168). Zahra (2005) also mentions the possibility of hiring local employees to help early internationalizers access tacit knowledge about cultural norms and gain competitive advantage. Therefore, an important source of FSAs for early internationalization lies in international market knowledge of firms, usually gained through experiential learning.

Another important FSA in the IE literature is *Entrepreneurial Orientation (EO)*, which is also widely explored in the field of entrepreneurship, simply aiming to capture how “entrepreneurial” a firm is (Miller, 1983). EO is usually measured as a multidimensional behaviour of the firm, consisting of innovativeness, pro-activeness and risk-taking (Covin & Lumpkin, 2011; Covin & Slevin, 1991). In the IE literature, EO has been a rather frequently explored concept from the early days, depicting early internationalization as a decision of entrepreneurs who see the world as the locus of their operations (Oviatt & McDougall, 1994). Notably, McDougall and Oviatt (2000)’s revised definition of the IE field as “a combination of innovative, proactive, and risk-seeking behavior that crosses national borders and is intended to create value in organizations”, embraces the EO concept. Knight and Cavusgil (2004), suggest that born-globals are inherently innovative firms encompassing an International Entrepreneurial Orientation (IEO) as “unique entrepreneurial competences and outlook” helping small new ventures “make the leap into international markets”(Knight & Cavusgil, 2004). Covin & Miller (2014) review the IEO and EO concepts in the IE literature, generally finding positive effects between EO/IEO and international performance, despite some inconsistencies due mainly to measurement issues (Covin & Miller, 2014: 21). More importantly they argue that International
Entrepreneurial Orientation in IE research is either an application of the EO concept to the international context, or a subcategory of EO. Our review in this meta-analysis revealed that it is useful to separately measure EO and IEO, both as firm-level variables. The reason is that EO has typically been measured using Miller/Covin & Slevin’s scale (Covin & Slevin, 1991; Miller, 1983), but IEO has typically included some internationalization verbiage capturing the view of the management team towards proactive and risk-taking behavior in the international markets (c.f. Knight & Cavusgil, 2004; Kuivalainen, Sundqvist, & Servais, 2007; Sundqvist, Kyläheiko, Kuivalainen, & Cadogan, 2012).

International networks have been another important factor in IB theories. In Dunning’s OLI (Ownership, Location, Internalization) framework (Dunning, 1981), the ownership advantages consist of asset advantages (Oa) and transactional advantages (Ot) (Dunning & Rugman, 1985). The latter refer to strengths in coordinating and exploiting resources, geographically distributed across affiliates (Dunning, 2003; Rugman, Verbeke, & Nguyen, 2011). In internalization theory, exploiting FSAs in a host country is mostly not achieved on a stand-alone basis, but requires combining extant FSAs with complementary resources of other economic parties (Hennart, 2009; Verbeke & Kano, 2016). As such, internalization theory has always been concerned with managing interdependencies (Rugman et al., 2011). In the IE context, resource-parsimonious young firms rely on their international network partners to identify international opportunities, gain credibility and learn valuable market knowledge (Coviello & Munro, 1995, 1997; Oviatt & McDougall, 2005a). In addition, for young firms that lack the resources and experience to govern asset-specific cross border transactions through wholly owned subsidiaries, reliance on collaborative relationships is an imperative rather than an option (Burgel & Murray,
Therefore, the size, strength and managing capability of international networks is vital in the analysis of early internationalization.

Much research in IE has measured the direct effects of various bundles of FSAs on early internationalization, but the interplay among different levels and interaction effects have remained largely underexplored (Knight & Liesch, 2016). In the next section we will provide theoretically plausible models that explain such interplay of different levels of FSAs in explaining early internationalization.

**Theoretical models explaining early internationalization**

Bergh et al. (2016)’s article in the Strategic Management Journal provides guidelines for performing ‘meta-analysis structural equation modelling’ (MASEM), in order to test theory in strategic management and related fields. Following their guidelines, and to better understand the effects of FSAs in early internationalization, we hypothesize below a number of competing theoretical models that explain the effect of these FSAs. It should be noted that our goal is not to discuss and test all possible models, but only those models that have theoretical significance and plausibility.

**Direct-effects of FSAs**

The basic path model is to assume a direct link between FSAs and early internationalization. Much research in IE uses this model, focusing on the drivers that can have such direct effects on internationalization. This is in part a result of over-reliance of research in management on regression analysis of direct effects, rather than considering more complex mediation models (Shaver, 1998, 2005).
An alternative model is to assess firm-specific advantages at different levels, that is individual- and firm-level advantages (Madsen & Servais, 1997; Verbeke et al., 2014). One possible scenario is that strong entrepreneurial capabilities, diffuse upward to create strong firm-level capabilities and behavior that can be transferred internationally and create value. This model therefore answers the question of how entrepreneurs’ characteristics lead to early internationalization, by suggesting that such individual capabilities create stronger firm-level FSAs. This points to the criticality of individual level factors in analyzing early internationalization, in that many firm-level strengths are in essence the result of these individual level capabilities (Knight & Cavusgil, 2004; Verbeke et al., 2014).
Another explanation is to take firm-level FSAs as the starting point, suggesting that stronger firms attract stronger entrepreneurs, who then drive internationalization based on their personal capabilities. According to this model, the reason a firm-specific advantage leads to early internationalization, is that internationally experienced and highly educated entrepreneurs are likely to work in such firms and make the internationalization decisions that should supposedly lead to improved performance.
International Entrepreneurial Orientation inducing firm-level advantages

The fourth model draws upon the idea that capable entrepreneurs show a high level of entrepreneurial orientation (specifically towards international markets), which lies at the heart of firm capabilities and strategies (importantly, this model was suggested by Knight and Cavusgil, 2004). Such orientation leads to higher levels of firm-specific advantages in the firm, leading to internationalization.
We will test these competing models, to assess which of them provides a better fit with the integrated findings of empirical research in international entrepreneurship using meta-analysis structural equation modelling (MASEM).

**Methodology**

**Article Search**

Aiming to find a theoretical explanation for early internationalization, we performed a systematic review of empirical research in this area, following instructions on conducting a meta-analysis structural equation modelling (MASEM) in strategic management and related fields by Bergh et al., (2016) and other influential meta-analyses in international business (Kirca et al., 2011). In conducting the article search we relied on the procedures used in an important ontological review of the field by Jones et al. (2011). We started our article search by systematically going through
databases such as ABI/INFORM, Science Direct and Web of Science with the following keywords: “international entrepreneurship”, “early internationalization”, “international new ventures”, “born global”, “rapid internationalization”, “global start up”, “micro MNEs”, “rapid export”, “instant international”, “rapid internationalization”, “McDougall” and “Oviatt”\(^6\). To ensure exhaustiveness of our article search, we also did an issue-by-issue search on some of the most important outlets in international business and entrepreneurship\(^7\). The third measure taken in terms of exhaustiveness of our article search was to go through the reference list of some of the influential reviews in the field (Jones et al., 2011; Peiris, Akoorie, & Sinha, 2012). We also used the list of relevant references associated with these reviews after being published\(^8\). In addition to published scholarly journals articles, we used the same search keywords and criteria on ProQuest database of dissertations, to locate related PhD and Master’s theses that had related data for our study. The results of these steps were then reviewed to meet our inclusion/exclusion criteria for being considered in the coding process and data analysis.

**Inclusion/Exclusion Criteria**

The goal of this study is to investigate the early internationalization phenomenon. We therefore applied the following inclusion/exclusion criteria: First, the sample of studied firms had to be under

\(^6\) We also included all possible variations of typing for each of the words, including plural/singular form, hyphenated (born global/born-global), and different spellings (internationalisation/internationalization)


\(^8\) The ontological review article by Jones, Coviello and Tang (Jones et al., 2011) in Journal of Business Venturing, is now developed further by the authors and scholars from the ie-scholars.net community, to provide an updated list of all published articles in the literature of International Entrepreneurship. Their search for articles and the methods and databases used, is promising in terms of providing an exhaustive list of journal articles and published book chapters. Their list is published through the community’s website (www.ie-scholars.net) and has been updated monthly via systematic search in addition to suggestions of articles by community members.
10 years of age, or they should have started their internationalization in the first 10 years. There are different age thresholds proposed in the literature to identify the age limit below which firms are identified as an early internationalizer, ranging from 3 to 10 years (Knight & Cavusgil, 2005; Shrader, Oviatt, & McDougall, 2000). Our purpose here was to perform an exhaustive meta-analysis on drivers of new and young venture internationalization and therefore we chose the highest threshold, i.e., the longest time period to ensure we do not exclude important studies.

Second, to be included, studies should have reported at least one measure of early internationalization. These measures could be the international entry decision (a dichotomous variable to account for any international activity, mainly through exports), international intensity (level of foreign sales to total sales in the firm) and post-internationalization performance (including, but not limited to financial performance). Third, to be included, studies should have reported any form of a bivariate correlation or a statistical form from which a correlation is extractable (t score, D score or F score). Fourth, only studies that measured firm and individual level constructs were included as this was the focus of this research. We therefore excluded studies that merely looked at country level factors or focused on cross-country comparisons. Finally, studies had to use distinct sources of data to be included. In other words, replication studies or various articles using the same database were excluded from our coding process (the most complete version of construct measurements was used). The above procedure resulted in a final sample of 106 studies, including 89 scholarly journal articles and 17 PhD dissertations.

It should be noted that not all scientific inquiries on early internationalization can report a correlation-type effect size for their main constructs and early internationalization, and hence such studies are not included in our analysis. Other insightful inquiries that could not be used in our analysis include case studies, in-depth interviews and conceptual contributions.
Coding Procedure

To ensure a consistent coding process, we prepared a coding protocol based on recommendations of Lipsey & Wilson (2001). A big challenge for the coding procedure was the measures used for each construct. A careful study of definitions and operationalization was necessary in most of the studies to ensure accuracy, matching of proxies to the core construct and consistency of definitions (e.g. the variable international experience, can refer to either the top management team’s experience in working abroad or to the firm’s years of presence in international market). Variables were not included in the meta-analysis, in case the core constructs diverged from our inclusion criteria. A list of variables used in the meta-analysis, together with their definition and possible measurements is provided in Table 1. The coding protocol also clarified the process of converting various measurements of effect size to correlations and entering them in the meta-analysis software⁹. Using this coding protocol, two coders were trained by one of the authors to code the papers. There was a 94 percent inter-rater agreement in the coding procedure. Weekly meetings with one of the authors were held to review progress and solve possible inconsistencies in coding. To further ensure consistency, after this process was completed, one of the authors recoded all the papers and checked inconsistencies in the coding done by coders.

Table 1: Meta-analysis variables, definitions and measurements

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Definition</th>
<th>Measurement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Experience</td>
<td>The international work/education experience of top management/founders of the company</td>
<td>Having any experience (1/0), number of years of international work/education experience</td>
</tr>
</tbody>
</table>

⁹ A free online tool (www.hubmeta.com) designed by one of the authors was used for conducting the meta-analysis and preparing data for the MASEM.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td>The level of education of the founders/managers</td>
<td>Number of years of education</td>
</tr>
<tr>
<td><strong>Entrepreneurial Orientation</strong></td>
<td>The combined measure of Entrepreneurial orientation based on the three aspects</td>
<td>Based on Covin &amp; Slevin (1990) questionnaire on innovativeness, pro-activeness and risk-taking</td>
</tr>
<tr>
<td><strong>International Growth Orientation</strong></td>
<td>The willingness of managers/entrepreneurs to grow the company specifically outside national borders</td>
<td>Survey of top management</td>
</tr>
<tr>
<td><strong>Firm Size</strong></td>
<td>The size of the firm when studied</td>
<td>Number of employees, Sales, Assets</td>
</tr>
<tr>
<td><strong>Firm Age</strong></td>
<td>The age of the firm when studied</td>
<td>Number of years since firm establishment</td>
</tr>
<tr>
<td><strong>Knowledge/Innovation intensity</strong></td>
<td>The level of knowledge-based capabilities of the firm</td>
<td>R&amp;D expenditure/total expenses (or sales) or number of R&amp;D employees/total employees, Number of patents, innovation capabilities</td>
</tr>
<tr>
<td><strong>Age at Internationalization</strong></td>
<td>The age of the firm at first international entry</td>
<td>Number of years from establishment to first international entry</td>
</tr>
<tr>
<td><strong>Marketing Capabilities</strong></td>
<td>The marketing capability of the company</td>
<td>Marketing (sales) expenditure/ total expenses (sales) , marketing employees/total employees</td>
</tr>
<tr>
<td><strong>Pre-Internationalization Performance</strong></td>
<td>Financial performance of the company prior to internationalization</td>
<td>ROS/ ROA/ Sales/ etc. before internationalization</td>
</tr>
<tr>
<td><strong>Environmental Hostility</strong></td>
<td>A measure of how hostile or competitive the environment/industry is</td>
<td>Survey of top management</td>
</tr>
<tr>
<td><strong>International Network</strong></td>
<td>The number of companies or people across borders that the firm/entrepreneur counts as their close working partners, An assessment of how strong are the company’s international ties</td>
<td>Survey of top management, Counting number of network partners</td>
</tr>
<tr>
<td><strong>Internationalization (yes/no)</strong></td>
<td>A dichotomous variable which equals 1 if firm has any international sales and 0 if it is purely domestic</td>
<td>ROS/ ROA/ Sales/ etc. or survey of firm managers on perception of performance</td>
</tr>
<tr>
<td><strong>International Performance</strong></td>
<td>Firm's performance after entering international markets</td>
<td>ROS/ ROA/ Sales/ etc. or survey of firm managers on perception of performance</td>
</tr>
<tr>
<td><strong>International Intensity</strong></td>
<td>The level of foreign sales to total sales</td>
<td></td>
</tr>
</tbody>
</table>
We have three main dependent variables in this meta-analysis. A first variable that is measured in IE, is the firm’s international entry decision, usually measured through a dichotomous variable, which equals 1 if the firm has any international sales and equals 0 otherwise. This variable shows an intention of the firm to internationalize, but also its ability to act on this intention. The second dependent variable is international intensity, measured through the ratio of foreign sales over total sales. This variable shows the degree to which a firm is exposed to international markets (Schwens et al., 2011) and is committed to internationalization (Oviatt & Patricia P. McDougall, 2005a). Finally, the third variable measures performance after internationalization. This variable shows how much (if at all) internationalization has affected firm performance, in terms of both financial returns and other performance goals. The diversity of dependent variables measured in IE research, in addition to the diversity of variables measured in each study on drivers posed another level of complexity in performing a meta-analysis that aims to integrate results, without making overly simplistic assumptions. We therefore think this study is valuable in that future research will be able to build upon a better understanding of what factors should be tested or at least controlled for in further empirical analysis of early internationalization.

**Data Analysis**

Following the steps suggested in past research for meta-analysis structural equation modelling (MASEM) (Bergh et al., 2016; Kirca et al., 2011), we proceeded as follows. First, we calculated bivariate meta-analysis effect sizes and standard errors using mainstream guidelines (Hunter and Schmidt 1990; 2004 and Schmidt & Hunter, 2015). For each correlation coded from the primary studies, we corrected for measurement error in both the dependent and independent variables, by
dividing the correlation effect by the geometric mean (product of square roots) of the reliability factor (e.g. Cronbach’s alpha) of the two measures. In the second step, we addressed the challenge of sampling errors by running a weighted average, e.g. an average in which each correlation, corrected for measurement error, is weighted by the sample size of the individual study (Schmidt & Hunter, 2015: 95). In this frequency-weighted average, larger studies have a greater weight compared to smaller studies. However, it can be shown that the weighted average almost always has a lower standard error than each of the individual studies. We report these aggregate effect sizes in Table 2 as the “corrected effect size” and use it as the effect size reported in the correlation table in Table 3 as the input for our structural equation modelling. Finally we corrected for possible availability bias using the procedure suggested by Lipsey & Wilson (2001). The number reported as fail-safe N in Table 2 denotes the number of studies reporting a null result that should be found to make these aggregate effect sizes non-significant.

To perform a path analysis to test our hypotheses, we relied on the instructions of Viswesvaran & Ones (1995), Cheung (2008) and Bergh et al. (2016). We created a correlation matrix including inter-correlations between various drivers of early internationalization and a number of control variables. Table 3 includes this meta-analytic correlation table. In this matrix, the lower triangular elements each represent a meta-analysis on two corresponding variables and the upper diagonal elements show the number of studies, and total sample size (in parentheses) for that meta-analysis. In other words, besides just the direct effect of various constructs on our dependent variables reported in Table 2, we also did several meta analyses for each of the inter-correlations reported. This way we can use path analysis and structural equation modelling to test our four alternative theoretical models, using a maximum likelihood estimation based on the reported correlation matrix.
<table>
<thead>
<tr>
<th>Key Relationship</th>
<th>K</th>
<th>N</th>
<th>$\bar{r}$</th>
<th>SD, $\bar{r}$</th>
<th>Confidence Interval 95%</th>
<th>Credibility Interval 80%</th>
<th>Fail-Safe N</th>
<th>Q</th>
</tr>
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<tbody>
<tr>
<td><strong>International Entry</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>International Entry- Individual level FSAs</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Entry-TMT International Experience</td>
<td>8</td>
<td>1826</td>
<td>0.109</td>
<td>0.046</td>
<td>0.019, 0.199</td>
<td>-0.034, 0.253</td>
<td>49, 31</td>
<td></td>
</tr>
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<td>International Entry-TMT Education</td>
<td>6</td>
<td>71958</td>
<td>0.058</td>
<td>0.005</td>
<td>0.049, 0.067</td>
<td>0.050, 0.066</td>
<td>263, 9</td>
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</tr>
<tr>
<td><strong>International Entry- Firm Specific Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>International Entry-Entrepreneurial Orientation</td>
<td>5</td>
<td>52373</td>
<td>0.047</td>
<td>0.027</td>
<td>-0.006, 0.099</td>
<td>-0.029, 0.122</td>
<td>249, 191</td>
<td></td>
</tr>
<tr>
<td>International Entry-International Entrepreneurial Orientation</td>
<td>3</td>
<td>816</td>
<td>0.231</td>
<td>0.128</td>
<td>0.021, 0.482</td>
<td>-0.042, 0.503</td>
<td>48, 37</td>
<td></td>
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<tr>
<td>International Entry-Knowledge/Innovation Intensity</td>
<td>10</td>
<td>1953</td>
<td>0.072</td>
<td>0.026</td>
<td>0.020, 0.124</td>
<td>0.024, 0.120</td>
<td>16, 12</td>
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<tr>
<td>International Entry-Marketing Capability</td>
<td>2</td>
<td>512</td>
<td>0.159</td>
<td>0.099</td>
<td>-0.036, 0.353</td>
<td>-0.001, 0.318</td>
<td>8, 9</td>
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<td>International Entry-Pre-Internationalization Performance</td>
<td>9</td>
<td>6491</td>
<td>0.039</td>
<td>0.025</td>
<td>-0.011, 0.088</td>
<td>-0.046, 0.123</td>
<td>44, 39</td>
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<td>International Entry-International Network</td>
<td>7</td>
<td>1346</td>
<td>0.099</td>
<td>0.047</td>
<td>0.008, 0.190</td>
<td>-0.030, 0.227</td>
<td>27, 21</td>
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<tr>
<td>International Entry-Firm Size</td>
<td>18</td>
<td>62565</td>
<td>0.143</td>
<td>0.007</td>
<td>0.128, 0.157</td>
<td>0.109, 0.177</td>
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<tr>
<td>International Entry-Firm Age</td>
<td>13</td>
<td>20325</td>
<td>0.018</td>
<td>0.029</td>
<td>-0.039, 0.075</td>
<td>-0.113, 0.149</td>
<td>63, 248</td>
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<tr>
<td><strong>International Entry-Environmental Factors</strong></td>
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<tr>
<td>International Entry-Environmental hostility</td>
<td>3</td>
<td>3730</td>
<td>0.093</td>
<td>0.009</td>
<td>0.075, 0.111</td>
<td>0.093, 0.093</td>
<td>17, 1</td>
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<td><strong>International Intensity</strong></td>
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<tr>
<td>International Intensity- Entrepreneurial Assets</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>International Intensity-TMT International Experience</td>
<td>13</td>
<td>2160</td>
<td>0.171</td>
<td>0.030</td>
<td>0.111, 0.230</td>
<td>0.071, 0.270</td>
<td>299, 26</td>
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<tr>
<td>International Intensity-TMT Education</td>
<td>6</td>
<td>2727</td>
<td>0.186</td>
<td>0.039</td>
<td>0.109, 0.262</td>
<td>0.078, 0.293</td>
<td>159, 27</td>
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<tr>
<td><strong>International Intensity- Firm Specific Assets</strong></td>
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<td></td>
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<tr>
<td>International Intensity-Entrepreneurial Orientation</td>
<td>10</td>
<td>3254</td>
<td>0.229</td>
<td>0.047</td>
<td>0.137, 0.321</td>
<td>0.052, 0.406</td>
<td>583, 77</td>
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<td>International Intensity-International Entrepreneurial Orientation</td>
<td>9</td>
<td>2714</td>
<td>0.140</td>
<td>0.085</td>
<td>-0.025, 0.306</td>
<td>-0.176, 0.457</td>
<td>123, 200</td>
<td></td>
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<tr>
<td>International Intensity-Knowledge/Innovation Intensity</td>
<td>27</td>
<td>5782</td>
<td>0.049</td>
<td>0.032</td>
<td>-0.015, 0.112</td>
<td>-0.148, 0.246</td>
<td>187, 173</td>
<td></td>
</tr>
<tr>
<td>International Intensity-Marketing Capability</td>
<td>3</td>
<td>554</td>
<td>0.066</td>
<td>0.033</td>
<td>0.001, 0.131</td>
<td>0.066, 0.066</td>
<td>- , 2</td>
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<td>International Intensity-Pre-Internationalization Performance</td>
<td>9</td>
<td>2002</td>
<td>0.011</td>
<td>0.071</td>
<td>-0.127, 0.150</td>
<td>-0.246, 0.268</td>
<td>1, 92</td>
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<tr>
<td>International Intensity-Age at Internationalization</td>
<td>15</td>
<td>2352</td>
<td>0.125</td>
<td>0.066</td>
<td>-0.003, 0.253</td>
<td>-0.184, 0.434</td>
<td>78, 186</td>
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<tr>
<td>International Intensity-International Network</td>
<td>16</td>
<td>2403</td>
<td>0.134</td>
<td>0.045</td>
<td>0.047, 0.222</td>
<td>-0.070, 0.338</td>
<td>232, 83</td>
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<td>International Intensity-Firm Age</td>
<td>21</td>
<td>5783</td>
<td>0.028</td>
<td>0.018</td>
<td>-0.008, 0.065</td>
<td>-0.047, 0.104</td>
<td>15, 41</td>
<td></td>
</tr>
<tr>
<td>International Intensity-Firm Size</td>
<td>15</td>
<td>3314</td>
<td>0.074</td>
<td>0.040</td>
<td>-0.003, 0.152</td>
<td>-0.101, 0.250</td>
<td>104, 80</td>
<td></td>
</tr>
</tbody>
</table>
### International Intensity-Environmental hostility

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>CI Low</th>
<th>CI High</th>
<th>t</th>
<th>df</th>
<th>p</th>
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<tbody>
<tr>
<td>International Intensity</td>
<td>9</td>
<td>1410</td>
<td>0.058</td>
<td>0.030</td>
<td>0.000</td>
<td>0.116</td>
<td>0.009 , 0.107</td>
<td>6</td>
<td>11</td>
<td>1.05</td>
</tr>
</tbody>
</table>

### International Performance

#### International Performance-Entrepreneurial Assets

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>CI Low</th>
<th>CI High</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Performance-TMT International Experience</td>
<td>3</td>
<td>586</td>
<td>0.178</td>
<td>0.007</td>
<td>0.164</td>
<td>0.192</td>
<td>0.178 , 0.178</td>
<td>17</td>
<td>0</td>
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</tr>
<tr>
<td>International Performance-TMT Education</td>
<td>3</td>
<td>452</td>
<td>0.028</td>
<td>0.028</td>
<td>-0.027</td>
<td>0.084</td>
<td>0.028 , 0.028</td>
<td>-</td>
<td>1</td>
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#### International Performance-Firm Specific Assets

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
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<th>t</th>
<th>df</th>
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<tr>
<td>International Performance-Entrepreneurial Orientation</td>
<td>13</td>
<td>3016</td>
<td>0.236</td>
<td>0.030</td>
<td>0.177</td>
<td>0.295</td>
<td>0.122 , 0.351</td>
<td>682</td>
<td>39</td>
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<td>International Performance-International Entrepreneurial Orientation</td>
<td>9</td>
<td>2034</td>
<td>0.249</td>
<td>0.041</td>
<td>0.170</td>
<td>0.329</td>
<td>0.115 , 0.383</td>
<td>395</td>
<td>33</td>
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<td>International Performance-Knowledge/Innovation Performance</td>
<td>16</td>
<td>3131</td>
<td>0.149</td>
<td>0.039</td>
<td>0.072</td>
<td>0.225</td>
<td>-0.030 , 0.328</td>
<td>474</td>
<td>83</td>
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<tr>
<td>International Performance-Marketing Capability</td>
<td>7</td>
<td>962</td>
<td>0.291</td>
<td>0.047</td>
<td>0.199</td>
<td>0.384</td>
<td>0.167 , 0.416</td>
<td>193</td>
<td>19</td>
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<tr>
<td>International Performance-Pre-Internationalization Performance</td>
<td>6</td>
<td>1642</td>
<td>0.182</td>
<td>0.075</td>
<td>0.036</td>
<td>0.329</td>
<td>-0.040 , 0.404</td>
<td>110</td>
<td>68</td>
<td>0.00</td>
</tr>
<tr>
<td>International Performance-Age at Internationalization</td>
<td>11</td>
<td>3083</td>
<td>0.004</td>
<td>0.030</td>
<td>-0.054</td>
<td>0.063</td>
<td>-0.097 , 0.106</td>
<td>-</td>
<td>30</td>
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<tr>
<td>International Performance-International Network</td>
<td>16</td>
<td>2955</td>
<td>0.225</td>
<td>0.026</td>
<td>0.174</td>
<td>0.277</td>
<td>0.126 , 0.325</td>
<td>941</td>
<td>37</td>
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<tr>
<td>International Performance-Firm Age</td>
<td>8</td>
<td>2114</td>
<td>-0.008</td>
<td>0.024</td>
<td>-0.054</td>
<td>0.038</td>
<td>-0.040 , 0.024</td>
<td>-</td>
<td>9</td>
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<tr>
<td>International Performance-Firm Size</td>
<td>14</td>
<td>3992</td>
<td>0.082</td>
<td>0.037</td>
<td>0.009</td>
<td>0.154</td>
<td>-0.079 , 0.242</td>
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#### International Performance-Environmental Factors

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<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
<th>CI Low</th>
<th>CI High</th>
<th>t</th>
<th>df</th>
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<tbody>
<tr>
<td>International Performance-Environmental hostility</td>
<td>11</td>
<td>1795</td>
<td>-0.038</td>
<td>0.035</td>
<td>-0.106</td>
<td>0.031</td>
<td>-0.147 , 0.072</td>
<td>4</td>
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</table>

#### International Performance-Internationalization

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
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<th>CI High</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Performance-International Entry</td>
<td>3</td>
<td>1259</td>
<td>0.053</td>
<td>0.020</td>
<td>0.014</td>
<td>0.092</td>
<td>0.053 , 0.053</td>
<td>-</td>
<td>1</td>
<td>0.01</td>
</tr>
<tr>
<td>International Performance-International Intensity</td>
<td>10</td>
<td>2265</td>
<td>0.045</td>
<td>0.047</td>
<td>-0.047</td>
<td>0.136</td>
<td>-0.124 , 0.213</td>
<td>19</td>
<td>50</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Numbers above the diagonal show the number of studies and the total sample size (in parentheses) of the meta-analysis (for example 8(10898) means a meta-analysis with 8 studies and a total sample size of 10898). Numbers below the diagonal show meta-analytic bivariate correlations between the two variables across studies.

|   | 1  | P100 | P200 | P300 | P400 | P500 | P600 | P800 | P900 | P1000 | P1100 | P1200 | P1300 | P1400 | P1500 | P1600 | P1700 | P1800 | P1900 |
| 1 | 1 | 0.01 | 0.05 | 0.07 | 0.09 | 0.10 | 0.11 | 0.12 | 0.13 | 0.14 | 0.15 | 0.16 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 | 0.22 | 0.23 |
| 2 | 0.01 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 3 | 0.05 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 4 | 0.07 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 5 | 0.09 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 6 | 0.10 | 0.001 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 7 | 0.11 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 8 | 0.12 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 9 | 0.13 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| 10 | 0.14 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 1 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |

Table 3: Meta-analytic correlation table
RESULTS

Table 2 provides the results of the bivariate meta-analysis. In each line of this table, the effect of one factor on one early internationalization dependent variable is measured. These results, however, exhibit inferior analytical power, compared to MASEM, as the bivariate effect sizes assume a direct correlation between only two of the variables and cannot control for the effect of other factors, or for indirect effects. As such, scholars have advised that in more complex cases where a multitude of factors operate and where indirect effects can provide a better explanation of phenomena, a path analysis (or a more complete, structural equation model) is preferred (Bergh et al., 2016; Carney, Gedajlovic, Heugens, Van Essen, & Van Oosterhout, 2011; van Essen, Otten, & Carberry, 2015). MASEM combines the strengths of both meta-analysis and structural equation modelling, in enabling us to test more complex systems of equations (e.g., as compared to simple bivariate correlations or regression analysis), and in being based on integrated data of past empirical research (Bergh et al., 2016; Cheung & Chan, 2005).

The correlation matrix in Table 3 is the starting point of our MASEM analysis. It should be noted that not all the elements in this matrix have the same sample size. This is because not all the factors were measured in all of the included primary studies. Instead each article might include a portion of the variables of interest and therefore report inter-correlations only among that set (e.g. one study might have measured individual level FSAs such as international experience and education, but not knowledge intensity or international networks of the firm). To perform structural equation modelling, we used the harmonic mean of sample sizes across the various elements of our correlation matrix (N = 1339) as the number of observations (Bergh et al., 2016; Viswesvaran & Ones, 1995). Figures 1 to 4 show the alternative causal models explaining the interplay of individual and firm level FSAs with early internationalization. We
test these four models naming them Models 1 to 4 using SEM with the statistical software R.

<table>
<thead>
<tr>
<th>Table 4: Meta-Analysis Structural Equation Modeling Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong></td>
</tr>
<tr>
<td><strong>Model 2</strong></td>
</tr>
<tr>
<td><strong>Model 3</strong></td>
</tr>
<tr>
<td><strong>Model 4</strong></td>
</tr>
</tbody>
</table>

Each model was analyzed using SEM with the following results:

- Model 1: Goodness-of-fit indices:
  - Chi-square (χ²) = 123.4
  - Degrees of freedom (df) = 34
  - P-value = 0.000

- Model 2: Goodness-of-fit indices:
  - Chi-square (χ²) = 189.2
  - Degrees of freedom (df) = 45
  - P-value = 0.002

- Model 3: Goodness-of-fit indices:
  - Chi-square (χ²) = 237.1
  - Degrees of freedom (df) = 56
  - P-value = 0.001

- Model 4: Goodness-of-fit indices:
  - Chi-square (χ²) = 295.3
  - Degrees of freedom (df) = 67
  - P-value = 0.000
the Lavaan package (Rosseel, 2012). A summary of the results of our SEM analysis is provided in Table 4. Fit indices in a structural equation modelling, are in general a measure of how well the tested model fits the data (in our case, the correlation matrix of Table 3) (Hooper, Coughlan, & Mullen, 2008; Yuan, Chan, Marcoulides, & Bentler, 2016). Comparing the fit indices of the four models and using recommended cut-offs (Hu & Bentler, 1999), Model 1 (direct effects of FSAs) and Model 2 (individual level FSAs driving firm-level FSAs leading to internationalization) have acceptable levels of fit (CFI > 0.9 and SRMR < 0.05 , c.f. Hooper et al. 2008) , with Model 2 providing the best fit. Models 3 and 4, however, do not achieve acceptable fit levels, suggesting that we cannot rely on them to provide theoretical insights.

The results of Model 1 and Model 2 are largely consistent in most cases, except for the role of the individual level FSAs, whereby Model 1 depicts a direct effect and Model 2, suggests a mediating effect through firm-level FSAs. As Model 2 has the highest fit indices and is significantly superior to Model 1 ($\Delta \chi^2(16)=149.04 , p < 0.001$), we use Model 2 to analyze the results. Based on this model, for international entry, which is the decision of firms to enter international markets as opposed to engaging in domestic operations only, we find a positive effect for knowledge intensity ($\beta = 0.056 , p < 0.1$, weak support) and marketing intensity ($\beta = 0.111, p < 0.001$), as predicted by our internalization theory framework. In addition, as predicted by most IB theories, higher levels of international market knowledge is associated with higher chances of early internationalization ($\beta = 0.146, p < 0.001$). Entrepreneurial orientation, usually measured by the Miller/Covin & Slevin’s scale (Covin & Slevin, 1991; Miller, 1983), has a negative effect on the international entry decision ($\beta = -0.102, p < 0.01$). A specific entrepreneurial orientation towards international expansion, however, has a positive effect on international entry ($\beta = 0.126, p < 0.001$). Larger firms are also more likely to internationalize
early ($\beta = 0.116, \ p < 0.001$). Importantly, another driver for the international entry decision is the hostility of the environment around the entrepreneurial firm, creating a push that encourages it to internationalize as a survival strategy (Etemad, 2004; Fariborzi & Keyhani, 2018; Fernhaber & Li, 2010).

The results are generally similar for the international performance dependent variable. This variable combines various measures of performance after internationalization, including financial measures and perceptions of entrepreneurs of their success$^{10}$. We see that as suggested by our framework, there is a positive effect between innovation capability ($\beta = 0.210, \ p < 0.001$) and marketing intensity ($\beta = 0.183, \ p < 0.001$) and international performance. We also see a positive effect for having an international entrepreneurial orientation ($\beta = 0.136, \ p < 0.001$), a higher level of international market knowledge ($\beta = 0.166, \ p < 0.001$) and a bigger network of international partners ($\beta = 0.120, \ p < 0.001$). Interestingly, our results show that older firms have a lower performance after internationalization ($\beta = -0.148, \ p < 0.001$). This is interesting given that the results also show a positive effect for age at first international entry on performance after internationalization ($\beta = 0.139, \ p < 0.001$). That is, the more mature a young firm is when it first enters international markets, the higher would be its international performance. There might, however, be some upper bound to this observation, as in general older firms show lower levels of performance in the international market. In addition, we see that a higher performance before internationalization, leads to a higher performance after internationalization ($\beta = 0.114, \ p < 0.001$). This is an important finding, as it shows that

$^{10}$ The measures for international performance are not entirely consistent across the studies, and as such these findings should be interpreted with caution.
empirical research needs to consider the problem of endogeneity when measuring the effect of internationalization on performance (Fariborzi & Keyhani, 2018; Verbeke & Brugman, 2009).

The third dependent variable of our study was international intensity, commonly measured as the level of international sales to total sales. International intensity for young ventures shows the level of commitment to or reliance on international markets. We find that higher levels of entrepreneurial orientation and international entrepreneurial orientation lead to more intensive international presence ($\beta = 0.290, \ p < 0.001$ for EO, and $\beta = 0.069, \ p < 0.01$ for IEO). Similar to their effects on international performance, age at international entry and firm age have contradicting effects on international intensity ($\beta = 0.134, \ p < 0.001$ for age at entry, and $\beta = -0.067, \ p < 0.05$ for firm age). This means that a later international entry leads to higher exposure to international markets, but in general older firms have lower levels of exposure. Finally, our results show a negative effect of innovation capability ($\beta = -0.150, \ p < 0.001$), knowledge intensity ($\beta = -0.085, \ p < 0.01$) and marketing intensity ($\beta = -0.072, \ p < 0.01$) on international intensity. This last finding, interpreted in light of the fact that we find generally positive and significant effects for these drivers on the international entry decision and international performance, suggests that we need to have a more careful look at the dependent variable of internationalization; a point we will further elaborate upon in our discussion of the results.

*Indirect effects of individual level FSA on internationalization*

Understanding the effect of individual level FSAs in early internationalization, requires a more detailed look into the indirect relationships in Model 2. Table 5 includes the effects of individual level FSAs on firm-level FSAs. To analyze the mediation effects in our model, we
also show the total effect (TE)\textsuperscript{11} and mediation effects (MEF) of our individual level variables in Table 6\textsuperscript{12}.

\textit{Table 5-Individual Level to Firm Level factor regressions in Model 2} 

\begin{tabular}{lcccccccccc}
\hline
 & Innovation Capability & Knowledge Intensity & Marketing Intensity & International Market Knowledge & Entrepreneurial Orientation & International Entrepreneurial Orientation & International Network & Firm Age & Firm Size & Pre-Internationalization & Age at Internationalization \\
\hline
International Experience & 0.101*** & 0.028 & 0.051 & 0.051 & 0.029 & 0.278*** & 0.074** & 0.044 & 0.058* & 0.123*** & -0.070** \\
 & (0.027) & (0.027) & (0.027) & (0.027) & (0.026) & (0.027) & (0.027) & (0.027) & (0.027) & (0.027) \\
Level of Education & 0.017 & 0.081** & 0.072** & -0.076** & 0.031 & 0.075** & 0.007 & -0.007 & 0.070** & -0.072** & 0.100*** \\
 & (0.027) & (0.027) & (0.027) & (0.027) & (0.026) & (0.027) & (0.027) & (0.027) & (0.027) & (0.027) \\
\hline
\end{tabular}

According to the results in Table 6, internationally experienced entrepreneurs, induce an international entrepreneurial orientation in the firm that leads to international entry (TE1 and MEF1). Highly educated entrepreneurs are also inclined to enter international markets (TE2). Their higher level of education creates an orientation towards international markets (MEF4) and a higher level of marketing intensity (MEF2), overcoming the negative effect of their lack of knowledge about international markets (MEF3).

International experience of the entrepreneurs is mediated through a higher international entrepreneurial orientation promoting a more intensive internationalization (MEF6). It, however, leads to a higher innovation capability that leads to a narrower focus and lower intensity (MEF5).

\footnote{Total effects are measured as the sum of direct effects and all indirect effects between two variables.} \footnote{To save space, only significant relationships of individual level factors on firm level factors, and firm-level factors on internationalization are used to create mediation relationships (Shaver, 2005).}
In addition, internationally experienced managers are inclined to enter international markets earlier, leading to lower international intensity (MEF7). The totality of these effects,
however, shows that international experience of entrepreneurs has a significant and positive effect on international intensity (TE3).

Highly educated managers also create a high level of international orientation in the firm, leading to higher international intensity (MEF10). They, however, have a later entry into international markets, leading to more intensive internationalization (MEF 11). In addition, they create firms with higher levels of knowledge and marketing intensity, that induce a narrower focus with lower levels of international intensity (MEF8 and MEF 9). Nevertheless, the total effect of entrepreneurs’ education level on international intensity is, positive and significant (TE4).

For the performance of young firms after internationalization, we see positive and significant effect of having internationally experienced top managers (TE5). These entrepreneurs create firms with a high level of innovation capability, a larger international network, a higher orientation towards international markets and higher performance prior to internationalization, all leading to higher performance levels after international entry (MEF12, 13, 14 and 15). These positive effects override the small negative effects due to their rushed entry into international markets (MEF16).

Finally, the education level of entrepreneurs does not show a significant effect on international performance (TE6). On the one hand, higher levels of education have a positive effect on performance by creating firms with higher marketing intensity (MEF17), higher international entrepreneurial orientation (MEF19) and a later entry into international markets (MEF21). On the other hand, highly educated managers show lower international performance as they have lower international market knowledge (MEF18), and lower performance prior to
internationalization (MEF20). As such, the total effect of education on international performance is not significant.

**DISCUSSION AND CONCLUSION**

Our results have several important implications. First and foremost, the results support our theoretical framework based on internalization theory, explaining early internationalization through entrepreneurial orchestration of resource bundles transferred to the host country and augmented by resources available through international partners to create new firm specific advantages in the host country, enabling exploitation of international opportunities. This framework, based on modern international business theory, is specifically different from the common theorization of early internationalization as an “unusual” act of “alert” entrepreneurs expanding across borders despite significant “asset parsimony” (Cavusgil & Knight, 2015b; Knight & Cavusgil, 2004). Our results show that early internationalization is in fact derived by various firm-specific advantages in terms of the human capital of the entrepreneurs or knowledge based firm capabilities. There is no parsimony of assets or scarcity of resources despite which, young ventures internationalize, but they are endowed with valuable bundles of FSAs that create value across borders.

The second important implication of our results is providing a better understanding of firm-specific advantages and their role in early internationalization. Our findings suggest that individual and firm level FSAs operate at different levels and as such, a multi-level analysis is best suited to understand their role. We find that entrepreneurial capabilities shape up firm-level behavior and capabilities that lead to early internationalization. Specifically, the human capital of the entrepreneurs manifested in their international experience and education, helps them lead
firms with stronger capabilities in terms of innovation, knowledge and market intensity, international networks and international market knowledge, that have an orientation towards international markets. These capabilities lead them to early international entry and higher performance after internationalization. The fact that a mediated, multi-level model provides a better fit compared to a direct-effects model to explain early internationalization indicates that future research needs to provide more detailed and yet parsimonious explanations for the role of drivers. These analyses will expand the horizons of entrepreneurial internationalization studies from a narrow focus on “what” drives internationalization of young firms, to “how” various firm and individual level capabilities lead to early internationalization.

The third important implication of our findings is that different dependent variables show different behavior in early internationalization studies. Based on past empirical research, our meta-analysis allowed us to study three different dependent variables: the international entry decision of firms measuring whether they have any international presence or not, international intensity measuring what percentage of their revenue comes from international markets, and international performance measuring their performance (financial and otherwise) after internationalization. Our results show that the roles of FSAs are in general similar for international entry and international performance, but they are not consistent with drivers of international intensity. Importantly, innovation capability, knowledge intensity and marketing intensity of the firm show a positive effect on international entry and international performance, but a significant and negative effect on international intensity. This negative effect could be due to a few reasons. One explanation is that young and new ventures with little slack resources to support their international endeavours, might chose to operate internationally (positive effect for international entry) and even have acceptable performance after internationalization (positive
effect for international performance). Nevertheless, they tend to have a narrow focus and lower levels of exposure to international markets (Rugman & Almodovar, 2011; Verbeke et al., 2014). Specially, given that these capabilities are a source of costs for young firms, they tend to operate more cautiously in international markets, with less intensive modes of operation. Another explanation could be that most of the firms used in the samples of entrepreneurial internationalization studies used in this meta-analysis, are chosen among high-tech firms. As such, they tend to have a high level of innovation and knowledge intensity on average. This suggests that firms in these samples are compared to other innovative and knowledge intensive firms, and higher levels of knowledge intensity would not make a significant difference in terms of promoting more exposure to international markets. In other words, if sample firms are chosen across different industries, we would expect to see higher levels of knowledge and innovation intensity to have a positive effect on international intensity. Yet another explanation could be that higher marketing intensity and knowledge capability, provide a good means for firms to exploit these capabilities in their domestic markets, rather than pursuing an aggressive internationalization strategy (Voss, Sirdeshmukh, & Voss, 2008). In other words, alternative pathways to growth might become more appealing and feasible for these firms. Therefore, they might enter international markets and even have a good performance there, but they tend to keep a limited focus that does not distract them from exploiting their opportunities at home.

A final implication of our results is with regards to the age at first international entry. The “learning advantages of newness” argument in IE (Autio et al., 2000; Sapienza et al., 2006) claims that there might be learning benefits for firms that start their internationalization sooner. The rationale is that at a young age, firms are less rigid and more adept to learn and adapt to requirements of the new environment, as opposed to more established firms that have many
routines to unlearn. Our meta-analysis findings, however, show that the later young firms enter international markets, the higher would be their level of international intensity and international performance. This suggests that an optimal growth path typically includes at least some prior time spent in the home market, before venturing abroad (Johanson & Vahlne, 2009, 1990). However, we also see a negative effect of firm age on international performance, showing that older firms in general have a lower level of performance. The two findings seen together, might suggest that there are learning advantages to newness, but the international entry decision cannot be rushed. Therefore, future research could potentially show that there is an ideal period for starting the international activity of young firms.
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CHAPTER 3: BALANCING SLACK DEPLOYMENT ACROSS DOMAINS: HUMAN RESOURCE SLACK, ENTREPRENEURIAL COMPETENCE, AND THE GROWTH OF YOUNG VENTURES
INTRODUCTION

The growth of firms, in particular the growth pathways they pursue, continues to puzzle both scholars and practitioners alike. Following the influential works of Penrose (1959) and Cyert and March (1963), a large body of literature has attributed a central role to slack resources, or resources in excess of immediate requirements of the firm, as a determinant of firms’ growth levels and growth directions. Organizational slack is said to provide the opportunity for growth, yet dampen the drive and ability to pursue it by providing comfortable safety nets and engendering lax discipline in resource allocation (Bourgeois, 1981; Nohria & Gulati, 1996). Attempts to reconcile these diverging views have suggested that the nature of the relationship is actually curvilinear, although unresolved disagreements remain as to whether the positive effects diminish after slack reaches an optimum level (i.e., inverse U-shaped relationship) or flourish only after slack surpasses a minimum threshold (i.e., U-shaped relationship).

Thus far, the nature of the relationship between slack and growth has been mainly addressed in the context of established, large firms as well as small and medium-sized enterprises (SME) (c.f. Kiss, Fernhaber, and Mc Dougall-Covin, 2017; Vanacker, Collewaert, and Paeleman, 2013). Newly established, young ventures have been mainly omitted from extant research on the slack-growth relationship, all while managing growth is of critical strategic importance for young ventures (Sapienza, Autio, George, & Zahra, 2006). New ventures typically face resource constraints, but have investors (external or the founders themselves) who are constantly faced with the question of how much resources they should be putting into the venture for optimal growth. Whether or not existing theory can be applied to new ventures is highly consequential for practice. If, for example, abundance of slack promotes sub-optimal behavior and has negative effects on the growth of new ventures, then investors may prefer to
squeeze or “starve” the startups they invest in, in order to pressure entrepreneurs to make do with very little and rely more on bootstrapping and entrepreneurial hustle.

We believe that the existing theory on the slack-growth relationship cannot fully explain the growth of young ventures. Importantly, most existing research has focused on only one growth domain at a time (c.f. Carneiro, Bamiati, & Cavusgil, 2018; Kiss et al., 2017; Tseng, Tansuhaj, Hallagan, & McCullough, 2007). Young ventures compared to their established counterparts are more agile in experimenting with and adapting to the requirements of different growth paths as they have less rigid routines, different resource configurations, and are more alert to change and learning (Autio, Sapienza, & Almeida, 2000). Young ventures are, therefore, particularly prone to deploy available resources in innovative ways to pursue multiple growth opportunities (Baker & Nelson, 2005; Sarasvathy, 2001). In addition, in the context of established firms and SMEs, the most commonly studied type of slack is tangible, financial slack (Lecuona & Reitzig, 2014). Young ventures, however, rely mostly on slack resources that are intangible and may come in the form of either human capital or social capital (Ferlic, 2008; Khaire, 2010). Human Resource (HR) slack is particularly important and unique for young ventures, due to the unique HR requirements and redeployability characteristics of human resources during a firm’s infancy stage (Cardon & Stevens, 2004; Messersmith & Wales, 2013). As young ventures typically face many other resource constraints, the availability and redeployability of HR slack is particularly relevant for the young venture’s ability to pursue different growth domains.

Putting these ideas together, we argue that in the context of young ventures, negative effects of slack on growth in one domain may be observed because resources are being redeployed to another growth domain. This argument is in contrast to much of the existing theory
which suggests that an abundance of slack is acting as a relaxing agent and reducing pressures that drive entrepreneurial behavior. Since much of the arguments around the negative effects of slack in the existing literature relate to dampening of entrepreneurial behavior, and since “the quality of entrepreneurial services” is a key catalyst of the slack-growth relationship in Penrose’s original formulation (Penrose, 1959: 32), we further investigate the moderating impact of entrepreneurial competence as a key contingency factor in the slack-growth relationship of young ventures. Redeployability of available slack does not happen in a vacuum, but requires active entrepreneurial agency to sense lucrative growth opportunities and then allocate resources to exploit them in the presence of uncertainty. Less enterprising individuals act more cautiously when deciding how to use their excess capabilities towards new and uncertain growth paths (Penrose, 1959: 56–7).

We develop our hypotheses around the balancing of HR slack deployment in young ventures across two distinct domains as the main pathways to growth: internal product exploration and international market exploration (c.f. Ansoff, 1965; Mishina et al., 2004). We build on Edith Penrose’s theory of growth (Penrose, 1959), the behavioral theory of the firm (Cyert & March, 1963), as well as insights from the recently flourishing line of work on resource redeployability theory (Lieberman, Lee, & Folta, 2017; Sakhartov & Folta, 2014, 2015), and the rich body of knowledge on exploration-exploitation theory (Gupta, Smith, & Shalley, 2006; Lavie, Stettner, & Tushman, 2010; Raisch & Birkinshaw, 2008) in developing the theoretical infrastructure for our arguments to emerge.

We test our hypothesized relationships using the Kauffman Firm Survey (KFS) panel dataset, wherein our selected sample consists of 2,195 young ventures. Our empirical analysis supports the idea of a balancing effect of HR slack between two specific growth domains that
young ventures often pursue. Specifically, we find that HR slack has an inverse U-shaped relationship with internal product exploration, but a U-shaped relationship with international market exploration. We further find that entrepreneurial competence amplifies the positive effects of HR slack on international market exploration, even when HR slack levels are low. Our findings call into question the generalization of the existing contributions of slack literature to contexts beyond large firms and SMEs and suggest a more nuanced approach to studying the role of slack in the growth pursuits of young ventures.

**THEORY AND HYPOTHESES**

**Existing Views on the Relationship between Organizational Slack and Growth**

In Penrose’s theory of growth, slack resources are “internal inducements to expansion, and a pool of unused productive services, resources, and special knowledge, all of which will always be found within any firm” (Penrose, 1959: 59). In other words, slack is considered “unused productive service” that is “free” and would be otherwise “wasted” if not used more fully (Penrose, 1959: 60). Similarly, the behavioral theory of the firm conceptualizes organizational slack as the portion of a firm’s resource base that is not immediately required for the fulfillment of day-to-day operations (Bourgeois, 1981; George, 2005; Nohria & Gulati, 1996). The literature has studied slack as a driver of various strategic decisions and firm outcomes including growth (Carneiro et al., 2018; Mishina et al., 2004; Penrose, 1959), firm performance (Daniel, Lohrke, Fornaciari, & Turner, 2004; George, 2005; Tan & Peng, 2003), innovation (Greve, 2003; Nohria & Gulati, 1996), exploration versus exploitation strategies (Voss, Sirdeshmukh, & Voss, 2008), and internationalization (Lin, Cheng, & Liu, 2009; Tseng et al., 2007; Vanacker et al., 2013; Verraes, 2013).
Of key importance in this line of work is the original proposition developed by Penrose (1959) that slack both ignites motivation and presents opportunity for growth. Slack resources provide a pool of “idle” services that motivate managers to deploy them for alternative—albeit riskier, but potentially more, profitable—uses. Slack resources encourage risk taking by approval of search initiatives that would not be approved in the case of resource scarcity (Bourgeois & Singh, 1983). Therefore, slack provides managers with leeway to experiment and take on innovative growth initiatives (Nohria & Gulati, 1996). Behavioral theorists (Cyert & March, 1963) posit that slack also dampens political conflicts between different coalitions inside the firm that might otherwise fight over scarce resources. As such, slack induces and facilitates strategic search for alternatives and may insulate the organization from internal or external turbulence (Tan & Peng, 2003). Taken together, these arguments suggest a positive role of slack resources in firm’s growth pursuits.

Conversely, a different line of reasoning argues for a negative relationship between slack and growth. Having slack may indicate that the company is inefficient in deploying resources and some organizational theorists consider it a sign of poor management (Leibenstein, 1966, 1969). Others contend that slack facilitates suboptimal behavior, promoting poor control over risky initiatives (Nohria & Gulati, 1996). Presence of slack motivates managers to select an ‘acceptable’ alternative, rather than searching exhaustively for a ‘strategic’ alternative (Bourgeois, 1981; Cyert & March, 1963). This role of slack as a “relaxing agent in the search process” is in contradiction to its role in inducing risk-taking behavior towards growth (Bourgeois, 1981: 36). Slack can also induce a complacency effect in managers encouraging them to be content with the current situation, which results in suboptimal behavior and therefore reluctance towards growth initiatives (Cyert & March, 1963). It can be argued that slack
engenders lax discipline in resource allocation, as the presence of slack may promote initiatives that are only loosely controlled and can barely lead to growth (Jensen, 1986; Jensen & Meckling, 1976; Nohria & Gulati, 1996). In the absence of slack, such initiatives would not have been started, or would have been shut down.

To reconcile the suggested positive and negative effects of slack on firm growth, a curvilinear effect of slack on growth has been hypothesized. Importantly, Bourgeois (1981: 31) suggested that the correlation between slack and strategic behavior of the firm (e.g., growth) is positive, “up to a point, then negative; in other words the relationship is curvilinear (∩).” As such, negative effects of slack prevail after a certain threshold, suggesting that there is an “optimal” level of slack. Similar arguments are used by Tan and Peng (2003) and George (2005) who find an inverse U-shaped effect of slack on firm’s performance. More closely related to growth, Tseng et al., (2007) also find an inverted U-shaped relationship between levels of organizational slack and growth in multinationality. They argue that slack provides leeway for exploration, and a cushion against uncertainty and turbulence, but posit that this cushion also makes firms less alert to international opportunities for growth and thus, affords them to be less sensitive to foreign demands (Tseng et al., 2007).

In contrast, other studies have found a U-shaped relationship between slack and growth, suggesting that the positive effects of slack flourish only past a minimum threshold, below which slack cannot be efficiently deployed. Lin, Cheng and Liu (2009) argue that the relaxation of discipline and control systems emerges as the level of slack increases. However, past a certain threshold, slack provides buffering mechanisms necessary for managers to experiment and innovate, leading to increase of their presence in international markets. Similarly, Kiss, Fernhaber and McDougall-Covin (2017) focus on the internationalization of SMEs, and find a
similar U-shaped effect for the effect of slack on growth in export intensity. They argue that at low levels of slack, SMEs intensify their international presence out of reactive necessity; but the pressure is relaxed at moderate levels of slack and gives way to a proactive pursuit of opportunity at high levels of slack.

Attempts to reconcile these different views and conceptualizations of the growth-slack relationship mainly agree that the nature of the relationship is curvilinear, although the exact shape (whether it is U-shaped or inverse U-shaped) remains unclear. Furthermore, the nature of this relationship remains largely unexplored in the context of young ventures, and we will now explore the applicability of the extant theoretical contributions of the slack literature in this special context.

**The Young Venture Context: HR Slack Redeployability and Balancing Across Domains**

Not only do existing propositions on the slack-growth relationship remain inadequately reconciled in the literature, but much of the existing research has focused on the context of large, established firms and SMEs. We argue that the existing theory on the slack-growth relationship cannot fully explain the growth of young ventures that are still in their infancy for several reasons. Established firms and SMEs are both behaviorally and structurally different than young ventures. For example, young ventures differ from their established counterparts in resource endowments and resource configurations (Clarysse, Bruneel, & Wright, 2011; Eckhardt & Shane, 2003), including the levels and types or slack they may have available (Ferlic, 2008; Khaire, 2010). As they grow, young ventures exhibit different learning, internationalization and even legitimization behaviors compared to established firms or SMEs (e.g., Aldrich & Yang, 2014; Fisher, Kuratko, Bloodgood, & Hornsby, 2017; Jones & Coviello, 2005).
Some could argue that an omission of the young venture context in slack-growth
literature is warranted because those ventures are often very small and very young, and thus
would not have any slack resources to examine. However, the economic logic of resource bundle
indivisibility as explained in Penrose’s theory of growth (Penrose, 1959: 61), as well as some
emerging research (e.g., Bradley et al., 2011; Khaire, 2010; Paeleman, Fuss, & Vanacker, 2017),
suggest that all firms (regardless of their size and age) have some slack. The resource
indivisibility argument suggests that resources are obtained as a bundle; for example, a firm
cannot easily purchase one half of a particular equipment, cannot hire one third of a worker, or
one quarter of a manager. As such, there is always some level of slack available at any firm in
excess of immediate operational needs.

Between the two most commonly studied forms of slack in the literature—financial and
HR slack—the latter has stronger indivisibility features. The idle parts of available human
resources, if not deployed to other uses, would be “waste.” Others have empirically found that
new and young ventures either control from the beginning or may quickly accumulate slack
resources (Bradley, Shepherd, & Wiklund, 2011; Vanacker et al., 2013). There is almost “no
state of rest” in young ventures as resource bundles are mostly indivisible, and their idle services
can be used to expand the firm, generating a need for even more resources, thus creating a
virtuous circle of continuing availability of slack resources (Penrose, 1959: 60-61).

While young ventures most often lack financial resources and as a result, financial slack
(Oliveira & Fortunato, 2006), they often rely on excess human resources and social resources of
their founders, founding team members and skilled workers to identify and pursue opportunities
for expansion of their products or markets (Khaire, 2010). Knowledge embedded in human
resource, and excess thereof not deployed for immediate needs of the firm (i.e., HR slack), can
be either industry-specific (e.g., obtained through prior work experiences in similar or related industries) or entrepreneur-specific (obtained through starting prior entrepreneurial ventures, scientific or managerial education, or prior work experiences that could be international, technical, or commercial in nature). Entrepreneurship literature has long acknowledged the value of such resources in discovering and exploiting business opportunities (Shane & Venkataraman, 2000), reducing uncertainty associated with innovation (Kirzner, 1997) as well as reducing liability of newness (Aldrich & Auster, 1986). Following this line of argument, Cardon (2003) suggests that new ventures need to staff human resources ahead of time to survive the growth stage. Hence, young ventures are likely to have varying degrees of HR slack, with different strategic benefits thereof.

The nature of human resources in young ventures differs from their larger and older counterparts. In early stage ventures, both employees and founders typically take on multiple roles and broad responsibilities, rather than specialized and narrow functions (Flamholtz & Randle, 1990). This means that the nature of HR slack in young ventures is generally more redeployable across different growth activities than in larger firms that heavily rely on specialization and functional expertise. Generally, resource redeployability creates benefits of “inter-temporal economies of scope” (Helfat & Eisenhardt, 2004), that emerge from internal reallocation of resources to different activities and projects. While resource redeployment has been traditionally studied in corporate contexts, recent research suggests that the theory of redeployment might be also applicable not only in single business contexts but also in less-aggregated contexts (Ahuja & Novelli, 2016; Miller & Yang, 2016). According to insights from the recently flourishing body of literature on resource redeployment (Lieberman et al., 2017; Sakhartov & Folta, 2014, 2015), redeployability enables greater risk taking and drives strategic
growth and entry decisions. Young ventures present a context where established routines and procedures that can cause inertia and rigidities that hinder change and adaptation are less likely to occur (Hannan & Freeman, 1984; Leonard-Barton, 1992). Thus, such ventures are more likely to exhibit higher levels of agility in redeploying resources for different uses and growth initiatives (Autio et al., 2000).

According to exploration-exploitation theory (March, 1991), one method for overcoming resource allocation trade-offs is to balance exploration and exploitation across domains of activity (Lavie et al., 2010), for example by exploring in terms of internal product innovation, while exploiting in terms of external strategic alliances (Lavie & Rosenkopf, 2006). This also allows balancing over time within each domain. This type of cross-domain and temporal balancing is particularly useful for younger firms that are constrained in their ability to structurally separate organizational functions for exploration and exploitation (Lubatkin, Simsek, Ling, & Veiga, 2006). Therefore, cross-domain balancing of HR slack presents an opportunity for young ventures to deal with exploration-exploitation trade-offs by taking advantage of the redeployability characteristics of their human resources.

**Balancing of HR Slack Deployment across Product and Market Exploration**

In their analysis of firms’ growth, Mishina et. al. (2004) consider two main growth paths for firms, namely market expansion and product expansion. They follow past literature in arguing that firms’ growth options involve combinations of product and market diversification (Abell, 1980; Ansoff, 1965). Following this line of thinking, in this paper we focus on internal product exploration and international market exploration as two distinct domains of growth that can be pursued by young ventures. While internal research and development (R&D) has traditionally been the common method of pursuing product innovation, the international market expansion of
young ventures has been on the rise in the past three decades. More young firms are considering internationalization not only as a viable growth strategy (Jones, Coviello, & Tang, 2011; Knight & Liesch, 2016; Oviatt & McDougall, 1994), but also as vital to their performance and survival (Fariborzi & Keyhani, 2018; Sapienza et al., 2006).

In considering these dual domains of growth, we employ two general assumptions in developing our hypotheses. *First*, the international market exploration is likely to be a more uncertain growth path choice relative to product exploration, because young ventures typically lack international market knowledge and legitimacy, and face additional costs of operating in foreign countries (Johanson & Vahlne, 1977; Rugman & Almodovar, 2011; Sapienza et al., 2006). These risks and challenges are most often termed as liabilities of foreignness (Zaheer, 1995), making international expansion a more resource-intensive and riskier growth initiative (Mudambi & Zahra, 2007; Sapienza et al., 2006). *Second*, young ventures can generally be expected to exhibit uncertainty avoidance behavior, especially at lower levels of slack resources. Their newness puts them in a vulnerable position and increases their tendency to avoid uncertainty (Cyert & March, 1963; Stinchcombe & March, 1965). Behavioral theorists would predict that young ventures, in their search for alternative growth paths, have a tendency to choose less distant and less uncertain paths, especially in the face of resource adversity (Cyert & March, 1963). Building on these two assumptions, we can now turn to the development of the hypothesized relationships.

Faced with the question of the best way to allocate any available HR slack resources, especially when slack is at low levels, behavioral theory predicts that firms would embark on the less uncertain growth path (Cyert & March, 1963). In the case of young ventures, that path would be internal product exploration. Allocating any available excess in human resources
towards R&D and internal product exploration to improve or expand the current product portfolio is considered “in the neighborhood of the current alternative,” and is likely to be a less risky growth path (Cyert & March, 1963: 119).

As the levels of HR slack grow beyond a certain threshold, we would expect the emergence of a “too-much-of-a-good-thing” effect, which would dampen the positive effect of slack on growth through product expansion (Nohria & Gulati, 1996; Pierce & Aguinis, 2013). The argument from the traditional slack literature is that higher levels of slack promote lax control over initiatives and less dedication for previously chosen growth direction (Bourgeois, 1981; Nohria & Gulati, 1996).

However, there may be an additional, alternative explanation overlooked by the existing research on the effects of higher levels of slack. If we assume that HR slack is more easily redeployable across domains in young ventures, it is likely that at higher levels of HR slack, the young firm will start to shift resources away from less uncertain growth domains to more uncertain ones. Young, entrepreneurial firms have a Schumpeterian drive to experiment and grow (Schumpeter, 1934), and as such, we expect them to always engage in some level of exploration. Note that the logic here contradicts the notion of a “lax control” effect from the traditional slack literature. This alternative logic points to a more stimulating effect of slack to experiment with riskier growth options, where slack provides leeway and encourages pursuit of more uncertain initiatives. At higher levels of HR slack, young ventures can choose to pursue previously deemed risky expansion strategies like internationalization, that were neither feasible nor prudent at lower levels of HR slack. At the same time, the venture can expect to face diminishing returns to product exploration as opportunities for product expansion become
exhausted or become too distant from the firm’s technological core, thus depleting its absorptive capacity (Cohen & Levinthal, 1990).

Growing through international market exploration follows a different decision logic. Young ventures face liabilities of newness and liabilities of foreignness in international markets, due to their lack of international market knowledge and limited experience (Cavusgil & Knight, 2015; Johanson & Vahlne, 1977). Availability of HR slack represents knowledge-based human capital that can be deployed toward internationalization activity and can be utilized to create an advantage against international competitors to reduce such liabilities (c.f the notion of non-location-bound firm specific advantages in international business theory: Rugman & Verbeke, 2004; Verbeke, 2013; Verbeke & Yuan, 2013).

However, knowledge capabilities that can create value for the firm in new markets are usually tacit and embedded in the minds and skills of employees (Coff, 1997). This embeddedness makes it hard for the firm to deploy HR slack for international market expansion (Voss et al., 2008) if human resources are engaged in supporting daily operations or other local growth initiatives (Lecuona & Reitzig, 2014). Given the stickiness inherent in HR slack and its indivisibility, it is costly and difficult to redeploy it for new uses, if the amount of HR slack is below a certain level. Penrose explains this as the need of uncertain growth paths for “managerial services” in “planning and executing expansion [programs]”, which prevents the scarce managerial resources from attending to “ordinary operations” (Penrose, 1959: 57). This suggests that redeployment of HR slack to international market exploration requires relatively abundant levels of slack. Hence, at lower levels of HR slack, we predict that slack is likely to be deployed towards less uncertain growth domains like product exploration and away from more risky growth domains like international market exploration. However, beyond a certain threshold of
HR slack, we expect to see re-balancing to occur and redeployability of HR slack resources away from product exploration and more towards international market exploration. This cross-domain balancing, or substitution effect, exhibits itself in the form of one U-shaped and one inverted U-shaped relationship between HR slack and growth in young ventures, as we hypothesize below:

**Hypothesis 1. Human resource slack in young ventures has: a) an inverted U-shaped relationship with product exploration, and b) a U-shaped relationship with international market exploration.**

The arguments above challenge the idea that abundant HR slack necessarily leads to lax resource allocation discipline and suboptimal behavior, at least in empirically observable ranges of HR slack among young ventures. Since existing arguments for the negative impact of slack abundance commonly refer to a dampening effect on entrepreneurial management (this is explicit for example, in the model suggested by Bradley, Wiklund, et al., 2011), here we investigate the impact of entrepreneurial competence, specifically the fund-raising ability, on the redeployment of HR slack in young ventures. Even though Penrose (1959) explicitly identified entrepreneurial competence as an important determinant of how slack resources are deployed toward growth, much of the slack literature to date has not explicitly considered this factor as a contingency in the slack-growth relationship.

Penrose defines the characteristic of being enterprising or entrepreneurial as “a psychological predisposition on the part of individuals to take a chance in the hope of gain, and, in particular, to commit effort and resources to speculative activity (Penrose, 1959: 30)”. She points out that this “spirit of enterprise” or entrepreneurial bias toward growth is especially significant in decision points on whether or not to pursue growth, where the choice is not trivial.
their managers), they will too differ in the domain to which they deploy slack resources toward growth initiatives. Penrose lists entrepreneurial versatility, ambition, judgement, and “fundraising ingenuity” as aspects of this entrepreneurial competence. In particular, she described the ability to raise external funds as an indicator of entrepreneurial competence:

“[M]any small firms without adequate initial financial resources do succeed, do raise capital, do grow into large firms. And they do this, for the most part, by virtue of a special entrepreneurial ability. There are many examples testifying to the ingenuity of the superior businessman in obtaining the funds he needs, and only if the requisite entrepreneurial ability is lacking can one safely say that a firm cannot attract the required capital” (Penrose, 1959: 34)

Entrepreneurial ability is most consequential under conditions of resource scarcity, as highly competent entrepreneurs are better able to pursue opportunities “regardless of the resources under control (Stevenson & Jarillo, 1990: 23)”. Hence, we consider the presence of entrepreneurial competence—as manifest in the ability to raise external funds—to be an indication that a venture may be more readily able and willing to pursue more high-risk and uncertain growth paths, especially at low slack levels (Penrose, 1959: 57). Therefore, we expect entrepreneurial competence to change the slack-growth relationships hypothesized in H1, i.e., we posit that firms with high entrepreneurial competence are likely to allocate HR slack away from internal product exploration and toward international market exploration at comparatively lower levels of HR slack relative to firms with low entrepreneurial competence. Thus we expect the relationships hypothesized in H1 to be affected as follows:

**Hypothesis 2. Entrepreneurial competence moderates the relationship between HR slack and the growth of young ventures such that at lower levels of HR slack, a) the positive**
relationship of HR slack and product exploration is weakened, and b) the negative relationship of HR slack and international market exploration is weakened.

METHODOLOGY

Data

We used the Kauffman Firm Survey (KFS) panel dataset to test the hypotheses of this study. The longitudinal panel version of the KFS includes 3,140 newly established firms, statistically representative of more than 73,000 firms established in 2004 in the United States. It consists of a baseline survey in 2004 when all firms where established, and seven follow up waves at the same time each year (8 years of data in total). The sampled firms were chosen from the Dun and Bradstreet database. As one of the objectives of the survey was to study high/medium tech and woman-owned business, the final sample is a stratified sample which oversamples businesses in high/medium tech industries (Farhat & Robb, 2014). We use the probability weights in the final database to account for this oversampling, to eliminate selection bias, and to correct for survival or attrition bias (Litwin & Phan, 2013). Table 7 presents an overview of the subgroups in the total sample, together with their weighted ones.

Table 7-Simple Statistics, technology and gender ownership sampling strata (adapted from Farhat & Robb, 2014)

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Un-weighted</th>
<th></th>
<th>Weighted</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>High tech, woman owned</td>
<td>103</td>
<td>2.1%</td>
<td>190</td>
<td>0.3%</td>
</tr>
<tr>
<td>High tech, not woman owned</td>
<td>602</td>
<td>12.2%</td>
<td>1123</td>
<td>1.5%</td>
</tr>
<tr>
<td>High-tech Total</td>
<td>705</td>
<td>14.3%</td>
<td>1313</td>
<td>1.8%</td>
</tr>
<tr>
<td>Medium tech, woman owned</td>
<td>271</td>
<td>5.5%</td>
<td>2026</td>
<td>2.8%</td>
</tr>
</tbody>
</table>
The KFS database is a longitudinal study of newly established ventures, tracked from the establishment date in 2004 up to 2011 (seven years), when the survey had stopped. It includes questions on entrepreneur characteristics, behavior and decisions as well as financial data of the firms. It specifically provides information about the human resources and how they are allocated to different tasks within the firm, and also questions regarding firms’ growth directions such as R&D and entry into international markets. As such, KFS is a unique source of data that enables the study of growth domains of young ventures.

To operationalize our dependent variables of growth (namely international market expansion and product exploration), we used data of the firms’ entry into international markets and the allocation of personnel dedicated to R&D. We have data for product exploration for all the years of the study, but the international market expansion question was not in the initial survey and was only asked from the third follow-up onwards (year 2007). Respondents were asked if they had any sales outside of the U.S. Due to the huge amount of missing observation for the international market expansion variable that would be introduced, we did not include data for the first three years (2004-2006). After this omission and additional dropping of firms for which critical variables for our analysis had missing values, our final sample size is 2,195 firms.
Variables

The variables used in our analysis are listed in Table 8. We have presented a brief definition and the operationalization for each variable in the table and will elaborate further on them in this section.

Table 8-Variables and Measurements

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Market Expansion</td>
<td>Equals 1 if firm has international sales in that year and 0 otherwise</td>
</tr>
<tr>
<td>Product Exploration</td>
<td>The number of employees allocated to R&amp;D, minus employees allocated to sales, divided by the total number of employees in sales and R&amp;D</td>
</tr>
<tr>
<td>Human Resource (HR) Slack</td>
<td>Ratio of employees/sales normalized compared to industry</td>
</tr>
<tr>
<td>Entrepreneurial Competence</td>
<td>Equals 1 if funds have been raised through investments or loans, and 0 if no external funding has been acquired</td>
</tr>
<tr>
<td>Financial Slack</td>
<td>Available cash and securities minus short-term liabilities, normalized by total revenue</td>
</tr>
<tr>
<td>R&amp;D Intensity</td>
<td>The ratio of R&amp;D expenses to total revenue</td>
</tr>
<tr>
<td>Product-Making Firm</td>
<td>Equals 1 if the firm has any products, and 0 for service only firms</td>
</tr>
<tr>
<td>Intellectual Property</td>
<td>Equals 1 if the firm has any type of intellectual property (patents, copyrights or trademarks)</td>
</tr>
<tr>
<td>Managerial Experience</td>
<td>Number of years of experience, averaged for top management team</td>
</tr>
<tr>
<td>Managerial Education</td>
<td>Average years of higher education for top management</td>
</tr>
<tr>
<td>Managerial Engagement</td>
<td>Number of weekly hours spent in the firm, averaged for top management team</td>
</tr>
<tr>
<td>High Tech Industry</td>
<td>Equals 1 if firm operates in high-tech industries</td>
</tr>
<tr>
<td>Industry Internationalization</td>
<td>The average percentage of firms in the industry with international sales</td>
</tr>
<tr>
<td>Traded Industry</td>
<td>Equals 1 if firm operates in traded industries as categorized by Delgado, Porter and Stern (2015)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>Natural logarithm of firm total employees</td>
</tr>
</tbody>
</table>
Dependent Variables

The dependent variables of this study are “International Market Expansion” and “Product Exploration.” International market expansion is measured as a dichotomous variable equal to 1 if the firm has any international sales, and 0 otherwise. Exports are the main mode of internationalization for newly established firms (Cavusgil & Knight, 2015). In this study, international market expansion is one of the two main directions of growth for young ventures. In measuring this variable, we used the presence of (1) or lack of (0) international sales as the proxy, as it represents the decision of firms to internationalize (Fernhaber & Li, 2010). We believe that this measure is more appropriate for our purpose than other measures such as degree of internationalization (foreign sales over total sales), internationalization speed or scope. Our choice is in line with other studies in international business and international entrepreneurship literature (Carr, Haggard, Hmieleski, & Zahra, 2010; Fernhaber & Li, 2010; Javalgi & Todd, 2011; Verbeke, Zargarzadeh, & Osiyevskyy, 2014).

The second dependent variable of our study is “Product Exploration”, which represents the alternative growth domain. For this variable we build a scale to measure the relative priority that the firm gives to exploring new products, as compared to exploiting existing products. We adopt a combined measure or continuum approach rather than the orthogonal conceptualization of exploration and exploitation in order to incorporate the inherent trade-offs within the measure (Lavie et al., 2010). Building on the common method of using upstream activity such as R&D as proxy for exploration and downstream activity such as sales as proxy for exploitation (Anand, Mesquita, & Vassolo, 2009; Hoang & Rothaermel, 2010; Lavie, Kang, & Rosenkopf, 2011; Rothaermel, 2001; Rothaermel & Deeds, 2004), we define our product exploration variable as follows:
Product Exploration = \frac{Employees in R&D - Employees in Sales}{Employees in R&D + Employees in Sales}

In other words, from all the employees the firm has in either R&D or sales, the greater share allocated to R&D means a greater level of product exploration.

Independent Variables

Human Resource Slack. Human resource slack (HR Slack) is the excess in level of productive resources of the firm, specifically in their human resources which can be used in other productive applications (Ferlic, 2008). We follow studies that have operationalized HR Slack as the reverse of employee productivity (Datta, Guthrie, & Wright, 2005; Ferlic, 2008; Lecuona & Reitzig, 2014; Mishina et al., 2004). This measure looks at the number of employees used by a firm to produce a certain amount of productivity (sales) as compared to the industry average. If, for example, a firm is using more employees than the industry average to produce the same amount of sales, it represents availability of slack in the human resources of the company. This means that the excess in human resources (i.e., employees) can be re-deployed to other productive uses, without affecting the current level of sales. We therefore use the following formula to capture HR Slack:

\[ HR \ Slack_{i,t} = \left( \frac{\text{No. of Employees}}{Sales} \right)_{i,t} - \left( \frac{\text{No. of Employees}}{Sales} \right)_{\text{ind},t} \]

Where we take the difference between the employee to sales ratio of the firm \( i \) in a year \( t \) and the employee to sales ratio averaged for the firms’ industry peers in year \( t \).
Moderating Variable

“Entrepreneurial Competence” is the moderating variable we used to test Hypothesis 2. We measure this competence through a proxy that equals 1 if the young ventures’ managers have been able to raise funds through at least one external source including loans and investments, and equals zero otherwise. This proxy is in line with Penrose’s notion of “fund-raising ingenuity” as one of the main qualities of enterprising managers (Penrose, 1959: 30).

Control Variables

We controlled for several variables in the regression model following other scholars in the field. The full list of these variables is available in Table 8. We control for critical firm resources and capabilities that can drive its growth paths including internationalization and product development. We controlled for R&D capabilities of the firm using two proxies; one measures if the firm has any intellectual property (i.e. patents, copyrights and trademarks) and the other captures R&D expenses normalized by the firm’s revenue (Knight & Cavusgil, 2004). Given the importance of the capabilities and characteristics of the entrepreneurs in the growth decisions of young ventures, we also included entrepreneur characteristics such as manager’s average work experience, their level of engagement in the firm (Bloodgood, Sapienza, & Almeida, 1996; Cavusgil & Knight, 2015) and manager’s education (Verbeke et al., 2014). We also controlled for Firm Size by using the number of total employees. We use the natural logarithm of this amount to account for the skewness of firm size.

We also controlled for some industry-level factors. Specifically, we controlled for Industry’s Level of Technology, to test whether or not operating in a high-tech industry would affect the role of slack resources in growth. We used a measure provided in the KFS survey,
which indicates high-tech industries based on whether the business is a “technology employer” or a “technology generator” (Farhat & Robb, 2014: 124). This is a dichotomous variable which takes the value of 1 when a firm is in a high-tech industry and 0 otherwise. In addition, *Industry’s level of internationalization* can affect the decision of the firm to enter international markets, and as such change their choice of their growth path. Specifically, when an industry is highly internationalized, following peers into international markets can be both legitimate and beneficiary in providing knowledge and routines (Fernhaber & Li, 2010; Rugman & Almodovar, 2011), but also a determining factor in the young ventures’ survival (Fariborzi & Keyhani, 2018). To measure this variable, we used an external data source to calculate industry-level internationalization activity. We averaged the number of firms with international sales in each industry at the 2-digit NAICS code using data from the survey of business owners (SBO) provided by the U.S. Census Bureau (Census Beauru, 2007). Finally, we controlled for firms being in *traded or local* industries, as we believe that being in local industries where firms do not engage in trade even outside their home state would have an effect on their decisions to choose international market expansion or internal product development as the pathway to growth (Delgado, Porter, & Stern, 2015).

**ANALYSIS AND RESULTS**

**Testing the curvilinear effects**

To test our hypothesis, we used multiple regressions for our two dependent variables, which were regressed over the same set of independent and control variables. To estimate the regressions in this panel dataset, we used the maximum likelihood estimation of generalized estimation equations (GEE). This method has been shown to supersede both fixed-effects and
random-effects estimation techniques for panel data analysis, as GEE has no restrictions in terms of assumptions on correlations of within-subject responses (Ndofor, Sirmon, & He, 2011). In our analysis, we do not see any reason to assume that our variables follow any particular correlation patterns, i.e. remain constant over the years or change. For our International Market Expansion, which is a dichotomous variable, we used the logistic regression option (Stata’s `xtgee` function with the `binomial family` option). The results for this estimation are shown in Models 1 to 3 in Table 9. For our Product Exploration dependent variable, Stata’s `xtgee` function was used and the results are presented in Models 4 to 6 in Table 9.

Table 9- Results of Regression Analysis, Logistic GEE estimation method for International Market Expansion and

<table>
<thead>
<tr>
<th>Estimation Method</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DV: International Expansion</strong></td>
<td>Logistic GEE</td>
<td>Logistic GEE</td>
<td>Logistic GEE</td>
<td>GEE</td>
<td>GEE</td>
<td>GEE</td>
</tr>
<tr>
<td>R&amp;D Intensity</td>
<td>-0.042</td>
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<td>-0.030</td>
<td>0.173***</td>
<td>0.173***</td>
<td>0.173***</td>
</tr>
<tr>
<td></td>
<td>(-0.370)</td>
<td>(-0.320)</td>
<td>(-0.270)</td>
<td>(7.760)</td>
<td>(7.710)</td>
<td>(7.720)</td>
</tr>
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<td>Product-Making Firm</td>
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<td>0.163</td>
<td>0.157</td>
<td>-0.021</td>
<td>-0.019</td>
<td>-0.019</td>
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<td></td>
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<td>(1.460)</td>
<td>(1.400)</td>
<td>(-0.910)</td>
<td>(-0.840)</td>
<td>(-0.850)</td>
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<td>0.110</td>
<td>0.124†</td>
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<td>0.055*</td>
<td>0.055*</td>
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<td>(1.650)</td>
<td>(2.350)</td>
<td>(2.440)</td>
<td>(2.440)</td>
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<td>0.004</td>
<td>0.003</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
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<tr>
<td></td>
<td>(0.480)</td>
<td>(0.340)</td>
<td>(0.300)</td>
<td>(0.720)</td>
<td>(0.730)</td>
<td>(0.720)</td>
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<td>Managerial Education</td>
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<td>0.175**</td>
<td>0.176**</td>
<td>-0.002</td>
<td>-0.002</td>
<td>-0.002</td>
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<td></td>
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<td>(2.910)</td>
<td>(2.900)</td>
<td>(-0.280)</td>
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<td>(-0.250)</td>
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<td>0.130**</td>
<td>0.133**</td>
<td>-0.116***</td>
<td>-0.118***</td>
<td>-0.118***</td>
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<td></td>
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<td>(2.620)</td>
<td>(2.700)</td>
<td>(-10.640)</td>
<td>(-10.750)</td>
<td>(-10.750)</td>
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<td>High Tech Industry</td>
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<td>0.752**</td>
<td>0.738**</td>
<td>0.136**</td>
<td>0.137**</td>
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<td></td>
<td>(2.920)</td>
<td>(2.940)</td>
<td>(2.890)</td>
<td>(2.700)</td>
<td>(2.730)</td>
<td>(2.730)</td>
</tr>
<tr>
<td>Industry Internationalization</td>
<td>1.884*</td>
<td>1.798*</td>
<td>1.779†</td>
<td>-0.188</td>
<td>-0.183</td>
<td>-0.182</td>
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<td></td>
<td>(2.050)</td>
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<td>(1.940)</td>
<td>(-1.430)</td>
<td>(-1.380)</td>
<td>(-1.380)</td>
</tr>
<tr>
<td>Traded Industry</td>
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<td>0.528**</td>
<td>0.532**</td>
<td>0.030</td>
<td>0.031</td>
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<tr>
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<td>(1.270)</td>
<td>(1.290)</td>
<td>(1.290)</td>
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<td>Coefficient</td>
<td>Standard Error</td>
<td>t-Value</td>
<td>p-Value</td>
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<td>----------------</td>
<td>---------</td>
<td>---------</td>
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<tr>
<td>Managerial Engagement</td>
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<td>0.004†</td>
<td>0.003</td>
<td>0.001</td>
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<tr>
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<td>(1.810)</td>
<td>(1.740)</td>
<td>(1.540)</td>
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<td>Entrepreneurial Competence</td>
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<td>0.028</td>
<td>0.196*</td>
<td>-0.009</td>
<td></td>
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<tr>
<td></td>
<td>(0.420)</td>
<td>(0.380)</td>
<td>(1.980)</td>
<td>(-0.480)</td>
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<td></td>
</tr>
<tr>
<td>HR (Human Resource) Slack</td>
<td>-0.212**</td>
<td>-0.420**</td>
<td>0.037*</td>
<td>0.033</td>
<td></td>
<td></td>
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<td></td>
<td>(-2.870)</td>
<td>(-2.730)</td>
<td>(2.010)</td>
<td>(1.570)</td>
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<tr>
<td>HR Slack Squared</td>
<td>0.023*</td>
<td>0.053**</td>
<td>-0.004†</td>
<td>-0.004</td>
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<td></td>
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<td>(-1.670)</td>
<td>(-1.370)</td>
<td></td>
<td></td>
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<tr>
<td>Entrepreneurial Competence*HR Slack</td>
<td>0.397*</td>
<td></td>
<td>0.010</td>
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<tr>
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<td>(2.400)</td>
<td></td>
<td>(0.290)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Entrepreneurial Competence*HR Stack Squared</td>
<td>-0.056*</td>
<td></td>
<td>-0.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-2.540)</td>
<td></td>
<td>(-0.180)</td>
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</tr>
<tr>
<td>Constant</td>
<td>-3.604***</td>
<td>-3.667***</td>
<td>-3.748**</td>
<td>-0.142**</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(-8.070)</td>
<td>(-8.200)</td>
<td>(-8.350)</td>
<td>(-2.690)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(-2.500)</td>
<td>(-2.510)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Observations</td>
<td>4463</td>
<td>4463</td>
<td>4463</td>
<td>4436</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi Squared</td>
<td>97.769</td>
<td>114.763</td>
<td>114.815</td>
<td>203.611</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>206.548</td>
<td>207.365</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** p < 0.001, ** p < 0.01, * p < 0.05, † p < 0.1

Model 1 and Model 4 include our baseline regression with only the control variables included as regressors. Model 2 and Model 5 are the basis of our analysis for Hypothesis 1a and Hypothesis 1b respectively, which include both the linear and the squared terms of HR slack. Finally, Model 3 and Model 6 are used for our moderation analysis and include interaction terms for our Entrepreneurial Competence variable to test Hypothesis 2.

As can be seen from the tables, young ventures with a higher level of managerial education and with a larger firm size have a higher propensity to pursue growth in international markets. We also see that being in a high-tech industry, a traded industry or in an industry with a high level of internationalization has a positive effect on international market expansion propensity. As for product exploration, we see a positive role for R&D intensity, having
intellectual properties, and being in a high-tech industry. We also see that smaller young ventures have a higher proclivity to pursue product exploration compared to larger firms.

Importantly, we see that Hypothesis 1 on the opposing curvilinear effects of HR slack on international market expansion and product exploration is supported (Model 2 and Model 5). We see that HR slack has an inverse U-shaped effect on product exploration (HR Slack Squared: $\beta = -0.004, t = -1.67$), and a U-shaped effect on international market expansion (HR Slack Squared: $\beta = 0.023, t = 2.360$). Figure 5 shows the two curvilinear effects in a plot of margins with 95% confidence intervals. As can be seen in these figures, we see a balancing effect, whereby at lower levels of HR slack, an increase in the level of slack drives the proclivity to expand through product exploration and dampens the propensity to grow through expansion into international markets. Past a certain level of HR slack, however, the effects switch and we see that more HR slack drives a higher propensity to internationalize and a lower proclivity to do further product exploration. We therefore see that Hypothesis 1 is supported.

![Figure 5](image)

*Figure 5-The effect of HR slack on young ventures’ proclivity to pursue product exploration (left), and propensity to pursue international market expansion (right)*

To test moderation effects in regression analysis including nonlinear models, it has been suggested to report separate results for the two values of dichotomous moderators (Hoetker,
The reason is that the sign, coefficient, and significance of the interaction term alone are potentially problematic indicators in nonlinear models with limited dependent variables (in our case international market expansion). In addition, the use of an interaction term to compare groups requires the additional assumption that unobserved variance is equal across groups. Therefore, we cannot simply interpret support for our moderation effect hypotheses or lack thereof, merely by looking at the significance level of the product term in our regression models. The results were, therefore, supplemented by further post-estimation analysis of margins using Stata’s margins and marginsplot commands (Williams, 2012). Such analysis allows us to a) decompose the predicted margins and marginal effects of the independent variables over their full range, accounting for their variation over different values of other variables, b) to provide a visualization of the results as recommended by Hoetker (2007) and c) to help analyze the statistical significance of moderation effects or cross-group comparisons as recommended by Zelner (2009). The latter has it that moderation effects are significant, if the margins plot do not cross zero.

Figure 6 shows the results for analysis of margins testing the moderation effects of entrepreneurial competence on the role of HR slack on growth trajectories of young ventures. As can be seen, in young ventures with competent entrepreneurs, who are able at raising external funds, the nature of the role of HR slack on growth domains changes. Specifically, we see that entrepreneurial competence positively drives deploying HR slack resources toward international market expansion even at low levels of HR slack. The moderation effects is strongly supported for the case of international market expansion ($p < 0.05$), but for product exploration, moderation is not supported ($p > 0.1$). We should also note that the moderating effect we see, is more significant at lower levels of HR slack, as predicted in Hypothesis 2. At higher levels of HR
slack, the moderating effects are not supported. In sum, we find partial support for our moderation Hypothesis 2.

**Post-Hoc Analysis**

To keep with most studies on the role of slack on growth, we conducted a post-hoc analysis to study the effect of *Financial Slack* resources (Lecuona & Reitzig, 2014; Mishina et al., 2004). Financial Slack is measured using Bourgeois and Singh's (1983) definition of available slack. We used this definition for financial slack, as it incorporates the assumption of fungibility, meaning that slack can be easily used towards other productive purposes, such as growth. We used the following formula to calculate financial slack.

\[
Financial\ Slack_t = \frac{[Cash\ and\ Securities - Current\ Liabilities]_t}{Total\ Revenue_t}
\]

This operationalization allowed us to normalize the amount of available cash by the firm’s revenue. The results of our Post-hoc analysis are presented in Table 10.

*Table 10- Post-hoc regression analysis with Financial Slack resources included*
<table>
<thead>
<tr>
<th>Estimation Method</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D Intensity</td>
<td>-0.026</td>
<td>-0.025</td>
<td>-0.025</td>
<td>0.179***</td>
<td>0.179***</td>
<td>0.179***</td>
</tr>
<tr>
<td></td>
<td>(-0.220)</td>
<td>(-0.210)</td>
<td>(-0.220)</td>
<td>(7.920)</td>
<td>(7.920)</td>
<td>(7.910)</td>
</tr>
<tr>
<td>Product-Making Firm</td>
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<td>0.182</td>
<td>0.181</td>
<td>-0.020</td>
<td>-0.019</td>
<td>-0.019</td>
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<tr>
<td></td>
<td>(1.570)</td>
<td>(1.540)</td>
<td>(1.530)</td>
<td>(-0.900)</td>
<td>(-0.840)</td>
<td>(-0.830)</td>
</tr>
<tr>
<td>Intellectual Property</td>
<td>0.126</td>
<td>0.132</td>
<td>0.136†</td>
<td>0.057*</td>
<td>0.058**</td>
<td>0.058**</td>
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<td>(1.490)</td>
<td>(1.600)</td>
<td>(1.670)</td>
<td>(2.540)</td>
<td>(2.590)</td>
<td>(2.590)</td>
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<td>Managerial Experience</td>
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<td>0.004</td>
<td>0.004</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
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<tr>
<td></td>
<td>(0.430)</td>
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<td>(0.340)</td>
<td>(0.880)</td>
<td>(0.910)</td>
<td>(0.900)</td>
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<td>Managerial Education</td>
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<td>0.179**</td>
<td>0.178**</td>
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<td>-0.001</td>
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<td>(2.940)</td>
<td>(2.930)</td>
<td>(-0.150)</td>
<td>(-0.160)</td>
<td>(-0.140)</td>
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<tr>
<td>Firm Size</td>
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<td>0.126*</td>
<td>0.130*</td>
<td>-0.112***</td>
<td>-0.114***</td>
<td>-0.114***</td>
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<tr>
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<td>(2.550)</td>
<td>(-10.200)</td>
<td>(-10.180)</td>
<td>(-10.200)</td>
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<tr>
<td>High Tech Industry</td>
<td>0.727**</td>
<td>0.730**</td>
<td>0.723**</td>
<td>0.129*</td>
<td>0.130**</td>
<td>0.130**</td>
</tr>
<tr>
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<td>(2.820)</td>
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<td>(2.810)</td>
<td>(2.560)</td>
<td>(2.580)</td>
<td>(2.580)</td>
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<td>Industry Internationalization</td>
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<td>1.893*</td>
<td>1.872†</td>
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<td>-0.141</td>
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<td>(1.940)</td>
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<tr>
<td>Traded Industry</td>
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<td>0.516**</td>
<td>0.520**</td>
<td>0.027</td>
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<td>(1.100)</td>
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<td>0.004</td>
<td>0.003</td>
<td>0.000</td>
<td>0.000</td>
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<td>(1.580)</td>
<td>(1.630)</td>
<td>(1.550)</td>
<td>(0.720)</td>
<td>(0.700)</td>
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<td>Entrepreneurial Competence</td>
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<td>0.031</td>
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<tr>
<td></td>
<td>(-1.310)</td>
<td>(-0.400)</td>
<td>(2.250)</td>
<td>(0.990)</td>
<td>(0.840)</td>
<td></td>
</tr>
<tr>
<td>HR (Human Resource) Slack</td>
<td>-0.072*</td>
<td>-0.204*</td>
<td>0.012</td>
<td>0.021</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-2.470)</td>
<td>(-2.230)</td>
<td>(1.390)</td>
<td>(0.960)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR Slack Squared</td>
<td>0.020†</td>
<td></td>
<td></td>
<td></td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.670)</td>
<td></td>
<td></td>
<td></td>
<td>(-0.440)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-3.610***</td>
<td>-3.642***</td>
<td>-3.687***</td>
<td>-0.156**</td>
<td>-0.149**</td>
<td>-0.147**</td>
</tr>
<tr>
<td></td>
<td>(-8.130)</td>
<td>(-8.140)</td>
<td>(-8.250)</td>
<td>(-2.910)</td>
<td>(-2.790)</td>
<td>(-2.730)</td>
</tr>
<tr>
<td>No. of Observations</td>
<td>4280</td>
<td>4280</td>
<td>4280</td>
<td>4255</td>
<td>4255</td>
<td>4255</td>
</tr>
<tr>
<td>Chi Squared</td>
<td>107.758</td>
<td>113.472</td>
<td>118.16</td>
<td>194.332</td>
<td>195.504</td>
<td>197.507</td>
</tr>
</tbody>
</table>
The results show that we only see a small effect for the financial slack on product exploration ($\beta = 0.006, t = 2.250$), and the results vanish when HR slack is controlled for. Therefore, as opposed to the case of established large firms (Carneiro et al., 2018; Tseng et al., 2007) and established SMEs (Kiss et al., 2017), we do not find support for an effect of financial slack resources in the growth decisions of young ventures. This is in line with our arguments that intangible slack resources (rather than tangible financial resource) drive the growth behaviors of young ventures.

**DISCUSSION AND CONCLUSION**

**Contributions to theory and research**

Existing research regarding the effect of slack resources on growth presents both a multiplicity of arguments and unreconciled propositions on the nature of the relationship. Existing literature on the role of slack in firm’s growth has generally tended to focus on a) established, large firms and SMEs, and b) investigating the effect of slack on how much these firms may grow. The focus of this paper on the unique context of young ventures has allowed us to call into question the generalization of the existing contributions of slack literature to contexts beyond large firms and SMEs.

The results of our research contribute to the ongoing conversations in both the scholarship and practice of entrepreneurship as well as international business related to different growth decisions for young ventures. We specifically show that having HR slack (or non-economic type of slack) can facilitate different strategic behaviors in young ventures and increase their tendency to weigh in and embark on differential growth alternatives. Contrary to
the common belief in the traditional slack literature that ‘cash is king,’ we observe that not having financial slack may not present an obstacle for young firms’ experimentation with different growth directions.

Notably, we point out that young ventures deploy intangible, HR slack towards growth. In fact, they balance the HR slack deployment across distinct domains of growth such as product exploration vs. international market exploration. Our results show a strong substitution effect in the deployment of HR slack across these two domains. This insight provides an alternative explanation to previous slack research that has observed either parabolic or convex relationship. We argue that young ventures may pursue different domains of growth depending on their fungible resources, each having distinct underpinning mechanisms that define the nature of slack-growth relationship. In simultaneously investigating alternative growth paths, we add to the existing literature on firm’s growth by answering calls to not only examine the levels of firm’s growth (i.e., how much) but also investigate how they grow and where the growth occurs (i.e., the mode and the direction) (Gilbert, McDougall, & Audretsch, 2006; McKelvie & Wiklund, 2010).

In sum, our results indicate that HR slack simultaneously has an inverted U-shaped relationship with internal product exploration in young ventures, and a U-shaped relationship with international market exploration, suggesting a substitute relationship between these two alternate growth paths. We explain this particular substitution pattern based on the differing levels of uncertainty attributable to the two paths, where we argue that internationalization poses a riskier alternative. Our moderation tests reveal however, that this higher level of uncertainty does not dissuade firms with high entrepreneurial competence from pursuing internationalization even at low levels of HR slack.
Our findings with respect to market expansion suggest that young firms engage in international market growth once they reach certain level of HR slack as such pursuits are usually considered risky and uncertain (Johanson & Vahlne, 1977; Sapienza et al., 2006). At low levels of HR slack they tend to trade internationalization for product exploration, until they have reached certain levels of non-location bound firm-specific advantages that could be transferred abroad without jeopardizing their current operations (Rugman & Verbeke, 2004, 2008). Thus, our findings are in the spirit of international business literature suggesting that firms do not internationalize out of necessity per se as some have suggested (Kiss et al., 2017), but that even young ventures are more strategic in their weighing of and acting upon growth alternatives.

**Practical Implications, Limitations and Future Directions**

In general, perhaps the most important challenge to the accumulated slack research posed by our study is that, at least in the context of young ventures, the idea that too much slack necessarily leads to suboptimal behavior and lax control on resource allocation may not hold. Our findings suggest that young ventures engage in a balancing act and choose to deploy HR slack to more risky pursuits and embark on a path to grow by internationalizing instead of product portfolio development.

Hence, we suggest that if investors were to rely on traditional slack theory and intentionally ‘starve’ a startup or limit their resource endowments to avoid excessive comfort and dampening of ‘the spirit of enterprise,’ they may in fact be hampering the young venture’s ability to take advantage of higher-risk growth opportunities. We note however, that the amount of slack abundance that could theoretically be achieved in an ideal controlled experiment is different from the real-world ranges of slack observable empirically due to natural constraints and self-selection phenomena. This means that we are far from being able to conclude that slack
abundance never leads to lax or suboptimal behavior, even if such a phenomenon is self-selected out of by real world entrepreneurs and investors.

Since this idea of limiting resource endowments to emerging and young ventures relies on notions of bootstrapping and entrepreneurial capability, we specifically tested the moderation effect of entrepreneurial competence. In line with our prediction, we observed that high entrepreneurial competence as measured by the ability to raise external financing, results in more aggressive pursuit of risky growth options like international market expansion, regardless of slack levels. Although we did not see a significant moderation effect of entrepreneurial competence on product exploration at the 95% confidence level, we do still see that under both high and low entrepreneurial competence, the two growth paths of internal product exploration and international market exploration exhibit a substitution effect with respect to each other.

Our study is not without limitations due to the confinements of our data, our efforts to keep the scope of our paper in line with practical considerations as well as to preserve theoretical parsimony. Since we are relying on the KFS, there are known limitations of this data source both in terms of firms that participated in this survey and the type of constructs that could be measured using the existing questions (c.f. Farhat & Robb, 2014). Specific to our study, one limitation we have is related to the international market expansion variable, in that we only have data available for this question, after the third wave of data collection (2007). This creates a selection bias in our analysis of firms, in that we conduct our study on firms that have survived the first three years of operation (Fariborzi & Keyhani, 2018). Another limitation of our study is that we do not have direct behavioral measures of our sample firms. Therefore, our judgment of the entrepreneur's perception of uncertainty and its effects on their decision to choose different growth paths, is based only on existing literature describing the uncertainty associated with each
of these two growth paths. Future studies can have a closer look into the behavioral aspects of young ventures, specifically their expectations of growth and performance, their assessment of uncertainty to better understand how presence or lack of slack resources affect their growth decisions.


CHAPTER 4: INTERNATIONALIZE TO LIVE: A STUDY OF THE POST-INTERNATIONALIZATION SURVIVAL OF NEW VENTURES
Introduction

Despite a growing number of studies on the survival of new ventures who pursue an international entry strategy, research in this area is not yet conclusive. Both positive and negative effects have been attributed to internationalization as a strategy for newly established firms. The traditional process theory of internationalization (Johanson & Vahlne, 1977) views new ventures as too young and inexperienced, and thus unprepared for internationalization. Following this line of argument, researchers have pointed to liabilities of newness, smallness, and foreignness (Zahra, 2005), to argue that internationalization needs resource commitments and experience that new ventures cannot afford and poses them to risks they cannot handle; and hence predict a higher mortality rate for international new ventures compared to their counterparts that remain local (Schueffel, Amann, & Herbolzheimer, 2011). In sum, the old theory paints a picture of unprepared novices blindly jumping to their own demise.

Nevertheless, in reality we have seen a marked rise in the actual number of new ventures that internationalize (Oviatt & McDougall, 2005). The phenomenon has gained interest from a variety of scholars, and has become the center of attention in the growing line of research on international entrepreneurship, at the intersection of international business and entrepreneurship (Keupp & Gassmann, 2009). On the one hand, one could argue that increasing internationalization of new ventures is simply a product of changing times: international markets are now much more homogeneous than they used to be, and communication and transportation across national boundaries is now much easier (Bloodgood, Sapienza, & Almeida, 1996). However, international entrepreneurship scholars argue that new ventures internationalize not just because they can, but because they see advantages in doing so (Oviatt & McDougall, 2005). International entry provides new ventures with access to larger, more diversified markets, and
access to new opportunities. The new theory paints a picture of prepared entrepreneurs jumping to grasp opportunities.

Although it would seem that from this new theory of international entrepreneurship, we could derive a prediction of internationalization leading to increased chances of new venture survival, the most important theoretical study to date aiming to integrate the old and new theories would deny us such a prediction. Sapienza et al (2006) note the above-mentioned benefits of internationalization as well as an “imprinting” effect of openness to change and adaptiveness when international entry is done early in a venture’s life, but suggest that these benefits would be observed in post-internationalization growth but not survival. Survival, they argue instead, is mostly influenced—and influenced negatively—by the unpreparedness issues outlined in the old theory, such as lack of social embeddedness in the new market, lack of positional advantage in the new market, and lack of internal and external processes and routines for coordination, managing relationships, etc.

Notwithstanding the tenuous logic of new ventures growing post-internationalization while at the same time not surviving, another problem of trying to simultaneously hold on to the new and old theories of new venture internationalization is that as argued above, these theories hold different views on the antecedents of internationalization, i.e., the unpreparedness vs. preparedness logic. This creates a conspicuous endogeneity problem. The fact that new ventures do not choose to internationalize blindly, but instead self-select into internationalization anticipating the outcome, represent a quintessential case of the commonly existing but rarely dealt with endogeneity problem in strategy research (Hamilton & Nickerson 2003). Accounting for this endogeneity means recognizing that firms that take one strategy versus another (e.g., to internationalize or not) do so because they anticipate that particular strategy to be more
beneficial. Thus, it is reasonable to expect that both internationalizing and non-internationalizing new ventures choose their respective strategies to maximize their chances of survival, hence rendering a substantially different net effect of internationalization on survival once this self-selection is accounted for. In line with this expectation Mudambi & Zahra (2007) found lower survival rates for international new ventures compared to other foreign market entry modes of British firms, but notably, the effect disappeared after self-selection was considered in the analysis.

Beyond a lack of negative effect on survival, other voices in the international entrepreneurship literature have presented more clear arguments for a distinctively positive effect of internationalization on new venture survival. In many industries, the nature of competition has become global, and customers have come to expect it is a norm rather than exception (Bloodgood et al., 1996). In such environments, a lack of international presence could be recipe for failure, and conversely, internationalization can be viewed as an “unconditional strategy for surviving” (Puig, González-Loureiro, & Ghauri, 2014: p.653). Based on evidence from manufacturing firms, Puig, González-Loureiro, & Ghauri (2014) argue that internationalization can provide rewards for new ventures such as market knowledge, as well as improved products and processes which can ultimately increase their chances of survival. This narrative tells a more complicated story of entrepreneurs choosing to jump not only to grasp opportunities, but also to avoid the sharks. Nevertheless, the self-selection problem still applies, and not accounted for in the Puig et al. study.

This study aims to present concrete evidence for the first time, on the survival benefits of internationalization for all new ventures, and thus to further contribute to the ongoing discussion about the effects of internationalization on new venture survival. Unlike Puig et al (2014) our
study is not limited to manufacturing firms, and unlike Shaver (1998) and Mudambi & Zahra (2007) who account for self-selection, our study is not about comparing modes of entry, but rather international entry vs. not internationalizing at all. To shed light on the role of internationalization on the survival of new ventures, we compare their rate of failure with their counterparts that have remained domestic. Furthermore, we see value in such a comparison, as past survival analyses have focused on comparing early internationalizers with other firms based on their speed of internationalization (Mudambi & Zahra, 2007), scope of internationalization (Sleuwaegen & Onkelinx, 2014) or longevity of internationalization (Sui & Baum, 2014), but not international activity in itself.

In order to better study the distinction between the preparedness vs. unpreparedness logics that sometimes muddies this debate, we investigate the role of firm age at internationalization on the survival chances of firms that internationalize. Firms age at internationalization, experience of managers and fungibility of resources have been argued to moderate the internationalization-survival relationship (Sapienza, Autio, George, & Zahra, 2006) among other competencies such as knowledge intensity and networking capability (Coeurderoy, Cowling, Licht, & Murray, 2011). We specifically aim to avoid methodological limitations of past studies, by leveraging the potential outcomes framework or counterfactual model of causal inference (Morgan & Winship, 2007), taking self-selection into consideration using an endogenous switching approach (Clougherty et al, 2016).

We start with a brief theoretical review of research on post-internationalization survival of new ventures. Based on established theories, namely internalization theory (Buckley & Casson, 2009; Rugman & Verbeke, 2003) from international business and the dynamic capabilities view from strategic management, together with recent finding of research on
international entrepreneurship we argue for positive effects of internationalization on survival and a positive effect of internationalizing earlier rather than later on survival. We test our hypotheses using the unique Kauffman firm survey data of more 4928 US-based new ventures composed of both domestic and international new ventures, tracked for 8 consecutive years.

**THEORETICAL REVIEW**

Following a call for research on the effect of internationalization on survival of new ventures (Zahra, 2004), the past few years have seen a growing number of studies on the matter (see Puig et al., 2014 for a good review).

There are risks and rewards attributed to internationalization. The risks of internationalization are often attributed to the two forces known as liabilities of newness and liabilities of foreignness (Zahra, 2005). The two forces act to increase mortality of new ventures, due to the fact that they face increasing amounts of pressure after internationalization to create new routines and dynamically adapt their capabilities to the new environment (Al-Aali & Teece, 2014; Sapienza et al., 2006). This resource-intensive process and the liabilities of foreignness, meaning the need to compete with local competitors without the required relational and experiential knowledge (Johanson & Vahlne, 1977) appears as a shock to the international new venture and therefore increases its chances of mortality. Therefore the reason for higher chances of failure after internationalization are risks due to lack of adequate resources and experience to overcome liabilities of foreignness and newness (Carr, Haggard, Hmieleski, & Zahra, 2010; Fernhaber & Li, 2013). However, these arguments imply a rather blind approach to internationalization, whereas if we consider the fact that new ventures self-select into
internationalization, we might at least concede that they weigh these risks against an attractive set of rewards.

Accordingly, an alternative set of arguments presents a variety of rewards associated with internationalization. Comparing International New Ventures (INVs), i.e., firms that start internationalization almost immediately after start, with sequential internationalizers, who slowly increase their level of commitment to international markets according to their experiential knowledge, Mudambi & Zahra (2007) find no evidence of higher failure rates for INVs after controlling for self-selection. Puig et al. (2014) argue that internationalization opens new opportunities for the new venture in terms of market expansion and capability development (Lu & Beamish, 2001). Studies comparing the performance of International New Ventures with Domestic New Ventures show a higher growth rate for INVs (McDougall, Oviatt, & Shrader, 2003; Westhead, Wright, & Ucbasaran, 2001). Zahra, Ireland, & Hitt (2000) present another benefit for internationalization in that INVs can diversify and expand their target markets through internationalization and hence be less dependent on the conditions of domestic markets and also less prone to their volatility. Given the differing perspectives, we do not see a consensus from past research on the internationalization-survival relationship for new ventures.

Below, we hypothesize that for firms that internationalize, the benefits are more likely to outweigh the costs, because the decision to internationalize is a deliberate strategy taken by entrepreneurs who consciously calculate and anticipate the ramifications of their strategy. In other words, we hypothesize a net positive effect of internationalization after controlling for self-selection.
**Survival after internationalization as a deliberate strategy**

Internationalization provides new ventures with growth and learning opportunities that would not emerge if they continued their domestic operations.

Expansion into international markets, helps new ventures take advantage of the scalability of their valuable resources, specifically knowledge based capabilities (Prashantham, 2005). New ventures that have invested into creating a valuable pool of knowledge-based capabilities, can increase their survival chances by expanding their operations across various markets and enjoy higher scales that will help reimburse those investments. As industries get crowded, the increasingly fierce competition from incumbents pushes new ventures to pursue new markets outside their domestic environment (Buckley & Ghauri, 2004; Puig et al., 2014) that can be critical in their ability to compete. Access to new markets is a form of portfolio diversification, or from an evolutionary perspective, a form of increasing an organism’s “requisite variety” in order to increase its adaptability to environmental volatility.

From an institutional theory point of view, internationalization can be viewed as a legitimating activity (Delmar & Shane, 2004) in an increasingly globalized economy. If the legitimacy of the firm is taken to be the extent to which it is perceived to be adhering to accepted principles, rules, norms, standards, and ways of doing things (Aldrich & Fiol, 1994), new ventures by virtue of being new suffer from a legitimacy gap (Hannan & Freeman, 1984). By internationalizing, new ventures demonstrate their capability to participate as a global player in the market, thus signaling legitimacy to stakeholders. This in turn is likely to yield survival benefits (Meyer & Rowan, 1977).
The legitimating effects of internationalization are likely to be more critical to survival if internationalization is high at the population level (Hannan & Freeman, 1984). Fernhaber & Li (2010) find that new venture internationalization is partially an imitative adaptation to the internationalization of other firms in the venture’s home country industry. Indeed, they found both the degree of internationalization and the performance benefits of internationalization to be greater for new ventures, when there is a higher level of internationalization in their home country industry.

Another set of benefits come from learning advantages that internationalization can have for new ventures. International entry connects new ventures with unique networks of suppliers, customers and competitors (Prashantham & Birkinshaw, 2015). The capabilities gained in international markets can be further used in handling core business issues in domestic markets opportunities (Sapienza et al., 2006). Internationalization needs the new ventures to be strong in adapting their capabilities to new market conditions (Verbeke, 2003). The literature on “imprinting” also has it that the firms’ decision to internationalize early in their life cycle, imprints a self-reinforcing path dependence in capability development. Therefore early internationalization “imprints an ability for successful adaptation (Sapienza et al., 2006: 920).” Although they attribute these positive effects to growth rather than survival, the capability for adaptation is virtually synonymous with survival from an evolutionary perspective (Nelson & Winter, 1982).

On the other hand, core arguments predicting a higher chance of failure for new ventures picture them as unprepared rookies who find it overwhelmingly difficult to meet the urge to adapt to a new environment. Despite all its benefits for new ventures, internationalization has been described to be too much of a risk for unprepared novices who don’t have the experiential
knowledge and abundance of resources to come to their rescue (Johanson & Vahlne, 1977; McDougall, Shane, & Oviatt, 1994; Sapienza et al., 2006). What is important to consider though, is that the decision to have international activity, mostly through international sales, is not one that is made without considering the possible risks that threaten firm longevity, or one made without taking into account the capabilities of the firm to overcome those threats. That is when we control for the endogeneity of their decision to internationalize, we can go beyond this unpreparedness assumption and explore the role of internationalization on survival, treating internationalization as a deliberate strategic decision rather than a blind random treatment. In doing so, the preparedness logic trumps the unpreparedness logic in predicting the survival consequences of internationalization.

Similar to our approach in this paper, Patel, Criaco and Naldi (2016) find that when the endogeneity of the new ventures internationalization decision is controlled for, international sales in the same region decrease the likelihood of failure. The core benefits they see in interregional internationalization, is the opportunity these firms gain through scope economies by having a broader market base, without having to increase their costs significantly. These benefits, of course, cannot be observed if we treat internationalization as an incident that happens to some random set of firms. The reason is that to be able to start exporting outside the borders, firms need to be prepared, in terms of the capabilities that are required in an international stage, such as superior knowledge advantages or marketing capabilities (Grøgaard & Verbeke, 2012). Therefore, we argue that an international presence through exports, demonstrates in itself a decision made by the new ventures managers, based on an understanding of and reliance on their capabilities, to actively engage in international markets. Although being exposed to all the risks of internationalizations for new ventures might be overwhelming, we argue that their
preparedness to take on those challenges helps them flourish the benefits of internationalization, which at the end of the day results in a lower chance of failure for them, had they remained purely domestic. Following these arguments on the benefits of internationalization as opposed to domestic operations for new ventures, we hypothesize as follows:

**H1: After the endogeneity of a firm’s internationalization decision is considered, new ventures that have internationalized have higher chances of survival than those who have not.**

**The moderating effect of age at internationalization**

The benefits discussed earlier for deliberate internationalization are not homogenous across all firm ages. Both scale and learning benefits can be better leveraged, if internationalization is sooner initiated. Mortality rates are higher in the first years after establishment (Schueffel et al., 2011). They tend to become lower when firms age. This implies that the benefits of internationalization, are more critical in the first years after establishment. Also, arguments from the “learning advantages of newness” have it that younger firms can more easily adapt their routines to match requirement of new international environments, as they are not locked into old routines that should be first unlearned before new knowledge can be assimilated (Autio, Sapienza, & Almeida, 2000). Our discussion on learning benefits of internationalization, which relies on the capability of firms to imprint adaptability, among other learning benefits, also implies that these benefits can be better leveraged earlier in the firm’s life cycle.

Nevertheless, the earlier the internationalization strategy is employed, the more likely it is that the “unpreparedness” arguments would apply if we do not control for endogeneity.
The conflicting directions of the unpreparedness forces and positive effects of internationalization may explain why previous studies have found inconsistent results regarding the effect of age and timing of internationalization (Khavul, Pérez-Nordtvedt, & Wood, 2010; Zhou & Wu, 2014). Thus, after controlling for endogeneity, we predict that overall, the sooner the firm starts its international pursuit, the greater the effect of internationalization on the probability of survival. Due to data limitations and consistency with the potential outcome framework, we separate new ventures into a treatment group of late internationalizers and a control group of early internationalizers (who do so in the first three years after inception). Therefore, we hypothesize as follows:

**H2: After the endogeneity of firm’s internationalization decision is considered, new ventures that internationalize late will have lower survival chances compared to new ventures that internationalize early.**

**Method**

**Data**

We used the Kauffman Firm Survey (KFS) panel data for this study. The longitudinal panel version of the KFS consists of 3140 US firms all established in 2004. After a baseline survey in 2004, seven follow up waves at roughly annual intervals were conducted for a total of 8 years of data. The data includes those firms that responded to the survey in every survey wave from the first one to the last (or to the one they exited) or have responded to all follow ups and stated a temporary shutdown at the seventh follow up. The sampled firms were chosen from the Dun and Bradstreet database. The final sample is a stratified one that oversamples businesses in high/medium tech industries (Farhat & Robb, 2014). To account for this oversampling,
probability weights are provided in the final database, which we use to remove selection bias.

Table 11 presents some quick summary count statistics about the subgroups in the total sample, together with their weighted counts.

Table 11-Simple Statistics, technology and gender ownership sampling strata (adapted from Farhat & Robb, 2014)

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Un-weighted</th>
<th>Weighted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>High tech, woman owned</td>
<td>103</td>
<td>2.1%</td>
</tr>
<tr>
<td>High tech, not woman owned</td>
<td>602</td>
<td>12.2%</td>
</tr>
<tr>
<td>High-tech Total</td>
<td>705</td>
<td>14.3%</td>
</tr>
<tr>
<td>Medium tech, woman owned</td>
<td>271</td>
<td>5.5%</td>
</tr>
<tr>
<td>Medium tech, not woman owned</td>
<td>1058</td>
<td>21.5%</td>
</tr>
<tr>
<td>Medium-tech Total</td>
<td>1329</td>
<td>27.0%</td>
</tr>
<tr>
<td>Non tech, woman owned</td>
<td>513</td>
<td>10.4%</td>
</tr>
<tr>
<td>Non tech, not woman owned</td>
<td>2381</td>
<td>48.3%</td>
</tr>
<tr>
<td>Non-tech Total</td>
<td>2894</td>
<td>58.7%</td>
</tr>
<tr>
<td>Total</td>
<td>4928</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The KFS includes a question on the current operating status of the firm and in case the firm is no longer in business, provides data on the reason it went out of business. This reason can be either the business stopped operations permanently, merged into another company or was acquired. We also have data about the international activities of firms in the sample. This information, together with detailed information on individual and business level characteristics and of course the longitudinal nature of the database makes it an excellent source to analyze survival of young international firms. We used the private, confidential version of the database provided by the National Opinion Research Center (NORC), to gain access to more detailed
characteristics than the publicly available database. Table 12 provides data on survival of firms in the database.

Due to increasing importance of international activities of new ventures, the administrators of the survey started asking about international activities of firms only from the third follow up survey in 2007. Respondents were asked whether they had any sales outside of US and for the percentage of their foreign sales to their total sales. Table 13 provides summary statistics on the number of firms that internationalized and their degree of internationalization. We did not include data for the first three years in our analysis, as it would introduce a huge amount of missing observations for the internationalization variable. Therefore, the sample size in our analysis when the internationalization variable is included is 2330.


### Econometric Analysis

We want to assess the causal effect of internationalization on survival taking into account the issue of selection-based endogeneity bias common to most studies of strategies and their outcomes (Hamilton & Nickerson 2003). Following the discussion by Clougherty, Duso and Muck (2016), we note that since we observe survival / failure data for both internationalized and domestic new ventures, the particular type of endogeneity bias here is that of self-selection rather than sample-selection. In self-selection scenarios, the selection of firms into the mutually exclusive treatment and control groups is deliberately chosen by the firm rather than being randomly assigned. Since this self-selection occurs by anticipating the outcome of the choice, the treatment variable (internationalizing vs. not) is endogenous.

Previous approaches to handling self-selection in the empirical literature have been varied, with researchers applying a mix of Heckman-type methods using the inverse Mills ratio (IMR), two-stage least squares (2SLS) with instrumental variables, and switching regression procedures (Shaver 1998, Mudambi & Zahra 2007, Hamilton & Nickerson 2003). In order to allow for comparability with past research, we use a 2-stage Heckman selection model.

---

**Table 13-Statistics of firms with international sales**

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>International Sales (0/1)</td>
<td>326</td>
<td>327</td>
<td>299</td>
<td>294</td>
<td>249</td>
</tr>
<tr>
<td>Percentage of international firms</td>
<td>14.0%</td>
<td>15.6%</td>
<td>15.5%</td>
<td>16.6%</td>
<td>15.3%</td>
</tr>
<tr>
<td>Level of International Commitment (Foreign Sales/Total Sales)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 5%</td>
<td>6.7%</td>
<td>7.1%</td>
<td>7.3%</td>
<td>7.7%</td>
<td>6.8%</td>
</tr>
<tr>
<td>5%-25%</td>
<td>4.5%</td>
<td>5.3%</td>
<td>5.1%</td>
<td>5.2%</td>
<td>4.8%</td>
</tr>
<tr>
<td>26%-50%</td>
<td>1.2%</td>
<td>1.4%</td>
<td>1.2%</td>
<td>1.6%</td>
<td>1.8%</td>
</tr>
<tr>
<td>51%-75%</td>
<td>0.7%</td>
<td>0.7%</td>
<td>0.9%</td>
<td>0.8%</td>
<td>0.9%</td>
</tr>
<tr>
<td>76%-100%</td>
<td>0.8%</td>
<td>1.1%</td>
<td>1.0%</td>
<td>1.1%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>
(Heckman, 1974, 1979), where we predict our treatment variable (whether or not a firm has internationalized) using a first stage generalized estimation equations (GEE) regression and calculate the inverse Mill’s ratio. We then insert the calculated IMR in the second stage regression using survival analysis with the Cox Proportional Hazard Model (Cox, 1972).

However, moving beyond past approaches, we take advantage of the powerful potential outcomes framework or counterfactual model of causal inference (Morgan & Winship, 2007). The potential outcomes framework, sometimes also called the counterfactual approach to causality extends the well-established approach to causal inference in experimental designs to the statistical analysis of non-experimental observational data (Imbens & Rubin, 2015; Morgan & Winship, 2007; Wooldridge, 2010). The potential outcomes framework approaches the question of "Does X cause Y" by breaking it down to the two sub-questions of "If X were "Not X" what would Y be?" and "If "Not X" were X, what would Y be?" (Morgan & Winship, 2007).

Recognizing that in non-experimental observational data, the researcher does not control the manipulation of X and is thus not afforded the ability to randomize, the potential outcomes framework builds on the idea that there is nevertheless an underlying assignment mechanism that assigns individuals to either the X or "Not X" groups. Information about this assignment mechanism may then be used to calculate average causal effects also known as Average Treatment Effects (ATE), often further decomposed into Average Treatment Effect on the Treated (ATET) and Average Treatment Effect on the Not Treated (ATENT). In our context, our treatment variable is firm internationalization, and we measure the effect of this treatment on the complete sample (ATE), as well as subsamples of internationalized (treated) and non-internationalized (not treated) firms.
Estimating these effects relies on comparing observed quantities (the expected value of the outcome for those who were treated) with unobserved quantities (the expected value of the outcome for those who were not treated had they been treated) which have a counterfactual nature. In contexts where endogeneity is a problem, with the help of an instrumental variable an assignment mechanism approximating randomization may be achieved, although caution needs to be exercised in interpreting the results because they will depend on how the particular instrumental variable manipulates the endogenous independent variable, and the extent to which individuals "comply" with the instrumental variable in terms of the impact on values of the endogenous independent variable (Morgan & Winship, 2007; Wooldridge, 2010).

Within the counterfactual approaches, researchers must decide between the endogenous treatment model and endogenous switching model (Claugherty et al., 2016). In the endogenous treatment model, the effect of the treatment variable on the outcome equation is modeled as an intercept, keeping the coefficient of other determinants of the outcome constant. Whereas in the endogenous switching model, the coefficient of all determinants of the outcome are allowed to vary between the treatment and control groups. We argue that since internationalization is a deliberate strategy taking into account a variety of firm and environment characteristics, the effect of such characteristics on post-internationalization survival is likely to vary between treatment and control groups. Thus, in this study we favor the endogenous switching approach, which produces two different sets of coefficients for the predictors of outcome for the treatment and control groups (here internationalized vs. purely domestic firms).

The counterfactual inference approach allows us to estimate several quantities of interest: the potential outcome means \((PO means)\) of treatment and control groups, the average treatment effect (ATE) as a measure of the overall causal effect of the treatment across individual firms.
and the average treatment effect on the treated (ATET) as well as the average treatment effect on the not treated (ATENT). As pointed out by Shaver (1998), these distinct estimates allow us to better understand the different (observed and potential) effect of internationalizing and not internationalizing for both those who did and those who did not internationalize. To calculate these effects, we use the potential outcomes framework as explained above, using Stata’s etffects command to estimate the probability of closure incorporating probability weights and cluster-robust standard errors.

For the treatment model, we followed the suggestion by Ndofor, Sirmon, & He (2011) on the preference of using maximum likelihood estimation of generalized estimation equations (GEE), as compared to both fixed-effect and random effects estimation methods, to estimate parameters of panel data analyses. This is relevant in our study for two reasons. The first reason is that GEE does not require the dependent variable to be normally distributed. Our Decision to Internationalize variable is highly skewed and using methods for normalizing it, significantly disturbs observations. The second advantage of using GEE, is that has no restrictions in terms of assumptions on correlations in within-subject responses (Ndofor et al., 2011). In our model, there is no reason to believe that our variables follow any particular correlation patterns (remain constant over the years or change).

Variables

Dependent Variable

We define closure for a firm in our sample as whether or not the firm went out of business in the observation year (closure=1 indicates closure and closure=0 indicates survival). In line with the recent entrepreneurial exit literature that cautions against counting mergers and acquisitions of
new ventures as failures, we coded cases of mergers and acquisitions as well as non-response as missing so that they are not entered into the analysis.

_Treatment Variables_

Our main treatment variable is a binary indicator of whether or not the firm has had any international sales until the observation year. This measure is consistent with extant research on internationalization of new ventures (Fernhaber & Li, 2010; McDougall & Oviatt, 1996; Reuber & Fischer, 2002).

For our second hypothesis, the treatment variable is a binary indicator of whether the firm was a later internationalizer whose first international activity was in 2008-2011 or an early internationalizer (who internationalized in the first three years after inception, i.e., 2004-2007). This binary indicator was chosen over a continuous variable for age at entry because lack of data on the years before 2007 makes it difficult for us to establish the precise inception of international activity, and also because a binary treatment variable is more compatible and comparable with the potential outcomes framework applied to our first hypothesis.

_Instrumental Variables_

Most approaches to dealing with endogeneity rely on identifying endogenous equations by using strong instrumental variables (IVs) as predictors of the endogenous treatment. In other words, the set of predictors in the treatment equation must include at least one variable that explains a significant portion of the variation in the treatment variable, but does not have any other independent effect on the outcome variable. Models that fail to incorporate strong IVs produce unstable and uninterpretable results (Certo, Busenbark, Woo, & Semadeni, 2016; Hamilton & Nickerson, 2003). Nevertheless, IV estimation is not without complications of its own.
Especially in the potential outcomes framework, ATE values need to be interpreted with caution as Local Average Treatment Effects (LATE) meaning that they are sensitive to the particular variance of the endogenous treatment that is manipulated by the particular instrument chosen (Morgan & Winship, 2007).

In the KFS, respondents were asked if their firm provides a service, a product, or both. We use this data to create a binary variable indicating whether or not a firm has a product. We argue that being product vs. service oriented makes a firm much more likely to have international sales, while not having any other independent effect on survival. Service-based ventures are normally more embedded in local markets and need extensive adaptation and recombination of human skills to meet the specific requirements of international entry (Grøgaard & Verbeke, 2012; Rugman & Almodovar, 2011). We find strong correlations between this IV and our treatment variable in all of our first stage models. At the same time, being service or product oriented, does not have a clear theoretical effect on the survival of the firm.

In addition, we preformed statistical checks using instrumental variable regressions (Stata’s `ivreg2` command) to ensure that we do not have a weak instruments or endogenous instruments problem (Clougherty et al., 2016). The variable appears to be a good instrument as the mean p value for the Kleibergen-Paap Lagrange Multiplier is 0.0435 (below 0.05 treshold) indicating no problem of underidentification. In addition, the Kleibergen-Paap Wald F statistics is 18.636, which is above the Stock & Yogo’s 10% threshold of 16.38 (Clougherty et al., 2016; Stock & Yogo, 2005) and indicates that we don’t have a weak instruments problem.

With similar reasoning, we argue that our have_product variable, is a reasonable instrument for our age at internationalization treatment as well, as the same logic has it that purely service-based companies would require more time, experience and information to be able
to adjust their services to the international stage, but this variable does not have a direct effect on survival. As for the statistical checks, the mean p value for the Kleibergen-Paap Lagrange Multiplier is 0.0539 (slightly over the 0.05 threshold) indicating a weak passing of the underidentification test. The Angrist-Pischke Chi square statistics for underidentification, however, shows a p value of 0.0005 and hence, no problem of underidentification. The Kleibergen-Paap Wald $F$ statistics is 9.57, which is close to the rule of thumb threshold of 10 (Clougherty et al., 2016), which again shows no great concern for weak instruments.

Table 14-Variables

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description/Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closure</td>
<td>Equals 1 if the firm has gone out of business in the observation year, and 0 for survived firms. Missing for M&amp;A exits.</td>
</tr>
<tr>
<td>International Sales (1/0)</td>
<td>Equals 1 if firm has any international sales in its life cycle</td>
</tr>
<tr>
<td>Late vs. Early Internationalization</td>
<td>Equals 1 if firm has internationalized in 2008-2011 for the first time and 0 if the firm has internationalized in 2004-2007 for the first time. Missing for non-internationalized firms.</td>
</tr>
<tr>
<td>Knowledge intensity</td>
<td>Number of R&amp;D employees divided by total employees</td>
</tr>
<tr>
<td>Human resource Slack</td>
<td>The ratio of employees/sales compared to the industry average</td>
</tr>
<tr>
<td>Financial Slack (ln)</td>
<td>Amount of available cash minus short term debt as a percentage of sales (natural logarithm)</td>
</tr>
<tr>
<td>Credit Risk</td>
<td>The risk of credit default for the business based on five ranges of credit scores.</td>
</tr>
<tr>
<td>Firm Size(ln)</td>
<td>Natural logarithm of total employees</td>
</tr>
<tr>
<td>Managers work experience</td>
<td>Number of years of experience, averaged for top management team</td>
</tr>
<tr>
<td>Other Business</td>
<td>Equals 1 if any of the managers had another entrepreneurial experience before starting this firm</td>
</tr>
<tr>
<td>Female Owned</td>
<td>Equals 1 if the principal owner is female</td>
</tr>
<tr>
<td>Majority immigrant founders</td>
<td>Equals 1 if majority of founders are immigrants</td>
</tr>
<tr>
<td>Founders average education</td>
<td>Average years of higher education for top management</td>
</tr>
<tr>
<td>Industry technology level</td>
<td>Equals 1 if industry is high-tech, 0 otherwise</td>
</tr>
<tr>
<td>Industry average internationalization</td>
<td>Average percentage of firm internationalization in the industry, based on data from Survey of Business Owners (2007)</td>
</tr>
</tbody>
</table>
Have Product  
Equals 1 if firm provide a product or product-service mix, and 0 if the firm is provides only services. Missing if the firm provides no products or services.

Traded/Local industry  
Equals 1 if industry is identified as a ‘traded’ industry, 0 if ‘local’ as defined and specified by Delgado et al. (2015)

Control Variables

Consistent with extant research, we condition on a set of observable control variables that can potentially have an effect on international sales or survival, aka our treatment and outcome variables. We rely on past studies from international entrepreneurship and strategy literature and control resource endowments of the firm, individual characteristics of the entrepreneurs and industry characteristics (Mudambi & Zahra, 2007; Oviatt & Patricia P. McDougall, 2005; Zucchella, Palamara, & Denicolai, 2007). We include these control variables both in the treatment and outcome regression estimates, although there does not seem to be consensus on whether or not all the control variables for the outcome model also need to be included in the treatment model (Caliendo & Kopeinig, 2008: 38–39).

We measure resource endowments through Human Resource (HR) Slack and Financial Slack. The reason we used the slack notion instead of the absolute value is that for resources to be effective in internationalization, they should be fungible so that entrepreneurs can transfer them across borders (Sapienza et al., 2006; Sui & Baum, 2014; Verbeke & Yuan, 2013). We measure HR Slack as the inverse of employee productivity of the firm, compared to the industry (Datta, Guthrie, & Wright, 2005; Ferlic, 2008; Lecuona & Reitzig, 2014; Mishina, Pollock, & Porac, 2004). We therefore measure HR slack as:

\[
\text{HR Slack} = \frac{\text{No. of Employees}}{\text{Sales}} - \left[\frac{\text{No. of Employees}}{\text{Sales}}\right]_{\text{ind}}
\]
| I | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |
| 1 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |
| 1 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |
| 1 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |
| 1 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |
| 1 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 | 19843 |

Table 15: Descriptive Statistics, Pairwise Correlations. * P < 0.5
To measure Financial Slack resources, we use Bourgeois and Singh's (1983) definition of available slack, measured as follows:

\[
\text{Financial Slack} = \frac{\text{Cash and Securities} - \text{Current Liabilities}}{\text{Total Revenue}}
\]

Knowledge intensity is included in the model due to extant evidence on its role in internationalization decision (Autio et al., 2000; Baum, Schwens, & Kabst, 2011; Fernhaber & Li, 2010; Li, Qian, & Qian, 2015). We measure knowledge intensity by dividing the number of employees in R&D to the total number of employees. Being backed by a venture capitalist can affect both survival and internationalization decision (Fernhaber & Mcdougall-Covin, 2009). The KFS also provides a credit risk rating for the firms, based on the firms’ credit score risk class (higher means higher risk), which we control as it can potentially affect both internationalization and survival. We further add in our model the managers’ past experience by measuring the average number of years of past experience of the top management (Manolova, Manev, & Gyoshev, 2010; Westhead et al., 2001). In addition, we control for past entrepreneurial experiences of the top management, by adding a variable, which we name Other Business, that equals one if any of the firm founders had a start-up experience before founding their current firm, and zero if they did not. We also include in our estimation models, entrepreneur characteristics such as immigrant status, gender and level of education (Hashai, 2011; Robson, Akuetteh, Westhead, & Wright, 2012; Verbeke, Zargarzadeh, & Osiyevskyy, 2014). We control for Firm Size by using the number of employees. We use the logarithm of this amount to account for the skewness of firm size.

As discussed above, firms might internationalize in an effort to gain legitimacy in competing with incumbents in their industry. Therefore, we predict that the level of internationalization in an industry, would have a role in the firms’ decision to internationalize.
To measure this, we calculate the average level of internationalization of each industry at the 2-digit NAICS code using data from the survey of business owners (SBO) provided by the US Census Bureau (Census Bureau, 2007), to provide a reliable source of data from a representative sample of firms. The benefit of using SBO, is that we have data from a large sample of firms, with a higher potential to represent the whole population of firms in the industry. It is interesting though, to note that the industry averages calculated using SBO are highly correlated with the ones calculated from KFS itself ($\rho = 0.846$). We also control for the industry effects by using a dummy variable for the firm being in a high-tech industry (Mudambi & Zahra, 2007). Table 15 provides descriptive statistics and pairwise correlations between our model variables.

**Analysis and Results**

We begin the analysis of the effect of internationalization on survival by estimating the treatment model (Table 16 column A) in order to use the predicted values of the treatment in a 2SLS-style second stage outcome model (column C) and to calculate the IMR for the Heckman-based analyses in columns D, E and F. For comparison, a single-stage outcome model that does not account for endogeneity is reported in column B.

<table>
<thead>
<tr>
<th>Table 16-Estimation results for H1, choice model and survival analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimation Model</td>
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<tr>
<td>International Sales (1/0)</td>
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<tr>
<td>Category</td>
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<tr>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Knowledge intensity</td>
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<tr>
<td>Human resource Slack</td>
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<td>Financial Slack (ln)</td>
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<tr>
<td>Credit Risk</td>
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<tr>
<td>Other Business</td>
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<tr>
<td>Firm Size(ln)</td>
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<tr>
<td>Managers work experience</td>
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<tr>
<td>Female Owned</td>
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<td></td>
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<tr>
<td>Majority immigrant founders</td>
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<tr>
<td>Founders Ave. education</td>
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<td></td>
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<tr>
<td>Industry technology level</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Industry Ave. Int'l</td>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Have Product</td>
</tr>
<tr>
<td>International Sales (Predicted)</td>
</tr>
<tr>
<td>Mill’s Ratio</td>
</tr>
<tr>
<td>Constant</td>
</tr>
</tbody>
</table>

| No. of Observations                   | 7569         | 7594           | 7574        | 7569    | 5884    | 1685 |
| F (df)                                | 5.38(13)     | 5.17(13)       | 5.19(14)    | 3.23(13) | 3.46(13) |     |
Thinking back to the distinction between the preparedness perspective and unpreparedness perspective, it is noteworthy that our findings in the treatment model (column A) support the notion that new ventures self-select into internationalization when they are prepared to do so, and when the legitimacy benefits of doing so are likely to be high (i.e., when their peers are internationalizing). We find that firm size, founders’ education, technology level and industry average internationalization are all highly significant predictors of internationalization, along with our instrumental variable. This confirms the findings of international entrepreneurship theories on the role of firm and entrepreneurs’ idiosyncratic capability endowments on the decision of new ventures to internationalize (James M. Bloodgood, Sapienza, & Almeida, 1996; Dai, Maksimov, Gilbert, & Fernhaber, 2014; Oviatt & Patricia P. McDougall, 2005). Besides we see the predictions we had based on institutional theory that firms follow their peers in the decision to internationalize are supported. In other words, internationalization is not a passive incident in the life cycle of a firm, but an active decision made by new ventures which is enabled by their idiosyncratic capabilities. The only coefficient inconsistent with the preparedness logic is the positive coefficient for credit risk.

Moving on to the outcome models we see that in a model that does not control for endogeneity (column B) a significant effect of internationalization is observed, such that internationalized firms have a 48.7% lower hazard of closure than domestic firms (0.513 compared to 1). However, once endogeneity is corrected for using either predicted treatment
levels (column C) or the IMR (column D), the effect of internationalization on survival is no longer significant. This is similar to the results reported by Mudambi & Zahra (2007) and Shaver (1998). Columns E and F suggest that some of the determinants of survival such as credit risk, HR slack and work experience, differ among internationalized and domestic firms.

**Potential Outcomes and the Endogenous Switching Model**

We rely on Stata’s `-teffects-` command for our main analysis. This command uses a probit model for estimating both the treatment and outcome equations. Columns G, H, and I in table 17 test hypothesis 1 with internationalization taken as the treatment, while columns J, K, and L pertain to the test of hypothesis 2 taking early vs. late internationalization as the treatment. The treatment model in column G is similar to that of column A as expected, and the results in columns H and I are in line with those in columns E and F, again providing some reassuring triangulation.

Estimated ATE, ATET and ATENT values are provided in Table 18. For our first hypothesis, we have a statistically significant ATE (-0.0335***) indicating that the overall average treatment effect of the internationalization treatment is a reduction in closure rate. However, when we attempt to decompose this effect to ATET and ATENT values, only the ATENT is statistically significant (-0.0458***). The interpretation of ATENT is that for those firms that did not internationalize, the estimated potential outcome had they internationalized would have been significantly lower closure rates.
Table 17-Estimation results for H1 and H2, endogenous switching model

<table>
<thead>
<tr>
<th>Estimation Model</th>
<th>(G) Treatment</th>
<th>(H) Outcome Int. Sales=0</th>
<th>(I) Outcome Int. Sales=1</th>
<th>(J) Treatment</th>
<th>(K) Outcome Early Int.=0</th>
<th>(L) Outcome Early Int.=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge intensity</td>
<td>0.425**</td>
<td>-0.146</td>
<td>0.519</td>
<td>0.181</td>
<td>1.339*</td>
<td>-0.145</td>
</tr>
<tr>
<td>Human resource Slack</td>
<td>-0.102**</td>
<td>0.062†</td>
<td>-0.031</td>
<td>-0.162**</td>
<td>0.050</td>
<td>0.152</td>
</tr>
<tr>
<td>Financial Slack (ln)</td>
<td>-0.013†</td>
<td>0.015</td>
<td>0.022</td>
<td>-0.011</td>
<td>0.036</td>
<td>0.031</td>
</tr>
<tr>
<td>Credit Risk</td>
<td>0.026</td>
<td>0.139***</td>
<td>0.201**</td>
<td>0.042</td>
<td>0.106</td>
<td>0.217*</td>
</tr>
<tr>
<td>Other Business</td>
<td>0.103</td>
<td>0.003</td>
<td>0.376*</td>
<td>-0.023</td>
<td>0.404</td>
<td>0.317</td>
</tr>
<tr>
<td>Firm Size(ln)</td>
<td>0.186***</td>
<td>-0.203***</td>
<td>-0.332*</td>
<td>0.024</td>
<td>-0.132</td>
<td>-0.542***</td>
</tr>
<tr>
<td>Managers work experience</td>
<td>-0.001</td>
<td>-0.006†</td>
<td>-0.021**</td>
<td>-0.001</td>
<td>-0.024†</td>
<td>-0.019†</td>
</tr>
<tr>
<td>Female Owned</td>
<td>-0.082</td>
<td>0.068</td>
<td>0.191</td>
<td>0.017</td>
<td>0.334</td>
<td>0.203</td>
</tr>
<tr>
<td>Majority immigrant founders</td>
<td>0.239*</td>
<td>-0.229†</td>
<td>-0.022</td>
<td>-0.043</td>
<td>0.171</td>
<td>-0.238</td>
</tr>
<tr>
<td>Founders Ave. education</td>
<td>0.103***</td>
<td>-0.019</td>
<td>0.102†</td>
<td>0.007</td>
<td>0.015</td>
<td>0.086</td>
</tr>
<tr>
<td>Industry technology level</td>
<td>0.239*</td>
<td>0.001</td>
<td>-0.206</td>
<td>-0.021</td>
<td>-0.203</td>
<td>-0.340</td>
</tr>
<tr>
<td>Industry Ave. Int’l</td>
<td>1.861***</td>
<td>-0.258</td>
<td>1.608</td>
<td>-0.109</td>
<td>1.152</td>
<td>1.140</td>
</tr>
<tr>
<td>Have Product</td>
<td>0.398***</td>
<td>-0.138*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For our second hypothesis, we find the overall ATE to be insignificant, but the ATET to be statistically significant (0.0225***). The interpretation of ATET here is that for late internationalizers, the difference in outcome compared to the estimated potential outcome had they internationalized early, is a higher closure rate.

Table 18-Local Average Treatment Effect (LATE) values testing H1 and H2

<table>
<thead>
<tr>
<th>Treatment:</th>
<th>Outcome: Closure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internationalization</td>
</tr>
<tr>
<td>Potential Outcome Mean of not receiving treatment for all firms</td>
<td>0.0401*** (9.69)</td>
</tr>
<tr>
<td>Average Treatment Effect (ATE) on all firms (for receiving vs. not receiving treatment)</td>
<td>-0.0335*** (-3.78)</td>
</tr>
<tr>
<td>Potential Outcome Mean of not receiving treatment for treated firms</td>
<td>0.0107 (0.71)</td>
</tr>
<tr>
<td>Average Treatment Effect on the Treated (ATET)</td>
<td>0.0096 (0.62)</td>
</tr>
<tr>
<td>Potential Outcome Mean of receiving treatment for untreated firms</td>
<td>0.0026 (0.26)</td>
</tr>
<tr>
<td>Average Treatment Effect on the Not Treated (ATENT)</td>
<td>-0.0458*** (-4.42)</td>
</tr>
</tbody>
</table>

z statistics in parantheses
Coefficient significance levels: *** p < 0.001, ** p < 0.05 and † p < 0.1

Robustness of Results

We took a variety of steps to check for robustness. First, since instrumental variable methods can be sensitive to the particular instruments chosen, we repeated our estimations by adding as well as substituting another instrumental variable, namely a binary indicator of whether or not the
firm’s industry is classified as *traded*. Local industries have a primary focus of serving local customers, whereas traded industries sell across regions and countries (Delgado, Porter, & Stern, 2015; Porter, 2003). Some industries are by nature more local than others (Delgado et al., 2015: 11), whereas there is no particular reason that chances for survival would be different in such industries independently of internationalization. Using both *traded* and *have_product* as our instruments, does not qualitatively change the results of our treatment effects analysis, as to the survival of internationalized firms. It should be noted however that with this arrangement we have both an under-identification (Kleibergen-Paap Lagrange multiplier with p value of 0.1039 above the 0.05 threshold) and a weak instruments problem (Kleibergen-Paap Wald F statistics 19.85, at the margin of the Stock-Yogo 10% threshold of 19.93). Moreover, using multiple instrumental variables in a potential outcomes framework creates a mixture-of-LATEs problem rendering the interpretation of the effects more difficult (Morgan & Winship, 2007: 212).

We also tried a substitute for our treatment variable. Instead of using a binary indicator for whether or not a firm has internationalized, we tried using the percentage of international sales data captured in a range variable with five indicators for different ranges of internationalization level. Since this is no longer a binary treatment variable, we were unable to run the eteffects command, but the results from ivreg2 are in line with our first hypothesis. We use a Heckman 2-stage model, where we project internationalization level at the first stage and calculate the predicted value for internationalization level and then run the second stage survival analysis with the predicted value for internationalization level as a separate regressor. The results show a positive effect of internationalization level on survival, meaning higher levels of internationalization increase the chances of survival for new ventures. These results are in line with our predictions and findings in this study.
Limitations

Our study has a number of limitations. First, we don’t have data about internationalization of firms in KFS up until the third year of operation. This creates a left censoring problem in our survival analysis, as we can only observe internationalization for firms that have survived until 2007 (third year of operation), which we handle using stset for our survival analyses and by removing all observations before 2007 in other analyses. Still, all of our results are conditional on firms having survived until 2007. Second, because we don’t have internationalization data for the first 3 years, we can’t measure a reliable continuous age at entry variable and can only test a binary indicator for early vs. late internationalization. This binary indicator makes an assumption that those firms which—in our limited data—seem to begin internationalization in the 2008-2011 period, did not temporarily internationalize before 2007 and stop on or before 2007. We consider this to be an admissible assumption because the observed patterns of internationalization in this data typically show that once a firm has international sales, it usually continues to have international sales in subsequent years. Third, although we can interpret the overall effect and the direction of impact of internationalization on survival, interpreting the coefficients of our probit regressions is not straightforward. This is one of the limitations of treatment effects models when the outcome variable is binary. Finally, the interpretation of LATEs in a potential outcome framework with instrumental variables must be approached with caution as they are sensitive to the particular instruments chosen (Morgan & Winship, 2007).

DISCUSSION AND CONCLUSIONS

The research on the antecedents of internationalization is often done independently from the research on its consequences (Jones, Coviello, & Tang, 2011). Yet as we have argued here,
theories on the consequences of new venture internationalization involve implied assumptions about the antecedents as well. One line of argument tells a story of unprepared novices making a risky move, and thus predicts negative consequences. Another line of argument tells a story of prepared entrepreneurs making a strategic decision, and thus predicts positive consequences. This gives rise to an important theoretical and empirical endogeneity problem in the study of the consequences of internationalization. The only way to overcome this problem is to account for the fact that new ventures self-select into internationalization. This is what we have aimed to do in this paper using a potential outcomes or counterfactual inference approach with an endogenous switching model of self-selection.

Our results go against the old “unpreparedness” theory of post internationalization survival of new ventures, a.k.a. process theory, in three ways: First, our first stage regressions paint a picture of ventures self-selecting into internationalization when they are ready and are likely to gain legitimacy benefits from doing so. Second, after controlling for this self-selection we find a positive average treatment effect of internationalization on survival, and third, we find evidence that early internationalization is better for post-internationalization survival than late internationalization.

While we would like to claim that these results support the new theory of new venture internationalization, a.k.a. the International New Venture framework (Oviatt & McDougall, 2005), such a claim would go against the most prominent theoretical integration of the old and new theories to date, which is the model of Sapienza et al (2006). Sapienza and colleagues retain the arguments of the old theory for survival, but apply the arguments of the new theory for growth. In contrast, we have found indication that the new theory applies to survival just as well.
Our paper is one of the first to provide concrete evidence for the survival benefits of internationalization of new ventures. In doing so, we provide a strong impetus to theoretically “unchain” the new theory from the shackles of the old. We believe that our results should invite researchers in international entrepreneurship to admit that many of the benefits of internationalization foreseen by the International New Venture framework (Oviatt & McDougall, 2005), apply to survival just as well as growth, despite the tenuous distinctions made by Sapienza et al (2006).

In the end, however, whether or not we admit positive survival effects as a consequence of new venture internationalization, should be a question settled not by theoretical debate, but empirically, and by the quality and quantity of evidence that accumulates over time in future studies. In this study, we have only taken an early step that can be further explored in future research.


Coeurderoy, R., Cowling, M., Licht, G., & Murray, G. 2011. Young firm internationalization and survival: Empirical tests on a panel of “adolescent” new technology-based firms in Germany and


CHAPTER 5: CONCLUSION
Early internationalization is a phenomenon with significant practical and academic relevance. More firms are perceiving international expansion at or near start-up not just feasible, but a practical requirement. This has motivated much research in the fields of international business, entrepreneurship and strategic management to study early internationalizing firms. This thesis aims to contribute to this literature by studying the antecedents, process and performance outcomes of internationalization for young and new ventures. The three manuscripts included in this thesis study a) drivers of early internationalization and performance outcomes thereof by integrating results of past empirical research; b) dynamics of balancing firms resources between international expansion and alternative growth directions of young ventures; c) the effects of international entry on the survival of young ventures as compared to domestic young ventures. I will analyze in this chapter the summary of findings of these manuscripts and discuss their implications. In addition, I will discuss the limitations of this dissertation and areas that can be further explored in future research.

Review of findings

The manuscripts in this dissertation aim to contribute to understanding about antecedents, processes and performance outcomes of early internationalization. The first manuscript (Chapter 2) is a meta-analysis structural equation modelling (MASEM) on findings of 106 empirical research papers from the past 30 years. This article shows that empirical findings about early internationalization are consistent with our proposed framework based on modern international business theories—specifically internalization theory. In addition, our results are not consistent with international entrepreneurship scholars depicting early internationalization as an “unusual” act of “alert” entrepreneurs expanding across borders despite significant “asset parsimony” (Cavusgil & Knight, 2015; Knight & Cavusgil, 2004). Our findings show that young ventures
that internationalize are not “asset parsimonious”. Rather, they are endowed with various firm-specific advantages (FSAs) including knowledge-based, relational and human capital FSAs that enable international expansion and performance thereof. International business theories have been criticized for having a firm-level focus and ignoring the capabilities of the entrepreneurs that make early internationalization possible (Knight & Cavusgil, 2004; McDougall, Shane, & Oviatt, 1994). However, other scholars cite the rich tradition of analyzing individuals in international business, which can provide insights to understand their role in early internationalization (Verbeke & Ciravecna, 2018). Based on international business literature, the human capital of the entrepreneurs is a key source of firm-specific advantage for firms (c.f. Verbeke, Zargarzadeh, & Osiyevskyy, 2014). Our study, however, is the first one to take into account the unit level of FSAs in explaining their role in internationalization. That is, we explain that individual-level FSAs (e.g. experience or education of entrepreneurs), diffuse upward to shape firm-level FSAs (e.g. knowledge-based and relational capabilities), which would then lead to international entry and success. Our meta-analysis also questions the applicability of the notion of “learning advantages of newness” (Autio, Sapienza, & Almeida, 2000) and a blank rejection of gradual pathways to internationalization (Johanson & Vahlne, 1990, 1977). We show that an optimal growth path typically includes at least some prior time spent in the home market, before venturing abroad. As such, there are learning advantages to newness, but the international entry decision cannot be rushed.

Our meta-analysis also showed that the presence of high quality FSAs might motivate firms to pursue alternative pathways to growth that could be more appealing to the firm than internationalization. Our paucity in understanding what drives the decision of some firms to enter international markets, while others prefer domestic operation or other growth paths, motivates
the second essay in this dissertation (Chapter 3). Perceiving international entry as a pathway to growth, we studied the dynamics of allocating firm resources towards different growth paths, namely international entry and internal product development. That is, we focused on the early internationalization decision and studied how firms differ in choosing their growth path; whether through internal product development that can be done with minimal repurposing of current resources and operations, or to pursue international entry that requires significant resources and is a more uncertain alternative. We used Pernose’s theory of the growth of the firm (Penrose, 1959) and Cyert and March (1963)’s behavioral theory to uncover the dynamics of growth decision of young ventures. We show that firm resources, specifically, human resource (HR) slack that can be detached from the normal operations of the firm represent valuable knowledge-based capabilities that can create value for the firm in pursuing their growth initiatives. Our results indicate that HR slack simultaneously has an inverted U-shaped relationship with internal product exploration in young ventures, and a U-shaped relationship with international market exploration. Therefore there is a substitute relationship between these two alternate growth paths. At low levels of HR slack they tend to trade internationalization for product exploration, until they have reached certain levels of HR slack representing non-location bound firm-specific advantages that could be transferred abroad without jeopardizing their current operations (Rugman & Verbeke, 2004, 2008). We further find that firms with high entrepreneurial competence pursue internationalization even at low levels of HR slack.

The meta-analysis in Chapter 2 showed that the research on the antecedents of internationalization is often done independently from the research on its consequences (Jones, Coviello, & Tang, 2011). The third manuscript of this dissertation (Chapter 4) aims to fill this gap by analyzing the effect of international market entry on the survival of young firms,
considering the endogeneity of their decision to internationalize. We compared the survival rate of young ventures that expand internationally with their domestic counterparts, and found support for a positive effects of internationalization on the survival of young firms. That is, we show that internationalization is not an accident happening to a random set of firms, thus threatening their existence due to costs and uncertainties attributable to international operation (as argued by past theories, see inter alia Sapienza, Autio, George, & Zahra, 2006). Rather, international entry is a decision made by firms, equipped with firm-specific advantages that make them prepared for the costs and uncertainties they face in the international market. Therefore, controlling for this preparedness, internationalization has a positive effect on the survival of young firms. Further, we show that the sooner firms start their first international entry, the higher would be the positive effects of international entry on their survival.

Research implications

The findings of this dissertation have a number of important implications. First, these manuscripts question the claims by international entrepreneurship scholars that “traditional” international business theories fail to explain early internationalization (c.f. Knight & Liesch, 2015; Knight & Cavusgil, 2004; McDougall et al., 1994). In our meta-analysis (Chapter 2), we show that depictions of early internationalization as a decision made by risk-taking and “alert” entrepreneurs entering international markets despite “resource parsimony” is not accurate. Rather, we show entrepreneurs equipped with high education and years of international experience, command firms with superior firm-specific advantages including knowledge, relational and marketing capabilities into international markets. This is in line with modern international business theory—importantly modern internalization thinking—explaining internationalization as the entrepreneurial combinations of valuable firm-specific advantages
with resources acquired in the host market, thereby creating new advantages. Our analysis in Chapter 3 also shows the importance of having abundant human resources, representing knowledge-based bundles of the firm, that can be allocated towards international expansion. Parsimony in such slack resources would encourage firms to pursue alternative growth paths such as internal product development. The survival analysis in Chapter 4 is another evidence of the role of being prepared through firm-specific advantages for the international entry of young ventures. Such a calculated decision to expand internationally would then have a positive effect on their survival.

The totality of these findings reject the internationalization despite resource parsimony argument and signify the role of FSAs, whether individual or firm level, in early internationalization, which is the second important contribution of this dissertation. The arguments for claiming early internationalizing firms are a unique breed of firms and need new theorization, rests partly on the assumption that traditional international business theories assume a large size and presence of slack resources (Knight & Cavusgil, 2004; Knight, Madsen, & Servais, 2004; McDougall et al., 1994; Oviatt & McDougall, 1994). These scholars suggest that internationalization of young ventures happens despite lack of resources by young and small firms, but enabled by specific knowledge-based capabilities that create foreign location advantages for them (Knight & Cavusgil, 2004; Oviatt & McDougall, 1994). This thesis shows that firm-specific advantages, which are at the core of mainstream international business theory (Casson, 2017; Hennart, 1982; Rugman & Verbeke, 2004, 2008), and their transfer and recombination across borders explain internationalization of firms; established firms as well as young and new firms. These FSAs, mostly valuable knowledge resources (Verbeke & Kano, 2016), are not meant to create sustainable competitive advantage as the INV framework (Oviatt
& McDougall, 1994), or the born-global concept suggest (Knight & Cavusgil, 2004). Rather, it is the continuous sensing of international opportunities by entrepreneurs, transferring of valuable knowledge-based FSAs and recombining them with resources in the host country, including through network partners, that creates new FSAs for firms in the host market\textsuperscript{13}. In other words, rather than having a gold mine that does not perish, firms rely on continuous digging for valuable resources to survive international competition. It is therefore, critical to better understand these FSAs that enable young firms to compete in the international arena. Chapter 2 provides a multilevel analysis of individual- and firm-level FSAs based on findings of past research. Chapters 3 and 4, also show the importance of FSAs in the international decision of the firms and their post-entry survival.

A third important implication of this dissertation is that various dependent variables of internationalization follow different patterns. In Chapter 2, we showed in our meta-analysis the different behavior of international entry decision (i.e. international vs. domestic operations), international intensity (i.e. the ratio of foreign sales to total sales) and international performance (financial and otherwise). Also in Chapter 4, the international entry decision is shown to be endogenous to the survival rates of young ventures and as such, the two variables follow different patterns and logic. This demarcation of various dependent variables of internationalization and the need for different theoretical and empirical analysis for each variable is less recognized in past research (Jones et al., 2011). This dissertation signifies this and provides at least two examples of such differences in analysis for different dependent variables.

\textsuperscript{13} Some IE scholars, however, provide theoretical models that are more dynamic and focus on a continuous and path dependent process for internationalization. See inter alia Al-Aali & Teece (2014) and Jones & Coviello (2005)
Finally, the fourth important contribution of this research is questioning the applicability of the widely explored and cited notion of “learning advantages of newness (Autio et al., 2000)”. The idea that young firms are less burdened by the rigidity of established routines compared with older firms and are more agile to learn and adapt to the requirements of international markets (Autio et al., 2000) is in fact a plausible argument. In the survival analysis of Chapter 4, we find that the sooner firms start international entry, the higher would be the positive effects of internationalization on their survival. However, our findings based on past empirical research in the meta-analysis of Chapter 2 show that this logic needs to be applied with care. Specifically, we found that a later (rather than rushed and perhaps unprepared) entry into international markets, might better prepare firms for international competition and thus leads to higher international intensity and international performance. Nevertheless, younger firms in general showed a higher performance after internationalization. I therefore argue based on these findings that future research could reveal boundary conditions for the applicability of this widely explored concept in international entrepreneurship literature.

Limitations

This dissertation is prone to limitations, beyond the detailed discussion of limitation in each of the included manuscripts, which motivate further research. First and foremost, the three manuscripts of this thesis use “quantitative” research methods. Meta-analysis, structural equation modelling, regression analysis and potential outcomes framework used in these chapters, are all types of quantitative methods. They rely on causal relationships, sampling of firms, quantifying and operationalizing concepts and making assumptions, for example about linearity of some of the relationships. Quantitative methods can provide valuable insights to our understanding, but it is only a combination of research methods, for example quantitative methods combined with
qualitative methods, that can provide a complete picture about the question under study. More
complex analyses such as qualitative case studies, simulation-based methods, historical analysis
or study of the dynamics of organizational processes can provide valuable insights majorly
unexplorable through quantitative methods. The choice of quantitative methods was in part due
to the specific research questions of this thesis requiring analysis on a large sample of firms, and
also due to my experiences and background. My engineering background and familiarity with
statistical analysis, and lack of experience with qualitative research methods prior to my PhD
studies was an important reason in preferring quantitative methods. Acknowledging the
limitations of these methods, however, I have expanded my research to include qualitative and
conceptual analyses, which are not included in this dissertation to keep the cohesiveness of the
included manuscripts.

This dissertation is also limited in terms of the data used for analysis. The meta-analysis
of Chapter 2 is by definition limited to past empirical studies and their deficiencies. Its findings,
although less prone to error compared with the included primary studies, should be analyzed
with care and with acknowledgment of the limitations of the meta-analysis methods and past
research in the field. As for the data used in Chapters 3 and 4, I have spent a significant amount
of time in exploring and comparing various databases that include young ventures, have key
behavioral, financial and entrepreneurs’ characteristics firms together with data about their
international activity, and are longitudinal. There are very few databases of entrepreneurial firms,
that meet all these requirements. Kauffman Firm Survey database is unique in being the largest
and longest (4,928 firms tracked for eight years) longitudinal study of new ventures, and having
in its survey a multitude of questions of firm and entrepreneur characteristics and behavior
(Farhat & Robb, 2014). These data are supplemented with various external databases of young
ventures to include financial and other important data about the firms. Nonetheless, KFS also faces limitations. Importantly, we don’t have complete data of the international activity of firms. Whether firms have international sales or not (our international decision variable in Chapters 3 and 4) and the percentage of sales from foreign markets is only asked in the third year of the survey. Besides, we don’t have data of the geographical location of these international expansions or their entry mode; two important variables that could supplement the analysis of this thesis and support further research on early internationalization. Limitation of the sampled firms to only one country (the United States) could also limit us in understanding the effects of country-level contextual factors on the research questions of this thesis.

A third limitation of the thesis is with regards to its approach being limited to a specific time-frame in the life cycle of firms. This is a limitation applicable to most studies on early internationalization (Jones et al., 2011; McDougall & Oviatt, 2000; Zahra, 2005). This is important to acknowledge, especially because the findings of this thesis are in contradiction with the argument that early internationalizing firms are a new breed of firms requiring new theories. Limiting the analysis to only the first few years of international activity of firms, has restricted us in understanding how these firms will behave when they become mature (Knight & Liesch, 2015). A historical analysis, including but not confined to the first few years of the operation of firms can better inform our understanding of the early internationalization phenomenon and the firms that adopt this approach.

**Evolution of ideas throughout chapters**

The three manuscripts included in this thesis were prepared in different times throughout my PhD years, which has resulted in an evolution of my thinking and approach about early internationalization. The manuscripts are not presented here chronologically. Chapter 4 on the
effects of internationalization on the survival of young ventures was actually prepared before Chapters 2 and 3. This chapter, now published in the Small Business Economics journal (Fariborzi & Keyhani, 2018), is generally in line with the findings of other chapters, but the wording of arguments, parts of the analysis and the terminology used in that chapter could have changed with my knowledge evolving through these years. As an example, we refer to new vs. old theories about international entry in Chapter 3 to refer to the INV framework and process theories of internationalization respectively. Even though the logic of our arguments still stand, the wording of these arguments and referring to the process theories as “old” theories might have changed in light of the findings of research that was completed after the publication of this manuscript. It should be noted that by rejecting the predictions of the “old” theories in that chapter, we simply meant to contrast our results with the process theories of internationalization (Johanson & Vahlne, 1997) and not international business theories in totality.

**Conclusion**

Internationalization of firms in the early years after their start-up is a phenomenon on the rise. Scholarly work on these early internationalizing firms have made significant contributions to our understanding about the antecedents to their emergence, the process of their formation and operation, and their performance outcomes. There are, however, important gaps in our understanding about these firms due to inconsistency in findings of past research and lack of cohesive, integrative and theory-driven studies. This dissertation is an attempt to fill these gaps by integrating findings of past research and exploring processes and outcomes seldom analyzed before. The meta-analysis structural equation modelling in Chapter 2 integrates findings of past empirical research and finds support for an explanatory framework consistent with mainstream international business theories. The analysis in Chapter 3 showed that firms rely on balancing the
slack in their human resources across alternative growth paths, whereby lower levels of slack motivate international product development while higher levels of slack stimulate international expansion. Lastly, the survival analysis in Chapter 4 shows that when the preparedness of firms based on their firm-specific advantages to enter international markets is accounted for, young ventures with an international presence have a higher survival rate compared with their domestic counterparts. Despite limitations, the totality of these findings have important contributions to our understanding of early internationalization. They show that mainstream international business theories can be used to explain the case of early internationalizing firms. This theoretical framework can be supplemented, rather than supplanted, by findings of empirical research on early internationalization, for example with respect to the antecedents, processes and performance outcomes of early internationalization. This dissertation also provides details about growth decisions of young firms explaining a choice of international expansion as opposed to alternative growth paths, and offers insights about the performance outcomes and survival effects of early internationalization. The findings of these manuscript cast new light on the significant role of firm-specific advantages at the individual- and firm-level in the internationalization process of entrepreneurial firms. Besides they suggest there might be boundary conditions to a widely accepted concept in international entrepreneurship, the learning advantages of newness concept, that can be further explored in future research.


McDougall, P. P., Shane, S., & Oviatt, B. M. 1994. Explaining the formation of international


APPENDIX 1: PAPERS INCLUDED IN META-ANALYSIS
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Paper Citation</th>
<th>Sample Size</th>
<th>Survey/Secondary</th>
<th>Data Year</th>
<th>Data Region</th>
<th>Tech. level</th>
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<td>Survey</td>
<td>2008</td>
<td>EU</td>
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<td>26</td>
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on its subsequent development: Taking the accumulated overseas market resources as the moderating effects. *Anthropologist*, 17(3): 687–700.


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With this letter I formally grant permission for you to use our two co-authored papers with the titles listed below as chapters in your final doctoral dissertation:


I also acknowledge that you have done the majority of writing in these two papers.

Best regards,

Mohammad Keyhani, Ph.D.
Associate Professor,
Entrepreneurship and Innovation
Strategy and Organizations
Dear Hadi Fariborzi,

With this letter I formally grant permission for you to use our co-authored paper, entitled "The antecedents and performance outcomes of early internationalization: a meta-analysis." as a chapter in the final version of your doctoral dissertation. I also acknowledge that you have done the largest share of writing for this paper.

Best wishes,

Dr. Alain Verbeke

McCaig Chair in Management and Professor of International Business Strategy
Haskayne School of Business, University of Calgary

Calgary, July 23rd, 2018
From: Olga Petricevic  
Sent: Friday, July 27, 2018 9:18 AM  
To: Hadi Fariborzi  
Cc: Alain Verbeke  
Subject: Dissertation Chapter Permission and Acknowledgment

Dear Hadi,

With this email I am granting permission to you to include our co-authored paper titled “Balancing slack deployment across domains: Human resource slack, entrepreneurial competence, and the growth of young ventures” as a chapter in your final doctoral dissertation file. I also would like to acknowledge that you are the first author on this paper and have completed the majority of work on this project.

Best wishes,
Olga