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Essays on Entrepreneurial Challenges in the Global Economy

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doctoral thesis

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Essays on Entrepreneurial Challenges in the Global Economy

by

Mohammad Amin Zargarzadeh

A THESIS
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Abstract

This dissertation includes four studies regarding early internationalization of new ventures (INVs) and entrepreneurial challenges faced by multinational enterprises (MNEs). The first study examines the antecedents of early internationalization in new ventures. Based on empirical evidence from the Kauffman Firm Survey data, I indicate that individual characteristics of the owners—education level, immigration status, and entrepreneurial capabilities—have a significant association with pursuing early internationalization strategy in new ventures. This finding reinforces the conceptual argument of the chapter that internalization theory can be applied to predict INV creation and behavior. The second study investigates the effects of R&D and internationalization activities on the performance of new ventures. Empirical results based on the aforementioned Kauffman database indicate that engagement in both R&D and internationalization activities is negatively associated with performance of new ventures. Moreover, R&D expenditure beyond a certain level is associated with lower performance; i.e. there is an inverse U shaped relationship between R&D and performance.

The third study addresses the lack of sufficient entrepreneurship in multinational enterprises that seek to improve their ability to achieve national responsiveness. The main reason for this deficiency appears to be the transfer of proven routines from the home country, even when it is clear from the outset that these routines will simply not work, and will require much more than a quasi-mechanistic ‘adaptation’ to the new environment. The study emphasises that entrepreneurial alteration of the core business model through novel resource re-combinations is essential to the success of MNE foreign market entry. The fourth study follows-up with
proposing a framework for business model alteration that can help MNEs overcome their 
entrepreneurial deficits when entering foreign markets. The last two studies also include 
illustrative case examples of firms that failed to sufficiently alter their business models when 
expanding to international markets.*

Keywords: international new venture (INV), born global, entrepreneur, performance, 
internalization theory, multinational enterprise (MNE), business model change, subsidiary 
entrepreneurship, Kauffman Firm Survey

*As of July 2015, three of the studies above are published and available at SSRN: http://ssrn.com/author=1552919
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* Any opinions, findings, and conclusions or recommendations expressed in this dissertation are those of the author and do not necessarily reflect the views of the Ewing Marion Kauffman Foundation.
To my parents
and
in loving memory of my grandmothers, Batoul and Iran
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Chapter One: Introduction

The primary theme of the present dissertation is entrepreneurship in context of international firms. I study both the entrepreneurial challenges faced by established, multinational enterprises (MNEs) and internationalization activities of new ventures (INVs). My research contributes to the entrepreneurship and international strategy literatures by addressing the following research questions:

In chapter two, I study the effect of founding entrepreneurs’ individual characteristics on a new venture’s early internationalization. I hypothesize that founding entrepreneurs’ characteristics and pre-launch experience are likely to affect the occurrence of early internationalization in new ventures. Based on evidence from the Kauffman Firm Survey data, the results demonstrate that a higher education level of the founding entrepreneurs, their status/experience as immigrants, and a higher number of other businesses they started are associated with earlier internationalization. Such founding-entrepreneur characteristics can be interpreted as firm-specific advantages, thereby reinforcing the suggestion that internalization theory can be usefully applied to predict INV creation and behavior. This study is published in the 2014 special issue of Multinational Business Review (co-authored with Alain Verbeke and Oleksiy Osievskyy).

In another empirical study presented in chapter three, I investigate the effects of R&D and internationalization activities on the performance of new ventures, using data from the aforementioned Kauffman database. The main contribution of the chapter is to explain the difference between international and domestic new ventures regarding the performance outcomes of R&D activities.
In chapter four, I investigate the challenges faced by multinational enterprises when they try to replicate their home country success in foreign markets. Most of the contemporary international business literature has studied subsidiary entrepreneurship in the context of established affiliates abroad. This study demonstrates that entrepreneurship is equally important in the setting of new foreign market entry. The study includes four firm-level cases that highlight the need for entrepreneurial action to achieve national responsiveness. The value added is to demonstrate that national responsiveness is not a process of easy, mechanistic adaptation to local circumstances, but rather one whereby entrepreneurial action, in the sense of altering the MNE’s core business model through novel resource re-combinations, is required to achieve sustained success in host countries. The study identifies entrepreneurial deficits as the main source of MNEs’ failure when trying to achieve national responsiveness. This study was published as a book chapter in 2011 (co-authored with Alain Verbeke and Birgitte Grogaard).

In a follow-up to the previous study, a framework for the MNE business model innovation is proposed in chapter five. Drawing on insights from evolutionary, resource-based, and internalization perspectives, the suggested model can help MNEs overcome the entrepreneurial deficits when entering foreign markets. To clarify the conceptual argument, the chapter includes illustrative cases of firms that failed to sufficiently alter their business models when expanding to international markets. This study was published as a book chapter in 2015 (co-authored with Oleksiy Osiyevskyy).

In Chapter 6, I conclude with limitations and future research directions.
Chapter Two: Internalization Theory, Entrepreneurship and International New Ventures

2.1 Introduction

Oviatt and McDougall’s (1994) analysis of international new ventures (INVs) has inspired a substantial number of empirical studies in the fields of international business and entrepreneurship (Gamboa & Brouthers, 2008; Schildt, Zahra, & Sillanpää, 2006; Young, Dimitratos, & Dana, 2003). INVs’ distinctive characteristic is that they supposedly internationalize at inception or shortly thereafter, thereby often having (too) limited time to build up non-location-bound (NLB) firm-specific advantages (FSAs) resulting from R&D/patents at the upstream side or advertising/brand name creation at the downstream side. NLB FSAs are a critical precondition for international expansion abroad (Rugman & Verbeke, 1992; Rugman, Verbeke & Nguyen, 2011; Verbeke & Yuan, 2010; Verbeke, 2013).

There has been a debate in the literature on the linkages between INV thinking and conventional internationalization theory, i.e., the Uppsala model of staged internationalization. Advocates of the INV-type foreign expansion as the common case (sometimes mistakenly referred to as ‘born globals’; most INVs actually adopt a narrow geographic focus) have argued that the Uppsala model does not offer a convincing rationale for early new venture internationalization. The Uppsala model portrayal of foreign expansion could indeed be viewed as focusing primarily on the internationalization paths of mature firms that are ‘experienced’ enough to go abroad, whereas the empirical evidence suggests that such experience may sometimes be lacking, and that many new ventures are actually associated with early internationalization, i.e., foreign expansion before any organizational experience (e.g., resulting from R&D activities or brand name creation) has been built up in this venture.
The international expansion patterns described by both INV thinking and the Uppsala model can be explained fully by internalization theory, which is the general theory of the firm, with solid conceptual foundations derived from three fields: resource-based view (RBV) thinking, transaction cost economics (TCE), and entrepreneurship. RBV thinking in the Penroseean sense (Penrose, 1959) is critical in internalization theory because ownership, control and/or superior combination of not fully utilized resources must be present as a first foundation for successful international expansion in terms of value creation and capture. TCE is equally critical here, as the choice of the comparatively most efficient foreign operating mode, as well as the related deployment and coordination of resources abroad (whether embodied in final products, or transferred as intermediate products to contracting parties such as licensees or to equity-based production units) must be driven by the ‘economizing properties’ of the various operating modes at hand (Buckley & Casson, 1976; Rugman, 1981). In other words, the propensity of each governance mode to reduce bounded rationality (BRat) and bounded

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1 “The essence of internalization theory in the international context can be synthesized as follows: Institutions of capitalism such as MNEs will choose (and retain) comparatively more efficient governance mechanisms over less efficient ones to conduct economic activities whose main purpose is to develop, deploy, exploit and further augment firm-specific advantages (FSAs) across borders. FSAs are company strengths relative to those held by relevant rivals that allow survival, profitability and growth. FSAs are the raison d’être for the presence of firms and determine the scope (levels of product diversification, vertical integration and geographic diversification) of the economic activities the firm will involve itself in. The most critical selection and retention decisions on governance mechanisms are related to: (1) choosing to use the external market or internal organization (buy or make) for each economic activity, resulting in the boundaries of the firm; (2) organizing the interface with the external environment for activities not performed internally (e.g., choice of short term contracts versus long term ones versus cooperative alliances); (3) organizing the economic activities performed internally, inside the firm (e.g., choice of organizational structure and internal incentive systems). More efficient governance mechanisms are those that on balance allow: (1) superior economizing on bounded rationality; (2) superior economizing on bounded reliability; and (3) creating an organizational context conducive to managing the innovation process in its entirety, i.e., from FSA creation to customer delivery of the products and services that embody these FSAs.” (Grøgaard & Verbeke, 2012).
reliability (BRel) matters (Verbeke & Greidanus, 2009). Finally, entrepreneurial judgment is essential, with owners or entrepreneurial managers having to make specialized decisions on how to combine and deploy resources to serve both economizing purposes and related value creating and value capturing goals. Here, managing the innovation process in its entirety (from idea generation to final product delivery) is essential (Casson, 1982; Verbeke, 2013).

Given the above, any international expansion choice by a firm, whether in terms of scale, entry mode or location, but also in terms of its timing, will be conditioned by its FSAs, both existing ones (allowing successful ‘exploitation’ of existing resource combinations) and future ones (requiring ‘exploration’, in the sense of crafting new resource combinations, with extant FSAs as partial ingredients). Any process of creating new FSAs can be viewed as the equivalent of gaining valuable experience, to the extent that these FSAs result from value-creating decisions and actions associated with resource accumulation and combination. Here, founding entrepreneurs adapt their behavior as a function of having been involved in highly successful value-creating processes versus less successful and failed ones. Entrepreneurs can be viewed as experts in judgmental decision making, and both success and failure experiences allow fine-tuning this ability (Casson, 1982, 1995).

When applying internalization theory in the context of INV creation, a problem of omitted variables could arise if the analysis of ‘experience-based’ FSAs included only what has been created after the venture’s inception. In particular, the ‘initial conditions’ dimension, which includes ‘prior experience’ characteristics of the new ventures’ founding entrepreneurs that could reasonably affect the timing (and possibly other characteristics) of the first international expansion, has not received much attention in prior studies. While early empirical studies on
INVs focused mainly on firm-level characteristics beyond R&D and advertising-related parameters, more recent papers have included individual-level factors. For example, Contractor, Hsu and Kundu (2005) have suggested that an INV’s performance results from a mix of organization-level characteristics (related to the actual firm within which the INV is embedded) and individual-level ones (related especially to the entrepreneurs driving the ventures). Here, more thorough analysis is needed of individual-level factors that could reasonably be identified, measured and assessed in terms of their impact on international expansion in large-scale empirical studies.

In the present paper, we address the following research question: Which founding entrepreneurs’ individual characteristics can affect a new venture’s early internationalization? We will hypothesize in the next section that founding entrepreneurs’ pre-launch experience, as well as their entrepreneurial capabilities and international business networks are likely to affect the occurrence of early internationalization. We will empirically test our conceptual framework using the Kauffman survey data on 4,928 U.S.-based new businesses founded in 2004, i.e., a full decade ago. Our results demonstrate that a higher education level of the founding entrepreneurs, their status/experience as immigrants, and a higher number of other businesses they started, are associated with earlier internationalization. Such founding-entrepreneur characteristics can be interpreted as FSAs, thereby reinforcing our suggestion that internalization theory can be usefully applied to predict INV creation and behavior. The paper’s last section discusses implications of our findings for theory development and managerial practice.
2.2 Conceptual Frameworks relevant to INVs

2.2.1 Uppsala Model

Johanson and Vahlne (1977) developed the Uppsala model of staged internationalization based on empirical observations of Swedish companies. These observations suggested that firms often internationalize in a gradual and incremental fashion, rather than through sudden, early investment in foreign manufacturing operations. The authors observed that many firms follow a particular sequence of steps when internationalizing. In this context of market seeking investments, companies typically start exporting to another country via an agent, subsequently establish a sales subsidiary, and only then consider localized production in the host country, see also Hörnell, Vahlne, and Wiedersheim-Paul (1973). A brief review of the Uppsala model is provided in Appendix 2-2.

The above observations appeared at odds, at least in the minds of some, with mainstream internalization theory, according to which firms will engage in foreign market penetration and select an operating mode as a function of their FSAs and elements such as the FSAs’ dissipation risk. In fact, the Uppsala model observations are compatible with internalization theory, since the form of foreign market expansion undertaken depends on each company’s FSAs, including the company’s ability to engage in effective bundling of its own resources with resources present in host countries (Hennart, 2009; Verbeke & Hillemann, 2013). Indeed, a basic assumption of the Uppsala model is that lack of knowledge about opportunities and risks in foreign markets, and thus higher transaction costs, represents a major obstacle to full-fledged internationalization. In this model, the necessary knowledge can be acquired by experience, mainly through limited-commitment international involvement and the choice of low psychic distance locations, which can be considered a special case compatible with internalization theory predictions.
2.2.2 International New Ventures

Oviatt and McDougall (1994, p.49) defined an 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 multiple countries”. In other words, INVs’ distinctive characteristic is that they internationalize, or at least intend to do so, from inception. The INV concept has been widely praised as representing a useful challenge to the validity of prior paradigms addressing the process of internationalization, especially the Uppsala model (Autio, 2005; Zahra, 2005). However, INV thinking can also be considered a special case of what mainstream internalization theory would predict: An early intent to internationalize, if it is to be successful, requires a resource-base allowing bundling with requisite host country resources and leading, e.g., to a desired level of national responsiveness in terms of new location-bound FSA creation. Such bundling is a precondition for obtaining timely and affordable access to host country location advantages.

The ‘born global’ idea is somewhat similar to the INV concept, and was introduced by McKinsey&Co (1993) and Rennie (1993). A McKinsey study of Australia's manufacturing exporters drew attention to numerous small- to medium-sized enterprises (SMEs) that successfully competed - almost from their inception - against large, established players in the international arena. According to McKinsey’s (1993) study, contrary to the mainstream, stage-wise internationalization perspective, these firms did not gradually build up their international involvement but were rather ‘born global’. Knight and Cavusgil (1996) elaborated on McKinsey and Co.’s empirical observations. They defined born global firms as companies that: (1) sell their first product in foreign markets within three years after inception, and (2) earn over 25% of their revenues outside their home market (Knight & Cavusgil, 1996; Madsen, Rasmussen, & Servais,
In particular, Knight and Cavusgil (1996) argued against traditional models of internationalization such as the Uppsala model, where firms build markets and capabilities at home before venturing abroad, and then only gradually engage in international resource commitments.

In our view, the ‘born global’ concept is an intellectual non-starter, since the concept’s definition merely suggests early internationalization at a relatively large scale as compared to company size. It is debatable whether having 25% of sales abroad necessarily reflects a prime focus of the firm’s senior management on international markets, as the ‘born global’ concept suggests. In fairness to other authors contributing to this literature, a higher threshold export intensity has sometimes been put forward (see, e.g., Chetty & Campbell-Hunt’s, 2004). More importantly, the definition does not require a threshold level of international diversification, in terms of geographic, economic, institutional and cultural diversity, nor distance-related challenges that firms would need to cope with. In reality, most so-called born global firms are actually born regional companies, with a rather narrow international diversification level (Lopez, Kundu, & Ciravegna, 2009; Rugman & Almodovar, 2011).

A number of researchers have raised the possibility that INVs are not much different from stage-wise internationalizing firms (Fan & Phan, 2007; Madsen & Servais, 1997). For example, Fan and Phan’s (2007) study suggests that INVs are influenced by the same economic factors in their internationalizing decisions as stage-wise internationalizing firms, and that INVs should therefore not be considered a distinct category of firms. In more general terms, and as noted above, our view is that internalization theory appropriately predicts the Uppsala and INV models’ internationalization pattern as special cases of how particular configurations of FSAs are
created and subsequently deployed and recombined with other resources abroad\(^2\). In fact, internalization theory could even predict the occurrence of a true ‘born global’ firm. This would be the case of a firm controlling proprietary, inimitable knowledge for which there would be instant global demand (e.g., a proven anti-cancer drug), and where extant NLB knowledge could be transferred abroad and profitably exploited at low risk. Transfer should be effected through exports, foreign direct investment or licensing, without the need to develop new location-bound FSAs or negotiating access to requisite complementary resources in host countries, see also Hennart (2014).

Some authors in the INV literature have taken on board the resource-based and entrepreneurship components of internalization theory thinking, namely when focusing on these ventures’ unique resource bundles and entrepreneurial capabilities (i.e., FSAs) allowing rapid, early international expansion (see, e.g., Jones, Coviello, & Tang, 2011; Knight & Cavusgil, 2004; Zhang, Tansuhaj, & McCullough (2009). The analysis of individual-level FSAs explaining early internationalization is the subject of our empirical analysis. Hennart (2014) has cautioned against using particular FSAs ‘across the board’, to explain the speed, geographic scope or performance implications of internationalization, since the INV’s unique ‘business

\(^2\) We will not analyze here the comments raised against the general validity of internalization theory, formulated in Oviatt and McDougall (1994) and in subsequent work on INVs, since these comments confuse the application of internalization theory in the context of explaining the existence and behavior of large MNEs, with the broader perspective of how firms decide (1) on their boundaries, including geographic boundaries; (2) on governing the interface with economic actors in their environment; and (3) on their internal organization. It suffices to mention here that Oviatt and McDougall (1994) think internalization theory focuses on large MNEs and that these MNEs have a general preference for full equity modes in foreign markets, two points which relate only to special cases explained by internalization theory. In this context, one should remember that Coasian transaction cost economics thinking represents a foundational building block of internalization theory.
model’ may well be critical here, with four elements instrumental to successful high speed internationalization and a broad geographic scope thereof: sale of niched products to internationally dispersed customers; low requirements for international marketing mix adaptations; low-cost means of communication and delivery; and small home country market. However, in the present study we focus on explaining the *early timing* of a venture’s first international engagement as the dependent variable, rather than on explaining internationalization speed, geographic scope or performance. Here, we assume that a number of ‘generic’ FSAs may well yield substantial predictive power across all INV business models, and explain which new ventures have their first international expansion sooner rather than later.

2.2.3 Individual-level elements in INVs’ early internationalization

In their early years, new venture companies have little firm-level experience by definition, beyond the experience of their owners-managers, i.e., the founding entrepreneurs. Therefore, these founding entrepreneurs’ influence is critical to new venture success, whether in the home country or abroad (Cressy, 2006). As Zahra (2005, p. 21) points out: “The evolution of the firm’s mission and resource base are intimately related to managerial capacity, which, to some extent, is defined by the pre-launch experience.” Similarly, Miesenbock (1988) argued that one critical factor in SMEs’ internationalization is the key decision-maker in the firm. Bacq and Coeurderoy (2010, 2011) raise the possibility that the early international expansion stages identified in the Uppsala model may actually have been ‘experienced’ at the individual level, i.e., in the pre-INV formation stage, by the new venture’s founding entrepreneurs. This is also the approach adopted in the present study: we assume that at least some of the INVs’ FSAs are directly related to the founding entrepreneurs’ pre-INV experience.
2.3 Theory and Hypotheses

2.3.1 Prior industry experience of owners

Given INVs’ lack of organization-level experience with international markets, their internationalization needs to rely heavily on the prior experience of the founding entrepreneurs (Sapienza, Autio, George, & Zahra, 2006). Westhead, Wright, and Ucbasaran (2001) found an increased likelihood of entering foreign markets if the new venture founders had higher industry experience. Similarly, McDougall, Oviatt, & Shrader (2003) found that INVs’ managers have higher levels of industry experience than domestic new ventures’ managers. Pre-launch industry experience gives the entrepreneur more knowledge about suppliers and customers, both in domestic and international markets, and thereby the capability to identify market opportunities (Federico, Kantis, Rialp, & Rialp, 2009; McDougall et al., 1994). Furthermore, managers who are not faced with the challenge of entering an unfamiliar industry and a foreign market simultaneously may be more likely to accept the risks associated with internationalization (McDougall et al., 2003). Building upon the above, we suggest that the pre-launch experience of founding entrepreneurs in the same industry is positively related to the early internationalization of new ventures:

_Hypothesis 1: Founding entrepreneurs’ prior experience in the same industry is positively related to early new venture internationalization._

2.3.2 Founders’ Entrepreneurial Capabilities

The skills and competencies of founder-entrepreneurs are usually regarded as key variables influencing the firm’s success and growth (Storey, 1994). Founder-entrepreneurs provide both tangible and intangible resources to the firm, at least partly gained through
education and experience. Contractor, Hsu and Kundu (2005) argue that a technical or professional education, strong innovation capabilities, and a strategic orientation towards globalization can contribute to better performance in international markets. Similarly, Collinson and Houlden (2005) highlight the effect of entrepreneurs’ risk perception and strategic orientation towards international markets on their INV’s international competitiveness.

As noted above, in our study, we do not focus on INV competitiveness and performance, but solely on the timing of the first international expansion. In this context, Autio, Sapienza, and Almeida (2000) found that unique entrepreneurial capabilities and a higher knowledge intensity of those capabilities were associated with earlier SME internationalization. Furthermore, Westhead, Wright, and Ucbasaran (2001) provided empirical evidence that entrepreneurs with university degrees were more likely to internationalize within seven years of starting a new business. Finally, Cooper, Gimeno-Gascon and Woo (1994) suggested that a higher education level is associated with improved motivation, discipline, problem-solving skills and self-confidence. Highly educated entrepreneurs have more sophisticated problem-solving skills that enable them to address effectively the risks and managerial challenges associated with the liability of foreignness. Building upon the above, we suggest the following two hypotheses:

**Hypothesis 2:** Founding entrepreneurs with higher education levels are more likely to expand to foreign markets in the early years of a new venture.

**Hypothesis 3:** The average number of other businesses started by founding entrepreneurs is positively related to early INV internationalization.
2.3.3 Immigrant Entrepreneurs

Immigrant founding entrepreneurs may command a variety of special capabilities beyond the ones covered in the three above hypotheses that could influence early new venture internationalization, e.g., knowledge of foreign languages, international market knowledge, international experience and international network ties (Zolin & Schlosser, 2013). Pre-launch, established international networks of immigrant founding entrepreneurs can provide INVs with access to a variety of markets. These include input markets related *inter alia* to financial inputs, knowledge inputs and labor inputs, and output markets related *inter alia* to advertising and distribution channels. Here, founding entrepreneurs’ network ties could represent significant intangible resources supporting international venture growth (McDougall, Shane, & Oviatt’s, 1994). The empirical significance of network relationships has been demonstrated in several studies (Al-Laham & Souitaris, 2008; Coviello, 2006; Fernhaber & Li, 2013; Lu & Beamish, 2001; Shrader, 2001; Zhou, Wu, & Luo, 2007).

In their study of Chinese SMEs, Zhou, Wu, and Luo (2007) observed a mediating influence of social networks on the relationship between internationalization and performance. This mediating effect appeared to result from three transaction cost reducing properties of social networks, which provide: (1) knowledge of foreign market opportunities that reduces information search costs; (2) advice and experiential learning that reduce the risks and uncertainties associated with entering foreign markets; and (3) referral of reliability, as well as solidarity among network members. If the relevant social networks can be linked to specific foreign countries, based on the immigrant status of the founding entrepreneurs, the above benefits are likely to materialize in these foreign countries. Based on the above, we can formulate the following hypothesis:
Hypothesis 4: New ventures with immigrant founding entrepreneurs are more likely to internationalize in their early years of operation.

2.4 Method

2.4.1 Data

We tested our hypotheses using the Kauffman Firm Survey (KFS) dataset, a longitudinal survey of a panel of 4,928 US-based new businesses founded in 2004, and tracked over their early years of operations. The firms included in the KFS study were initially randomly chosen from Dun & Bradstreet’s database list of new businesses started in 2004, excluding wholly owned subsidiaries of existing businesses, inherited businesses, non-profits, and firms with business activity prior to 2004. The first survey was conducted in 2004, with follow-up annual surveys covering the period of 2005–2011.

The KFS survey results draw on a wide spectrum of two-digit NAICS (North American Industry Classification System) sectors and represent a longitudinal database of various start-up characteristics, related to finance, innovation, the human resources involved, and international activities. The KFS dataset is particularly suitable for our study because it provides data on founding entrepreneurs’ (owners’) characteristics as well as firm-level data.

2.4.2 Sample

For our main analysis, we used a 5-year panel from 2007 (when the data on international sales became available) to 2011. We allowed for the possibility of firms going out of business (or

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3 For more detailed information about the KFS data, see Ballou et al. (2008) and Robb et al. (2010).
ceasing reporting to KFS) in our panel. As a result of this sample attrition, the dataset panel is unbalanced. The sample size in yearly cross-sections shrinks from 2,177 (in 2007) to 1,603 (in 2011). In each year we are using the data on all available firms.

2.4.3 Variables

The names and descriptions of KFS variables used in this study (with corresponding interview questions) are provided in Appendix 1.

2.4.3.1 Dependent variable

The dependent variable (international sales) chosen in our study is a dichotomous variable (0 or 1) indicating whether the firm has any international sales. Starting in 2007, a question was added to the KFS questionnaire asking whether the business had any sales to individuals, businesses, or governments outside the United States. A total of 16.3% of the firms gave a positive answer in that year. The data for this variable are available for all following years up to the last year of data (2011).

2.4.3.2 Independent variables

We chose four main independent variables, which reflect the founding entrepreneurs’ characteristics relevant to our four hypotheses.

*Prior industry experience of founding entrepreneurs:* We included the average work experience in the same industry (in years) of the each firm’s founding entrepreneurs as a measure for prior experience in the industry.

*Founding entrepreneurs’ level of education:* Education level is an ordinal variable in the KFS database, ranging from 1 (lower than grade 9) to 10 (PhD level). We included in our model the
average education level of each firm’s founding entrepreneurs. In other words, if a firm had more than one owner, we used the average educational level per founding entrepreneur.

Number of other businesses started by founding entrepreneurs: We used the average number of other businesses started by each firm’s founding entrepreneurs as a proxy for these individuals’ entrepreneurial capabilities. Here again, if a firm had more than one owner, we calculated the average number of businesses per founding entrepreneur.

Immigrant founding entrepreneur: For each owner of a firm, the KFS dataset includes data on whether the owner was born in the United States. We used this information to generate a variable that indicates whether any of the firm’s founding entrepreneurs is an immigrant to the United States.

2.4.3.3 Control variables

Gender: We controlled for gender by adding a variable to identify whether there is at least one female founding entrepreneur among the firm’s owners. We do not assume that gender per se would act as an FSA.

Industry: The KFS dataset identifies the NAICS code for each firm. All our models included the industry dummies (for two-digit NAICS sectors) to control for the effects of business sector on internationalization.

Firm size: We used the total revenue of the firm as a proxy to control for firm size. Firm size has been identified as an FSA in past studies, since it reflects domestic success (i.e., strong FSAs at home) and the likely presence of slack resources to feed foreign expansion (e.g., management capacity that could be deployed internationally in the form of expatriates).
**Number of patents, copyrights, trademarks held by the firm:** We controlled for the intangible assets held by the firm, and assumed these would perform as FSAs, as conventionally assumed in internalization-theory-based empirical work. Firms with a larger stock of intangible assets, to the extent that these represent NLB FSAs, are more likely to internationalize (Verbeke, 2013). Patents typically result from R&D activities and reflect FSAs in the upstream end of the value chain. Copyrights are similar in the sense that they result from creative activities in the artistic or scientific sphere. Trademarks usually reflect FSAs in the downstream end of the value chain.

**Marketing strength:** This variable is generated by dividing the number of employees in sales or marketing by total number of employees, and is a broader parameter than trademarks to measure downstream FSAs.

### 2.4.4 Statistical procedures

We adopted two approaches suitable for testing our hypotheses. *First*, we ran logistic regressions using pooled cross-sections, and including lagged dependent variable in the model to control for the effect of internationalization in a prior year on internationalization during the following year. Our logistic regression model has the following form:

\[
(Log \ odds \ of \ Int_t) = \beta_0 + \beta_1 Int_{t-1} + \sum \beta_i X_{i(t-1)} + u_t \tag{1}
\]

In equation (1), *Log odds of Int* \(_t\) represents the value of \(\log \left(\frac{\text{probability of internationalization}}{1-\text{probability of internationalization}}\right)\) in year \(t\). *Int*\(_{(t-1)}\) represents the occurrence (or lack) of internationalization, lagged by one year. The \(\beta_i\)'s represent the coefficients to be estimated by logistic regression analysis, whereas the \(X_{i(t-1)}\)'s reflect one-year lagged individual-level and firm-level drivers of internationalization and control variables, and \(u_t\) is the stochastic disturbance term. We added year dummies to control
for the time fixed effects. The proposed lagged dependent variable model reduces the problem of omitted variables bias (more specifically for firm-specific omitted variables, which are controlled for thanks to the lagged dependent variable). The model also takes into account the temporal structure of the data and provides more consistent statistical estimates of the parameters as compared to pooled ordinary least squares (OLS) regression.

In our second analysis, we assessed the impact of original FSA endowments (owners’ characteristics measured in 2004, when the firm was founded) on the likelihood of internationalization in the following years. This analysis reveals the time lag of the effect (e.g., in which year the impact is most pronounced), and provides insight on whether the FSA impact is cumulative or decaying. Here, we conducted logistic regression analysis separately for five cross-sections of the data (representing the years 2007-2011). In this analysis, the independent variables are the founder characteristics in 2004, while control variables are measured over time, with one year lag.

2.5 Results

The descriptive statistics and correlations between the variables are presented in Table 2-1. The baseline probability of internationalization for the pooled sample is 18% (equivalent to baseline odds of 22%).

Table 2-1 about here.

Table 2-2 shows the estimates of our logistic regression model (see equation 1). At the 5% significance level, three of our hypotheses were supported. The industry experience hypothesis (H1) was not supported in this study, possibly because it was limited to experience in
the same industry, which is hardly an indicator of ability to engage in complex new resource recombination, an FSA typically required when internationalizing because of novel resource bundling requirements (Hennart, 2009). In other words, capabilities built up through prior activities in the same industry, and which may actually reflect routines that work well in a home country setting, may not be relevant at all when venturing abroad.

In contrast, the association between the entrepreneurial founders’ education level (H2) and new venture internationalization was found to be significant at the 1% level: one unit increase in education is associated with 0.109 increase in the log-odds of internationalization, equal to an 11.5% increase in the odds of early internationalization⁴.

The hypothesis on the impact of the number of other businesses created (H3), as an indicator of entrepreneurial capabilities, was also supported. The results suggest that one unit increase in average number of other businesses created, is associated with 0.046 increase in log-odds of internationalization (equal to a 4.7% increase in the odds of early internationalization).

Finally, we found support for our hypothesis on the immigrant status of entrepreneurial founders having a positive association with internationalization (H4). The results suggest that immigrant status is associated with a 0.368 increase in the log-odds of internationalization (equal to a 44.5% increase in odds of early internationalization). In other words, holding all other variables constant (ceteris paribus), having at least one immigrant owner is associated with a

---

⁴ This increase in odds is calculated as follows:

\[
\log(\text{odds}_2) - \log(\text{odds}_1) = 0.109 \quad \rightarrow \quad \frac{\text{odds}_2}{\text{odds}_1} = \exp(0.109) = 1.115
\]
44.5 percent increase in odds of early new venture internationalization (i.e., from the baseline 22% to 31.8%).

Table 2-2 about here

As mentioned in the methods section, our second analysis investigates the relationship between original FSA endowments (founder characteristics measured in 2004) and early internationalization of new ventures, using logistic regressions for cross-sectional sub-samples covering years 2007-2011. The results are shown in Table 2-3. The hypotheses regarding the impact of industry experience (H1) and number of other businesses (H3) are not supported, while the coefficients for the other two main variables [immigrant owners (H4) and education level (H2)] are significant over all the years. Moreover, the sign and magnitude of the estimated coefficients are consistent with our main results.  

Table 2-3 about here

The statistically significant results above suggest that the variables conventionally measured in internalization studies as proxies for NLB FSAs at the upstream and downstream ends of the value chain, as drivers of international expansion (and included in our empirical analysis as control variables such as patents and marketing strength), can be usefully augmented

5 We acknowledge that our cross-sectional analysis is somewhat inferior in terms of statistical strength as compared to a fixed effects model that would include all panel data. Our results are not as robust as the ones that would arise from fixed-effect model analysis, because the cross-sectional approach does not address endogeneity. The results are therefore potentially subject to some bias, as is the case with any other cross-sectional analysis. We reduced this risk of biased estimates by including various control variables. A fixed-effects model could not be employed in this study because a number of variables in our model show little or no variation over time.
in the INV case with the founding entrepreneurs’ personal characteristics. Importantly, much of
the past INV empirical literature, which has typically not been built upon internalization theory
foundations, can be reinterpreted in internalization theory terms. Table 2-4 highlights 12 key
empirical studies (in terms of citations earned and/or the quality of the journal in which these
studies appeared), published after Oviatt and McDougall’s (1994) seminal article, and focused on
explaining new venture internationalization (rather than performance).

Table 2-4 about here

In Table 2-4, we have classified the drivers of internationalization analyzed in these 12
studies, in terms of three main FSA types: upstream, downstream and entrepreneurial FSAs.
Table 2-4 has three main implications. First, the mainstream empirical work on INVs (and in
fact the entire conceptual basis thereof) can easily be recast in internalization theory terms,
meaning that no new theory is needed to address this specific form of international expansion, in
contrast to what many INV scholars choose to write in their own work.

Second, internalization-theory-based empirical work on international expansion, rather
than focusing solely on FSAs directly linked to economic activities conducted within the studied
firms, should be systematically augmented to include characteristics of founding entrepreneurs
that can reasonably be viewed as potential, initial FSA endowments. This observation is
somewhat similar to the one formulated in Grøgaard, Verbeke and Zargarzadeh (2011), where
the integration - national responsiveness literature on foreign entry was criticized for not paying
sufficient attention to the entrepreneurial dimension of establishing a new business in a foreign
market, but whereby it was also concluded that such dimension can easily be added in future
work on this subject matter, in line with the analysis of MNE subsidiary roles (Rugman & Verbeke, 1992).

Third, the present paper has limited its scope to the timing of internationalization but should be extended in future internalization-theory-based empirical work to address preferences for particular international governance modes, both internal ones and collaborative ones (i.e., modes that include external contracting partners) and for the particular geographic scope of international expansion. An important question in this context is at which point in time individual-level characteristics of the founding entrepreneurs, especially as far as experience is concerned, will decline in importance, not only because of building up R&D and advertising in the firm, but also because of introducing company-wide managerial practices in which the creative insight and specialized judgment of the founders will supposedly be embedded, with this insight and judgment having been transformed into heuristics and company values.

2.6 Conclusion

Advocates of the INV concept as an empirical phenomenon requiring new theory, argue that the Uppsala model does not offer a convincing explanation for early new venture internationalization, because the latter model mainly addresses the internationalization of mature firms with a rather slow process of building up requisite experience instrumental to subsequent expansion in foreign markets. This may be correct, but both INV and Uppsala-type foreign expansion patterns can be viewed at the conceptual level as special cases of international growth, that can easily and credibly be predicted by internalization theory, as demonstrated in Table 2-4 for the INV studies.
Importantly, each company’s reservoir of FSAs and relative needs to engage in bundling extant resources with complementary resources in host environments, in order to access coveted host country location advantages, whether at the input or output sides (e.g., inexpensive labor or high consumer demand), are the critical variables that can explain the form and scope of international expansion. In line with Bacq and Coeurderoy’s (2010, 2011) suggestions, our empirical results suggest that the early stages of the Uppsala model, in terms of requisite resources accumulation and recombination, may actually have been undertaken at the individual level, by the founding entrepreneurs themselves, in the ‘pre-stage’ of the new venture, and would therefore remain ‘invisible’ when focusing solely on the organizational experience built up in the new venture.

In this context, the empirical findings presented in this paper may be instrumental to improving future studies on the multinationality-performance (M-P) relationship in INVs, by providing a set of reliable exogenous instruments for modeling the impact of endogenous internationalization on new ventures’ performance. A common difficulty when conducting empirical M-P studies, is that firms are likely to self-select the most favorable internationalization strategy, based in part on unobservable FSAs (Shaver, 1998). In other words, a significant observed M-P association can be caused by a number of unobserved variables. If this is the case, the empirically estimated M-P correlation will not imply causality, because of the endogeneity bias. Unfortunately, many (international) strategic management studies do not adequately address this issue of endogeneity (Hamilton & Nickerson, 2003; Shaver, 1998), and left unmitigated, this leads to biased estimation of the effects in OLS regression models. Such biased estimates put into question the recommendations of most M-P studies on optimizing the level of multinationality (Verbeke & Brugman, 2009; Verbeke &
Forootan, 2012). Statistical methods available for overcoming the endogeneity problem include two-stage least squares regression (2SLS), and Heckman (1979) selection correction. For both methods, the FSA endowments identified in the present study (e.g., immigrant status of founders, education) could potentially be adopted as exogenous, instrumental variables.

As a general conclusion, our empirical results suggest that careful analysis of ‘initial conditions’ can shed a completely new light on the meaning of an observed, *early starting time* of new venture internationalization. Future, large scale empirical INV studies will therefore benefit greatly from including individual-level characteristics of founding entrepreneurs in terms of their international experience, entrepreneurial capabilities, and international network connections as explanatory variables, since it is at the micro-level that such largely invisible, but nevertheless critical, INV FSAs may reside.
## Appendix 2-1 Variable description and the KFS interview questions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>KFS variable name and the corresponding interview question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internationalization</td>
<td>A dichotomous variable indicating whether the firm had any sales outside the United States.</td>
<td>d8a_international_sales_ During calendar year X, were any of [NAME BUSINESS]'s sales made to individuals, businesses, or governments outside the United States?</td>
</tr>
<tr>
<td>Immigrant founders</td>
<td>A dichotomous variable indicating whether any of the founding entrepreneurs were immigrant.</td>
<td>g7_native_born_owner_ (Were/Was) (you/[OWNER B-J]) born in the United States?</td>
</tr>
<tr>
<td>Education level</td>
<td>Average level of education of owners, calculated using an ordinal variable in KFS database that indicates the education level of the owner.</td>
<td>g9_education_ What is the highest level of education (you/[OWNER B-J]) (have/has) completed so far? Would you say ... 1 Less than 9th grade 2 Some high school, but no diploma … 9 Master’s degree 10 Professional school or doctorate.</td>
</tr>
<tr>
<td>Prior industry experience (years)</td>
<td>Years of work experience in the same industry (averaged over all the founders).</td>
<td>g2_work_exp_ How many years of work experience (have/has) (you/[OWNER B-J]) had in this industry-the one in which [NAME BUSINESS] competes?</td>
</tr>
<tr>
<td>Number of other businesses</td>
<td>Number of other businesses started by the founders (averaged over all the founders).</td>
<td>g3a_oth_bus_ How many other new businesses (have/has) (you/[OWNER B-J]) started besides [NAME BUSINESS]?</td>
</tr>
<tr>
<td>Majority female</td>
<td>A dichotomous variable indicating whether the majority of the owners were female.</td>
<td>g10_gender_owner_ (Are/Is) (you/[OWNER B-J]) male or female?</td>
</tr>
<tr>
<td>Total revenue</td>
<td>Total revenue of the business.</td>
<td>tot_revenue_r_ Range of total revenue: 1 $500 or less; 2 $501 to $1,000; 3 $1,001 to $3,000; 4 $3,001 to $5,000; 5 $5,001 to $10,000; 6 $10,001 to $25,000; 7 $25,001 to $100,000; 8 $100,001 to $1,000,000; 9 $1,000,001 or more.</td>
</tr>
<tr>
<td>Number of patents</td>
<td>Total number of patents of the business.</td>
<td>d3_a_num_patent_ How many patents does [NAME BUSINESS] have?</td>
</tr>
<tr>
<td>Number of copyrights</td>
<td>Total number of the copy rights owned by the business.</td>
<td>d3_b_num_copyright_ How many copyrights does [NAME BUSINESS] have?</td>
</tr>
<tr>
<td>Number of trademarks</td>
<td>Total number of trademarks of the business.</td>
<td>d3_c_num_trademark_ How many trademarks does [NAME BUSINESS] have?</td>
</tr>
<tr>
<td>Marketing strength</td>
<td>Number of employees in sales or marketing divided by total number of employees.</td>
<td>e1_b_num_sales_ How many employees or owners, if any, did [NAME BUSINESS] have who were primarily responsible for Sales or Marketing such as sales, market research, customer analysis, or promotional activities? Please include only full- and part-time employees, but not contract workers who work for the business but are not on the business’ official payroll.</td>
</tr>
<tr>
<td>Industry Dummies</td>
<td>Generated using the NAICS code of the firm.</td>
<td>naics_code_ NAICS code provided by D&amp;B for the sampled business.</td>
</tr>
</tbody>
</table>
Appendix 2-2 An overview of the Uppsala model of staged internationalization

One of the main theories in the international business literature regarding international expansion of firms is the Uppsala model developed by Johanson and Vahlne (1977). They observed that the Swedish firms in their sample typically followed the same steps when expanding to a foreign market: at the outset, they exported to a country via an agent, later established a sales subsidiary, and only afterwards possibly began production in the host country. Furthermore, they argued that firms start to internationalize by expanding to countries that are closer to the home country in term of psychic distance (Vahlne & Wiedersheim-Paul, 1977) and then gradually enter other countries that are farther on a number of distance dimensions.

In order to explain the observed incremental pattern of the internationalization process, Johanson and Vahlne (1977) developed a dynamic model (Figure 2-2) based on the underlying assumptions of uncertainty and bounded rationality. The model was formed based on the argument that the present state of internationalization influences the next stages of internationalization. State aspects in this model are the resource commitment to the foreign markets (market commitment) and knowledge about foreign markets and operations. The model has two change mechanisms. First, firms change the course of their internationalization by learning from the performance of their current international operations. Second, they change through making decisions to commit resources in order to strengthen their position in a foreign market. In summary, their model suggests that a firm’s experience from current activities builds its knowledge of a market and that this body of knowledge influences the subsequent decisions about the level of resource commitment in that market. The firms acquire knowledge and resources progressively through experience, first in markets with less psychic distance and then in higher psychic distance markets. The basic assumption of the Uppsala model is that lack of
knowledge about foreign markets (and thus higher transaction costs) represents a major obstacle to internationalization. In this model, the necessary knowledge can be acquired by experience mainly through international operations (Johanson & Vahlne, 1977).

Johanson and Vahlne later revisited the model in 2009 (Figure 2-2). Although the structure of the new model is the same as the previous one, some slight changes were made. The second state variable in the new model is labeled “network position” instead of “market commitment”. This change was made to account for the business network perspective that views the business environment as a web of relations rather than as a neoclassical market with many independent suppliers and customers. Whereas psychic distance was hypothesized to be the main reason for uncertainty in the 1977 model, outsidership from the relevant network is argued to be the root of uncertainty in the new model. Hence, in the new model, the liability of outsidership takes the place of liability of foreignness (Johanson & Vahlne, 2009).
Regarding international new ventures, Johanson & Vahlne’s view is as follows:

“... one of the most debated issues in internationalization research is whether the phenomena of international new ventures (Oviatt & McDougall, 1994, 2005) and born globals (Knight & Cavusgil, 1996) are consistent with our model. We think they are, to the extent that most born globals are really ‘‘born regionals,’’ with international activities that do not really span the globe in any significant fashion (see also Rugman & Verbeke, 2007). In fact, many of the companies the internationalization pattern of which we studied (see, for example, Johanson & Wiedersheim-Paul, 1975) should be considered born regionals or international new ventures ... ” (Johanson & Vahlne, 2009, p. 1420)

“As such firms are frequently founded by individuals with previous international experience and have established relationships with foreign companies, they do not create a problem for our model. True, the knowledge and the relationships might indeed be in place prior to the formal founding of the focal firm, but that is a formality of no major significance. It is true too that having those factors already in place may accelerate the
process. If a firm starts from scratch though, as we argued above, the processes of learning and building commitment will take time.” (Johanson & Vahlne, 2009, p. 1421).

The above suggests that Johanson and Vahlne (2009) fully anticipated the thinking exhibited in Chapter 2 of this thesis, where the point was made that some resources instrumental to rapid internationalization may have existed or may have been developed before the creation of the firm studied. The question could of course be raised whether some resources, existing prior to the firm’s inception, would always constitute a strength or capability. For example, prior experience, in terms of ‘number of businesses started’ could be a reflection of higher risk-taking propensity rather than a managerial capability. This is an issue that can be addressed in empirical work by comparing the set of firms that survived over a period of time with those that did not, in terms of each resource base that could potentially be interpreted as either a capability versus a liability.
2.7 References


### 2.8 Tables

**Table 2-1 Descriptive statistics and pairwise correlations between the variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. International sales</td>
<td>0.18</td>
<td>0.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Immigrant owners</td>
<td>0.12</td>
<td>0.33</td>
<td>0.12**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Education level</td>
<td>6.46</td>
<td>2.02</td>
<td>0.12**</td>
<td>0.13**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Prior industry experience (years)</td>
<td>13.69</td>
<td>10.12</td>
<td>0.04**</td>
<td></td>
<td>-0.08**</td>
<td></td>
<td>0.04**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Number of other businesses</td>
<td>0.94</td>
<td>2.14</td>
<td>0.06**</td>
<td></td>
<td>0.00</td>
<td>0.06**</td>
<td>0.11**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Total revenue(^3)</td>
<td>6.09</td>
<td>2.90</td>
<td>0.16**</td>
<td>0.07**</td>
<td>0.02</td>
<td>0.06**</td>
<td>0.04**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Number of patents</td>
<td>0.19</td>
<td>2.23</td>
<td>0.14**</td>
<td>0.07**</td>
<td>0.07**</td>
<td>0.02</td>
<td>0.04**</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Number of copyrights</td>
<td>1.60</td>
<td>13.37</td>
<td>0.07**</td>
<td></td>
<td>-0.03**</td>
<td>0.03**</td>
<td>0.02</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Number of trademarks</td>
<td>0.28</td>
<td>1.36</td>
<td>0.17**</td>
<td>0.04**</td>
<td>0.08**</td>
<td>0.01</td>
<td>0.06**</td>
<td>0.08**</td>
<td>0.14**</td>
<td>0.07**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Majority female</td>
<td>0.34</td>
<td>0.47</td>
<td></td>
<td>-0.06**</td>
<td>0.00</td>
<td>-0.02**</td>
<td>-0.19**</td>
<td>-0.09**</td>
<td>-0.06**</td>
<td>-0.04**</td>
<td>-0.01</td>
<td>-0.05**</td>
</tr>
<tr>
<td>11. Marketing strength(^4)</td>
<td>0.41</td>
<td>0.19</td>
<td></td>
<td>-0.06**</td>
<td>-0.04**</td>
<td>-0.02**</td>
<td>-0.04**</td>
<td></td>
<td>0.00</td>
<td>-0.06**</td>
<td>-0.03**</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Notes: 1. * p<.05; ** p<.01 (two tailed tests). 2. The dataset comprises a panel of 4,928 US-based new businesses founded in 2004 with annual surveys covering the period of 2004-2011. This correlation table is based on observations after year 2007 for which the variable 'international sales' exists. 3. Total revenue is an ordinal variable with values: 1 ($500 or less) 2 ($501 to $1,000) 3 ($1,001 to $3,000) 4 ($3,001 to $5,000) 5 ($5,001 to $10,000) 6 ($10,001 to $25,000) 7 ($25,001 to $100,000) 8 ($100,001 to $1,000,000) 9 ($1,000,001 or more). 4. Marketing strength is measured as the ratio of sales and marketing employees divided by total employees.
Table 2-2 Logistic regression results for presence of internationalization.

<table>
<thead>
<tr>
<th>Dependent variable: log odds of internationalization(t)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Internationalization(t-1)</td>
<td>3.698***</td>
</tr>
<tr>
<td></td>
<td>(0.119)</td>
</tr>
<tr>
<td>Immigrant founders(t-1)</td>
<td>0.368***</td>
</tr>
<tr>
<td></td>
<td>(0.126)</td>
</tr>
<tr>
<td>Education level(t-1)</td>
<td>0.109***</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
</tr>
<tr>
<td>Prior industry experience(t-1)</td>
<td>0.000</td>
</tr>
<tr>
<td>(years)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Number of other businesses(t-1)</td>
<td>0.046**</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
</tr>
<tr>
<td>Majority female(t-1)</td>
<td>-0.153</td>
</tr>
<tr>
<td></td>
<td>(0.099)</td>
</tr>
<tr>
<td>Total revenue(t-1)</td>
<td>0.086***</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
</tr>
<tr>
<td>Number of patents(t-1)</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
</tr>
<tr>
<td>Number of copyrights(t-1)</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
</tr>
<tr>
<td>Number of trademarks(t-1)</td>
<td>0.101***</td>
</tr>
<tr>
<td></td>
<td>(0.031)</td>
</tr>
<tr>
<td>Marketing strength(t-1)</td>
<td>-0.219</td>
</tr>
<tr>
<td></td>
<td>(0.162)</td>
</tr>
<tr>
<td>Industry dummies</td>
<td>Included</td>
</tr>
<tr>
<td>Year dummies</td>
<td>Included</td>
</tr>
</tbody>
</table>

| N                            | 7025 |
| Wald Chi²                    | 1321.35 |
| Prob > Chi²                  | 0.000 |
| Log pseudolikelihood         | -1758.4 |
| Pseudo R²                    | 0.466 |

Notes: *** p<0.01; ** p< 0.05; * p<0.1 (two tailed tests). Standard errors in parentheses (heteroskedasticity-robust standard errors, clustered at the firm level).
Table 2-3 Logistic regression results for the relationship between founders’ characteristics as initial FSA endowments and internationalization over time

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Yearly cross-sectional sub-samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007</td>
</tr>
<tr>
<td>log odds of \textit{Internationalization}</td>
<td></td>
</tr>
<tr>
<td><strong>Founders’ characteristics (measured in 2004)</strong></td>
<td></td>
</tr>
<tr>
<td>Immigrant founders</td>
<td>0.744*** (0.166)</td>
</tr>
<tr>
<td>Education level</td>
<td>0.136*** (0.034)</td>
</tr>
<tr>
<td>Prior industry experience (years)</td>
<td>0.008 (0.006)</td>
</tr>
<tr>
<td>Number of other businesses</td>
<td>-0.004 (0.030)</td>
</tr>
<tr>
<td>Majority female</td>
<td>-0.023 (0.143)</td>
</tr>
<tr>
<td><strong>Control variables measured yearly (lagged one year)</strong></td>
<td></td>
</tr>
<tr>
<td>Total revenue</td>
<td>0.082*** (0.024)</td>
</tr>
<tr>
<td>Number of patents</td>
<td>0.038 (0.031)</td>
</tr>
<tr>
<td>Number of copyrights</td>
<td>0.002 (0.003)</td>
</tr>
<tr>
<td>Number of trademarks</td>
<td>0.197*** (0.053)</td>
</tr>
<tr>
<td>Marketing strength</td>
<td>-0.298 (0.210)</td>
</tr>
<tr>
<td>Industry Dummies</td>
<td>Included</td>
</tr>
</tbody>
</table>

N | 2177 | 2130 | 1734 | 1716 | 1603 |
Wald Chi² | 245.6 | 216.0 | 199.2 | 182.77 | 200.08 |
Prob > Chi² | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
Log pseudolikelihood | -859.8 | -841.5 | -694.0 | -688.7 | -579.3 |
Pseudo R² | 0.146 | 0.140 | 0.167 | 0.161 | 0.199 |

Notes: *** p<0.01; ** p< 0.05; * p<0.1 (two tailed tests). Logistic regression coefficients are presented with standard errors in parentheses (heteroskedasticity-robust standard errors).
### Table 2-4 Overview of key empirical studies on the drivers of new venture internationalization

<table>
<thead>
<tr>
<th>Empirical study</th>
<th>Dependent Variable</th>
<th>Statistically significant antecedents of internationalization</th>
<th>Other predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>[Technology] imitability</td>
<td></td>
</tr>
<tr>
<td>Coeurderoy &amp; Murray (2008)</td>
<td>- Dichotomous variable (based on foreign market entry)</td>
<td>R&amp;D</td>
<td>International experience</td>
</tr>
<tr>
<td></td>
<td>- Entry rank</td>
<td>Firm size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Entry timing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractor, Hsu, &amp; Kundu (2005)</td>
<td>- Foreign sales to total sales</td>
<td>Technological innovativeness</td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td>- Growth rate of foreign sales</td>
<td></td>
<td>International experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age of firm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Foreign experience of employees</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategic orientation</td>
</tr>
<tr>
<td>Fan &amp; Phan (2007)</td>
<td>New airlines’ average passenger capacity allocated to an international city-pair</td>
<td>Production capacity</td>
<td>Size of home market</td>
</tr>
<tr>
<td></td>
<td>within the EU</td>
<td></td>
<td>Cultural and economic forces</td>
</tr>
<tr>
<td>Fernhaber &amp; Li (2013)</td>
<td>Foreign sales</td>
<td>R&amp;D intensity</td>
<td>Venture capitalists’ knowledge and reputation</td>
</tr>
<tr>
<td>Fernhaber &amp; McDougall (2009)</td>
<td>Multidimensional scale (international sales intensity, international assets intensity, international scope)</td>
<td>Firm size</td>
<td></td>
</tr>
<tr>
<td>Herrmann &amp; Datta (2005)</td>
<td>International diversification (calculated based on number and weight of foreign markets)</td>
<td>Firm size</td>
<td>Education level</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Organization tenure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>International experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Functional background</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
</tr>
<tr>
<td>Leiblein &amp; Reuer (2004)</td>
<td>Foreign sales</td>
<td>Technological capabilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>International collaboration</td>
<td></td>
</tr>
<tr>
<td>McDougall, Oviatt, &amp; Shrader (2003)</td>
<td>Dichotomous variable (based on international sales)</td>
<td>Product innovation</td>
<td>International experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marketing distribution channels</td>
<td>Industry experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Marketing experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Technical experience</td>
</tr>
<tr>
<td>Nadkarni &amp; Perez (2007)</td>
<td>Ordinal measure (based on entry mode)</td>
<td>Technological expertise</td>
<td>Internationally experienced management team</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Market share</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategic partners</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Westhead, Wright, &amp; Ucbasaran (2001)</td>
<td>Foreign sales to total sales</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter Three: Performance Outcomes of R&D and Internationalization Activities in New Ventures: Evidence from the Kauffman Firm Survey Data

3.1 Abstract
Although the conceptual argument in the Schumpeterian tradition argues for the microeconomic benefits of research and development (R&D) investments leading to superior firm-level performance stemming from the innovator’s rents, the evidence regarding the performance outcomes of R&D and internationalization activities of new ventures remains inconclusive. To fill this gap, we develop and test a model explaining the effects of R&D and internationalization on short-term performance of innovative startups. Based on the panel data of the Kauffman Firm Survey, our results demonstrate that lower levels of R&D activity are positively related to a new venture’s performance; but above a certain level, R&D will be negatively associated with performance of new ventures. Moreover, high engagement in both R&D and internationalization is also negatively associated with performance.

3.2 Introduction
The dynamic and turbulent environment of today’s business makes a firm’s ability to innovate an essential capability, ensuring the firm’s survival and superior profitability. Innovative new products and business models have the potential to create and sustain competitive advantage based on Shumpeterian rents (Mudambi & Swift, 2014; Kor & Mahoney, 2005; Rosenbusch et al., 2011), allowing both the creation of superior value for the firm’s customers and appropriation of a substantive portion of this value for the firm’s shareholders, at least until these innovations become imitated by competitors (Schumpeter, 1934).
Research and development activity (R&D) serves as an essential internal driver of innovation in organizations (Mudambi & Swift, 2014; Fagerberg, 2006; Thornhill, 2006). It can secure a firm’s existing oligopolistic or industry-leader position through providing first-mover advantages (Kor & Mahoney, 2005; Rosenberg, 1990), and improving efficiency and productivity (Wakelin, 2001; Mairesse & Sassenou, 1991). Nevertheless, as any other business activity, R&D competes for the limited pool of scarce organizational resources – including managerial time, capital budgets, human resources – that must also be distributed among other essential activities, such as operations, marketing & sales, raising money or engaging in geographical expansion. Choosing the proper level of investment into R&D activities is arguably particularly challenging in startup companies, and this situation can be exacerbated by these firms’ particularly resource-constrained context (Katila & Shane, 2005; Rosenbusch et al., 2011).

Although the effect of R&D on performance has been extensively studied in the literature (Mudambi & Swift, 2014), the question regarding the performance implications of R&D investments in new ventures remains unanswered, with disparate evidence supporting positive, insignificant and negative impacts (see the meta-analyses of Rosenbusch et al., 2011 and Song et al., 2008). Some authors have suggested that the strong variation in empirical results can be explained by the substantial context dependence of the “R&D investment-performance” link (e.g., Autio et al., 2014; Rosenbusch et al., 2011). Yet, regarding the crucial potential contingency factors related to the firm’s environment, prior studies have not devoted much – if any – attention to the geographic scope of the business activities, more specifically the differences between local and international new ventures with regards to the impact of R&D on performance remain largely unstudied.
In this study, we try to address the aforementioned gap in the literature regarding the effect of R&D on the performance of international new ventures (INVs). Particularly, we address the following research question: *What are the performance outcomes of R&D in new ventures, and how are international new ventures (INVs) different, as compared to local new ventures with regards to the effects of R&D on performance?* The results should have managerial implications regarding new ventures’ decisions on resource allocation to R&D versus internationalization activities, and will allow founders to better plan their startup activities and search for requisite resources. Moreover, we argue that answering this question will clarify the differences between the R&D outcomes of international versus local new ventures.

The paper proceeds as follows: First, we provide a theoretical discussion regarding the expected effects of R&D on performance and we explain how this effect can be different in the context of internationalizing new ventures. We then empirically test our proposed model, using the fixed-effects panel data method with data from the Kauffman Firm Survey (a panel of US-based new firms founded in 2004). We conclude by outlining the theoretical, managerial, and public policy implications of our findings.

### 3.3 Theory and Hypotheses

#### 3.3.1 Performance outcomes of early internationalization

Most of the extant studies on the relationship between multinationality and performance have been conducted in the context of multinational enterprises (MNEs) that internationalize through foreign direct investment (FDI) (Almodóvar & Rugman, 2014; Bausch & Krist, 2007). In the context of entrepreneurial and new firms, Almodóvar and Rugman (2014) contend that INVs internationalize mainly through exporting, in contrast with MNEs that also engage in deeper
modes of foreign market entry such as joint ventures and wholly owned subsidiaries. A number of authors have argued that Small firms tend to start their internationalization process by exporting to neighboring and culturally close countries (Davidson, 1983; Johanson & Vahlne, 1977), though this has been debated in the literature, e.g., in the context of so-called ‘born globals’. In any case, International entrepreneurship empirical studies mainly suggest a positive linear relationship between international diversification and performance of SMEs (e.g. Qian, 2002; Qian & Li, 2003; Wolff & Pett, 2000)⁷.

A number of researchers have argued that early internationalization occurring in some new ventures results not from strategic thinking, leading to systematic and deliberate search, but rather from a more opportunity-driven search, triggered by chance events, e.g. unsolicited orders from abroad (Almodóvar & Rugman, 2014; Barreto, 2012; Chandra, Styles, & Wilkinson, 2009), whereby ‘chance opportunities’ for sales in another country typically have a positive impact on the INV’s performance:

**Hypothesis 1: Ceteris paribus, the presence of international sales of new ventures is positively related to their performance.**

⁷ A major difficulty when conducting empirical Multinationality-Performance studies is that firms are likely to self-select the most favorable internationalization strategy, based in part on unobservable firm specific advantages (Shaver, 1998). In other words, a significant observed M-P relationship can be caused by a number of unobserved variables. If this is the case, the empirically estimated M-P correlation will not imply causality, because of the endogeneity bias. Unfortunately, many (international) strategic management studies do not adequately address this issue of endogeneity (Hamilton & Nickerson, 2003; Shaver, 1998), and left unmitigated, this leads to biased estimation of the effects in OLS regression models. Such biased estimates put into question the recommendations of most M-P studies on optimizing the level of multinationality (Verbeke & Brugman, 2009; Verbeke & Forootan, 2012). In this study, we employ a fixed effects method, that addresses the issue of omitted variables for individual, industry, and firm characteristics that do not vary over time.
3.3.2 R&D-performance relationship in new ventures

Investments in R&D would generally appear attractive for startups, in order to achieve long-term superior performance stemming from potential Schumpeterian rents (e.g., Hyytinen et al., 2015). A number of studies in the international entrepreneurship literature found a positive relationship between R&D and different proxies of firm performance; e.g., financial performance (Li, Qian, & Qian, 2012), growth (Filatotchev & Piesse, 2009; Golovko & Valentini, 2011), and survival (Mudambi & Zahra, 2007).

Many of the studies in the literature, however, did not find a significant main effect of R&D (e.g. Shrader, Oviatt, & McDougall, 2000). Moreover, the performance outcomes of different levels of R&D investment have not been studied. High levels of investment in R&D in the context of new ventures can result in negative performance outcomes particularly because of a number of undesirable effects (Rosenbusch et al., 2011). First, innovation activities are usually uncertain (Eisenhardt & Martin, 2000; Li & Atuahene-Gima, 2001; Nooteboom, 1999; Shi, 2003; Tishler, 2008; Van de Ven, 1986), and for financially constrained new ventures, lacking organizational experience in innovation, the normal risks associated with innovation can become critical.

Second, R&D activities demand substantial resources from the organization (Branzei & Vertinsky, 2006; Junkunc, 2007; Schumpeter, 1934; Thornhill, 2006), which can exceed the available venture’s possibilities, leading to inefficient allocation of funds to R&D activities. Similarly, top management capabilities are limited in terms of the amount of time and attention that can be devoted to each of the firm’s activities (Penrose, 2009; Pitelis, 2009), and because of this, any funded R&D projects might suffer from a lack of managerial attention.
Third, there is usually a lag in realization of positive R&D effects, referred to as the “temporary unprofitability” of innovation (Bock & MacMillan, 1993). An adjustment period is required before R&D investments result in potential cost reductions and/or profit generation. Therefore, R&D expenditures are often made at the expense of the short-term performance of firms (Hall, Griliches, & Hausman, 1986; Rouvinen, 2002). Based on the elements above, we can formulate the following hypothesis:

Hypothesis 2: R&D investments above a certain level are negatively associated with the performance of new ventures.

3.3.3 Interaction effects of R&D and internationalization

As displayed in Table 3-1, many of the highly cited empirical studies in the international entrepreneurship literature did not study (or control for) the effect of R&D when studying the internationalization and performance relationship (e.g. Reuber & Fischer, 1997; Westhead, Wright, & Ucbasaran, 2001; Zahra, Ireland, & Hitt, 2000; Zhou, Wu, & Luo, 2007).

Furthermore, the interaction effects of R&D and internationalization have not received enough attention in the prior literature. Table 3-2 displays an overview of key empirical studies in the international entrepreneurship literature (in terms of citations earned and/or the quality of the journal in which these studies appeared) that found a significant effect of R&D on internationalization and/or performance. The only studies that include an interaction effect of R&D*Internationalization are (Golovko & Valentini, 2011) and (Filatotchev & Piesse, 2009), and both are in the context of SMEs (rather than INVs).
We should emphasise that international expansion is itself a demanding activity that typically requires managerial attention at high levels. In the context of new ventures –where managerial resources are most often particularly scarce- the decision to combine an internationalization strategy with high investments in R&D might deprive the firm of resources that should be deployed for other purposes. This situation can then trigger underperformance in activities related to these other purposes, with a decrease in overall performance as the ultimate outcome.

We therefore hypothesize that a strategy of higher geographic expansion by INVs, as a critical contextual factor, may negatively affect the performance outcome of R&D activities:

*Hypothesis 3: In the context of international new ventures, higher engagement in R&D activities is negatively associated with performance. For domestic new ventures, higher engagement in R&D activities is positively related with performance.*

Figure 3-1 summarizes the above hypotheses. The third hypothesis can also be viewed as declining marginal returns of R&D activities.
3.4 Method

3.4.1 Data

We tested our hypotheses using the Kauffman Firm Survey (KFS) dataset, a longitudinal survey of a panel of US-based new businesses founded in 2004, and tracked over their early years of operations\(^8\). The 4,928 firms included in the KFS study were initially randomly chosen from Dun & Bradstreet’s database list of new businesses started in 2004, excluding wholly owned subsidiaries of existing businesses, inherited businesses, non-profits, and firms with business activity prior to 2004. The first survey was conducted in 2004, with follow-up annual surveys covering the period of 2005–2011. The KFS survey results draw on a wide spectrum of two-digit NAICS (North American Industry Classification System) sectors and represent a longitudinal database of various start-up characteristics, related to finance, innovation, the human resources involved, and international activities.

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\(^8\) For more detailed information about the KFS data, see Ballou et al. (2008) and Robb et al. (2010).
3.4.2 Variables

3.4.2.1 Dependent Variable

We operationalized the dependent variable, performance of new ventures, using return on sales (ROS). *Return on sales* is mostly considered in the literature as an appropriate financial measure of firm-level profitability and performance for surviving firms (Palepu & Healy, 2008).

3.4.2.2 Independent Variables

*R&D intensity*

We measure R&D intensity as the ratio of R&D expenditures to the volume of sales (both lagged one year). This measure is commonly used when studying R&D expenditures patterns (e.g., Greve, 2003; Hoskisson et al., 2003; Bah & Dumontier, 2001; Cohen & Klepper, 1992; Baysinger & Hoskisson, 1989; Scott, 1984; Nelson & Winter, 1982). This measure was used in virtually all of studies in the international entrepreneurship literature that included the R&D effect (see Table 3.1). The main benefit of this measure is that it is ‘normed’, which allows comparing companies of different sizes with each other, eliminating the confounding effects of scope (Cohen & Klepper, 1992). Moreover, unlike raw R&D expenditures (dollar amount), the R&D intensity measure is less volatile, as “firms appear to increase their total R&D expenditures following growth in sales” (Coad & Rao, 2010, p.127), trying to keep the R&D intensity ratio constant (Nelson & Winter, 1982). The R&D expenditures figure is captured through a self-reported KFS variable available from 2007 (“Please estimate [NAME BUSINESS]'s total research and development expenses for calendar year [YEAR], including materials, equipment, space, salaries, wages, benefits, and consulting fees”).
International sales

Early internationalization is measured as a dichotomous variable indicating whether the business had any sales to individuals, businesses, or governments outside the United States. This question was asked in the last four follow-ups (2007-2011). A total of 16.3 percent of the firms provided an affirmative answer in 2007.

A limitation of this variable is that it does not measure the extent to which the firm expands beyond its home country – i.e. the degree of internationalization (DOI). Although the literature on the requisite methodology for M-P studies suggests that multi-dimensional measures of DOI should be employed (see, e.g. Verbeke and Brugman (2009)), it is reasonable to assume that INVs engage mainly in exporting and not deeper modes of market entry (Almodóvar & Rugman, 2014). Therefore, a one-dimensional measure based on the volume of international sales is satisfactory for the context of this study.

3.4.2.3 Control Variables

To ensure sufficient internal validity, we controlled in our models for the variables that are associated with performance of new ventures in the literature:

Hi-tech industry

We control for technology classification, whereby industries are classified as high tech vs medium and low tech.
Firm size

Firm size has been identified as a firm-specific advantage (FSA) in past studies, since it reflects domestic success (see, e.g., Verbeke et al., 2014). We used the natural logarithm of the total assets of the firm as a proxy to control for firm size.

Owners’ characteristics

Prior literature indicates that the experiences, education, and entrepreneurial capabilities of managers are drivers of high performance (Andrews, 1965; Becker, 1964; Fisher & Govindarajan, 1992; Harris & Helfat, 1997; Chandler, 1962; Hambrick & Mason, 1984). Most particularly, the knowledge embedded in human capital is one of the most substantial resources of a new venture (Grant, 1991; Kogut & Zander, 1992; Grant, 1996 Verbeke, Zargarzadeh, & Osiyevskyy, 2014). In their early years, new venture companies have little firm-level experience by definition, beyond the experience of their owners-managers, i.e., the founding entrepreneurs. Therefore, these founding entrepreneurs’ influence is critical to new venture success, whether in the home country or abroad (Cressy, 2006). As Zahra (2005, p. 21) points out:

“The evolution of the firm's mission and resource base are intimately related to managerial capacity, which, to some extent, is defined by the pre-launch experience”

The KFS dataset provides data on owners’ characteristics as well as firm-level data. We included several indicators of human capital resources in our study, see below:

Prior industry experience of primary owners

We included the average work experience in the same industry (in years) of the each firm’s founding entrepreneurs as a measure for prior experience in the industry.
Owners’ level of education

Education level is an ordinal variable in the KFS database, ranging from 1 (lower than grade 9) to 10 (PhD level). We included in our model the average education level of each firm’s founding entrepreneurs. In other words, if a firm had more than one owner, we used the average educational level per founding entrepreneur.

Number of other businesses started by the primary owner

We used the average number of other businesses started by each firm’s founding entrepreneurs as a proxy for these individuals’ entrepreneurial capabilities. Here again, if a firm had more than one owner, we calculated the average number of businesses per founding entrepreneur.

Previous start-up experience might have mixed effects on performance. On the one hand, it has been indicated that experienced entrepreneurs first, have learned from their experience, and second, are more confident in their decision-making (Shane, 2007). On the other hand, number of previous startups might be an indicator of risky decisions that increases the threat of closure to the new venture.

Immigrant owner

For each owner of a firm, the KFS dataset includes data on whether the owner was born in the United States. We used a dummy variable indicating whether the main owner is an immigrant to the US.
3.4.3 Statistical procedures

3.4.3.1 Fixed effects panel analysis

The main analysis we employed to test our hypotheses is a fixed effects panel model. Because the data on international sales and R&D activities of firms was not collected for the first three years of the Kauffman survey, only four-years of data are available for panel analysis. Moreover, we lagged the R&D intensity variable resulting in a three-year panel. This short panel might cause a lower power of the test in detecting significant results, but since the number of observations is large, this issue will be mitigated to some extent.

3.4.3.2 Heckman selection model

We included a pooled OLS analysis to compare the results with our main fixed effects analysis. We also controlled for selection bias in this pooled OLS and performed a 2SLS analysis. A difficulty when assessing empirically the effect of internationalization strategies is that we do not have an experimental setting where firms are randomly assigned a treatment (e.g. internationalization) and then the effect of that treatment (e.g. performance outcomes) is evaluated. In practical terms, new ventures are likely to self-select the most favorable internationalization strategy based, in part, on unobservable competitive advantages (Shaver, 1998). In other words, in the context of our study, firm owners that expect better outcomes form internationalization, are more likely to make the decision to internationalize. We used the Heckman (1979) two-stage method to control for this selection bias. This method was previously
used by Mudambi & Zahra (2007); however the results of their 2SLS analysis did not support the results of their main analysis.  

*Selection Model*

For the selection phase of the 2SLS analysis, we use two variables in the data that theoretically can be associated with the firms’ early internationalization strategies:

*Percentage of businesses to business (B2B) sales*

Internationalization is generally believed to be less challenging for business-to-business (B2B) firms than it is for business-to-consumer (B2C) firms, because selling to a business in a foreign country requires less intensive knowledge of the distant context (Rugman & Verbeke, 2004). Rugman and Verbeke argue that upstream and downstream internationalization demand different levels of resource recombination at the host market. At the downstream end of the value chain,

---

9 Mudambi & Zahra (2007) hypothesize that:

“Hypothesis 1: After endogenizing strategy choice, an INV strategy has a probability of failure that is no greater than that for a sequential FDI strategy” (p.336)

In our view, it is statistically impossible to prove such a hypothesis true. In fact, we do not know of any method to prove the *nonexistence* of an effect. Nevertheless, Mudambi and Zahra maintain that non-significant estimates of the Heckman (2SLS) analysis in their study would indicate support for the above hypothesis:

“…once strategy choice is endogenized (i.e., estimated within a system of equations), it will no longer be a significant predictor of firm survival” (p.339)

In our view, this utilization of non-significant results for hypothesis testing is highly questionable. Generally, in statistical hypothesis testing, *failing to reject the null hypothesis* does not implicate that the null is true. In other words, one cannot argue that a ‘statistically non-significant’ estimate of an effect equals a ‘zero’ effect. Lack of significance in the 2SLS results could stem from various other causes, including e.g., a poor first-stage selection model. Furthermore, standard deviations of 2SLS estimated coefficients are usually much larger than standard deviations of their ordinary counterparts. Therefore, the results of 2SLS oftentimes tend to be insignificant. This does not necessarily prove that the ordinary estimates are biased.
B2C firms’ activities directly deal with consumers (e.g. branding). The resources and capabilities necessary for success in these consumer-oriented activities in the host country tend to be quite different from the ones effective in the home country. At the upstream end of the value chain however, B2B firms typically deal with other firms rather than consumers in the host market, and therefore arguably endure less distance (Ghemawat, 2001) and/or liability of foreignness (Hymer, 1976; Zaheer, 1995).

Furthermore, as mentioned earlier, opportunity-driven search triggered by chance events is a potential factor in early internationalization (Almodóvar & Rugman, 2014; Chandra et al., 2009). These ‘chance opportunities’ for internationalization are more likely to occur for B2B firms, via upstream-type orders from foreign businesses, than for B2C firms, via downstream-type orders from foreign consumers.

Product/Service dummy variable

Arguably, it is harder for a service firm to have international sales. Prior literature has indicated that the average percentage of home region sales is for service-oriented versus manufacturing firms are 83.9 and 65.6, respectively (Rugman & Verbeke, 2008).

Table 3-3 provides a summary of variables’ description.

Table 3-3 about here

3.5 Results and Discussion

The descriptive statistics of the variables and correlations are presented in Table 3-4.

Table 3-4 about here
Table 3-5 shows the results of pooled OLS, 2SLS, fixed effects, and random effects analyses. The Hausman test was *significant* which indicates that the results of the random effects model are not reliable. The first three regressions are pooled regressions, meaning that the observations of all years are included in one regression (year controls are added). 2SLS models are added to control for the selection bias explained in the previous chapter. The variables included in the first stage of 2SLS (B2B and product/service) show a very strong significance which indicates they can successfully predict the early internationalization strategy. We added the immigrant dummy as a third predictor in column three, and as predicted from the results of the previous chapter, this variable also significantly predicts internationalization.

A number of individual characteristics of the owners (age, work experience, education) were included as control variables in all the models and from those characteristics, the work experience factor is the only one with a significant coefficient, showing a positive association with ROS. Since these variables do not vary over time, the fixed effects model cannot estimate any coefficients for these variables, and as mentioned above, the random effects results are not reliable, because the Hausman test was significant.

**Table 3-5** about here

Hypothesis 3 (negative interaction of R&D and internationalization on performance) is supported by both fixed effects and 2SLS. Both models show a negative coefficient for the interaction of internationalization and (lagged) R&D intensity. In the fixed effects method, the coefficient is ‘-0.0816’, which means that, all other things equal, a firm would be 8.16 percent better off in terms of ROS if it engaged in just one of the R&D and internationalization activities instead of both.
Hypothesis 1 (positive relation of international sales-performance) and Hypothesis 2 (negative R&D²-performcance) are supported by the fixed effects model, but not by the 2SLS. The fixed effects model also shows a positive coefficient for (lagged) R&D intensity, while 2SLS model shows a negative relationship.

These analyses show that the results of fixed effects method can be completely different from Pooled OLS, even after controlling for selection bias in a 2SLS model. We contend that the fixed effects results are less biased because this method controls for un-observed endogeneity. Therefore, we base our conclusions on the fixed effects results.

3.6 Robustness of results

In this section, we examine the robustness of our results by means of a new analysis and different measures of R&D and performance. As discussed in the variables section, one of the major concerns in empirical studies of startups is constructing a valid measure of performance. In any random sample of startups, some firms might choose financial performance as their main goal, while others might prioritize growth over financial performance.10 To test the robustness of our results, we chose a subjective performance variable as a proxy of new venture performance. The following question was asked in the 2008 follow up questionnaire:

10 Verbeke and Brugman (2009) argue that including merely profitability measures of performance can be misleading because: different firms have divergent timelines in their investment paths (short, medium, and long term) and the issue of risk associated with firms’ motives for internationalization and the trade-off between risk and return is neglected.
“How much do you think [NAME BUSINESS] met your expectations of growth between when the business was started and December 31, 2008”

The owners replied with ‘Exceeded’ (15%), ‘Met’ (31.5%), or ‘Did not meet expectations’ (53.4%). One could of course argue that this variable is affected by the subjective expectations of the individual owners. We include control variables for individual characteristics of owners that will mitigate this subjective individual expectations effect.

We employed an ordered logit model with the aforementioned three-level variable as the dependent variable. We used a different measure of R&D, specifically a dummy variable that indicates whether the firm has any R&D expenditures. We also added new control variables: three dummy variables that indicate whether the firm had any patents, copyrights, or trademarks, a dummy variable to control for gender of the main owner, and a diversity index that controls for ethnic diversity in the management team:

\[
\text{Diversity Index} = 1 - \sum_{i=1}^{n} P_i^2
\]

Where P is the proportion of owners who have the same ethnicities and n is the number of different ethnicities that are present in the management team.

The results are displayed in Table 4. In this table, an odds ratio > 1 is interpreted as positive relationship and an odds ratio < 1 is interpreted as negative relationship. The results support hypothesis 3 (negative interaction of R&D and performance). The estimated odds ratio for the interaction between the dummy variables for R&D (lagged one year) and internationalization is ‘0.396’ (significant at the 0.05 level), which indicates that engaging in both R&D and internationalization activities significantly decreases the odds of meeting the initial growth
expectations of the owners. The coefficient regarding the first hypothesis (internationalization-performance) was not significant in this analysis even at the 10 percent level. Hypothesis 2 could not be checked, because the nature of the R&D dummy variable included in this regression does not allow including the second power of the variable.

Table 3-6 about here

3.7 Conclusion

As illustrated in Figure 3-2, our results demonstrate that lower levels of R&D activity are positively related to a new venture’s performance; but above a certain level, R&D will be negatively associated with performance of new ventures. In other words, we found an inverse U shaped relationship between R&D and performance (reflected by the negative coefficient of R&D² estimated in our fixed effects results). In more economic terms, Figure 3-2 demonstrates decreasing marginal gains form R&D expenditure.

Figure 3-2 The inverse U shaped relationship between R&D and performance
Additionally, as illustrated in Figure 3-3 below, our analyses show a negative interaction effect between internationalization and R&D: high engagement in both R&D and internationalization is negatively associated with performance. We further confirmed the robustness of this negative interaction between R&D and Performance in our robustness analysis.

![Figure 3-3 Performance outcomes of R&D intensity in domestic versus international new ventures.](image)

**Limitations and directions for future research**

The fixed effects model for panel data analysis is considered less prone to biased estimates compared to other models, because its *difference-in-difference* approach cancels out any potential non-time-varying omitted variables. In other words, all the time-invariant variables – characteristics of the owners, industry sector, etc. – are automatically controlled in this method. More importantly, *unobserved* variables that are potential sources of bias will also be controlled, if they are time-invariant. However, potential omitted variables that do vary with time can still be a source of bias. We tried to control for a number of relevant time-varying variable to minimize this potential issue.
A main limitation of the fixed effects model is that it cannot estimate the coefficients for the time-invariant variables. The random effects model is usually employed after the fixed effects model in order to estimate the coefficients for time-invariant variables. However, the random effects model is only acceptable if the Hausman test is insignificant. As mentioned before, the Hausman test was significant in this study, therefore indicating that random effects model results are not reliable.

Additionally, the information about internationalization and R&D expenditure in the KFS panel data were not collected during the first three years. As a result, the panel of our study spans only over four years, and we lagged our R&D intensity variable one year, which makes the panel an even shorter three-year panel. A three-year panel is the smallest to make fixed effects analysis possible. Theoretically, the small size of panel does not necessarily induce bias in estimations, but rather reduces the power of the tests – i.e. there might be effects in the data that the test would not be able to detect due to small sample. Future research with longer panels will therefore be interesting.

Lastly, the measure we used for internationalization is based only on the presence/absence of international sales, and therefore the study cannot test or control for different entry modes. Moreover, this dichotomous internationalization measure does not indicate the extent of internationalization. Future research is therefore needed to investigate the effects of entry mode and the degree of internationalization.
3.8 References

doi:10.1111/1467-8551.12022


### 3.9 Tables

#### Table 3-1 The role of R&D in key empirical international entrepreneurship studies

<table>
<thead>
<tr>
<th>Empirical study</th>
<th>Journal</th>
<th>Google Scholar</th>
<th>Explained variable</th>
<th>Sample Size</th>
<th>Firm age</th>
<th>Firm Size</th>
<th>Measure of int.</th>
<th>Role of R&amp;D</th>
<th>Measure of R&amp;D</th>
<th>Key empirical findings regarding R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Zahra et al., 2000)</td>
<td>AMJ</td>
<td>1998</td>
<td>Performance (ROE, Sales growth)</td>
<td>321</td>
<td>High tech</td>
<td>1-6 years</td>
<td>719 avg. employees</td>
<td>FSTS; Entry monde; # of countries</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>(Lu &amp; Beamish, 2001)</td>
<td>SMJ</td>
<td>1432</td>
<td>Performance (ROA, ROS)</td>
<td>164</td>
<td>Japan</td>
<td>NA</td>
<td>321 avg. employees</td>
<td>FSTS; # of countries</td>
<td>Control</td>
<td>R&amp;D intensity</td>
</tr>
<tr>
<td>(Reuber &amp; Fischer, 1997)</td>
<td>JIBS</td>
<td>903</td>
<td>Int.</td>
<td>49</td>
<td>Software</td>
<td>3-24 years</td>
<td>SME</td>
<td>FSTS; # of countries</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>(Westhead et al., 2001)</td>
<td>JBV</td>
<td>826</td>
<td>Survival; Int. degree</td>
<td>116</td>
<td>UK</td>
<td>&lt;6 years</td>
<td>NA</td>
<td>FSTS</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>(Shrader et al., 2000)</td>
<td>AMJ</td>
<td>507</td>
<td>Entry mode; Int. risks</td>
<td>87</td>
<td>US; Mainly high tech</td>
<td>2-6 years</td>
<td>334 avg. employees; $66 M sales</td>
<td>FSTS; Entry monde; # of countries</td>
<td>Control</td>
<td>Product innovation (scale measure)</td>
</tr>
<tr>
<td>(Zhou et al., 2007)</td>
<td>JIBS</td>
<td>499</td>
<td>Performance</td>
<td>129</td>
<td>China</td>
<td>&lt;3 years</td>
<td>50–500 employees; Sales &lt; Yuan 30 M</td>
<td>Dichotomous based on FSTS &gt; 10%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>(Zahra, Matherne, &amp; Carleton, 2003)</td>
<td>JIE</td>
<td>188</td>
<td>Int. degree; Int. speed</td>
<td>159</td>
<td>US; Software industry</td>
<td>&lt;8 years</td>
<td>29 avg. employees</td>
<td>FSTS;</td>
<td>Moderator</td>
<td>R&amp;D intensity</td>
</tr>
<tr>
<td>(Mudambi &amp; Zahra, 2007)</td>
<td>JIBS</td>
<td>171</td>
<td>Survival of INVs</td>
<td>275</td>
<td>UK startups’ foreign parents</td>
<td>&lt;16 months</td>
<td>Avg. sales outside UK $52.5 M</td>
<td>Survey based dichotomous variable</td>
<td>Explanatory</td>
<td>R&amp;D intensity</td>
</tr>
</tbody>
</table>

Notes:
Approximate Google Scholar citations as of July 2015;
FSTS: ratio of foreign sales to total sales;
R&D intensity: R&D expenditure divided by sales;
AMJ: Academy of Management Journal;
SMJ: Strategic Management Journal;
JBV: Journal of Business Venturing;
JIBS: Journal of International Business Studies;
JIE: Journal of International Entrepreneurship.
<table>
<thead>
<tr>
<th>Empirical study</th>
<th>Journal</th>
<th>Explained variable</th>
<th>Sample Size</th>
<th>Firm age</th>
<th>Firm Size</th>
<th>Measure of int.</th>
<th>Role of R&amp;D</th>
<th>Measure of R&amp;D</th>
<th>Key empirical findings regarding R&amp;D</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Coeurderoy &amp; Murray, 2008)</td>
<td>JIBS</td>
<td>Int.</td>
<td>375</td>
<td>7.0 avg. years</td>
<td>3.5 avg. employees</td>
<td>Dichotomous</td>
<td>Control</td>
<td>Survey based measure – frequency of R&amp;D</td>
<td>R&amp;D-Int. (+)</td>
</tr>
<tr>
<td>(Filatotchev &amp; Piesse, 2009)</td>
<td>JIBS</td>
<td>Growth</td>
<td>1,110</td>
<td>6.4 avg. years</td>
<td>4.9 M Euros</td>
<td>FSTS</td>
<td>Moderator</td>
<td>R&amp;D intensity</td>
<td>Significant interaction effect of R&amp;D*Int. (+)</td>
</tr>
<tr>
<td>(Golovko &amp; Valentini, 2011)</td>
<td>JIBS</td>
<td>Growth</td>
<td>1235</td>
<td>NA</td>
<td>&lt;200 employees</td>
<td>Dichotomous</td>
<td>Moderator</td>
<td>R&amp;D intensity; Significant interaction effect of Int.*Innovation (+)</td>
<td></td>
</tr>
<tr>
<td>(Hashai, 2011)</td>
<td>JIBS</td>
<td>Int.</td>
<td>144</td>
<td>&lt;7 years</td>
<td>$27 M avg. sales; 127 avg. employees</td>
<td>Cultural distance; # of foreign operations</td>
<td>Moderator</td>
<td>R&amp;D intensity</td>
<td>Significant main effect and interaction effect of R&amp;D</td>
</tr>
<tr>
<td>(Li et al., 2012)</td>
<td>IMR</td>
<td>Int.; Performance</td>
<td>278</td>
<td>&lt;3 years</td>
<td>&lt;100 employees</td>
<td>Percentage of 'regional' sales</td>
<td>Explanatory; Moderator</td>
<td>R&amp;D Intensity</td>
<td>R&amp;D-Int. (+); R&amp;D<em>Alliances-Performance (+); R&amp;D</em>Advertising-Performance (+)</td>
</tr>
<tr>
<td>(Mudambi &amp; Zahra, 2007)</td>
<td>JIBS</td>
<td>Survival of INVs</td>
<td>275</td>
<td>&lt;16 months</td>
<td>Avg. sales outside UK $52.5 M</td>
<td>Survey based dichotomous variable</td>
<td>Explanatory</td>
<td>R&amp;D intensity</td>
<td>R&amp;D-Survival (+)</td>
</tr>
<tr>
<td>(Park &amp; Rhee, 2012)</td>
<td>MD</td>
<td>Int.</td>
<td>271</td>
<td>&lt;6 years</td>
<td>&lt;300 employees</td>
<td>FSTS</td>
<td>Moderator</td>
<td>Percentage of R&amp;D employees</td>
<td>Significant interaction effect of R&amp;D*Network connections (+)</td>
</tr>
<tr>
<td>(Fernhaber &amp; Li, 2013)</td>
<td>JBV</td>
<td>Int.</td>
<td>448</td>
<td>&lt;10 years</td>
<td>SME</td>
<td>FSTS</td>
<td>Control</td>
<td>R&amp;D intensity</td>
<td>R&amp;D-Int. (+)</td>
</tr>
<tr>
<td>(Fernhaber, Gilbert, &amp; McDougall, 2008)</td>
<td>JIBS</td>
<td>Int.</td>
<td>156</td>
<td>3.59 years (mean)</td>
<td>FSTS; # of continents</td>
<td>Moderator</td>
<td>R&amp;D intensity</td>
<td>Significant interaction effect of R&amp;D*clustering (+)</td>
<td></td>
</tr>
<tr>
<td>(Zahra et al., 2003)</td>
<td>JIE</td>
<td>Int. degree; Int. speed</td>
<td>159</td>
<td>&lt;8 years</td>
<td>29 avg. employees</td>
<td>FSTS</td>
<td>Moderator</td>
<td>R&amp;D intensity</td>
<td>Significant interaction effect of R&amp;D<em>Networks (+) and R&amp;D</em>Reputation (+)</td>
</tr>
</tbody>
</table>

Notes: Approximate Google Scholar citations as of July 2015; FSTS: ratio of foreign sales to total sales; R&D intensity: R&D expenditure divided by sales; JBV: Journal of Business Venturing; JIBS: Journal of International Business Studies; JIE: Journal of International Entrepreneurship; MD: Management Decision; IMR: International Marketing Review.
# Table 3-3 Variable description

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROS</td>
<td>Net profit divided by total amount of sales.</td>
</tr>
<tr>
<td>International sales</td>
<td>A dummy variable indicating whether the firm had any sales outside the United States.</td>
</tr>
<tr>
<td>R&amp;D intensity</td>
<td>R&amp;D expenditure divided by total sales (1 year lagged)</td>
</tr>
<tr>
<td>Firm size</td>
<td>Natural logarithm of total assets.</td>
</tr>
<tr>
<td>Have patents</td>
<td>Dummy: 1 if firm has any patents.</td>
</tr>
<tr>
<td>Have copyrights</td>
<td>Dummy: 1 if firm has any copyrights.</td>
</tr>
<tr>
<td>Have trademarks</td>
<td>Dummy: 1 if firm has any trademarks.</td>
</tr>
<tr>
<td>High tech</td>
<td>Dummy variable, equals 1 if the firm is in a high-tech industry, 0 if the firm operates in an either medium or low-tech industry.</td>
</tr>
<tr>
<td>Immigrant owner</td>
<td>Dummy variable, equals 1 if the main owner is born outside the US.</td>
</tr>
<tr>
<td>Education level</td>
<td>Level of education of the primary owner, based on an ordinal variable. Range: 1 (less than 9th grade); 3 (high school diploma); …; 6 associate’s degree; 7 (bachelor’s degree); …; 9 (master’s degree); 10 (PhD).</td>
</tr>
<tr>
<td>College degree</td>
<td>Dummy variable, equals 1 if the primary owner has a bachelor’s degree (i.e. education level &gt; 6).</td>
</tr>
<tr>
<td>Industry experience</td>
<td>Years of work experience of the primary owner in the same industry.</td>
</tr>
<tr>
<td>Number of other startups owned</td>
<td>Number of other businesses started by the primary owner.</td>
</tr>
</tbody>
</table>
Table 3-4 Descriptive statistics and correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ROS</td>
<td>0.26</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age</td>
<td>45.19</td>
<td>10.59</td>
<td>-0.0295</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. College degree</td>
<td>0.50</td>
<td>0.50</td>
<td>-0.0905*</td>
<td>0.0692*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Industry experience (years)</td>
<td>12.60</td>
<td>10.61</td>
<td>0.0335</td>
<td>0.3306*</td>
<td>-0.0223</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Number of other startups owned</td>
<td>0.85</td>
<td>1.27</td>
<td>-0.1011*</td>
<td>0.1911*</td>
<td>0.0370</td>
<td>0.1087*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Immigrant (0/1)</td>
<td>0.08</td>
<td>0.28</td>
<td>-0.0213</td>
<td>-0.0015</td>
<td>0.1256*</td>
<td>-0.0697*</td>
<td>0.0389</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gender</td>
<td>0.71</td>
<td>0.45</td>
<td>-0.0293</td>
<td>-0.0232</td>
<td>0.0151</td>
<td>0.1643*</td>
<td>0.1240*</td>
<td>0.0763*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Race diversity index</td>
<td>0.02</td>
<td>0.09</td>
<td>0.0229</td>
<td>-0.0459*</td>
<td>0.0602*</td>
<td>-0.0435</td>
<td>0.0354</td>
<td>0.1079*</td>
<td>-0.0225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Assets (log)</td>
<td>10.59</td>
<td>3.08</td>
<td>-0.1196*</td>
<td>0.0609*</td>
<td>0.0761*</td>
<td>0.0716*</td>
<td>0.1009*</td>
<td>0.0492*</td>
<td>0.1522*</td>
<td>0.0267</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. R&amp;D intensity</td>
<td>0.19</td>
<td>0.35</td>
<td>0.4746*</td>
<td>-0.0308</td>
<td>-0.1005*</td>
<td>-0.0176</td>
<td>-0.0350</td>
<td>0.0464*</td>
<td>-0.0556*</td>
<td>0.0913*</td>
<td>-0.1431*</td>
<td></td>
</tr>
<tr>
<td>11. International Sales (0/1)</td>
<td>0.13</td>
<td>0.34</td>
<td>-0.0712*</td>
<td>0.0094</td>
<td>0.0924*</td>
<td>-0.0027</td>
<td>0.0412</td>
<td>0.0970*</td>
<td>0.0438*</td>
<td>0.0261</td>
<td>0.0704*</td>
<td>-0.0502*</td>
</tr>
</tbody>
</table>

Notes:
* Denotes significance at the 5 percent level; Values are calculated for the cross-sectional observations of year=2007; Number of observations: 2021; Survey weights are employed; Correlations are calculated using casewise (listwise) deletion —if an observation has a missing value in any of the variables, it is to be excluded from all the calculations.
Table 3-5 Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>OLS</th>
<th>2SLS</th>
<th>2SLS</th>
<th>Fixed Effects</th>
<th>Random Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable: ROS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PO_age_owner</td>
<td>-0.00184</td>
<td>-0.000876</td>
<td>-0.000878</td>
<td>-0.00121</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000972)</td>
<td>(0.000548)</td>
<td>(0.000549)</td>
<td>(0.000886)</td>
<td></td>
</tr>
<tr>
<td>PO_work_exp</td>
<td>0.00318</td>
<td>0.00283</td>
<td>0.00247</td>
<td>0.00318</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000914)</td>
<td>(0.000518)</td>
<td>(0.000519)</td>
<td>(0.000852)</td>
<td></td>
</tr>
<tr>
<td>PO_education</td>
<td>0.000444</td>
<td>-0.00250</td>
<td>-0.00176</td>
<td>-0.00387</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00414)</td>
<td>(0.00255)</td>
<td>(0.00256)</td>
<td>(0.00419)</td>
<td></td>
</tr>
<tr>
<td>lnAssets</td>
<td>-0.0102***</td>
<td>-0.00973***</td>
<td>-0.00940***</td>
<td>0.00338***</td>
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Selection model for international sales

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Standards errors in parentheses

*p < 0.10, **p < 0.05, ***p < 0.01
Table 3-6 Ordered logistic regression results for meeting the expectations of growth

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Notes: *** p<0.01; ** p< 0.05; * p<0.1 (two tailed tests). Odds ratios are displayed; coefficient > 1 means a positive association; standard deviations in brackets.
Chapter Four: Entrepreneurial Deficits in the Global Firm

4.1 Introduction

Debates on the internal functioning of multinational enterprises (MNEs) often emphasize the competitive edge that can be achieved from transferring firm-specific advantages (FSAs) across borders. However, experiences of many large MNEs such as US-based Disney’s difficulties when internationalizing its theme parks, illustrate that merely trying to project successful managerial practices abroad, i.e., replicating home market routines, can generate unexpected difficulties in foreign markets. Some degree of national responsiveness is thus often necessary to succeed in host markets. While it is commonly accepted that some local adaptation may be valuable, how MNEs actually respond to local needs has received scant attention. In this chapter, we argue that successful national responsiveness requires entrepreneurial capacity in headquarters and subsidiaries to recombine extant FSAs with new resources, so as to access location advantages in host countries such as potentially high demand for suitably adapted products and services.

Entrepreneurship in MNEs is believed to generate significant competitive advantages (Birkinshaw, 1997; Lee & Williams, 2007). Some scholars have argued that "[c]onditions in the global business environment demand that established firms adopt entrepreneurial strategies...as a path to success" (Ireland, Covin, & Kuratko, 2009: 19). Geographically dispersed entrepreneurship in foreign subsidiaries, referred to as subsidiary initiatives, has received substantial attention during the past two decades, and is perceived as vital to the MNE’s overall competitiveness (Birkinshaw, 2000). Foreign subsidiaries are thus no longer treated solely as
means to exploit existing competences, but also as critical sources in their own right for internally or externally triggered initiatives that generate competitive advantage.

Although studies on subsidiary initiatives have provided valuable insights into the types and sources of entrepreneurial activities in MNEs, the focus has mostly been limited to subsidiaries evolving beyond their initial roles and responsibilities, and assuming new ones (Birkinshaw, Hood, & Young, 2005). Here, little attention has been devoted to the entrepreneurial judgment and capacity necessary from both headquarters and local affiliates, *inter alia*, to successfully adapt downstream activities to specificities in host markets when entering these markets. Contrary to the substantial scholarly insight gained into the complexities of subsidiary initiatives in established foreign affiliates, successful national responsiveness is still very much approached as a mechanistic adaptation to local circumstances, enabled by simple access to sufficient local knowledge and by subsidiary autonomy.

In this chapter, we identify *entrepreneurial deficits* as the main source of failure when trying to achieve national responsiveness. We use four firm-level examples to illustrate how otherwise successful MNEs fall short of the entrepreneurship necessary to recombine successfully internal strengths with new resources, in order to access the location advantages of host markets. Our main insight is that the often lamented lack of sufficient national responsiveness in MNE international business operations, especially at the downstream end of operations is not just an expression of simple MNE failure to 'adapt' to local circumstances in host markets, because of poor information and insufficient subsidiary autonomy, but should be viewed as an *entrepreneurial deficit*, whereby both headquarters’ and local managers appear incapable of
canvassing and effectively deploying the resources required to link their firm's existing resource base (internationally transferable competences) with the location advantages, such as high demand, of host countries. Here, head office management (or any management level above the subsidiary level) appears unable to provide access to - or facilitate and enforce proper usage of - these required linking resources. The point is that the lack of creative resource recombination as a precondition for market success reflects the absence of effective entrepreneurial action. This focus on entrepreneurial deficits in the MNE sheds new light on the substance of what international business scholars have traditionally tended to qualify as ‘easy to fix’ inadequacies in national responsiveness in host countries.

4.2 Theoretical Background

The focus on national responsiveness has evolved significantly over the past three decades, reflecting a more general shift in our view of MNE functioning. In an effort to break with the economics approach that had dominated the international trade literature, early contributions in international business focused primarily on how and why firms internationalize (Dunning, 2001; Rugman, Verbeke, & Nguyen, Forthcoming). The perspective of MNEs as uniform hierarchical entities with top-down driven headquarters-subsidiary relationships was increasingly challenged as the idiosyncratic strengths of foreign subsidiaries, their differentiated needs, as well as the specificities of their local contexts were recognized (Bartlett & Ghoshal, 1986, 1989; Hedlund, 1986).

It is now generally accepted in the scholarly international business literature that treating all foreign subsidiaries in a uniform fashion or exerting too strict headquarters control can
negatively affect the MNE’s competitiveness and its ability to respond to local opportunities (Bartlett & Ghoshal, 1986; Ghoshal & Nohria, 1989; Hedlund, 1986; Jarillo & Martinez, 1990). Consequently, MNEs must determine where competitive advantage is strengthened through national responsiveness versus global integration of resources and activities.

Leading strategy textbooks commonly define national responsiveness as tailoring products or adapting the marketing and distribution to suit local host country characteristics and preferences (Grant, 2010; Hitt, Ireland, & Hoskisson, 2009; Thompson, Strickland, & Gamble, 2010). The assumption is that firms with sufficient local knowledge should be able to adapt successfully their products, marketing and distribution to the local context. Numerous empirical studies on subsidiary roles have further found that MNEs seeking national responsiveness typically have more autonomous foreign subsidiaries and employ locally hired managers and employees (Harzing, 2000; Hill, Hwang, & Kim, 1990; Jarillo & Martinez, 1990; Taggart, 1997).

However, once sufficient autonomy and local knowledge have been secured, which can be conceptualized as solving a bounded rationality (BRat) challenge, national responsiveness is treated as a mechanistic adaptation process. Scant attention has been devoted to how existing FSAs are recombined with new resources to access successfully the coveted location advantages of host markets. Failed attempts at national responsiveness are often simply attributed to MNE inability to understand local needs. In contrast, in this chapter we argue that there is more to national responsiveness than meets the eye. More specifically, we argue that entrepreneurial judgment and entrepreneurial capacity in headquarters and subsidiaries are critical for successful national responsiveness.
Entrepreneurship in MNEs is no longer seen as solely mandated and controlled by headquarters as foreign subsidiaries are increasingly recognized as sources and initiators of valuable entrepreneurial activities (Birkinshaw, 1997, 2000; Lee & Williams, 2007). Entrepreneurial activities in foreign subsidiaries are commonly referred to as subsidiary initiatives (Birkinshaw, 2000). A subsidiary initiative is defined as “a discrete, proactive undertaking that advances a new way for the corporation to use and expand its resources” (Birkinshaw, 1997: 207). While the strategy literature on corporate entrepreneurship often utilizes a broader definition, including the transformation or renewal of existing organizations as well as Schumpeterian disruptions to the industry (Birkinshaw, 2000; Stopford & Baden-Fuller, 1994), this chapter will - in line with Birkinshaw (2000) – adopt a more narrow perspective, focused on creating of new business opportunities by MNE foreign affiliates, especially at the downstream end of the value chain.

There are four key types of subsidiary initiatives: local (external) market initiatives, global (external) market initiatives, internal market initiatives and global-internal hybrid initiatives (Birkinshaw, 2000). Hence, entrepreneurship in the MNE can be both internally and externally triggered. This suggests that even if headquarters do not actively support from the outset entrepreneurial activities in subsidiaries, entrepreneurial initiatives may still develop from opportunities arising in subsidiaries’ external environments. Yet, merely recognizing the need for differentiated headquarters-subsidiary relationships (Nohria & Ghoshal, 1994) might not always be sufficient to trigger the various forms of desired subsidiary initiatives (Birkinshaw, 2000). MNEs therefore need to support and encourage subsidiary initiatives as entrepreneurial activity in foreign affiliates does not necessarily ‘just happen’. Research suggests that MNEs
successfully encouraging subsidiary initiatives commonly use incentives such as seed money and formal requests for proposals. They also encourage foreign subsidiaries to act as incubators and focus on building international networks (Birkinshaw & Hood, 2001).

Still, engaging in subsidiary initiatives does not immediately translate into successful outcomes. Various forms of *bounded reliability (BRel)*, as detailed below, pose substantial challenges in MNEs (Verbeke, 2009; Verbeke & Greidanus, 2009). Entrepreneurial activities initiated by subsidiaries often need to overcome enormous internal resistance, sometimes referred to as the ‘corporate immune system’ (Birkinshaw, 2000). It can be particularly challenging for foreign subsidiaries to secure the resource commitments, market approvals and organizational legitimacy necessary to bring autonomous initiatives to fruition, even if such initiatives clearly serve corporate goals in terms of likely contributions to MNE growth and profitability. This also mirrors the inherent complexities facing headquarters. While too much control can quench the subsidiaries’ abilities to identify and act upon external opportunities, it can also be difficult to distinguish between valuable initiatives related to new products and markets, and opportunistic behavior. Furthermore, headquarters may deliberately attempt to avoid potential costs of subsidiary initiatives such as empire building, lack of focus, costs of administering the internal market and coping with internal unemployment (Birkinshaw, 2000). In more general terms, MNE headquarters are usually concerned about *bounded reliability* in foreign affiliates, more specifically about the danger that these affiliates will not make good on open-ended promises when using scarce resources towards developing autonomous initiatives.
4.3 Conceptual Framework

While studies on subsidiary initiatives have provided substantial insight into entrepreneurial activities in MNEs, entrepreneurial challenges related to national responsiveness have been largely overlooked. The types of initiatives and related incentives studied, have focused primarily on evolving roles and responsibilities of established foreign subsidiaries, whereas key challenges in the realm of achieving requisite national responsiveness usually relate to initial market penetration in host countries. There is thus a gap in our understanding of entrepreneurship in the MNE as research on subsidiary initiatives is largely disconnected from research on national responsiveness. Both research streams emphasize the importance of subsidiary roles but while research on national responsiveness emphasizes the impact of allowing more subsidiary autonomy, primarily to alleviate *bounded rationality* constraints (Harzing, 2000; Jarillo & Martinez, 1990; Taggart, 1997), studies on subsidiary initiatives focus on entrepreneurship’s impact on evolving subsidiary roles, with an added focus on managing *bounded reliability* (Birkinshaw, 2000; Birkinshaw & Hood, 1998; Lu, Chen, & Lee, 2007).

Since allowing greater subsidiary autonomy – associated with improved information access and information processing ability – has been identified as the panacea for MNEs seeking to become more nationally responsive, the importance of headquarters facilitating entrepreneurial activities to serve the national responsiveness purpose has not received much attention. Contrary to the perceived need for incentives to be deployed by headquarters to facilitate subsidiary initiatives in established affiliates, headquarters involvement in national responsiveness has actually been assumed to amplify *bounded rationality* challenges and to impede the utilization of local
knowledge. Yet, successful resource recombination requires entrepreneurial capacity in both headquarters and foreign subsidiaries to understand – and act upon – the potential of bundling the full pool of extant FSAs with new resources. Here, *entrepreneurial deficits* may not only reflect the absence of localized entrepreneurial capacity in foreign subsidiaries but also the ineffectiveness of headquarters at facilitating successful resource recombination efforts.

Subsidiary autonomy is not the cure-all when seeking national responsiveness.

The two research streams on respectively subsidiary national responsiveness and subsidiary entrepreneurship have thus diverged in terms of conceptual focus and anticipated challenges, as illustrated in *Figure 1*.

--- Take in Figure (1) ---

Studies on national responsiveness have conventionally focused on *bounded rationality* challenges, which typically diminish the MNE’s access to the requisite local knowledge as well as its information processing capabilities. Emphasis has therefore been placed on developing managerial practices that allow for sufficient subsidiary autonomy so as to overcome *bounded rationality* issues (quadrant 4 in Figure 1). It is important to note that studies on subsidiary entrepreneurship have also to some extent addressed *bounded rationality* challenges to be solved by giving more autonomy to subsidiaries (quadrant 2). For example, early studies on world product mandates (WPMs) emphasized the need to locate high value-added activities in host
markets, including R&D (D'Cruz, 1986; Feinberg, 2000). This reflected an emphasis on entrepreneurial activities in WPMs beyond simple product adaptation and that required sufficient autonomy (Beigie & Stewart, 1986). However, research on WPMs was primarily focused on subsidiary development after policy changes (such as moves towards freer trade), and not targeted at competitiveness through national responsiveness per se (Feinberg, 2000; Paterson & Brock, 2002).

The importance of subsidiary autonomy has also been recognized in more recent research on subsidiary entrepreneurship, though primarily in terms of how varying degrees of subsidiary autonomy facilitate different types of subsidiary initiatives, i.e., act as a moderating variable (Birkinshaw, 2000). The main conceptual focus of the subsidiary initiative literature still revolves around resource recombination and challenges of bounded reliability (quadrant 1).

Importantly, what is lacking in the international business literature is equivalent attention to the need for resource recombination and solving the related bounded reliability issues for firms seeking to become more nationally responsive (quadrant 3). The scholarly field of international business has oversimplified the challenges facing firms seeking to become more nationally responsive: it has failed to identify the need for entrepreneurial capacity beyond mechanistically adapting to improved information bundles resulting from subsidiary autonomy. We qualify this phenomenon of insufficient entrepreneurial activity to achieve the requisite level of national responsiveness in MNEs as an entrepreneurial deficit, which can be positioned in quadrant 3 of Figure 1.
In the next sections, we briefly describe, for illustrative purposes only, four firm-level examples that highlight the need for entrepreneurial action to achieve national responsiveness. As suggested above, our value added in this chapter is to demonstrate that national responsiveness is not a process of easy, mechanistic adaptation to local circumstances, but rather one whereby entrepreneurial action, in the sense of altering the MNE’s core business model through novel resource recombinations, may be required to achieve sustained success in host countries. The most tangible expression of such entrepreneurial action is the creative linking investments made by – or in – subsidiaries (1) to augment the MNE’s existing bundles of FSAs in host environments and (2) to gain improved access to the location advantages of these host environments.

4.4 Illustrative firm-level examples

4.4.1 Krispy Kreme

In 2001, the American doughnut stores company, Krispy Kreme, launched the first international expansion in its 63-year history, with the first store being opened in Ontario, Canada. The Canadian stores were opened under a franchise arrangement in which Krispy Kreme retained 34% ownership. The franchisee (KremeKo Inc.) was mandated to develop 32 stores over six years in the eastern provinces of Canada (Kingston Whig-Standard, 2001; CBCNews, 2005).

A major FSA of Krispy Kreme in its home country was the concept of ‘destination location stores’, whereby customers were able to observe the doughnut lifecycle process utilizing proprietary doughnut production equipment and Krispy Kreme’s famous glaze waterfall through a glass viewing area. Each destination location store required a significant investment from the
company in terms of equipment, and was able to produce between 4,000 and 10,000 dozen doughnuts per day. Given this relatively large scale of daily production required to cover manufacturing costs, the success of the destination location store model was highly dependent on the location advantages of each franchisee in terms of local demand size. Only locations with high population density, high traffic and with easy access were selected (Datamonitor, 2005; Rockel, 2006).

The transfer of the US business model to Canada can be interpreted as the equivalent of assuming that Krispy Kreme would be able to transfer its FSAs into Canada without any modification. At first, the destination location stores where quite successful in Canada, as the stores were initially flooded with customers curious to find out more about the product and try out the food so popular in the United States (CBC News, 2002). The novelty diminished soon, however, and sales in Canadian retail locations dropped substantially. It appeared that while Canadian customers were willing to try something new, the stickiness factor was not strong enough to keep them coming back to Krispy Kreme stores and many soon returned to their local doughnut shop.

The host market context was also significantly different in terms of population density, contributing to the failure of the Krispy Kreme destination location model in Canada. While each destination location demanded a large investment from the company, population size in several areas was insufficient to make the stores profitable and Canadian consumers were not willing to drive a long way just to purchase doughnuts. The market saturation strategy of smaller
and less expensive café style shops such as those operated by incumbent Tim Horton’s proved much more successful in the Canadian setting (Milstead, 2010).

The Canadian market had also developed a different ‘doughnut culture’. By the time Krispy Kreme entered the market, Canadian consumers had already become accustomed to purchasing doughnuts in cafe-style coffee shops offered by large local competitors such as Tim Horton’s. The fitness trends in Canada also made huge waves around the time of Krispy Kreme’s entry, and the high-calorie products were strongly criticized in the press and by health officials. While other competitors were working on introducing healthier products on their menu, Krispy Kreme remained loyal to its main product line, the glazed doughnut (CBC News, 2002; Weisblott, 2011).

By 2005, rising losses had forced the Canadian franchisee (KremeKo) to close 10 of its 18 stores and finally on April 2005 the franchisee filed for bankruptcy and its assets were put up for sale (CBCNews, 2005; Rockel, 2006). The main problem of Krispy Kreme’s international expansion program was not an easy-to-fix, lack of market information issue, i.e., a bounded rationality challenge. The main problem could be interpreted as a bounded reliability one, with insufficient entrepreneurial drive within the company, whether at the headquarters or in Canada to make sure that the necessary resource recombinations would occur, so as to be successful in Canada and other foreign markets.

After a year of restructuring, Krispy Kreme is trying yet again to gain a foothold in the Canadian market with four new locations in Ontario and Quebec as of 2010 (Canada Newswire, 2010;
The failure of Krispy Kreme’s first expansion to Canada, can be boiled down to the destination location store model representing more a location-bound FSA than an internationally transferable one, deployable in the United States only, and not in host countries. Having gained this insight during its first failed entry, the firm responded to local needs and preferences by adopting a *hub and spoke* business model similar to that of competitors, Tim Hortons and Dunkin Donuts. In the ‘new’ business model, the doughnuts are baked in larger stores and distributed daily to smaller café style stores. Some stores will have the glaze waterfall on site, but others will receive the doughnuts pre-made (CBC News, 2010; Weisblott, 2011).

Krispy Kreme is also attempting to diversify its product offerings by adding ice cream and healthier options (including baked goods such as muffins and bagels) to its menu (Canada Newswire, 2010; CBCNews, 2010). However, nowhere does it appear in the firm’s publicly available materials that franchisees or other local entrepreneurs working for the firm can have any tangible impact on the ‘new’ Krispy Kreme business model.

This firm-level example illustrates on the one hand the importance of headquarters learning over time that national responsiveness is critical (meaning in this example that the *bounded rationality* problem of operating in Canada is somewhat alleviated) but on the other hand, highlights what could be interpreted as an entrepreneurial deficit at Krispy Kreme. The difficulties of implementing Krispy Kreme’s initial entry strategy into the Canadian market illustrate an inability to overcome *bounded reliability* challenges. Not only can Krispy Kreme’s original entry failure be interpreted as a lack of awareness of international market differences, which could be viewed as a *bounded rationality* challenge, but there was also the lack of entrepreneurial capacity...
in the firm to create a credible business model linking the FSAs exploited in the home country with the demand characteristics in the host country. Only after initial entry failure, were the bounded rationality problems addressed, leading to a new business model, but perhaps still not fully the broader bounded reliability issue. While the new business model may help overcome some identified areas in need of local adaptation, this model might not permit much innovative value added arising out of localized entrepreneurship. Merely emulating competitors’ business models in the host country might be insufficient to exploit fully existing strengths in the MNE and to generate competitive advantage through a more innovative recombination of existing FSAs and new resources to access location advantages, though the hub-and-spoke model has experienced at least some success in foreign markets other than Canada (Byaruhanga, 2008). However, in Canada Krispy Kreme will likely at best compete at par with local competitors, as what we call entrepreneurial deficits might limit its potential to create a unique market offering by building on existing FSAs recombined with local resources. It would indeed not be surprising if substituting one headquarters-driven business model by another one, would keep the new operations relatively inflexible, and not ideally equipped to address changing environmental conditions, so that the firm’s Canadian operation might be bound to remain a relatively small niche player, imperfectly prepared to engage in entrepreneurship-driven national responsiveness.

4.4.2 Pret A Manger

When Pret A Manger (Pret), a British sandwich retail chain, first entered the US market, UK operations were cloned in the United States, building upon the assumption that its FSAs were completely transferable. One of the key FSAs of Pret in the UK is its preservative-free products.
The company claims that all sandwiches are made from natural ingredients on the day of purchase in a kitchen at each location. Pret ads state that it creates handmade natural food, and avoids the obscure chemicals, additives and preservatives commonly found in much of the 'prepared' and 'fast' food on the market today (Parker, 2002). The success of Pret’s preservative-free products is mostly dependent on the ability of the firm to have fresh ingredients available each day for food preparation. To achieve this goal, the firm built strong relationships with a network of natural food suppliers, characterized by low geographic distance, in its home country (Simms, 2002). This supplier network was largely a location-bound FSA, not necessarily transferable to the US market. Nevertheless, the challenges of securing new suppliers in the United States would appear to be significant. When the first shop was opened in New York, Pret had not yet established the essential strong relationships with natural food suppliers and had difficulty finding even a single supplier that met its freshness standards. Lack of strong relations with suppliers weakened the deployment potential of the ‘preservative-free-products’ FSA and slowed down the initial phase of the expansion (Goodman, 2005; Lasswell, 2001; Simms, 2002).

Another FSA initially assumed by Pret to be internationally transferable was product variety and selection. The assumption was clearly that the UK model of pre-packaging did not require modification to suit US market preferences and that the original menu would be appropriate to cater to American tastes. When the restaurant first opened in New York, the same varieties of sandwiches, salads, and drinks as in the UK were presented. Many of those varieties turned out to have little appeal to American consumers (Stewart-Allen, 2001). Furthermore, there is an abundance of local shops in the US market that prepare fresh sandwiches directly in front of the
customer. Customers seeking an upscale food product were not convinced that pre-packaged sandwiches were fresh enough due to the fact that less than fresh pre-packed food was often found in gas stations and other convenience store types, and American customers (mistakenly) associated these with Pret's products (Stacy, 2009). According to data filed at Companies House, Pret's US operations were highly unprofitable in 2002 and 2003 (Goodman, 2005). The company was forced to scale down its original plan of opening 40 shops in the United States by the end of 2004, and it decided to close six of the 16 sites it had opened in New York in order to avoid losing more money (Kramer, 2006; Marketing Week, 2007).

Pret’s example illustrates another unsuccessful initial market penetration likely related to lack of ‘on-site’ entrepreneurial capacity. As Simon Hargraves, the commercial director at Pret stated: “We learned that you can’t just plonk a UK retail success into a different environment” (Brand Strategy, 2008). It was assumed that the home country business model would be appropriate for the host country and therefore that there was no need for necessary changes to this business model by engaging in innovative resource recombinations. In this firm-level example, lack of adequate national responsiveness did not occur simply because of failure to ‘adapt’ to the local environment, due to poor information and insufficient subsidiary autonomy. Success in the US market would have required changes spanning the whole value chain, including innovative linkages with host country’s food suppliers, and wholesale changes in the menu. Only in the presence of sufficient entrepreneurial capacity, whether at the corporate headquarters or in the United States, would it have been possible to achieve this goal of a crafting a workable new business model. Lack of national responsiveness in this firm-level example thus can be
interpreted as an *entrepreneurial deficit*, meaning the absence of sufficient capacity within the firm to recombine resources in new ways, so as to link the firm’s existing resource base with new localized resources, as a precondition to access the location advantages (i.e., demand) in the host country.

### 4.4.3 McDonald’s

McDonald’s entry into China was a challenge to the company attempting to deploy and exploit its internally transferable strengths developed in the home country, to create value in the host environment. McDonald’s brand name is supposed to provide a significant internationally transferable FSA, to the extent that it maintains its value across borders. Its formula – hamburgers and French fries served in similarly looking restaurants – has been used almost unaltered around the world to consumers eager to enjoy ‘American culture’ (Jie, 2008).

While the majority of McDonald’s products and processes are the same, whether the customer is in New York or Beijing, the customer expectations are different. In its home country, McDonald’s positions itself among the lower cost restaurants – mostly as a reliable place to eat quickly and leave. In China however, the relative cost of McDonald’s food is much higher, causing the customers to expect much more from the experience (Watson, 1997). In response, McDonald’s has added to the comfort of its restaurants by decorating them in a local style and by providing space for consumers to spend more time eating and socializing. Many young Chinese students used McDonald’s as a social meeting place. While typical McDonald’s seating involved hard plastic seats that encouraged faster client turnover, more comfortable seating was provided in order to encourage the social aspect of dining in China (Yan & Jones, 2010).
One of the significant challenges of operating in the Chinese environment is the issue of food safety and the lack of suppliers’ experience regarding safe food handling practices. McDonald’s has developed strict controls to ensure that its Chinese suppliers meet its high food safety standards (LA Times, 2007; Griffith, 2008). McDonald’s deployed its knowledge and FSAs of food safety (developed in the home environment) to maintain high safety standards in operations in China. High safety standards provide McDonald’s with a transferable competitive advantage that can be used to attract Chinese consumers away from other industry competitors.

The majority of linking investment of McDonald’s in China were made to mitigate the issue of cultural distance. Chinese have a strong cultural preference for pork and chicken rather than beef and fish (Ganster, 2006; Ko, 2008). McDonald’s has made efforts to change its menu to accommodate local taste preferences. For example McDonald’s now offers chicken wings with the brand name McWings, and has attempted to include other items such as the Prosperity burger, red bean pie and seafood soup in an effort to cater to the tastes of its Chinese customers (Jie, 2008). Nevertheless, MacDonald’s has not engaged in drastic changes to a menu that it considers to be its core FSA: burgers and fries are still at the heart of the Chinese menu.

Sticking to the core menu items of burgers and fries is undoubtedly one of the reasons why McDonald’s continues to lag behind its main competitor, Yum. Using the KFC chain, Yum has been able to secure a dominant position in the Chinese market by providing a unique western fast food experience while providing a chicken meal that is more familiar to Chinese culture than McDonald’s hamburgers. As a result, by 2010 KFC operated over 3,200 locations in China, in comparison to McDonald’s 1,100 locations (Burkitt, 2010). The total sales of fast food in China
rose 12 percent in 2010 with Yum’s restaurants accounting for 40 percent of that growth, and
McDonald’s accounting for only 16 percent (Bloomberg, 2011). These figures illustrate that
simple adaptation of products to meet identified local needs, and overcoming simple bounded
certainty challenges, might not be sufficient for successful national responsiveness.

In summary, McDonald’s experience in China shows that home developed FSAs are only
partially usable in an international context. In order to create sustainable value in the
international context, the firm needs to link its internationally transferable FSAs with location
advantages in host countries by developing new location bound FSAs. These new FSAs, which
require entrepreneurial capacity, should improve the exploitation potential in the host country of
the firm’s bundles of internationally transferable FSAs.

In order to compete successfully in the booming Chinese fast food market, McDonald’s now
plans to recombine its internationally transferable FSAs with complementary resources of
external actors. McDonald’s has recently entered into an agreement with Sinopec, China’s
largest fuel retailer. This agreement enables McDonald’s to use the resources of Sinopec to
access the growing market of Chinese automobile owners, by opening restaurants and drive-
throughs at any of Sinopec’s existing 30,000 gas stations and at any future gas stations
throughout China (China News, 2006; Ko, 2008). This initiative helps McDonald’s to create
value through combining its home country’s transferable FSA’s with host country resources and
developing new location-bound FSAs specific to China.
Although McDonald’s has been moderately successful in China and has engaged in some entrepreneurial initiatives, it still lags behind the competition in market share due to adhering to its home country menu. Despite the fact that sufficient local knowledge exists regarding customers’ preferences in the host country, the firm faces a challenge, since adapting properly to the environment demands changes to the entire supply chain, and thus requires entrepreneurial capacity. Changing the business model has been so difficult for the firm that it has preferred to spend substantial resources in marketing and advertising campaigns in order to change the Chinese eating culture and to cultivate a preference for beef (Ko, 2008; Tschang, 2008).

In order to change its business model to suit China, McDonalds would need to be entrepreneurial at the local level: in that case, it would take the risk of changing its prevailing routines and supply chain practices, and recombine these internal strengths with new resources. However, the prospects to build a new business model are not all that positive. McDonalds dominant logic is not one geared primarily towards supporting host country based entrepreneurial capacity. Prospective Chinese franchisees are put through severe financial solidity tests and are trained at the China branch of Hamburger University, but there is nothing there that approximates to developing a capacity for altering the prevailing business model in a significant way. On the contrary, Hamburger University may even contribute to McDonalds’ entrepreneurial deficit in China. As noted by Steven Gray (2005) in the StartUp Journal: “Winning a franchise plugs entrepreneurs into an American business model that orchestrates everything from how to purchase food and manage workers to how to chop onions and mop floors”. What the above suggests is a dominant logic whereby franchisees are expected not to “deviate from the script”
because of reliability concerns. However, the paradox might be that McDonalds’ senior management at headquarters could be viewed as the true source of unreliability, limiting the firm’s successful international expansion: disallowing optimal resource recombinations in host markets might prevent McDonalds from ever becoming the powerful player it is in its home country.

4.4.4 Carrefour

French based Carrefour, the second largest retailer in the world, has been successfully operating in Taiwan and China for years (Child, 2006). The MNE has actively engaged in entrepreneurial activities while also overcoming a number of bounded rationality challenges. In order to fill its FSA deficiencies in the realm of cultural distance (i.e. understanding Asian social norms, religion, language, culture, etc.), Carrefour employed the expertise of local partners. In Taiwan, it entered the market through a joint venture with Uni President, an international food conglomerate based in Taiwan, which is also responsible for running Starbucks, 7-Eleven and Mister Donut (Lim, 2011). Thanks to local knowledge of Uni President, and accepting the entrepreneurial strengths of that company, Carrefour modified its stores in Taiwan into smaller stores that were located in more densely populated areas, because locals preferred to buy smaller grocery baskets but shop more often and travel shorter distances. Furthermore, to bridge the cultural gap, Carrefour delegated more power to store managers to recreate a shopping atmosphere that Taiwanese shoppers were familiar with, such as lamps hanging above food stalls resembling traditional Chinese 'wet markets'. For important Chinese festivals, Carrefour
decorated its stores according to traditional practices and stocked items particular to that Chinese event (Lasserre and Courbon, 1995; Child, 2006).

In China, Carrefour segmented the market so as to cater to different subcultures and traditions within the country. Each submarket could then be addressed with a flexible procurement system, store configuration, and marketing plan (Child, 2006). Larger 'French like' hypermarket Carrefour stores were located in high-population cities and residential areas where the middle class is present. In order to address the economic distance problem, Carrefour opened a line of Dia stores that targeted the low-income customers. These stores had a smaller selection of goods than a standard hypermarket store and prices were about 10 to 15 percent lower (Child, 2006; Center for Management Research, 2007).

Carrefour’s experience in China and Taiwan thus illustrates contexts where the MNE has succeeded with national responsiveness by being entrepreneurial and engaging in requisite resource recombinations that amounted to significant changes in its business model (overcoming the entrepreneurial deficits in quadrant 3 of Figure 1). Carrefour store managers were given the power to manage pricing, select suppliers, make decision on store displays, and even to negotiate on promotional campaigns. As a result, the firm was able to recombine existing key success factors of western hypermarkets with local success factors, and created a business that would meet the local cultural characteristics of host countries (Child, 2006; Yan, 2006).

Although Carrefour had successfully utilized entrepreneurship to achieve national responsiveness when entering many foreign markets outside its home region, it could be argued
that it overestimated the effectiveness of its internationally transferable FSAs in countries such as Korea and Japan and failed to provide enough linking investments to develop new FSAs in these countries. Japan and Korea are developed countries and therefore, Carrefour senior management viewed entry into those countries as similar to expansion in its home region. Neglecting the cultural distance aspect, the firm failed to suitably adapt its stores and the products sold within them as a function of host country consumer preferences, illustrating entrepreneurial deficits. Eventually, Carrefour withdrew from Japan in 2004 and from Korea in 2006 because of low market share and low local acceptance (Center for Management Research, 2006; Fifield, 2006).

In summary, Carrefour has been successful in Taiwan and China where it has been entrepreneurial, both in terms of headquarters’ initiatives and developing local entrepreneurial capacity. National responsiveness for Carrefour has not equated to simple, mechanistic adaptation, but rather has entailed entrepreneurial changes in its business model, spanning the entire value chain. While the MNE’s expertise in its home country is mainly in hypermarkets, it engaged in entrepreneurial activities (resource recombinations) that led to diverse business models in host countries.

4.5 Conclusion

National responsiveness can entail much more than MNEs adapting in a mechanistic fashion to host country requirements for particular product features and managerial practices. National responsiveness often requires entrepreneurial judgment and the presence of entrepreneurial capacity, leading to novel resource recombinations in host countries. Most of the contemporary
international business literature has studied subsidiary entrepreneurship in the context of established affiliates abroad, but entrepreneurship is equally important in the setting of new foreign market entry. There is nothing mechanistic about national responsiveness: the challenge is not primarily one related to bounded rationality, with adequate local information allowing headquarters and local operations to provide a quick fix. The problem is one of bounded reliability, whereby the corporate headquarters can simply not be relied upon to achieve the market share growth and profitability reasonably expected from their international expansion project by shareholders and other stakeholders, even if – paradoxically – the main reason for not allowing entrepreneurship in foreign affiliates is the deeply engrained belief that these affiliates suffer from bounded reliability problems themselves and therefore should just adopt the MNE’s prevailing managerial practices.

Even in large MNEs that are supposedly world-class experts on managing the downstream end of the value chain, the broader lesson of the firm-level illustrations is that senior managers at the corporate headquarters may come in with a particular business model that does not work, and in the best case scenario return much later with an alternative model, after having lost large amounts of money or after having been reduced to a small niche-player in the host country market. Ultimately, the main problem is one of over-reliance on present routines that have proven their worth in the home country and perhaps in low-distance host environments, and an under-reliance on entrepreneurial resource recombination in higher-distance host environments. The solution is to have headquarters and local entrepreneurs craft strategies that work, but this solution does not appear easy to implement in practice. The illustrative, firm-level examples
show the importance of *entrepreneurial deficits*, the existence of which appears difficult to understand and to act upon for corporate headquarters’ managers.
4.6 References


### 4.7 Figures

Figure 4-1 The research gap - entrepreneurial deficits

<table>
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<tr>
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<th>Subsidiary entrepreneurship</th>
<th>Subsidiary national responsiveness</th>
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<td>1</td>
<td></td>
<td>3</td>
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<tr>
<td>Subsidiary autonomy/ BRAT challenges</td>
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Entreprenurial deficits
Chapter Five: Business Model Design and Innovation in the Process of Expansion and Growth of Global Enterprises

5.1 Introduction

What is a business model? In its essence, a firm’s business model is a routine for: (i) creating economic value for firm’s stakeholders, and (ii) appropriating part of this value for the firm itself and its shareholders (Zott et al., 2011; Osiyevskyy, 2014; Osiyevskyy & Dewald, 2015). In this definition, the term routine is used in a sense of the evolutionary theory of the firm (Nelson & Winter, 1982), as a regular behavioral pattern within an organization. In other words, a business model is a regular sequence of activities performed by the firm that serves two purposes. On the one hand, a business model must create economic value for all firm’s stakeholders (most importantly, customers, partners in the value chain, and employees), sufficient enough to motivate them to interact (participate in economic transactions) with the firm. This value creation implies that the benefits that each stakeholder receives from the firm exceed the costs incurred. On the other hand, the business model must ensure that a sufficient portion of the created economic value is retained for the firm’s shareholders in the form of profit; for this, the total revenue received by the firm from all economic transactions with other stakeholders must exceed the costs incurred by the firm.

Notably, following this definition, a firm can have more than one business model (if the value is created and appropriated in more than one distinct way), or have no business model at all (if no regular behavioral pattern for value creation and appropriation is established). As any other routine, a business model can become a capability underpinning the firm’s competitive advantage.
(Markides & Charitou, 2004; Casadesus-Masanell & Ricart, 2010), provided that a set of conditions are met (e.g., the VRIN framework of Barney, 1991). In the context of multinational enterprises (MNEs), a business model might become a source of a firm-specific advantage, FSA (Verbeke et al., 2014).

Recently, the concept of business models has been gaining substantial attention in strategic management literature, as the researchers and management practitioners realize that a business model is the primary mechanism for value creation and appropriation by firms in a free market economy. As such, a business model should become one of the main units of analysis in strategy scholarship. Firms compete on the basis of business models, rather than products, market power, or unique resources. Of course, the traditional strategic management frameworks of rents creation (Bainian market power, Penrosian resource advantage, and Schumpeterian rents - Powell, Lovallo and Fox (2011)) remain in power, but it is the business model that allows capitalizing (generating profit) on these.

Yet, whereas the recent literature provides a good understanding of the role of business models in high-tech companies and new ventures (e.g., Zott et al., 2011; Amit & Zott, 2001), the role of business models for other types of enterprises, including established multinational companies, is not thoroughly researched. We intend to address this gap by studying the following questions: 1) What is the role of business models in today’s global business? 2) How can business model design and innovation facilitate the expansion and growth of global enterprises? 3) What are the peculiarities of business model analysis, design, and change in multinational contexts? Drawing on insights from evolutionary and resource-based perspectives, we provide answers to
these questions, clarifying our conceptual argument with illustrative mini-cases of global enterprises failing to properly adjust their business models in multinational contexts in the process of expansion and growth.

5.2 Business models: structure, functions and role in strategy

5.2.1 Structure of business models

Structurally, a business model as a routine is characterized by three major interrelated components [dimensions] (George & Bock, 2011; Osiyevskyy & Dewald, 2014; Osiyevskyy, 2014): value dimension (value propositions for each stakeholder), transactive dimension (organization and governance of exchanges within and across the firm boundaries), and resource dimension (unique combination and organization of resources through which transactions create value – DaSilva & Trkman, 2013). The widely used in practice ‘9 Building Blocks’ of a business model canvas (Osterwalder & Pigneur, 2010) add details to the provided above structural definition of a business model, being accurately mapped onto each of the three generalized dimensions (see Figure 1): (1) customer segments and (2) value propositions (value dimension), (3) channels, (4) customer relationships, (5) revenue streams, (6) key activities, (7) cost structure, and (8) key partnerships (transactive dimension), and (9) key resources (resource dimension).
As any type of routine (Nelson & Winter, 1982), business models are in a state of constant change. Hence, a static view of business models as interrelated value, resource and transactive dimensions tells only half of the story; the other essential half is the dynamic, transformational view of the business model evolution (Demil & Lecocq, 2010; Osiyevskyy, 2014). In line with this reasoning, business model change is any alteration of the existing business model of a firm (Osiyevskyy & Dewald, 2015), either radical (major shift in one or more dimensions of a business model), or incremental (progressive refinement of individual components). In terms of novelty, the general business model change concept includes both business model innovations (“new to the world” changes introduced in the industry for the first time) and imitative business model changes (“new to the firm” changes that copy approaches of competitors or firms from other industries).

The latter distinction allows differentiating the broad term of business model change from its partial exemplar, business model innovation, which represents intentional, unique for the
industry, change of the firm business model in response to perceived opportunity to make it more effective or efficient. Business model innovations can be introduced by newcomers [either startups (Christensen, 1997) or diversifying entrants from adjacent industries (Tripsas, 1997)], or by entrepreneurial established players (“Schumpeter Mark II” – Schumpeter, 1942). If the introduced business model innovation proves its potential, the remaining incumbents often learn about this, and respond by imitating and copying it (Casadesus-Masanell & Zhu, 2013). A general typology of business model innovations (according to their essence) was proposed in Giesen et al. (2007), distinguishing among industry model innovations (redefining the industry or creating a new one), revenue model innovations (reconfiguration of product offering and pricing), and enterprise model innovations (changing the role of a firm in the value chain).

5.2.2 Business models: functions

Within a firm, a business model performs a set of functions (see Table 5-1). First, the main function of any business model is creating value for organizational stakeholders (Zott et al., 2011; Osiyevskyy, 2014). A firm secures resources and support from key persons or organization with which the firm interacts only by engraining the sufficient and attractive value proposition for each of them in the business model. Particularly, the firm should attract the customers (by satisfying their needs at the appropriate for them price level), motivate its employees (to commit their skills and time), and establish and sustain mutually profitable relationships with partners in the value chain.
Table 5-1 Four Main Functions of Business Models

<table>
<thead>
<tr>
<th>Function</th>
<th>Mechanism</th>
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<tr>
<td>1. Value creation for</td>
<td>Attractive value proposition for each stakeholder</td>
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<tr>
<td>stakeholders</td>
<td></td>
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<tr>
<td>2. Value appropriation for</td>
<td>Sufficient bargaining rights vis-à-vis resource providers</td>
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<tr>
<td>shareholders</td>
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<tr>
<td>3. Organizational memory</td>
<td>Repeated execution of the business model</td>
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<tr>
<td>4. Setting targets &amp;</td>
<td>Tying goals within the organization to components of the</td>
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<tr>
<td>controlling execution</td>
<td>business model</td>
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Second, a business model must be designed in a way that sufficient part of economic value created by the firm is retained for the firm’s shareholders in a form of profit (Zott et al., 2011; Osiyevskyy, 2014). For this, the firm must make sure that it has sufficient bargaining power vis-à-vis its resource providers and customers (Pfeffer & Salancik, 1978); otherwise, all created value – profit – will go to the latter (Porter, 1980), e.g., suppliers or creditors.

Third, as any routine, a business model acts as an organizational memory (Nelson & Winter, 1982), storing the knowledge about a successful way of value creation and appropriation. Notably, a substantive part of this knowledge is tacit, engrauned in the skills of particular employees and
organizational processes. Sustaining this memory happens in the process of repeated execution of the business model.

Finally, a designed and attuned to a particular context business model becomes the mechanism for setting organizational targets and controlling their execution (Nelson & Winter, 1982), sometimes much more important than formal business plans (see, e.g., the discussion in Osiyevskyy et al., 2013). The goals of the whole organization and individual business units get tied to particular components of the business model (Figure 1).

5.2.3 Business models: strategic considerations

Today’s strategic management field distinguishes three pillars explaining firm heterogeneity (Powell et al., 2011): Bainian market power, Penrosian resource advantages, and Schumpeterian rents. Value creation and capture can be explained by competitive advantage gained through one or more of these three pillars. The Bainian pillar reflects all factors that allow an individual company to obtain above-average returns (monopoly rents) thanks to market power and superior bargaining rights, which are facilitated by clever positioning within industry (Porter, 1980). The Penrosian resource advantages stem from the ability of a firm to secure rents from possessing and combining scarce resources (Barney, 1991). Finally, Schumpeterian rents are appropriated by entrepreneurs who reap the benefits of successfully implemented innovations, until competitors imitate or emulate these innovations; this last pillar forms the basis of contemporary dynamic capabilities theory (Teece, Pisano, & Shuen, 1997).

In its essence, a business model is a mechanism for value creation and capture through one or more of the above mentioned three pillars, which are typically linked to and reinforce each
other. From the firm strategy perspective, a properly designed business model must achieve internal consistency of its components (Figure 1) and external consistency – match of the business model to the external environment (see the discussion in Demil & Lecocq, 2010). As such, a successful and self-sustaining business model is a capability that can underpin a competitive advantage, leading to superior performance. Sustaining any routine (including a business model) within the boundaries of a particular firm is easier than replicating it (Nelson & Winter, 1982), and hence any attempts to imitate a successful business model by competitors put them at a disadvantage. *First*, perfectly replicating a successful competitor’s business model is usually impossible because of the tacit knowledge embedded in the original routine. The employees can sustain the existing business model without perfect comprehension of all its components (repeating the established routine does not require this); while the replicating process demands much deeper understanding of what is going on in the original organization. *Second*, the original routine is usually deeply embedded in a particular organization, and leverages its idiosyncratic resources and capabilities. When replicating, acquiring those resources and capabilities is not always possible; in this case, the replicators have to adjust the original business model to match their own contexts. Hence, imitations of successful business model are usually done with changes (mutations), which have uncertain and unanticipated consequences (Nelson & Winter, 1982), usually leading to the replicator’s competitive disadvantage.
5.3 Business models: MNE perspective

5.3.1 Business models and global enterprise

In the context of global enterprise, the discussed above business model framework gains additional complexity. An MNE’s successful business model becomes its firm-specific advantage (FSA), one of the “company strengths relative to those held by relevant rivals that allow survival, profitability and growth” (Grøgaard & Verbeke, 2012). In general, FSAs comprise the firm’s raison d’être, and “determine the scope (levels of product diversification, vertical integration and geographic diversification) of the economic activities the firm will involve itself in” (Grøgaard & Verbeke, 2012). As such, business models as exemplar FSAs lie at the heart of the internalization theory, “the core theory in international business and entrepreneurship studies” (Verbeke et al., 2014). Provided that a specific business model proves successful in one of the contexts an MNE operates in, the company will have the incentives to replicate it—with necessary alterations—in other contexts, in that the business model as an intangible knowledge-capability does not decay with replicating. Moreover, this replication would allow capitalizing on the economies of scale, by amortizing the original high costs of designing a business model (in the original location) over higher number of locations. As evolutionary theory of the firm demonstrates (Nelson & Winter, 1982), replicating a successful routine (including business models) within the boundaries of a firm (even in other geographic locations) is still easier and less costly than imitating it; hence, the risks of leakage of the intangible knowledge to rivals is low.

Therefore, business models framework is instrumental in explaining the process of expansion and growth of MNEs. Similarly to other types of enterprise, MNEs create and
appropriate value globally though their business models. Once a successful business model is
designed in any location, it becomes the firm’s FSA, and then the further expansion of the firm
happens largely through successfully replicating it in other contexts.

Conceptually, in the discussed above case, the MNEs are exploiting their resource
(Penrosian) advantage, by leveraging the unique, valuable and inimitable capability – successful
business model. Moreover, replicating a business model in foreign markets allows achieving the
Bainian market power, by improving the firm’s bargaining position (e.g., global supply chain).

In addition to “growth by replication”, MNEs can aim to achieve the innovator’s quasi rents
(of Schumpeterian type), by coming up with business model innovations (in one context) and then
scaling them up to the global context. In such cases they will have advantage over other types of
enterprise (local firms, new ventures), having the benefits of global scope and size. The argument
for a firm size influencing a firm’s incentives to innovate can be traced back to Schumpeter (1942),
noting that the innovator’s quasi rents are amplified by factors correlated with a firm’s size, such
as economies of scale and market power.

### 5.3.2 Hurdles of business model replication for MNEs

The debates on the internal functioning of multinational enterprises often highlight the
competitive edge that can be achieved from transferring FSAs (including business models) across
borders (e.g., Verbeke, 2013). However, examples of failed market entry of large MNEs (see the
cases in appendix) show that merely transferring home country business models abroad, i.e.,
replicating home market routines in host environment, without innovative alterations, can generate
unanticipated problems in foreign markets. Therefore, it is commonly accepted in International
Business literature that some local adaptation is necessary to succeed in international transfer of business models, although how MNEs actually respond to local needs has received scant attention. We contend that successful national responsiveness requires entrepreneurial judgment in headquarters and subsidiaries to re-combine extant FSAs in home country with new external and internal resources in host country in order to develop innovative business models, so as to respond to foreign environment’s stakeholder demands and market opportunities.

International business literature has mainly oversimplified the challenges facing firms that try to transfer their business model to foreign markets: it has failed to identify the need for entrepreneurial capacity beyond mechanistically adapting to improved information bundles resulting from subsidiary autonomy. This phenomenon of insufficient entrepreneurial capacity to achieve the necessary level of national responsiveness was labeled ‘an entrepreneurial deficit’ (Grogaard, Verbeke & Zargarzadeh, 2011).

5.4 Overcoming the entrepreneurial deficits

5.4.1 MNE business model change framework

We posit that there are four mechanisms for achieving national responsiveness by MNEs when transferring successful home country business models to new geographical contexts with appropriate changes. In particular, four key components will facilitate this process: 1) entrepreneurial orientation; 2) market orientation, 3) resource recombination and 4) business model validation (see Figure 2).
5.4.2 Entrepreneurial orientation

The linkage between entrepreneurship and innovation has been emphasized in management literature for quite a long time. Most notably, Joseph Schumpeter stressed the role of entrepreneurs as primary agents effecting creative destruction – a specific form of technological innovation that creates value and stimulates economic growth by disrupting the established industries (Schumpeter, 1942). Miller (1983) defined three basic characteristics of entrepreneurship process: innovativeness, risk-taking and proactiveness. Later, the seminal paper of Lumpkin and Dess (1996) refined these three characteristics, adding two more – autonomy and competitive aggressiveness – to form the multidimensional entrepreneurial orientation (EO) construct, manifesting “the processes, practices, and decision-making activities that lead to new entry”
Entrepreneurial orientation, according to this reasoning, is the organizational antecedent of new entry (the essence of entrepreneurship process), implying product or service innovations in new or established markets.

In respect to successful business model change by MNEs during the global expansion, particularly important components, necessary for successful business model replication with appropriate change are autonomy, risk-taking and proactiveness.

**Autonomy.** Within the EO framework, autonomy reflects the organizational conditions enabling individuals and groups to undertake the necessary actions for implementing new visions, ideas, and business concepts (Lyon et al., 2000). Since independent spirit and corresponding organizational support are necessary conditions for new venture development (Lumpkin & Dess, 1996), employee autonomy is one of the key enablers of routines and behaviors that underlie MNE innovation capability. Employee autonomy presupposes decentralization of decision making and involvement of a high number of employees in this process. Employees bring diverse perspectives, goals and values to it (Singh, 1986); this leads to diversity and unpredictability of the decision-making outcomes, thereby reinforcing organizational innovation capability. From the position of the resource-based view of the firm, local autonomy, leading to decentralization, creates the conditions for the emergence of the organizational innovation capability by facilitating the perpetual organizational reconfigurations and transformation (Teece et al., 1997), which in turn facilitate changes in organizational products, processes and administrative systems – essential components of the business model – during MNE global expansion.
**Risk taking.** The organizational risk taking manifests the inclination to entrepreneurial activities that are perceived as risky – such as entering new markets, heavy borrowing or committing major resources to projects with uncertain outcomes (Lyon et al., 2000). Prior literature demonstrates that any major change or innovation (including business model change) is associated with risk taking, for the former, as any kind of substantive change, is perceived by decision makers as a risky endeavor because of its uncertain results compared to *status quo* (Latham & Braun, 2009). Since people have a natural tendency to avoid risks (e.g., Kahneman, 2011), perceived riskiness hampers intentions to innovate. Organizational risk taking as a disposition toward taking risks and learning from mistakes amplifies the risk tolerance of organizational members, by this means attenuating this barrier to necessary innovation in business model.

**Proactiveness.** The proactiveness dimension of EO represents the organizational disposition toward exploring market opportunities through forward-looking introduction of new products, services and processes before the rivals do, benefitting by this means from the first-mover advantage (Lyon et al., 2000). Proactiveness implies “taking initiative by anticipating and pursuing new opportunities and by participating in emerging markets” (Lumpkin & Dess, 1996, p.146). Therefore, proactiveness as the orientation toward exploring new opportunities is one more organizational facilitator of this study’s focal successful business model alteration in host country.
5.4.3 Market orientation

Originating in marketing studies two decades ago (e.g., Narver & Slater, 1990; Kohli & Jaworski, 1990), the market orientation (MO) concept proved to be useful, migrating to other fields of management studies, including the innovation and entrepreneurship research. Unlike the original definition of the construct, considering it primarily as a specific type of organizational culture (e.g., Narver & Slater, 1990), today market orientation usually refers to specific processes of deliberate and regular gathering of information about an organization’s environment (particularly, competitors and customers), disseminating the acquired information within the organization, and performing the necessary customer-oriented responsive actions (e.g., Morgan & Berton, 2008). Market orientation emphasizes three organizational abilities: i) focusing on customer needs, ii) keeping an eye on competitors, and iii) using the obtained information for making all strategic decisions throughout the organization (including inter-functional coordination).

The processes underlying MO facilitate the national responsiveness when transferring a business model by alleviating the problem of bounded rationality (Simon, 1955) and ensuring that all major organizational behaviors and routines are supplied with the market-related information crucial for change and development – a pre-condition for successful business model transfer. First, scanning the environment (the market and competitor evaluation part of the MO) leads to discovering the explicit external opportunities, such as unsatisfied customer needs or successful competitor products. The information about recognized opportunities gets further disseminated across the organization, providing the stimulus for change and innovation at all levels. This
systematic gathering and dissemination of market information gets institutionalized in internal routines and behaviors, comprising the core of organizational ability to successfully change the business model.

5.4.4 Resource recombination

As stated before, resource dimension (unique combination of resources) is one of the components of a business model (see Figure 1). In the international context, MNEs should find innovative ways to change their host country business models and craft novel ways of combining internal and external resources as a response to perceived opportunities. This re-combination of resources is an essential factor in successful alteration of MNE’s business model in host market (Verbeke, 2013, Grogaard et al, 2011). In other words, individuals both at headquarters and subsidiary level should act as entrepreneurs and devise new business models. The degree to which this new business model deviates from home country business model depends on the distance (Ghemawat, 2001) between the two environments and the host country’s market opportunities and stakeholders’ demands.

5.4.5 Business model validation

The final component of successful alteration of MNE’s home business model in order to suit the new geographical context is the process of business model validation in a host subsidiary. The matter is that finding the right way to adopt a business model in a different context does not happen overnight; rather, it is a learning and experimentation process requiring major changes with following progressive refinements to achieve internal and external consistency – among business model elements and with external environment, respectively (Demil & Lecocq, 2010). Indeed, “an
emerging dynamic perspective sees business model development as an initial experiment followed by constant revision, adaptation, and fine-tuning based on trial-and-error learning” (Sosna et al., 2010, p. 384). Business model validation implies searching for elements that work as a specific fit to the unique context of the existing company (peculiar assets and capabilities), rather than mere imitation of the successful approach from the other context.

Business model validation process implies continuous testing of proper functioning of all components of the business model (see Figure 1), and making the necessary adjustments. This continuous scrutiny helps to reduce the problems of opportunism (Williamson, 1996) and bounded reliability (Verbeke & Greidanus, 2009) -for both senior MNE managers and employees- when transferring the home country business model into successful altered host country business model.

5.5 Conclusion

In this chapter we intend to fill the gap in current understanding of the role of business models in the process of development and growth of global enterprises. In particular, we emphasized the role that the business models play in today’s global business. We demonstrated that appropriate business model design, innovation and replication are instrumental in the process of expansion and growth of MNEs. Then we discussed the peculiarities of business model analysis, design and change in multinational contexts, drawing on the insight of evolutionary and resource-based perspectives. We finished our chapter by discussing a practical managerial framework for successful replication of established business models in new geographical regions and contexts.
Appendix 5-1 Brief illustrative case studies: failures to internationally transfer a successful business model

The firm-level illustrations in this section demonstrate that the national responsiveness of MNEs demands much more than just mechanistic adaptation to host environments, merely by modifying home-country products and processes. National responsiveness often requires entrepreneurial capacity and judgment both at headquarters and subsidiary level, leading to innovative business models in host countries. The main theme in the cases reviewed is over-reliance on home country routines and overlooking the components of business model alteration discussed in this paper that are necessary for MNE foreign market entry, especially into high-distance host environments.

Tesco in US

Tesco (The UK based multinational retailer) tried to attain national responsiveness by performing intensive on-the-ground research, to the degree of sending senior executives to live with Californian families in order to observe the American lifestyle and shopping habits (Silverstein, 2012). After sufficient local knowledge was obtained (market orientation component in figure 2), however, Tesco made minor changes to recombine its home country FSAs to a new business model that suits US. The resulting business model had critical deficiencies: a product mix that didn’t resonate with US consumers, lack of loyalty card program, and a fruitless focus on self-checkout system (Orgel, 2012).

XBOX in Japan

The initial launch of Microsoft’s Xbox video game console in Japan can be viewed as an example of transferring a US business to Japan without sufficient modifications. A major FSA of Xbox in the game industry in US was the relations that Microsoft established with game publishers that resulted in quality
games designed for Xbox and exclusive titles for the consoles (Eurogamer, 2012; Croal, 2004). Microsoft was not able to establish such relationships with local Japanese game publishers. Despite huge marketing expenditures in Japan, Microsoft sold only some 478,000 Xbox consoles in Japan over the span of five years (2001-2006), while Sony sold over 23 million PlayStations, and Nintendo sold over 4 million GameCubes over the same time span (Research and markets, 2007).

**Best Buy in China**

The consumer electronics retailer Best Buy faced challenges when expanding to China based on its US business model. Trying to replicate the success of its North American stores in China, the MNE opened flagship stores in expensive locations. This strategy lead to several problems that seriously impacted the growth of Best Buy in Chinese consumer electronics market compared to those of competitors Gome and Suning. First, it did not allow for fast expansion and limited the market share growth, which was necessary for competing with already established market leaders. Best Buy had 200 locations compared to 2,000 locations of Gome and Suning (D’Altorio, 2011; Tang, 2011). Second, because of the luxurious nature of the locations, the price of real estate was significantly higher for Best Buy stores compared to its competitors’ smaller stores. This affected the price of the products, which is a major factor in purchasing decisions in China’s market.

**Wal-Mart in South Korea**

Wal-Mart was not able to develop a business model to suit the culturally distant Korean market. Wal-Mart transferred its American style store format to Korea with minor changes. It was reported that even the store shelves were too high for most of Korean customers, and required the addition of ladders in the stores (Gandolfi & Strach, 2009). As Kim (2008) points out, Wal-Mart implemented a ‘global standardization’ strategy that did not match Korean consumers’ shopping habits:
“while Wal-Mart’s strategy fits well with American consumers willing to compromise service and quality for lower prices, this value exchange had critical shortfalls with Korean consumers who had significantly different tastes and preferences...Korean consumers respond more to free product samples and frequent promotions than to everyday low prices, expect more customer service and a more tailored retail environment”.

**Home Depot in China**

US based home improvement retailer Home Depot closed all its stores in China by the end of 2012. Home Depot’s do-it-yourself business model, while successful in home country, was not popular in the culturally distant China, where people generally prefer to call a professional when it is time to repair the house. As the firm’s CFO Carol Tome stated, “We realize we had a model that wasn’t meeting the needs of Chinese consumer” (Qu, 2012). Besides the cultural differences, Home Depot faced other challenges when transferring FSAs to China. Many of the Home Depot’s Chinese suppliers were actually not licensed to sell in China. Thus, the company had to look for new suppliers inside China. Home Depot found out the hard way that suppliers in China market were much more powerful than suppliers in US. In China, large retailers serve the role of a ‘showroom’ for vendors, which separately have their own well-developed networks of salesmen and handymen who provide after-sale service (Chen, 2012).
5.6 References


Chapter Six: Thesis Conclusion

In this dissertation, I presented four studies at the intersection of two fields of research, namely entrepreneurship and international business. In chapters two and three, I discussed the antecedents of early internationalization of new ventures as well as the effects of R&D and internalization strategies on new ventures’ performance. The empirical evidence provided in these two studies -based on the Kauffman Firm Survey data- indicates that: 1) The individual characteristics of the owners –education level, immigration status, and entrepreneurial capabilities- have a significant association with early internationalization strategy of new ventures. 2) There is an inverse U shaped relationship between R&D and performance in new ventures; although R&D is to some extent positively related to performance, after a certain level, more spending on R&D negatively affects performance. 3) Engagement in both R&D and Internationalization activities tends to have a negative impact on performance.

A limitation of the above-mentioned empirical analyses is that the KFS data include only US-founded startups, and therefore I could not control for country-specific effects. Future research can provide new insights on the role of country-specific factors in early internationalization of new ventures.

Another limitation is that the internationalization measure I employed is a dichotomous variable based only on the presence/absence of international sales, and therefore the study cannot test or control for different entry modes. Moreover, this measure does not indicate the degree of internationalization. A potential future research direction can address this limitation through
better operationalization of internationalization that allows for testing the effects of entry mode and the degree of internationalization.

The last two studies included in this thesis are conceptual studies on international expansion of multinational enterprises. **Chapter four** investigated the entrepreneurial challenges faced by multinational enterprises in their international operations. It emphasised that entrepreneurial re-crafting of the core business model is essential to the success of MNE foreign market entry. **Chapter five** suggested a practical framework for business model re-crafting that can help MNEs overcome the *entrepreneurial deficits* encountered when they expand to international markets. Drawing on insights from the evolutionary, resource-based, and internalization perspectives, this chapter is a first attempt to conceptually link the literatures on business models and MNE international expansion. Future theoretical studies are necessary to provide a clearer distinction between the business model approach and the international strategy approach, and to thoroughly link the research on business models and international expansion.

The conceptual studies in chapters four and five include illustrative case examples of MNEs that failed to sufficiently alter their business models when expanding to international markets. It could be argued that firms might intentionally engage in trial and error international expansion, thereby learn from their failure and gain from their success, in which case the observed *entrepreneurial deficits* in our cases would be only half the story. In response, first I should indicate that the cases were included with the sole purpose of clarifying the theoretical arguments, and not to claim generalizability. As with many conceptual studies, a limitation of chapters four and five is that they cannot examine the generalizability of their theorized
propositions. Future *empirical* research should therefore shed more light on the degree of pervasiveness of the proposed *entrepreneurial deficits*. Nevertheless, extant empirical evidence is conclusive that very few MNEs can successfully expand globally beyond their home region at the downstream end of the value chain (Rugman & Verbeke, 2004, 2008). Additionally, the assumption that firms might engage in trial and error international expansion is questionable, especially for domestically successful MNEs. According to internalization theory, *at the margin*, profit-seeking MNE managers will decide to engage in cross-border investments only if the expected return of such international investments is higher than that of alternative domestic investments (Buckley & Casson, 2009; Verbeke & Forootan, 2012). Given that the firms in our cases are generally successful in their home markets, it is more plausible to argue that MNE managers try to make each entry a success, but often fail to achieve that success due to ex-ante *bounded rationality* (Simon, 1982) and *bounded reliability* (Verbeke & Greidanus, 2009) factors.
6.1 References


