MSc ECONOMICS: THESIS

EMNEs are catching up: a theoretical synthesis and empirical research on the heritage of EMNE innovation and competitiveness in foreign markets

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Abstract

Traditional IB theory is said to be unable to systematically explain EMNE internationalization strategy and competitiveness. EMNEs do not have conventional ownership advantages such as managerial experience, technology or trademarks. A recent school, springboard theory, proposes that EMNEs can become global leaders by acquiring strategic assets from developed markets and subsequent capability upgrading at home. Since these assets are location bound and EMNEs are relatively unfamiliar with developed markets, this thesis argues that springboarding is not enough for global competitiveness. EMNEs are proposed to increase capabilities from home location traits and incremental foreign experience. An empirical analysis is done to substantiate the importance of home institutions and resources and developed-market experience in regard to firm-level innovation. Firm-level innovation is in turn hypothesized to be an important driver for foreign competitiveness. The sample consists of 187 firms from 17 emerging countries that have acquired firms in developed countries. It is found that the quality of the national innovation system is positively related to springboarding (S)EMNE firm-level innovation. Developed-market experience does not seem to have an influence. Furthermore, firm-level innovation is positively related to foreign competitiveness. Research on EMNE competitive advantages should incorporate both traditional constructs on location resources and FSAs, and springboard theory's stance towards EMNE ambitions and internationalization. Together they can address EMNE international competitiveness.

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Chapter 1. Introduction

Recently Apple announced that it is reducing its production of AirPods. The reason is increasing competition from Asian Manufacturers. Non-Western firms such as Samsung from Korea and Huawei and Xiaomi from China have been able to enlarge their share of the market for wireless headphones (Li & Ting-Fang, 2021). In general, these non-Western firms, as well as Oppo for example, are increasingly becoming masters in targeted marketing and brand recognition methods, thus rivalling Apple, '*the former incumbent*' (Casanova & Miroux, 2020, p. 16). This Asian phenomenon is not new. In the last 30 years of the previous century Samsung was able to successively compete with American and Japanese electric manufacturers (e.g. Maganizer & Patinkin, 1989). The Korean company was enjoying high productivity and low costs accompanied with a long-run demand-serving and production strategy. These emerging-market companies seem to be aware of the fact that global leadership does not come overnight, as besides Samsung Huawei has largely shunned publicity for 30 years to which now it is one of the world's largest high-technology firms ("Huawei is trying to solve a hard problem", 2019). Whereas emerging-market multinationals (EMNEs) such as Lenovo (China) or Tata (India) are already global leaders, many others are in early stages of learning (Hobdari et al., 2017). For the next decade it is expected that only more brand recognition will come from these markets. Simultaneously, emerging markets are increasingly becoming new protagonists on innovation (Casanova & Miroux, 2020).

At present, especially firms in the BRIC (Brazil, Russia, India and China) and the VISTA (Vietnam, Indonesia, South Africa, Turkey and Argentina) countries are said to be increasing their international activities in order to compete with the developed world (Luo & Tung, 2007; Williamson & Wan, 2018). It is argued that these firms are mostly internationalizing to acquire strategic assets such as brand names, technology and managerial experience (Holtbrügge & Kreppel, 2012). EMNEs are catching up. They exploit spillovers, linkages, acquisitions and investment in R&D to upgrade capabilities (Hobdari et al., 2017). In light of South-North acquisitions, springboard theory is reportedly substituting for traditional international business (IB) theory such as the eclectic paradigm (e.g. Dunning, 1988; Luo & Tung, 2018). It proposes that firms from emerging markets are using different strategies (Luo & Tung, 2007). With the resources EMNEs acquire in developed markets they are eager to increase their competitiveness both at home and in foreign markets (Luo & Tung, 2007).

EMNE's strategic asset-seeking FDI is designed for repatriating high-class technology, fostering innovation, upgrading capabilities and augmenting ownership of technology

(Shepard, 2016; Luo & Tung, 2018). There is a consensus among EMNE scholars that building knowledge-based technological capabilities from simple production to advanced technological innovation is essential to EMNE sustained global catch-up (Guo et al., 2019). Besides the aforementioned consensus, IB scholars reportedly know little about the drivers for EMNE internationalization, how they go abroad, what competitive advantages they exploit and explore, and how competitive they are against developed-market counterparts (Yaprak et al., 2018). In this regard, springboarding is just one piece of the puzzle. The home location should not be neglected in explaining the innovation performance and global competitiveness potential of EMNEs.

In this thesis, I will discuss, reconfigure and synthesize IB theory and springboard theory on EMNE innovation, capabilities and international competitiveness. Furthermore, to substantiate the synthesis on EMNE innovation and competitiveness, it is proposed and hypothesized that EMNE innovation is dependent on the home environment, its resources and EMNE developed-market experience. Subsequently, firm-level innovation is proposed and hypothesized to be important for foreign competitiveness. EMNEs employ internationalization strategies that are debated prominently in IB literature. Their special character and fluidness will be discussed, as well.

Research Question

The following research questions will be investigated:

1a. Are EMNEs dependent on home location resources and institutions for their innovation?

1b. To which extent is EMNE experience in developed markets related to their innovation performance and does it have a moderating effect with home resources and institutions?

1c. Is EMNE innovation positively related with international competitiveness?

The remainder of this thesis is organized as follows. First, relevant literature regarding (E)MNE internationalization, capabilities and competitiveness is discussed (Chapter 2). This discussion is followed by a synthesis in IB theory and springboard theory. Then, propositions and hypotheses are formulated (Chapter 3). In light of data availability and operationalization of the concepts discussed in this thesis, a methodology is chosen and executed (Chapter 4 and 5). Subsequently, the results of the empirical strategy are highlighted and discussed (Chapter 6). The thesis ends with a discussion and conclusion to argue the relevance of the findings in light of theoretical constructs and other research (Chapter 7).

Chapter 2. Literature review

2.1. Developed-market multinationals versus emerging-market multinationals: Springboard theory

A growing number of studies is concerned with the existence and behavior of EMNEs as well as the importance of home countries for internationalization strategies (Hobdari et al., 2017). Traditional IB literature, typically geared towards explaining the internationalization of developed-market multinationals (DMNEs), is regarded as insufficient and inappropriate for explaining EMNEs (Ramamurti, 2012). The latter are alleged to have few traditional ownership advantages such as technology, brand names and managerial experience. This is restraining them for being subject to traditional IB theory such as the eclectic paradigm (e.g. Dunning, 1988). In other words, IB theory reportedly cannot explain the existence of these firms in international markets and is neglecting EMNE motivations (Park & Roh, 2019).

One recent explanation for EMNE swift and high-commitment internationalization is springboard theory (e.g. Luo & Tung 2007, 2018). EMNEs are compelled by their home markets and MNE presence to rapidly internationalize towards developed markets. Hill & Jongwanich (2009) stress that MNEs from emerging countries are predominantly incorporating strategic asset-seeking acquisitions. These acquisitions are used "*to enhance the capabilities of the acquiring parent firm in view of long-term competitiveness in home and third-country markets*" (Meyer, 2015, p. 58; Cui et al., 2014). Table 1 shows the different forms of FDI motives and inherent indicators, of which market-seeking and strategic asset-seeking FDI will be primarily discussed in this thesis.

Table 1: Comparison of FDI motives (adopted from Meyer, 2015, p. 58; Nachum & Zaheer, 2005, p. 753-754).

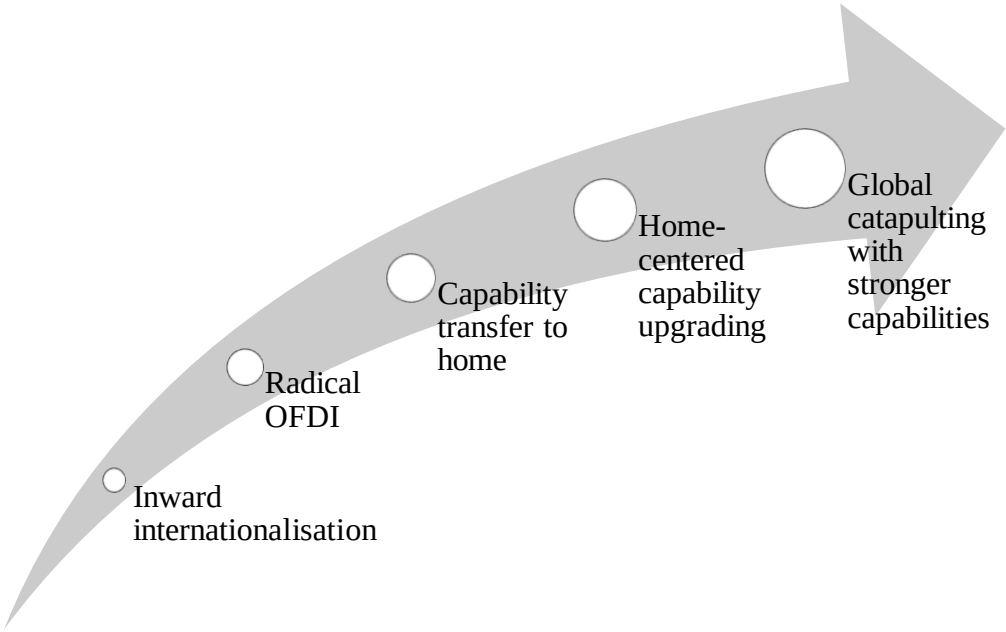
FDI motive	***Description***	***Activity indicator*** ***(****Nachum & Zaheer, 2005****)***	***Performance indicator***
Market-seeking	Circumventing barriers, exploiting or promoting new markets in the host country.	Costs of sales/total costs	Market share in the host country, financial performance of the subsidiary.
Efficiency-seeking	Enhance economies of scale and scope, logics, infrastructure, and risk diversification.	Sales of affiliates to parent + sales of affiliates to other affiliates + sales of parents to	Productivity of whole organization, costs of critical organizational processes.

		affiliates / total sales by affiliates	
Natural resource-seeking	To secure stable, low cost and high-quality supply of natural resources.	Local purchases by affiliates / total costs	Costs of input, stability of supply.
Strategic asset-seeking	Enhance the capabilities of the acquiring firm in view of long-term competitiveness in home and third-country markets.	1. level of compensation per employer (indicator for high skilled labor). 2. R&D intensity: R&D investments by affiliates as share of sales	Upgrading of technology in the parent organization, organizational change in parent organization, acquired firms' products or brands successfully sold outside host country.

Furthermore, it is argued that EMNEs build capabilities and use resources at home that are mostly only relevant to the markets in which they operate (Lessard, 2014). This would justify the development of springboard theory regarding EMNE rapid internationalization. It prescribes and elaborates on the strategic asset-seeking or asset-exploring motivations of EMNEs, where they try to absorb the resources and capabilities they lack (Ramamurti 2012; Luo & Tung, 2007, 2018). After four stages, from internationalization to capability building at home, EMNEs are said to be able to re-catapult their internationalization activities as global (competitive) leaders instead of followers (Luo & Tung, 2018). Figure 1 graphically shows the evolution of EMNE internationalization, capability upgrading and global competitiveness as explained by springboard theory.

Springboard theory is explaining the fierce acquisition of developed assets for capability upgrading in their home markets that initially compel the EMNEs to radically internationalize. It seems contradictory that competitiveness can come from firms that stem from environments that urges them to seek assets in foreign markets in the first place. Moreover, Awate et al. (2012) stress that EMNE rapid catch-up is rather based on production or output capabilities and not necessarily on innovation capabilities. In other words, the EMNE in general seems able to meet the industry standard, but lacks knowledge to push forward the industry's frontier, i.e. to become a global leader (Awate et al., 2012).

Figure 1: Springboard theory, an upward spiral model (adopted from Luo & Tung, 2018, p.144)



Following the constructs of springboard theory, it is apparent that one of its goals is to fill the traditional theory gap by emphasizing non-traditional ownership advantages such as low (labor) costs and acquisition-experience. Furthermore, it recognizes the compelling reasons such as an increased level of competition and weak institutions in the home country that push emerging-market firms to rapidly internationalize (e.g. Luo & Tung, 2007, 2018). Springboard theory explains that EMNEs can gain experience with developed markets due to inward internalization. For example, they embark on joint ventures with foreign firms in their domestic market (Moreira et al., 2018). The derived absorptive capacity, experience and networks would engine the rapid outward internationalization towards developed markets to acquire ownership advantages. Then, assets are transferred to home and increase capability upgrading activities to compete with MNEs from developed countries (Luo & Tung, 2007, 2018).

2.2. Extant IB theory

2.2.1. Dunning's reconfiguration of OLI theory

In this section traditional IB theory is discussed, since springboard theory arguably has addressed the research gap regarding EMNEs that is left by traditional scholars. Dunning (2001) has been supporting and defending his eclectic paradigm (or OLI-theory) since first noticing the internationalization activities by EMNEs and argues that its parameters are still relevant. Yet, they had to be reconfigured in light of EMNE asset-augmenting/exploring motivations

(e.g. Dunning, 2001). Generally, the eclectic paradigm presents and discusses three advantages that explain the extent and pattern of MNE FDI: Ownership, Location and Internalization advantages. In 2001, the author acknowledged asset-augmenting (as opposed to asset-exploiting) FDI, i.e. strategic asset-seeking. It captures the trend of firms with existing ownership advantages that internationalize to seek new assets. Before, only market-, resource-, and efficiency-seeking FDI were discussed in Dunning's eclectic paradigm (e.g. Dunning, 1988). Furthermore, OLI-theory is explaining that the three parameters are interconnected. This means that in certain countries various ownership advantages can differ in strength, leading to different assessments for internationalization (Dunning, 2001).

Dunning (2001) has responded to concerns of IB theory scholars by stressing that the strategic asset-seeking emerging-market firm can be subject to the eclectic paradigm. The author underscores the reconfigured ownership advantage concept by emphasizing the interrelation between existing ownership advantages (such as low costs or customer base), the newly acquired assets and especially the willingness and ability to coordinate these. Dunning (2001) reminds IB scholars that the eclectic paradigm essentially exists for explaining the international production (i.e. FDI) of *all* firms from a particular country or group of countries. OLI-theory apprehends multiple IB theories for this assessment. The following section comprehends a discussion on related IB theory and its relevance for EMNEs.

2.2.2. Other IB theories on (E)MNE competitive advantages and internationalization behavior

Rugman's (1981) resource-based view (RBV) of the firm is accentuating the importance of firm-specific advantages (FSA) in the development of knowhow or capabilities that is unavailable to others. Essentially, these FSAs cannot be duplicated on the short run (Rugman et al., 2011a). Examples are upstream R&D expenditures that lead to new products or production processes, or downstream innovation FSA in marketing or distribution. Furthermore, RBV is theorizing that country-specific advantages (CSA) are providing basic comparative advantages for firms, which can be augmented by an MNEs FSAs. Together they can make up the competitive advantage (Rugman et al., 2011a). Essentially, there is a long tradition in claiming that home location traits such as institutions or the macro-economic environment can be country-specific advantages when the firm internalizes these and transform them into transferable assets (Buckley, 2012).

More recent interpretations of this theory stress that CSAs may be leveraged, where MNEs make use of both home and host country CSAs. Also, subsidiaries are said to be critical

in recombination efforts (Rugman et al., 2011b). Within the MNE, FSAs can be location bound or non-location bound. The first are only exploitable in a limited geographic area (such as managerial skills and R&D knowledge), whereas the second can be easily transferred, such as patented technology (Rugman et al., 2011a).

Rather important in EMNE research has been the institution-based view adopted from economic theory (e.g. North, 1991; Yaprak et al., 2018). It emphasizes the interaction between institutions and firms (Peng et al., 2009). For instance, industry-based competition, marketing capabilities and different conditions promoting an evolution from a supplier to a brand-building orientation can affect firm behavior and performance (Yaprak et al., 2018).

Friel (2021) pleads for a comparative institutionalism-perspective where not only the FSA derivation from CSA should be discussed. In fact, whether an FSA is functional is dependent on the institutional context. Therefore, some FSAs of DMNEs and EMNEs would not survive in each other's environment. The author argues that existing IB theory is frankly only able to explain EMNEs ability to compete with DMNEs by buying comparable assets abroad.

EMNEs can develop FSAs not only from country-specific advantages/resources, but from location disadvantages as well. Location disadvantages are broader than institutional disadvantages or voids (e.g. Palepu & Khanna, 1998) in capital markets, human capital, government regulations or contract enforcement (Friel, 2021). FSAs from EMNEs are said to be special and can create, among other things, the ability to deal with unpredictable government, inefficient judiciaries, corruption and regulation. This ability would even be an advantage when internationalizing towards developed markets (Friel, 2021).

The Uppsala model/internationalization process theory (Johanson & Vahlne, 1977, 1990, 2009) has a more evolutionary rather than comparative approach to internationalization. Basically, it argues that firms increase foreign commitment incrementally by gaining knowledge and experience. The strength of FSAs is therefore constraint to the distance to unknown environments, i.e. the liability of foreignness/outsidership (Rugman et al., 2011a).

Next to springboard theory, Mathews (2006) proposed a different internationalization framework for explaining EMNEs, that is the LLL-framework. EMNEs are seen as latecomers in global competition and they internationalize to acquire assets that are unavailable in domestic markets. It seems comparable to springboard theory, but the LLL-framework focuses on partnerships and joint ventures to respectively link with existing actors and leverage their resources and capabilities to organizational learning (Hobdari et al., 2017).

More generally, organizational learning explains that foreign presence has benefits for (E)MNEs. Organizational learning proposes that a firm can gain knowledge in market, technology and social areas when it enters foreign countries (Thakur-Wernz & Samant, 2019). It resembles constructs of the Uppsala-model (e.g. Johanson & Vahlne, 1977). Essentially, by gaining international experience, firms will be better able to learn from markets and can even adapt to them (Thakur-Wernz & Samant, 2019).

Table 2 comprises an overview of discussed IB theory on explaining (prerequisites for) internationalization, competitive advantages, and particular points of interest regarding EMNEs.

Table 2: Summary of IB theory on internationalization and competitive advantages following the literature review.[1]

Framework	**Arguments**	**Key takeaways regarding (S)EMNE**
Eclectic paradigm (OLI)	Explains the competitive advantage prerequisites of firms from countries based on their (interrelated) ownership, location and internalization advantages.	(Springboard) EMNEs do not have ownership advantages that are needed to go abroad. Reconfigured OLI mainly explains EMNE strategic-asset seeking where (new) ownership advantage (OA) is derived from extant OA, new assets and the willingness and capabilities to handle the new assets.
Internationalization process theory (IPT)	Internationalization is a process of the firm. Knowledge and experience are required for further expansion. Accumulated knowledge about country-specific markets, practices and environment increases commitment.	(Springboard) EMNEs are said to be rather adopting rapid internationalization strategies in order to compete with DMNEs and skip incremental stages.
Resource Based-View (RBV)/ Dynamic Capabilities-view (DCT)	RBV: explaining the competitive advantage of firms based on their (non) location bound FSA and CSA.	(Springboard) EMNEs should develop VRIN resources in order to be competitive both in home and foreign.

[1] See Luo & Tung (2018, p.138) for a springboard theory-focused comparison of traditional IB theory.

	DCT: the message is to build, integrate and reconfigure competences to cope with environments.	
Organizational learning	Increase market, technology and social knowledge by foreign activities.	(Springboard) EMNEs could benefit from their earlier imitation endeavors in developed markets.
LLL-framework	EMNEs link with existing actors to leverage their resources in order to learn.	Mostly explaining the internationalization behavior of large Asian firms from Taiwan, South Korea, Singapore, South Korea.
Institutions-based view (IBV)	Explain MNE decision-making and performance by the interaction between institutions and the firm.	(E)MNEs respond to their institutional environment.
Comparative institutionalism	Locational advantages > institutional voids	EMNEs could derive FSA from handling location disadvantages that can be used in developed markets.
Springboard theory	EMNEs go abroad to acquire assets from developed countries in order to secure long-run competitiveness.	Adopts arguments of extant IB theory (OLI, IPT, IT, RBV/DCT) to explain the need for post-springboard capability upgrading and internalization.

2.3. EMNE foreign competitiveness: springboarding is not enough

2.3.1. The need for firm-level innovation

Luo & Tung (2018) admit that springboard theory is generally not able to explain a firm's sustainable global competitiveness, as capability upgrading and innovation are important drivers next to springboard activities. The latter is mainly a stepping stone. Basic product innovation capabilities from EMNEs are said to be sufficient to compete with DMNEs in the home country, but to be a global leader the EMNE should break with its latecomer character and become part of global leadership (Cantwell, 2017; Guo et al., 2019).

Acknowledging the lengthy and dynamic character of catch-up by EMNEs (Guo et al., 2019), it is difficult to argue that springboarding to developed markets is sufficient. There should be innovation capabilities, implying more competitive advantage both in their home and host markets. The latter is essentially the long-run ambition of springboard multinational enterprises (Luo & Tung, 2007). Therefore, EMNE home markets and capabilities regarding

innovation are considered to be important to explain EMNE internationalization and competitiveness.

2.3.2. Domestic resources and institutions

The aforementioned home location resources/advantages include not only land, labor and capital but also the legal and commercial environment (Williamson & Wan, 2018). Hennart (2012) emphasized the imperfect nature of emerging markets and the FSA of EMNEs when accessing those. Firms in China, for example, seem able to convert the locational advantage of cheap labor into the driver of efficient incremental process innovation and product redesign (Williamson & Wan, 2018). In short, ownership advantages are the function of exogenous locational advantages and the capabilities to access these (Williamson & Wan, 2018). It is therefore necessary to focus on home location endowments on innovation in emerging markets, the imperfect nature of these markets and the possibility to be innovative in these markets from within.

Examples of (home) location resources are employees, capital, clients, services and knowledge. These resources are to a different degree accessible by local firms and foreign firms (Nachum, 2011). Nachum (2011) emphasizes the importance of home resources for characterizing competitive advantages of firms. According to the author, not only the existence of country characteristics on firms is important. Different circumstances determine the strength and persistence of the impact of country characteristics. In fact, "*the interaction between the countries and firms are characteristic for international strategy*" (Nachum, 2011).

Other scholars have also been concerned with the (institutional) environment of the home country. According to Hobdari et al. (2017) it is critical to assess the accessibility of home resources for firms. Emerging-market firms reportedly lack substantially in accessing financial and technological resources. In the international setting the lack of human resources becomes even more problematic (Hobdari et al., 2017). On the one hand, this calls for justification of springboard theory, where the home constraints are escaped from. On the other hand, it calls for a more thorough configuration of the relationship of the home location with (springboarding) EMNEs in their ambition to become internationally competitive.

2.3.3. Location and innovation

Elia & Santangelo (2017) have taken multiple location endowments together, as well as the property rights protection index, and investigated the absorptive capacity of EMNEs. They argued that the home national innovation system (NIS) has implications for the degree of

internationalization in the form of strategic asset-seeking activities. It was found that early acquisitions had a substitutive form, as latter acquisitions were done for complementing the resource base. The relationship between strong home NIS and strategic asset-seeking acquisitions was found to be insignificant. Basically, it was argued that the home location is marginally providing EMNEs a sufficient knowledge base in order to abandon strategic asset-seeking endeavors (Elia & Santangelo, 2017).

Along arguments of extensive IB theory, and especially organizational learning, Thakur-Wernz & Samant (2019) and Thakur-Wernz et al. (2019) have shown for Indian biopharmaceutical firms that international experience enhances innovation performance and that the mode of entry has innovation implications. Higher levels of experience translate in higher learning activities from host countries. Thakur-Wernz et al. (2019) investigate mode of entry decisions. Focusing on host country characteristics, subsidiaries in high-income countries would foster product innovations and subsidiaries in low-income countries would encourage process innovations. [2] This is because in the previous area there is sophisticated demand, by which EMNEs gain knowledge about the technological products available there, whereas the latter areas would allow EMNEs to learn how to produce their products cheaper (cost-leadership) (Thakur-Wernz et al., 2019).

Sutherland et al. (2020) accentuate and distinguish location bound (LB) and non-location bound (NLB) (to be acquired) assets. Location bound assets are not easily transferred because of tacitness, organizational embeddedness and environmental embeddedness. Furthermore, according to springboard theory EMNEs would be able to be competitive with acquired brands, technology and managerial experience. However, location reputation or various types of brands for example are rather location bound, by which locational capabilities are needed. EMNEs are relatively weak in handling such assets next to the fact that EMNEs lack in understanding high-income market consumers (Zaheer & Nachum, 2011; Sutherland et al., 2020). Patented technology is said to be more non-location bound (Rugman et al., 2011a), by which it could encourage competitiveness in distant locations more easily.

[2] Product innovation is the introduction of a new product which aims to encourage new revenue. Process innovation is defined as a new production process as well as a new means of delivering products mainly incorporated for cost savings (Damanpour & Gopalakrishnan, 2001).

2.4. Reconfigured IB theory + springboard theory: a synthesis

Springboard theory emphasizes pre-springboard determinants and drivers for rapid internalization of EMNEs, as well as capability upgrading and competitiveness. This thesis follows both (traditional) IB theory and springboard theory in a combined effort to explain EMNE competitiveness by emphasizing domestic traits and innovation.

Springboard theory is roughly categorizing EMNE internationalization as an automatic defense mechanism against DMNEs to the extent that a major reason of existence in international business seems to be strategic asset-seeking. The focus should not be merely on the success of acquiring assets from foreign actors. In fact, the knowledge-based view and resource-based view (RBV) are conceptualizing that valuable, rare, inimitable and non-substitutable (VRIN) resources and capabilities, that can bring about competitive advantages, are difficult to internally transfer across borders (Carlos & Segarra-Ciprés, 2006). Buying or acquiring innovation fostering resources is not straightforward or effortless (Narula & Nguyen, 2011). Therefore, springboard theory could be over-assuming international transfer of capabilities and resources.

Instead, capabilities that can be derived from the home location and additional developed-market experience are considered and emphasized in this synthesis. Furthermore, springboarding or high-committing, risk-taking strategic asset seeking-EMNEs should be investigated in terms of their innovative potential and home environments, even though they are said to be seeking competitive resources abroad.

Innovation should be an important concept in EMNE internationalization arguments for various reasons. First, it is assumed that EMNEs cannot bring about pioneer innovation and will keep being followers, while evidently there are already EMNE global leaders (e.g. Lenovo, Samsung, Tata). Second, innovation (patented technology for example) is seen as non-location bound, by which it could be an FSA in developed markets that can bring about competitiveness. Third, when a firm is innovating, it could be distancing itself from cost-leadership strategies towards the production of new-to-the-world products comparable or superior to DMNE output. RBV and the institution-based view provide an interesting view on EMNE competitiveness. The home location and its institutions and resources can give EMNEs firm-specific (innovation) advantages, which are increasing competitiveness in foreign markets. In fact, recently characteristic for emerging markets is that they are developing and fostering an increasing amount of innovation (Casanova & Miroux, 2020).

Figure 2: A synthesis for explaining EMNE internationalization and competitiveness

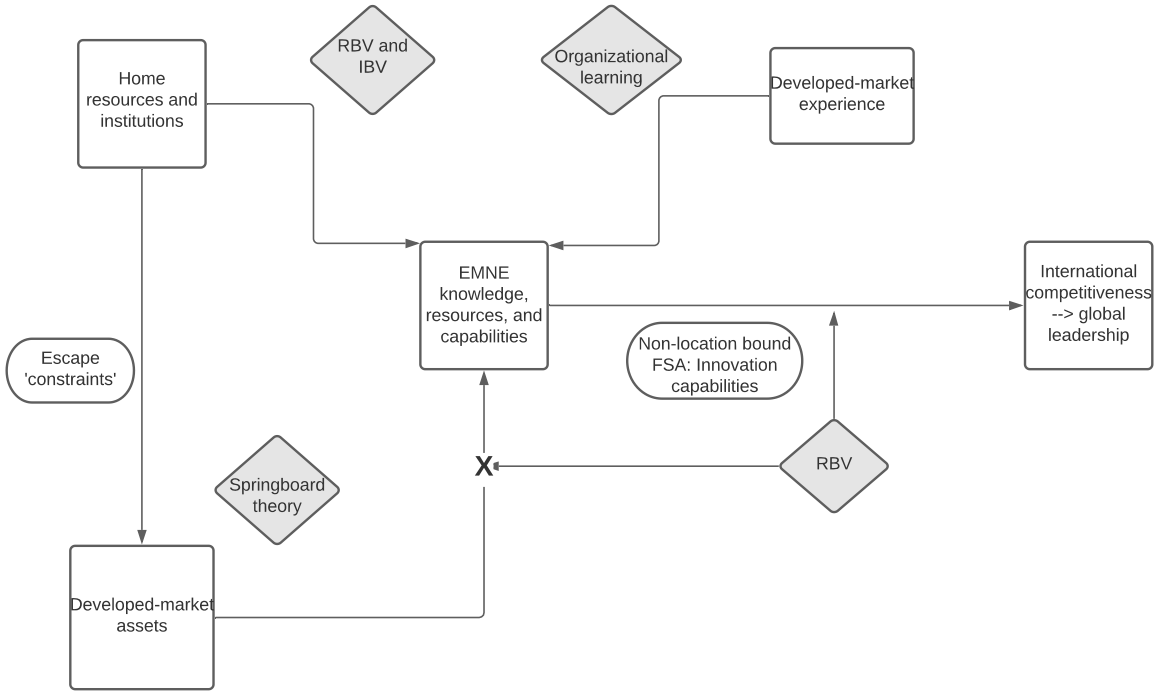


Figure 2 graphically shows the combined constructs of RBV, IBV, organizational learning and springboard theory to explain EMNE innovation and competitiveness. It is recognized that firms could go to developed markets for asset-seeking, i.e. springboarding. This movement implies the EMNEs ambition to compete with developed counterparts by acquiring assets that can bring about ownership advantages such as managerial experience, technology or brands. However, as RBV prescribes, these resources, that bring about competitiveness, are difficult to acquire and transfer across borders (Carlos & Segarra-Ciprés, 2006). Therefore, the potential positive influence of foreign assets on home capability upgrading or potential competitive advantages is hampered. Essentially, it is not springboarding activities that explain long-term competitiveness with new assets, but predominantly domestically accessible resources and foreign experience. The trend of increasingly innovating emerging markets justifies attention to home centered capability upgrading with home resources in home environments. Furthermore, the essence of RBV that constrains the appropriation of developed-market assets suggests the need for a transferable FSA that is difficult to copy by other firms, which is firm-level innovation. Although its transferability to foreign markets could be questioned because of the VRIN-requirement, it is a solid indicator for the ambition and willingness to become a global leader, as well as the ability to be innovative in products and processes.

The next chapter presents propositions and hypotheses in light of this synthesis regarding the home location, internationalization behavior, innovation and competitiveness.

Chapter 3. Propositions and hypotheses development

3.1. Emerging-markets and firm-level innovation

Proposition 1: The domestic environment and its resources are important for (springboarding) EMNE innovation.

Springboard theory stresses that EMNEs seek strategic assets in developed countries to enhance their capabilities in order to compete on the long run, in both home and foreign markets (Luo & Tung, 2007, 2018). The home institutions are said to be generally underdeveloped (the compelling reason to rapidly internationalize), and there are multinational enterprises which they are predominantly imitating, as has been the case for Chinese firms for example (He et al., 2019). On the one hand, it is argued by IB scholars that firm innovation is scarce in emerging markets because there are institutional voids and low levels of innovative resources (Palepu & Khanna, 1998; Hennart, 2012). On the other hand, more recently it is recognized that emerging markets are increasingly becoming new protagonists on innovation. In fact, in emerging markets innovation has already surged towards more fundamental technological innovation based on R&D and patenting (Casanova & Miroux, 2019; Casanova & Miroux, 2020). It is therefore likely that country-level innovation is positively related to springboarding EMNE firm-level innovation output. Differences in home location institutions and resources promoting innovation can explain the differences of firm-level innovation across emerging markets.

Following this proposition, I will test whether there is a relationship between country-specific resources and institutions, and the innovation performance of springboarding EMNEs. Friel (2021) argues that EMNEs develop FSAs in spite of their locational disadvantages. This proposition, however, has more traditional and positive perception of EMNE FSA-building. Firms from more innovative environments will have more firm-level innovation. It is particularly interesting to consider the undiminished role of domestic resources for EMNE innovation in global endeavors.

To test whether home location endowments are related to EMNE innovation output, the national innovation system (NIS) is used. "*NIS is the interactive system of existing institutions, private and public firms (either large or small), universities and government agencies, aiming at the production of science and technology (S&T) within national borders*" (Intarakumnerd et al., 2002, p. 1446). Elia & Santangelo (2017) investigated the national innovation system and its relationship with outward FDI. This hypothesis is to investigate the relationship between the national innovation system and innovation performance for EMNEs that have already made the outward FDI-decision.

Hypothesis 1: The quality of the domestic national innovation system is positively related with the innovation performance of springboarding EMNEs.

3.2. Developed-market experience and firm-level innovation

Proposition 2: Experience in developed markets is important for (springboarding) EMNE innovation.

"By tapping into local knowledge and expertise, foreign affiliates gain a competitive advantage which can not only be exploited locally but may also be transferred back to the parent company, enhancing its global technological competence." (Cantwell, 2005, p. 16).

Springboard theory proposes that EMNEs use inward internationalization to engine their acquisitions and that it enables them to transfer resources back. Here, it is proposed that EMNEs are not internationalizing merely for strategic assets. They can internationalize via (low innovative) market-seeking FDI as well. Their foreign existence is not only explained by seeking assets via acquisitions, but also from learning in developed markets. Moreover, when the EMNE has been active in developed (high-income) markets, it will be more innovative, especially regarding product innovation since there has been experience with sophisticated demand (e.g. Thakur-Wernz et al., 2019).

The more developed-market experience EMNEs have, the more they understand DMNE innovativeness and the potential of home-location endowments. Therefore, developed-market experience could help EMNEs to be even more innovative. Direct foreign experience in this regard is an FSA that provides the firm with the ability to use more location resources by increased recognition of value.

Prior reseach of Thakur-Wernz & Samant (2019) resulted in a positive relationship between international experience and innovation capacity for firms in the Indian biopharmaceutical firms. This proposition and the hypotheses are considering the innovative performance of emerging-market firms that have acquired firms in developed markets (springboard EMNEs) more generally.

Hypothesis 2: The more developed-market experience a springboarding EMNE has, the more innovative it will be.

Hypothesis 3: There is a positive interaction between the quality of the domestic national

innovation system and developed-market experience: the more developed-market experience the springboarding EMNE has, the higher the effect of NIS on innovation performance.

3.3. EMNE global competitiveness

Proposition 3: (Springboarding) EMNE firm-level innovation is positively related with foreign competitiveness.

DMNEs build their competitive advantage at home after which they internationalize to seek markets (the traditional view), whereas EMNEs go abroad to learn and improve business models and products/services as well as to seek markets (Casanova & Miroux, 2020). When there is innovation on products and processes, there are ownership advantages that seem more and more resembling DMNEs ownership advantages, such as brand names and technology.

As the emerging-market firm decides to tackle developed markets, without just cost-leadership, it has to be caught up on those markets. This can either be via output or innovation capabilities. Firms from emerging countries will initially rather adopt cost-efficient strategies in their activities towards developed markets as opposed to differentiation strategies, because the products from these companies are seen as inferior (Aulakh, 2000). This will not generate global leadership.

However, when there is firm-level innovation generated by the use of home location resources and foreign experience, the EMNE could be increasing his potential for global leadership. Strategic asset-seeking is regarded here as marginally important, but it cannot be the complete internationalizing strategy.

The international performance of EMNEs is proposed as to some degree dependent on their manifested innovation (that is pushed by home location resources and institutions). The innovative endowments of home countries will push them into more firm-level innovation, while they could have encountered low-innovation market-seeking already (e.g. cost-leadership). Radical acquisitions and capability upgrading could go hand-in-hand with foreign learning-by-doing. This would push the EMNE innovation and competitiveness forward. Huawei is an example of an EMNE that has used a tandem action of market-seeking and strategic asset-seeking to secure its position as global leader (Guo et al., 2019).

The previous hypotheses (1-3) could indicate a large deal on firm-level innovation. The next step is testing whether springboard SEMNE innovation is related to international competitiveness. Sener & Delican (2019) already found a unidirectional causal relationship between innovation and competitiveness. In this thesis, the relationship between innovation and

foreign firm performance is tested, but more specifically given the fact that the EMNE has encountered in springboarding activities.

Hypothesis 4: *The higher the innovation performance of the springboarding EMNE, the more internationally competitive it will be.*

3.4. Summary of the propositions and hypotheses

Figure 3: Hypothesized relationships

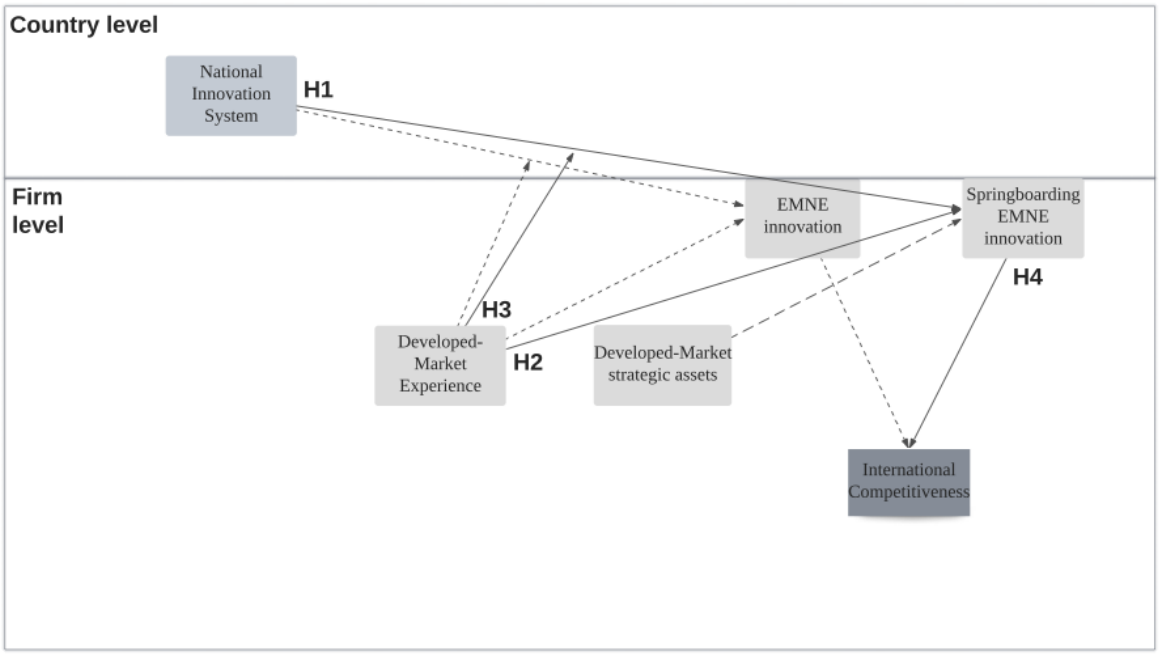


Figure 3 shows the hypotheses in a graphical way. There is a distinction made for EMNEs and springboarding (S)EMNEs to stress the special character of EMNEs that go abroad and search for assets. It is hypothesized that the national innovation system and developed-market experience (by subsidiaries) will have both a positive effect on SEMNE innovation. Furthermore, it is hypothesized that these firms will be even more innovative with home resources when they have developed-market experience. To increase the explanation on springboarding EMNEs, the first model explaining firm-level innovation (H1, H2, H3) will be separated for the degree to which EMNEs are springboarding. Next, it is proposed and hypothesized that firms that are more innovative have higher competitiveness (model 2: H4).
To increase the importance of firm-level innovation for foreign competitiveness, in light of strategic asset-seeking, the relationship of firm innovation and foreign competitiveness will be differentiated for the degree to which EMNEs are springboarding. Although developed-market assets are shown in the figure, their influence on capability upgrading or innovation

performance is not tested. The data on target-firm intangibles was very scarce. Furthermore, hypotheses 1-4 should account for the theoretical arguments that EMNE innovation and competitiveness is not dependent on acquired assets but rather on the use of home institutions and resources, and foreign experiences.

Chapter 4. Data and Sample

4.1. Country definition and sample development

In this thesis, cross-country (95%+) acquisitions from emerging countries to developed countries are taken from Zephyr to investigate strategic asset-seeking EMNEs. They resemble a special manifestation of EMNEs, because they are said to be eager to increase competitiveness both in home and third countries (Luo & Tung, 2018). According to S&P Global (2018) developed and emerging countries are those listed in Appendix Ib. Appendix Ia mentions the criteria for this classification.

The acquirers are from fourteen major sectors mentioned in Zephyr.[3] This resulted initially in 839 deals from 637 acquirers (after filtering duplicates) between 2007 and 2020. The acquirers were listed, because listed firms provide more information about equity and financials (e.g. Park & Roh, 2019). The condition for the target was less strict, as it had to be unlisted, listed or delisted. This is because searching for acquisitions with a listed target firm only resulted in 2 acquisitions in a thirteen-year period. The consequence is that data availability on (the intangible asset-base of) the target firm is extremely scarce. To control for the acquirer to be an EMNE, the firms with zero noted foreign subsidiaries (as collected in Orbis) were removed.

4.2. Dependent variables

4.2.1. Firm-level innovation (FLI)

In this thesis, firm-level innovation is the capability to bring out new-to-the-world products or processes. Some authors have used R&D expenditure or intensity for measuring innovation performance, but those variables are rather measuring R&D commitment (Lin et al., 2012). The number of patents that come from these R&D inputs is more likely to indicate the innovativeness of the EMNE, as is used by Ahuja & Katila (2001) and Mi et al. (2020), for example, and could be the manifestation of innovation capabilities.

[3] Primary sector (agriculture, mining, etc.); Food, beverages, tobacco; Textiles, wearing apparel, leather; Wood, cork, paper; Publishing, printing; Chemicals, rubber, plastics, non-metallic products; Metals & metal products; Machinery, equipment, furniture, recycling; Gas, Water, Electricity; Construction; Wholesale & retail trade; Hotels & restaurants; Transport; Post and telecommunications; Education, Health.

According to Orbis IP (Bureau van Dijk), firms receive a patent when a national patent agency deems the invention novel. A limitation here is that it cannot be controlled for whether the patent is granted in home or in foreign countries. Another problem with measuring innovation in patents is the fact that it could be unrecognized in developing countries. Novel inventions are needed in order to receive a patent and this novelty may be regarded less important in those countries (Fagerberg & Srholec, 2008). Even though there are drawbacks, patent data can accurately capture the intellectual property of a firm and is widely used to indicate innovation performance (e.g. Ahuja & Katila, 2001; Coad & Rao, 2008; Thakur-Wernz & Samant; 2019, Benassi et al., 2020; Sutherland, 2020).

4.2.2. International competitiveness (IS)

The second dependent variable is international competitiveness. According to Coviello et al. (1998), profitability is a good measure for international competitiveness. For various sectors this could be measured by sales volume or revenue. Denicolai et al. (2014) mention that most empirical literature measured international performance by export intensity, which is the share of exports to total sales. The authors stress that this is not measuring the overseas sales made by foreign affiliates and therefore not a good measure for internationalization. Cerrato & Depperu (2011) warn that ratios are rather measuring the degree of internationalization and not the international competitiveness (ex post). Ideally, market share is used as the competitiveness indicator. Unfortunately, the data on this variable was largely unavailable. Cerrato & Depperu (2011) argue that a multifaced nature of performance is desired to acquire a holistic perception on firm performance. Therefore, international sales (IS) are used while controlling for the degree of internationalization (DOI). According to Eikon, international sales measures the number of sales by foreign operations and excludes exports. While looking at the data, it seemed that the variable IS is not perfectly normally distributed. However, since it has negative values as well, the natural logarithm cannot be taken because the values would be undefined.

4.3. Independent variables

4.3.1. The quality of the national innovation system (NIS)

As prescribed by Casanova & Miroux (2020), the transformation of emerging countries as new protagonists of innovation can be seen in R&D (investments), education (expenditure), and infrastructure (such as ICT). Next to R&D expenditure (as % of GDP), Elia & Santangelo (2017) used additional variables such as the number of patent applications divided by the nation's population, the business freedom index, R&D per millions of people, the domestic

credit provided by financial sector as % of GDP and the property rights index for their national innovation system (NIS) operationalization.

The indicators for NIS in this thesis are found in the Global Competitiveness Report. It is widely used as a tool that contributes a valuable picture of an economy's productivity and levels of prosperity and growth (Schwab, 2019). It is largely based upon the Executive Opinion Survey, which is most extensive of its kind. It captures the opinions of business leaders around the world. Subsequently, indicators are derived on a scale of 1 (worst) to 7 (best). The country-specific data was available between 2007 and 2017 for the same variables over time.

The most widely used approach for combining composite variables regarding a nation's innovation capacity is to weigh them together using predetermined weights (Fagerberg & Srholec, 2008). In order to decrease the arbitrary nature of selecting Global Competitiveness Index (GCI) indicators for the national innovation system, indicators have been chosen that closely resemble those used by Elia & Santangelo (2017) for their NIS variable. In light of the discussed literature and data availability the indicators in Appendix III are used for the composition of NIS. It is assumed that this variable will measure the extent to which innovation is promoted by a country's institutions and available resources such as finance and R&D.

4.3.2. Developed-market experience (DME)

Developed-market experience (DME) is measured by the number of subsidiaries in developed markets. Again, S&P Global's (2018) classification is used to account for these countries. Thakur-Wernz & Samant (2019), for example, have used DME for explaining international experience and innovation. DME is a time invariant variable and characterizes the familiarity the EMNE has with developed economies by conducting business in those areas.

4.3.3. Firm-level innovation (FLI_{t-1})

In the second model, the one year lagged firm's innovation performance (FLI_{t-1}) will be used as independent variable to explain the relationship between innovation and international competitiveness.

4.4. Control variables

As suggested by Mi et al. (2020) the industry in which the firm is operating can have different implications for patent activity or intent to apply patents. Therefore, an industry dummy (INDUSTRY) is included in the first model. Appendix II explains the classification of the industries included.

Next, firm-level control variables are incorporated in the empirical part. First, the size of the firm (SIZE) is been controlled for by measuring the natural logarithm of employees. The larger the firm, the more resources it has. Mi et al. (2020), for example, have used this variable, as well as Ahuja & Katila (2001), to control for the effect of large firms on innovation performance. This variable is also used in model 2 to control for the effect of large firms on the number of international sales (e.g. Denicolai et al., 2014). Second, the age of the firm (AGE) is accounted for by taking the number of years since the year of incorporation until the year of measurement. It should account for evolutionary effects of EMNEs and innovation. This variable is also used as control variable for model 2, to control for the effect of evolutionary aspects of the firm on the number of foreign sales (incremental increase of internationalization). Third, R&D intensity (RDI) is used as control variable. It is expected that the more committed the firm is to innovation, the more it will strive for patents. In the second model, the degree of internationalization (DOI), measured by the ratio of foreign sales to total sales, is used to control for better performing firms in foreign countries due to experience.

4.5. Data sources and sample

Orbis IP's Granted Patents (FLI) variable was available between 2012 and 2020. GCI's measurements were available between 2007 and 2017. The sample is therefore measured for each firm between 2012 and 2017. The sample can be characterized as a panel data set, because the same firms are observed over time. Since not for every firm the same number of observations was available, the panel is unbalanced with gaps.

In the first model the sample consists of 187 firms from 17 emerging countries. The total number of observations is N = 745. On average there are 4 years of measurement for each firm. In the second model the sample consists of 185 firms, again from 17 emerging countries. Here, the total number of observations is N = 673. On average there are 3.6 years of measurement. The descriptive statistics and correlation tables are included in Appendix IV and V.

Table 4: Data sources and sample

Variables	**Measurement**	**Source**
Dependent variables		
Firm level: Firm-level innovation (FLI) International competitiveness (IS)	 Granted patents *2012-2017* International sales *2012-2017*	 Orbis IP Eikon/Datastream

Independent variables		
Country level: Quality of national innovation system (NIS)	GCI indices (Scale 1-7) *2012-2017*	GCI dataset (World Economic Forum)
Firm level: Developed-market experience (DME)	The number of subsidiaries in developed-markets *2020*	Orbis
(One-year lagged value of) Firm-level innovation (FLI_{t-1})	Granted patents *2012-2017*	Orbis IP
Control variables		
Firm level: R&D intensity (RDI)	R&D expenditure/sales or operational income *100 *2012-2017*	Orbis/Eikon
Age of the firm (AGE)	Number of years from incorporation until year of measurement *2012-2017*	Zephyr
Size of firm (SIZE)	Logarithm of number of employees *2012-2017*	Eikon
Degree of internationalization (DOI)	Foreign sales/total sales *2012-2017*	Eikon
Industry level: Industry classification (INDUSTRY)	4-digit SIC core code reduced to 1-digit code	Eikon

Chapter 5. Empirical method

5.1. Empirical model for analyzing firm-level innovation

In the first model, the dependent variable is firm-level innovation (FLI). It is measured by the yearly number of granted patents. The independent variables are NIS and DME (Hypothesis 1 and 2). There is an interaction variable generated from NIS and DME (Hypothesis 3). The variables are centered in order to interpret the estimations correctly.

The measurement of the variables over time prompts to use a longitudinal (panel) method. When using time invariant independent variables, the fixed effects (FE) model cannot be used. FE captures unobserved time-constant factors that affect the dependent variable. It excludes between-subject variance, because it is a within transformation (Wooldridge, 2015). The random effects (RE) model is used because DME is a time invariant variable. The Hausman test shows that the RE model can be used (Prob > chi2 = 0.5892), i.e. there is no correlation between the firm specific error component and the explanatory variables (Surroca et al., 2013). For the estimation with the interaction effect, the Hausman coefficient shows that an FE model should be used (Prob > chi2 = 0.000).

It could be argued that the sample prompts to adopting a multilevel model, since the firms are nested within different countries and especially because variables from different levels are used. In that case, firm variables are level 1 and country variables are level 2. However, a mixed model would constrain an interpretation of the interaction-term NIS*DME since a level 1 interaction with level 2, in that specific direction, is not a possible relationship in multilevel models (Aguinis et al., 2013). Still, for reasons of validity, a mixed model is run and will be discussed in Chapter 6.

When using the RE model there is the possibility of omitted variable bias. This alone is a valid reason to use control variables next to their justification mentioned in the previous Chapter. On the firm level these are RDI, SIZE, AGE and DOI. Also, an industry dummy (INDUSTRY) is included.

$$FLI_{ict} = \beta_0 + \beta_1 NIS_{ct} + \beta_2 DME_i + \beta_3 NIS_{ct} * DME_i + \beta_4 Controls_{it}$$
$$(RDI, SIZE, AGE, DOI, INDUSTRY) + a_i + u_{ict} \qquad \textit{(Eq. 1)}$$

5.2. Empirical model for analyzing international competitiveness

In the second model, the dependent variable is international competitiveness (IS). It is measured by international sales. The model should show the relationship between FLI_{t-1} and IS (hypothesis 4). SIZE, AGE and DOI are used as control variables when explaining the number of international sales. As suggested by Mi et al. (2020), the variable FLI is lagged for 1 year, to control for potential endogeneity. The Hausman test shows that for Eq. 2 the random effects model should be used (Prob > chi2 = 0.3038).

$$IS_{it} = \beta_0 + \beta_1 FLI_{it-1} + \beta_2 Controls_{it}\,(SIZE, AGE, DOI) + a_i + u_{it} \qquad \textit{(Eq.2)}$$

Chapter 6. Results

6.1. Firm-level innovation, the quality of the national innovation system and developed-market experience

6.1.1. Baseline results

Table 5 reports results for the analysis of Eq. 1. The dependent variable is firm-level innovation (FLI). The independent variables are the quality of the national innovation system (NIS) and developed-market experience (DME). For this relationship, the RE model is used. The RE model is a between-estimator. It captures the average relationships for all firms and allows the firms to deviate from the average. It seems that differences in FLI can be explained by differences in the quality of the national innovation system. The results indicate a positive and significant relationship between NIS and FLI below the 5%-level (Beta1= 65.42, p=0.012). The level of experience in developed markets (DME) has no significant relationship with firm-level innovation. The second estimation reports an insignificant interaction effect, where the main effect of DME is excluded because of the FE estimation. Furthermore, the goodness of fit is lower in the second estimation (25%>21%). Estimation 1 is explaining more of the variance.

In sum, it cannot be argued that there is a significant influence of developed-market experience. Yet, there is an indication that firms from countries with higher national innovation systems are more innovative. For example, springboard EMNEs with access to venture capital and scientific research in their home location have more potential to be innovative. Hypothesis 1 is supported. Hypothesis 2 and 3 are not supported.

Although Hünermund & Louw (2020) stress that control variables should not be discussed in depth because of their secondary role in the regression, it is interesting to see that EMNEs in certain industries are more innovative per definition. For example, the finance dummy shows a significance below the 10%-level (p=0.051) and the manufacturing dummy as well as the mining dummy a positive significance below the 5%-level (p=0.001, p=0.046).

Table 5: Random effects and fixed effects estimations for firm-level innovation

Dependent variable Firm-level innovation (FLI)	(1) RE Hypothesis 1 and 2	(2) FE Hypothesis 1, 2 and 3
Independent variables		
Quality of national innovation system (NIS, centered in (2))	**65.42** (26.02) [0.012]	**36.27** (33.52) [0.295]
Developed-market experience (DME, centered in (2))	**3.671** (3.379) [0.277]	-
NIS*DME	-	**0.447** (1.058) [0.678]

Control variables		
R&D intensity (RDI)	**3.711** (1.588) [0.019]	**2.943** (0.230) [0.000]
Firm size (SIZE)	**57.59** (11.33) [0.000]	**50.80** (10.32) [0.000]
Firm age (AGE)	**-2.684** (0.873) [0.002]	**-2.344** (4.046) [0.570]
Degree of internationalization (DOI)	**-0.559** (0.269) [0.038]	**-0.309** (0.233) [0.203)]
INDUSTRY		
Agriculture	Base category	Base category
Mining	**97.78** (48.95) [0.046]	-
Construction	**579.8** (409.0) [0.156]	-
Manufacturing	**147.6** (43.64) [0.001]	-
Transportation	**22.29** (49.25) [0.651]	-
Wholesale trade	**65.28** (48.93) [0.182]	-
Retail trade	**82.37** (51.00) [0.106]	-
Finance	**164.6** (84.41) [0.051]	-
Services	**30.67** (98.27) [0.755]	-
Constant	**-770.1** (126.8) [0.000]	**-268.2** (162.5) [0.118]
Model statistics		
Observations	745	745
No. firms/countries	187/17	187/17
Overall r2	0.2451	0.2138
Hausman statistic	0.2812	0.0000

Country-level cluster-robust standard errors in parentheses
Country-level cluster-robust p-values in square brackets

6.1.2. Robustness checks and extensions

Since the firm observations are taken from different countries, these observations are likely to have similar characteristics and there could be serial correlation. This is controlled for by adjusting the standard errors to country-clusters. Furthermore, to increase the validity of the findings, a multilevel estimation is run, in which the nested characteristic of the observations and relationships is recognized.

6.1.2.1. Extension: multilevel estimation

In this extension the effect of NIS and DME will be investigated by a mixed model. The results are reported in Appendix VI. There are three levels, because the repeated measurement within the firm has to be accounted for, suggested by Hox et al. (2017). Partly following Hox's (2000) multilevel longitudinal example it is recognized that Level 1 is the within-firm variance, i.e. the observations over time. Level 2 is the between-firm (within country) variation and level 3 is the between-country variation. The fixed part consists of the independent variables YEAR, NIS, DME and the control variables.

First, only the intercepts of the firm are random. Second, an mixed model is estimated in which there is a random slope for YEAR within level 2. While the coefficients for NIS and DME are basically the same, the LR-test shows that the random slope for YEAR is not significant (Prob > chi2=0.5767). In the third estimation the intercepts for the firms and the countries are allowed to be random, as well YEAR within the firm level. In the last estimation, DME is added as context variable within level three, to allow the effect of developed economy experience to be random across countries.

In all cases, the NIS coefficient is significant below the 5% level and the DME coefficient is not significant. Neither is YEAR significant in all estimations. The last estimation shows the highest Log Likelihood, at which the NIS variable is significant below the 1% level.

To control for heteroskedasticity and serial correlation, the standard errors are adjusted for the 17 countries. Abadie et al. (2017) argue that adjusting for standard errors in multilevel models should be done at the highest appropriate level, that is the country level in this case.

In short, the message is the same by both the longitudinal and multilevel estimations. Only the quality of the national innovation system seems to have a significant positive relationship with firm-level innovation.

6.1.2.2. Extension: differentiation for number of strategic asset-seeking acquisitions in developed countries

Until now, it is established that NIS is positively related to FLI and that DME has neither a main nor moderating effect. To argue more holistically on the character of springboarding, estimation one of model 1 is taken again. Now, a moderating relationship between NIS and the number of springboard-acquisitions the firm has done in developed markets (NOSA) is included. The variable NIS is centered before estimating its main coefficient and the coefficient of the moderating relationship with NOSA. The results are mentioned in Appendix VII.

It is interesting to mention that the relationship between NIS and FLI is significantly lower for firms that have done 3 acquisitions (NIS*NOSA=3). This could indicate that firm innovation is less dependent on the home environment and resources when EMNEs are acquiring a higher number of firms in developed markets. Admittingly, the sample is substantially scarcer for EMNEs that have done more than 1 acquisition (approximately 75 percent of the sample is NOSA=1).

6.1.2.3. Sub sample: separating the dimensions of NIS

To enhance the understanding of the underlying concepts of the national innovation system, multiple estimations are generated in which the six different indicators are separately run for the sample. For all estimations the RE model is used, as is indicated by the Hausman statistics (Prob > chi2=0.1285; 0.1944; 0.5817; 0.6125; 0.8301; 0.3932). The results are reported in Appendix VIII.

Below the 5%-level of significance, positive coefficients are found for intellectual property protection (Beta1=36.63, p=0.013), the quality of infrastructure (Beta1=51.04, p=0.024), the quality of scientific research institutions (Beta1=58.53, p=0.001), the quality of education (Beta1=54.82, p=0.005) and the availability of venture capital (Beta1=28.72, p=0.013). The government procurement of advanced technical products does not seem to be significantly positively related to firm-level innovation (Beta1= 40.65, p=0.227).

6.1.2.4. Alternative measurements of DME and FLI

As adopted and argued by Surroca et al. (2017) in regard of their FE model, the results of variables can be validated by replicating estimations with substitutive (alternative) variables that are indicating similar concepts. Developed-market intensity (DMI) has been sampled and included. The DME coefficient and moderating relationship with NIS could not be estimated properly earlier in this Chapter because of the necessity of a fixed effects model. DMI is a time invariant variable measuring the share of developed-market subsidiaries to total subsidiaries. The correlation matrix that accounts for this alternative independent variable is reported in Appendix IX. The Hausman test shows a significant coefficient (Prob > chi2=0.0189), by which the FE model should be used again. In that case, the DMI variable was omitted, and cannot give supplementary explanations.

It could be argued that the validity of FLI (measured by granted patents) is doubtful, since it is dependent on national patent offices and the firm's intent to be innovative and protective of its technology. An alternative measure is found in the yearly value of brands,

trademarks and patents. The ambiguity of this variable is that it cannot be derived whether the value of this variable can be attributed to firm's innovation capability or simply to buying or acquiring assets. The natural logarithm is taken since the values of BRANDS are only positive and not normally distributed. For the first equation (Eq. 1) the Hausman test indicates that the RE model can be used (Prob > chi2=0.1712). With LnBRANDS, the second estimation should be an RE model as well (Prob > chi2=0.3111). Since LnBRANDS was scarcely available, the number of observations is substantially lower (N=423). The results of this estimations are reported in Appendix X.

In the main effects-only equation there is a below-1% significance between NIS and LnBRANDS (Beta1=1.04, p=0.000) and a below-10% significance between DME and LnBRANDS (Beta2=0.01, p=0.064). There is no interaction effect (Beta3=-0.01, p=0.239) and the main effects of NIS and DME are significant below the same levels in the second equation (Beta1=1.12, p=0.000, Beta2=0.01, p=0.063). Firms that come from countries with 1-unit higher quality of NIS seem to have ((exp(1.04)-1)*100=) 183% more value in BRANDS. Firms with 1 additional unit of subsidiaries in developed markets generate (exp(0.01)-1*100=) 1% more value in BRANDS. Springboarding EMNEs that have better home institutions and resources promoting innovation have more brands, trademarks and patents. Furthermore, while developed-market experience did not seem to have a relationship with firm-level innovation measured by granted patents, it does have a positive relationship with the alternative variable. This results in partially supporting hypothesis 2, since it can be argued that firm-level innovation is to some degree incorporated in brands, trademarks and patents.

6.2. International competitiveness (IS) and firm-level innovation (FLI_{t-1})

6.2.1. Baseline results

In this section, the results of the RE model with international competitiveness (IS) as dependent variable are reported. The number of international sales is used as proxy for international competitiveness. The independent variable is the one-year lagged value of firm-level innovation (FLI_{t-1}). The results report that higher FLI_{t-1} is related to higher IS, while controlling for SIZE, AGE and DOI. A 1-unit increase in granted patents is related to an increase of 2214.8 units in international sales. The results show that the lagged variable of FLI is significant below the 5% level (p=0.040). When springboard EMNEs have more patents granted by national patent offices, they seem to be selling more products internationally by their subsidiaries. Firm-level innovation, therefore, seems to be positively related to international competitiveness. Thus, hypothesis 4 is supported.

Table 6: Random effects estimation for international competitiveness as dependent variable.

Dependent variable International competitiveness (IS)	(1) RE Hypothesis 4
Independent variable	
One year lagged value of firm-level innovation (FLI_{t-1})	**2214.8** (1077.1) [0.040]
Firm controls	
Firm size (SIZE)	**1588979.5** (506443.9) [0.002]
Firm age (AGE)	**-13245.0** (27420.6) [0.629]
Degree of internationalization (DOI)	**68531.0** (22637.0) [0.002]
Constant	**-13870119.6** (4351510.9) [0.001]
Model statistics Observations No. firms Overall r2 Hausman statistic	 673 185 0.1770 0.3086

Firm-level cluster-robust standard errors in parentheses
Firm-level cluster-robust p-values in square brackets

6.2.2. Robustness checks and extensions

Similar to model 1, there could be heteroskedasticity and/or serial correlation. This is controlled for by adjusting the standard errors to firm-clusters. Furthermore, to account for potential endogeneity (reverse causality) in this estimation the value of the independent variable (FLI) was lagged for one year (e.g. Surroca et al., 2017; Mi et al., 2020).

6.2.2.1. Extension: differentiation for number of strategic asset-seeking acquisitions in developed countries

Similar to the supplementary analysis of Model 1, the relationship between FLI_{t-1} and IS is differentiated for the number of (strategic-asset seeking) acquisitions the EMNEs have made in developed countries. The results, which are reported in Appendix XI, show that there is no different relationship between firm innovation and international sales for firms who have a different value of NOSA. More eagerness to become competitive, manifested by more springboard acquisitions, does not seem to change the relationship between innovation and foreign sales.

6.2.2.2. Alternative measurement of FLI

In model 1, the validity of the relationship between NIS and FLI was checked by modeling an alternative variable that is likely to indicate the same. Here, (the one-year lagged value of) LnBRANDS is again used and substituted in the model. The Hausman test indicates that the FE model should be used (Prob > chi2=0.0000). The correlation matrix is reported in Appendix XII and the results are reported in Appendix XIII. While controlling for SIZE, AGE, DOI and the firm-clusters, the relationship between IS and $LnBRANDS_{t-1}$ seems to be significant below the 10% level (Beta1= 68726.4, p= 0.059). This implies that a 1 percent increase in the value of BRANDS increases international sales by (68726.4/100=) 687,26 units. There is a marginal indication that EMNEs with more brands, trademarks and patents sell more products by their foreign subsidiaries. This is frankly the same conclusion as by using the lagged value of granted patents, and therefore another confirmation of hypothesis 4.

Chapter 7. Discussion and conclusion

7.1. Discussing theory, synthesis and empirical results

This thesis aims at reconfiguring important concepts for EMNE capability upgrading and how their competitiveness in foreign countries can be explained in a new synthesis. One recent theory on (E)MNEs, springboard theory (Luo & Tung, 2007, 2018), proposes that developed-market assets are crucial for capability upgrading at home and in turn global competitiveness. It argues that EMNEs have special ownership advantages, such as low costs, a customer base, government support or prior experience with MNEs in emerging markets. The latter would help EMNEs to (1) absorb the necessary resources and in turn to (2) upgrade their capabilities for (3) re-catapult internationalization towards developed markets. Unlike the OLI paradigm suggests (e.g. Dunning, 1988, 2001), traditional ownership advantages such as managerial experience or trademarks are not prerequisites for EMNE internationalization.

This thesis proposes that springboarding is not enough for capability upgrading and competitiveness. Springboard theory is to help IB scholars with explaining EMNE behavior and their motives, but it should not be prominently used for explaining competitive advantages of EMNEs in foreign markets via asset-seeking. The CSAs/FSAs on innovation that emerging markets/EMNEs generate in should be highlighted first. Particularly since these markets are increasingly innovating (Casanova & Miroux, 2020).

The resource-based view (RBV) stresses that valuable, rare intangible and non-substitutable (VRIN) resources can increase competitiveness, but these are difficult to acquire and transfer (Carlos & Segarra-Ciprés, 2006). In this thesis, it is therefore argued that the EMNE finds different (more traditional) ways to increase their competitive advantages. The competitiveness of EMNEs should stem from firm capabilities that are transferable but not easily appropriable. Rugman et al. (2011) explain that patented technology can be transferred more easily than brands or R&D capabilities for example. This form of innovation is chosen to be a proxy of EMNE FSA.

Springboard theory explains the ambition of EMNEs to become globally competitive by ways of using developed assets in their domestic capability upgrading. Other authors are accentuating the importance of home resources for competitive advantages more as prerequisites (e.g. Nachum 2011, Hobdari et al., 2017). In fact, the home country is crucial in explaining international business (Rugman et al., 2011a). Springboard theory and comparative institutionalism (Friel, 2021) theorize that EMNEs become stronger and develop special FSAs in spite of their location disadvantages, institutional voids and high competition. This thesis

proposes that home country institutions and resources on innovation are important for EMNE innovation upgrading in a more traditional and evolutionary way. Firms that have access to resources that foster innovation should be basically more innovative. Empirically the relationship between the quality of the national innovation system (as proxy for home resources and institutions) and granted patents (as proxy for innovation performance) was found to be positive. Hypothesis 1 was therefore supported.

Furthermore, it was proposed that not springboarding per se but rather developed-market experience would be positively related to capability upgrading. To illustrate, there could be EMNEs that have been internationalizing on low innovative capabilities, such as cost-efficiency strategies. One bedrock theory on international business, the Uppsala-model, has emphasized the need for experience and knowledge before commitment in foreign markets (Johanson & Vahlne, 1977, 1990, 2009). More recent research has found a positive relationship between Greenfield and innovation performance (Thakur Wernz & Samant, 2019). The ratio of the Uppsala model, i.e. experience and knowledge necessity, and organizational learning was proposed to be positively related to EMNE capability upgrading. Empirically, the hypothesis that more developed-market subsidiaries would be related to more granted patents (hypothesis 2) was not supported. Developed-market experience was neither found to be in a moderating relationship with the quality of NIS, i.e. hypothesis 3 was not supported.

One explanation for this finding could be that firms that are active via Greenfield in developed markets are continuously internationalizing on low innovative capabilities. In that case, they pursue cost-efficient internationalization strategies (e.g. Awate et al., 2012) and do not exploit high-income knowledge or show any intent to be innovative on the long run. These firms could accept their follower's position. Another explanation for the insignificant coefficient of DME can be found in the springboard argument. In fact, there are opportunities for springboard explanations next to the empirical significant relationship between the quality of NIS and firm-level innovation. In that case, not prior developed-market experience is important, but the ability to seize strategic assets. It could be likely that 'normal' EMNEs keep internationalizing incrementally on cost-efficient strategies, where springboard EMNEs will work hard for long-run competition with support of both foreign assets and home resources and institutions (e.g. figure 4).

Using an alternative estimation technique, the results are rather undisputed. The multilevel model estimation also indicates that the quality of NIS is positively related to springboard EMNE firm-level innovation. Additional analysis has furthermore shown that five

of the six dimensions of the national innovation system variable are individually positively related to firm-level innovation.

To allow for additional springboard arguments the relationship between NIS and FLI was differentiated to the degree to which the firms have been engaged in strategic asset-seeking acquisitions in developed markets. There is a small indication that more springboard activities lead to a diminished role of the quality of the national innovation system.

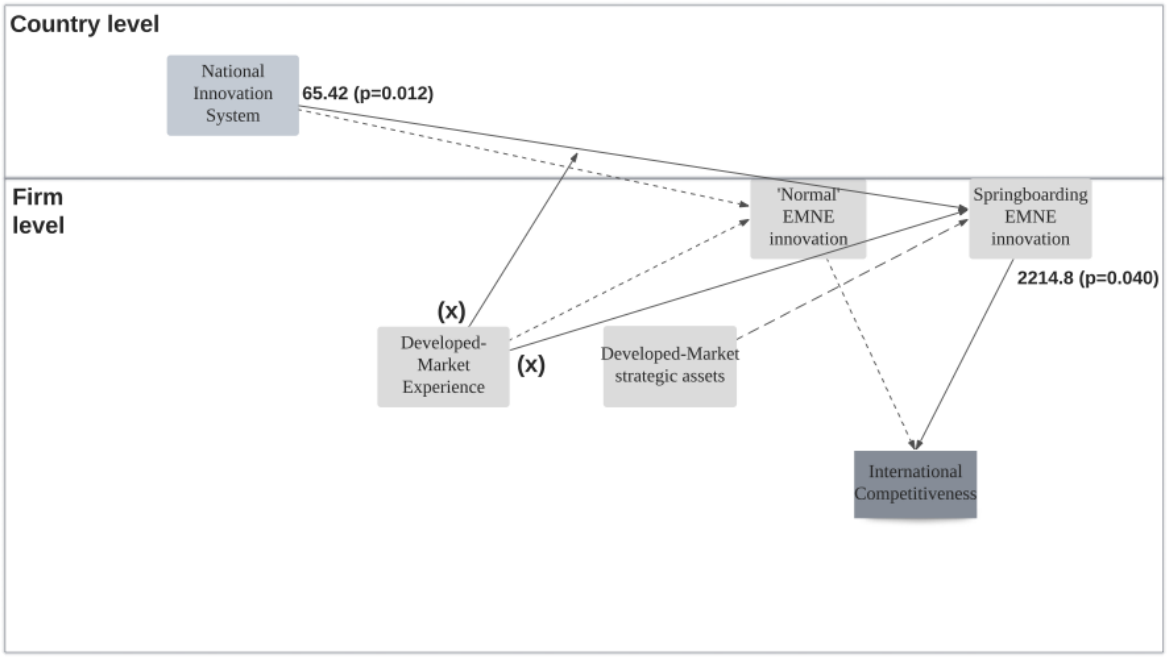
Using a different measurement of DME did not result in positive and significant relationships, since the altered variable was again thrown out because of the required fixed effects model. A different measurement of FLI was found in the value of (the natural logarithm of) BRANDS. With this alternative dependent variable, a random effects estimation could be used, by which DME had explanatory power. The results indicate that both NIS and DME (below a 10% significance-level) have a positive relationship with the value of BRANDS. Hypothesis 2 was therefore marginally supported.

In the second model, it was proposed and hypothesized that firm-level innovation would be positively related to international competitiveness. The number of international sales was taken as proxy because it does not include exports but only sales by foreign affiliates. The results reveal that springboard EMNEs are rewarded for being innovative on their own. Novel inventions are given patents by agencies, and firms who are more innovative sell more products internationally. Hypothesis 4 was therefore supported. In the supplementary analysis, the relationship between innovation and international competitiveness does not seem to differ for the degree to which EMNEs are springboarding.

While again using a different measurement for FLI in the form of BRANDS, now as independent variable, the results are marginally similar. Below a 10% level of significance, the value of brands, trademarks and patents seems to be positively related to foreign competitiveness.

All in all, nuance is advised when claiming that EMNEs go abroad to escape home and to seek assets for increasing their capabilities and long-run success in foreign markets. As shown, differences in the quality of NIS imply differences in innovation performance. The home country is definitely not always a constraint for EMNE capability upgrading in regard to their ambition to be global leaders. Springboard theory in this regard seems to have an additional role for explaining that more strategic asset-seeking could lead to lower domestic dependence for innovation.

Figure 4: Hypothesized relationships and their coefficients



7.2. Limitations

There are limitations regarding the empirical method. First, the data encompasses emerging-market firms that have one or more foreign subsidiaries and that have acquired one or more firms in developed countries. The relationships that have been found are therefore limited to springboard EMNE explanations instead of general explanations about the internationalization behavior of firms stemming from emerging markets, as would be the ambition of OLI theory (e.g. Dunning, 2001). OLI theory in this thesis is used for recognizing the reconfigured importance of home location resources and firm-specific advantages for asset-augmenting emerging-market firms.

Second, for various variables, the data availability was scarce. Also, for those firms there was data available, there were years for which data was missing. The sample had to be reduced to quite some degree to account for granted patents as dependent variable. Still, at present, this variable is recognized as the appropriate way to explain technological capabilities and trends within firms (Mi et al., 2020). Using an alternative measurement (BRANDS) resulted in even fewer observations.

Third, the independent variables in the first model have two levels of explanation, namely the country level and the firm level, while the empirical part was aimed to make conclusions on the firm level. The first way this has been accounted for is by adjusting standard errors to country clusters. This resulted in insignificant coefficients for DME. Without

clustering the coefficient of DME would have been Beta2=3.671 (p=0.000). Furthermore, a multilevel regression was done, where the country and firm intercepts as well as the firm coefficient were allowed to be random over time. This yielded in supporting the same hypotheses.

Fourth, Asian firms are highly represented in the data sample. It is no surprise that MNEs from these countries are dominating in the sample because especially firms from BRIC countries are internationalizing. The representation could be problematic because the relationships that are found could be indicating an Asian phenomenon instead of capturing relationships for the general strategic asset-seeking emerging-market firm.

7.3. Future research

"[…] Any serious IB analysis always considers the CSA of home and host countries, as well as bundles of LB and NL FSAs. The challenge is always to explain, predict or guide how competitive success can be achieved outside of home nation, or how such success is hampered by a variety of internal and external constraints." (Rugman et al., 2011a, p. 773).

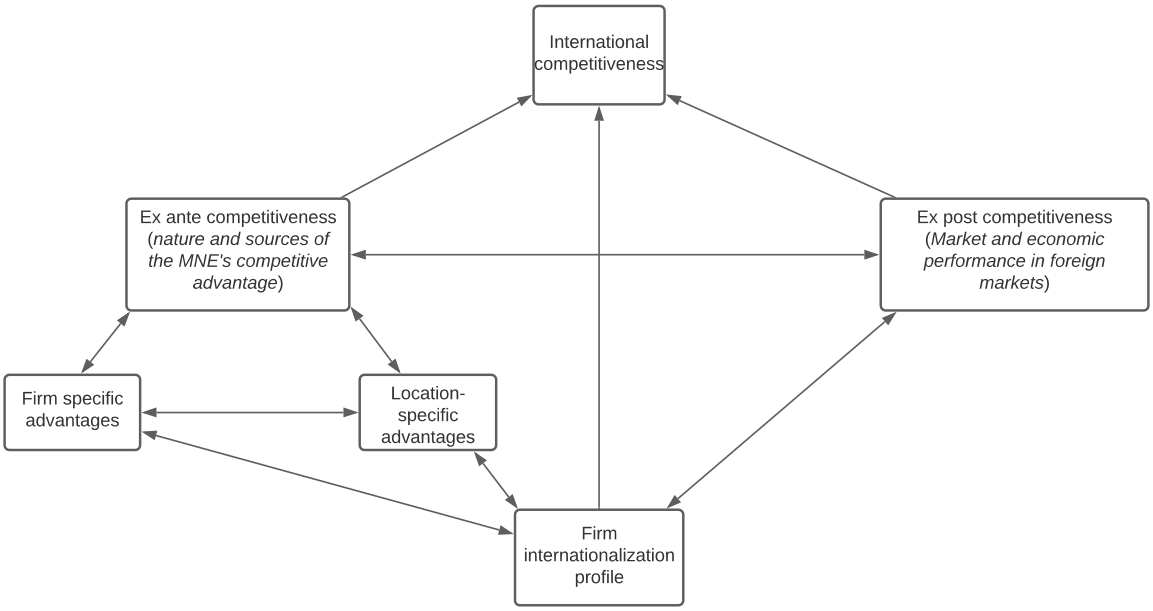
This thesis has a fairly traditional standpoint regarding capability upgrading of EMNEs, where their domestic environment should be looked at initially. Locational resources on innovation make them innovative, which in turn increase competitiveness. Future research should not neglect the direct importance of domestic resources and institutions for innovation and foreign competitiveness, even so for firms that are escaping their domestic environmental 'weaknesses'.

Ultimately, many concepts within international business theory and research are (inter)related. Figure 4 shows Cerrato & Depperu's (2011) framework for the relationship between a firm's internationalization profile, its competitive advantages and its ex ante and ex post competitiveness. In consonance with this framework, it is arguable that different internationalization profiles enable different levels of competitiveness. It is also indicated that different manifestations of internationalization engine different country- and firm-specific advantages that, in turn, have implications for competitiveness. This thesis has shed light on the role of location resources and FSAs for emerging-market firms that are simultaneously going abroad for asset-seeking. Furthermore, it has investigated the relationship between these country and firm-specific advantages or resources and innovation capability on the one hand and firm competitiveness on the other. Ambitions to take account for country, firm and subsidiary level relationships (e.g. Rugman et al., 2011a) and/or new characterizations of EMNEs in light of their ownership advantages (e.g. Ramamurti, 2012**)** are continuously desired.

In particular, conceptualizing the FSAs and the competitiveness of EMNEs should be a topic of interest. According to Forbes Global 500 (Casanova & Miroux, 2020), there are many globally active EMNEs. In fact, in the 2020 report there were even more MNEs mentioned that stem from China (124) than from the United States (121). The question is where their competitive advantages come from, to which markets they are able to internationalize and what the long-term consequences are of EMNE internationalization.

It could be that springboard theory will systematically do a good job explaining the initial motive to go abroad for long-run hedging of competitiveness. Still, traditional IB theory regarding home resources, ownership advantages and incremental internationalization behavior should be further reconfigured to acknowledge EMNE sustained presence in developed markets.

Figure 4: The interrelationships between internationalization and competitiveness (adopted from Cerrato & Depperu, 2011, p. 316)



Furthermore, there is sufficient reason for assessing the importance of springboarding activities in new perspectives. In the supplementary analysis of this paper the positive relationship between brands, patents and trademarks on the one hand, and firm competitiveness on the other hand is found. Future research should be concerned with explaining the origin of

these acquirable resources and the role of both acquired brands and firm's patented innovation for EMNE. It seems that both could be explaining EMNE competitiveness in foreign settings.

In sum, I agree with Ramamurti (2012) that IB scholars should consider the question whether the EMNE phenomenon is a species of the traditional MNE or something totally new-to-the-world. In all cases, their home environments should be emphasized, as EMNEs are, still, dependent on it for their innovativeness.

7.4. Concluding remarks

EMNEs such as Lenovo, Tata and Huawei are able to become global leaders (Hobdari et al., 2017). To be competitive in foreign settings firm innovation seems to be important. Even though EMNEs are springboarding and are assumed to be escaping home 'constraints', their innovation is still dependent on home location resources. It is argued in this thesis that buying foreign assets for domestic upgrading is not the complete model for explaining EMNE advantages and competitiveness. It is shown that springboard EMNEs are innovative while still using home resources. Furthermore, experience in more sophisticated environments does not seem to increase innovativeness. Foreign operating springboarding EMNEs could be internationalizing on imitating-strategies without directly desiring to upgrade their innovative capabilities.

Whereas the constructs of springboard theory indicate that they are eye-opening for EMNE explanations, they are actually rather conservative. It argues for the necessity of assets that are comparable to DMNEs for capabilities and long-run competition. Future research should be concerned with reappraising EMNE FSA, its drivers, its consequences and fluid EMNE motives to either explore, upgrade or exploit FSAs against developed counterparts.

Springboard theory explains a great deal on EMNE ambition and motives for long-run competitiveness, but developed assets only do not make an (E)MNE competitive. The focus should be on the environments in which capabilities are developed and on those they are transformed to. The findings in this thesis suggest a debate on the domestic environment and capability-derivation for springboarding EMNEs. In the future springboarding could (still) be prominent in international endeavors of EMNEs, especially when the ambition is to quickly acquire assets for capability upgrading. However, achieving long-run competitiveness needs more than just showing that you can bring back assets and transform them in order to copy MNEs that you want to challenge.

The main contribution of this thesis is the renewed courtesy to traditional IB theory and the applied nuance to springboard arguments for explaining EMNE internationalization,

innovation and competitiveness. There has been no ambition throughout this thesis to fully discard springboard theory and its concepts. But springboard theory should be looked at mainly in conjunction with traditional IB theory such as RBV, IBV and organizational learning, and not only in post-springboard arguments.

All in all, while there are EMNEs that search for assets in foreign markets with their ambitions to become global leaders, their home country is providing useful endowments on innovation. Domestic resources and institutions can foster innovation, which is in turn crucial for international competitiveness, particularly when going to distant and developed markets.

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Appendix

Ia. Criteria for emerging and developed economies[4]

S&P's DJI's Country Classification Criteria	**Frontier**	**Emerging**	**Developed**
Initially Eligibility Criteria			
- Full domestic market capitalization over 2.5B US Dollars	Minimum of 2	Yes	Yes
- Domestic annual turnover value over 1B US Dollars		Yes	Yes
- Exchange development ratio over 5%		Yes	Yes
Additional criteria			
- Full domestic market capitalization over 15B US Dollars		Yes	Yes
- Settlement period of T+3 or better		Minimum of 3	Yes
- Sovereign debt rating of BB+ or above			Yes
- Non-occurrence of hyperinflation			Yes
- No significant foreign ownership restrictions			Yes
- Freely traded foreign currency			Yes
GDP criteria			
GDP (PPP) per capita greater than 15K US Dollars			Yes

Ib. S&P Global's list of developed and emerging countries (2018)

Developed		**Emerging**	
Australia	Luxembourg	Brazil	Peru
Austria	Netherlands	Chile	Philippines
Belgium	New Zealand	China	Poland
Canada	Norway	Colombia	Qatar
Denmark	Portugal	Czech Republic	Russia
Finland	Singapore	Egypt	South Africa
France	South Korea	Greece	Taiwan
Germany	Spain	Hungary	Thailand
Hong Kong	Sweden	India	Turkey
Ireland	Switzerland	Indonesia	UAE
Israel	United Kingdom	Malaysia	
Italy	United States	Mexico	
Japan		Pakistan	

[4] From: https://www.spglobal.com/spdji/en/documents/indexnews/announcements/20180613-725551/725551_spdji2018countryclassificationconsultation6.13.18.pdf

II. Classification of industries

Industry codes	Area
0	Agriculture, forestry and fishing
10	Mining
15	Construction
20	Manufacturing
40	Transportation, communications, electric, gas and sanitary
50	Wholesale trade
52	Retail trade
60	Finance, insurance and real estate
70	Services

III. Quality of national innovation system, indicators from Global Competitiveness Index

Abbreviation	GCI description and measurement
PAP	Government procurement of advanced technology products [1-7 =best]
IPP	Intellectual property protection [1-7 =best]
Infr	Availability of overall infrastructure [1-7 =best]
SRI	Quality of scientific research institutes [1-7 =best]
Educ	Quality of education system [1-7 =best]
VCA	Venture capital availability [1-7 = best]

IV. Estimation of the Statistical Model (Model 1)

IVa. Descriptive statistics, after dropping missing values of FLI

Variable	Obs	Mean	Std. Dev.	Min	Max
FLI	1,036	108.4102	309.8244	1	3473
NIS	1,036	4.147405	.4693404	3.021712	5.314275
DME	1,036	16.27317	26.99357	0	176
RDI	1,023	2.983903	5.022575	0	52.547
SIZE	776	8.848866	1.536547	3.496508	14.07015
AGE	1,036	26.56467	19.84273	1	116
DOI	964	42.7734	32.52311	0	109.83
INDUSTRY	1,036	23.62741	12.81998	0	70
NOSA	1,036	1.343629	.7044839	1	4

IVb. Correlation matrix (obs=745)

	FLI	NIS	DME	RDI	SIZE	AGE	DOI	INDUSTRY	NOSA
FLI	1.00								
NIS	0.18	1.00							
DME	0.17	-0.04	1.00						
RDI	0.01	0.27	-0.08	1.00					
SIZE	0.39	-0.19	0.39	-0.23	1.00				
AGE	-0.1	-0.34	0.26	-0.11	0.20	1.00			
DOI	-0.11	-0.09	0.32	0.05	0.05	0.23	1.00		
INDUSTRY	-0.09	0.1	0.13	-0.08	-0.09	0.01	-0.05	1.00	

NOSA	0.05	-0.18	0.24	0.04	0.13	0.21	0.18	0.04	1.00

There seems to be no concern of multicollinearity since all correlation between independent variables is below 0.7.

V. Estimation of the Statistical model (Model 2)

Va. Descriptive statistics, after dropping missing values of IS

Variable	Obs	Mean	Std. Dev.	Min	Max
IS	2,613	1905062	9784012	-44972	1.53e+08
FLI_{t-1}	895	113.1341	320.3163	1	3473
SIZE	1,798	8.563675	1.659867	1.098612	14.07015
AGE	2,547	29.34158	21.3643	1	134
DOI	2,611	35.60617	40.80325	-18.98	1219.1
NOSA	2,613	1.34137	.7112899	1	4

Vb: Correlation matrix (obs=673)

	IS	FLI_{t-1}	SIZE	AGE	DOI	NOSA
IS	1.00					
FLI_{t-1}	0.05	1.00				
SIZE	0.35	0.29	1.00			
AGE	0.1	-0.12	0.19	1.00		
DOI	0.27	-0.16	0.05	0.23	1.00	
NOSA	-0.01	0.05	0.12	0.20	0.17	1.00

There seems to be no concern of multicollinearity since all correlation between independent variables is below 0.7.

VI. Extension Model 1: Multilevel estimation

Dependent variable Firm-level innovation (FLI)	(1) Two-level Firm random intercept	(2) Two-level Firm random year coefficient	(3) Three-level Firm random year coefficient and country intercept	(4) Three-level Firm random year coefficient and random DME coefficient
Independent variables				
YEAR	**-4.833** (4.529) [0.286]	**-4.833** (4.523) [0.285]	**-4.833** (4.523) [0.285]	**-1.855** (1.664) [0.265]
Quality of national innovation system (NIS)	**88.53** (35.18) [0.012]	**88.54** (35.19) [0.012]	**88.53** (35.19) [0.012]	**65.46** (17.20) [0.000]
Developed-market experience (DME)	**3.427** (3.172) [0.280]	**3.433** (3.176) [0.280]	**3.433** (3.176) [0.280]	**1.890** (1.744) [0.278]
Control variables				
Firm size (SIZE)	**61.78** (9.599) [0.000]	**61.80** (9.605) [0.000]	**61.80** (9.605) [0.000]	**42.68** (12.04) [0.000]
Firm age (AGE)	**-2.252** (0.740) [0.002]	**-2.251** (0.740) [0.002]	**-2.251** (0.740) [0.002]	**-1.318** (0.414) [0.001]

R&D intensity/ commitment (RDI)	**3.844** (1.567) [0.014]	**3.846** (1.565) [0.014]	**3.846** (1.565) [0.014]	**2.403** (1.049) [0.022]
Degree of internationalization (DOI)	**-0.583** (0.283) [0.040]	**-0.583** (0.284) [0.040]	**-0.583** (0.284) [0.040]	**-0.642** (0.156) [0.000]
INDUSTRY				
Agriculture	Base category	Base category	Base category	Base category
Mining	**102.7** (55.51) [0.064]	**102.4** (55.53) [0.065]	**102.4** (55.53) [0.065]	**125.1** (40.76) [0.002]
Construction	**568.7** (413.7) [0.169]	**562.9** (410.1) [0.170]	**562.9** (410.1) [0.170]	**1162.6** (84.97) [0.000]
Manufacturing	**148.8** (50.90) [0.003]	**148.8** (50.86) [0.003]	**148.8** (50.86) [0.003]	**121.6** (34.95)[0.001]
Transportation	**27.51** (50.58) [0.587]	**27.36** (50.52) [0.588]	**27.36** (50.52) [0.588]	**36.65** (36.76) [0.319]
Wholesale trade	**69.53** (54.78) [0.204]	**69.67** (54.72) [0.203]	**69.67** (54.72) [0.203]	**63.48** (36.28) [0.080]
Retail trade	**88.46** (58.13) [0.128]	**88.45** (58.08) [0.128]	**88.45** (58.08) [0.128]	**47.99** (38.93) [0.218]
Finance	**159.8** (91.03) [0.079]	**160.4** (90.95) [0.078]	**160.4** (90.95) [0.078]	**128.4** (63.01) [0.042]
Services	**36.62** (95.68) [0.702]	**36.54** (95.70) [0.703]	**36.54** (95.70) [0.703]	**87.29** (38.56) [0.024]
Constant	**8824.1** (9006.0) [0.327]	**8824.9** (8992.9) [0.326]	**8824.8** (8992.9) [0.326]	**3102.7** (3428.0) [0.365]
Random part				
Var (between firm-intercepts)	**5.481** (0.229) [0.000]	**-2.127** (2.270) [0.349]	**-2.127** (0.635) [0.001]	**-10.43** (94.56) [0.912]
Var (within-firm)	**4.801** (0.146) [0.000]	**4.800** (0.494) [0.000]	**4.800** (0.131) [0.000]	**4.777** (0.166) [0.000]
Var (between coefficients on lowest level)		**-2.287** (200.7) [0.991]	**-0.541** (164.9) [0.997]	**3.930** (.) [.]
Var (between country intercepts)			**-0.541** (163.3) [0.997]	**2.196** (0.236) [0.000]
Var (between coefficients DME)				**3.930** (1.050) [0.000]
Model statistics				
Observations	745	745	745	745
No. firms/countries	187/17	187/17	187/17	187/17
Log Likelihood	-4880.0	-4879.8	-4879.8	-4776.1

Country-level cluster-robust standard errors in parentheses
Country-level cluster-robust p-values in square brackets

VII. Extension Model 1: Number of DM-acquisitions (NOSA)

Dependent variable Firm-level innovation (FLI)	(1) FE
Independent variable	

Quality of national innovation system (NIS) (Centered)	**62.38** (36.58)[0.107]
Developed-market experience (DME)	-
NIS*NOSA	
NOSA = 1	Base category
NOSA = 2	**77.0** (80.93) [0.356]
NOSA = 3	**-98.22** (23.13) [0.001]
NOSA = 4	**-555.5** (436.7) [0.222]
Control variables	
R&D intensity/commitment (RDI)	**2.623** (0.577) [0.000]
Firm size (SIZE)	**52.40** (6.756) [0.000]
Firm age (AGE)	**-3.734** (4.023) [0.368]
Degree of internationalization (DOI)	**-0.432** (0.199) [0.045]
INDUSTRY	
Agriculture	Base category
Mining	-
Construction	-
Manufacturing	-
Transportation	-
Wholesale trade	-
Retail trade	-
Finance	-
Services	-
Constant	**-242.6** (138.3) [0.098]
Model statistics Observations No. firms/countries Overall r2 Hausman	 745 187 0.1445 0.0115

Country-level cluster-robust standard errors in parentheses
Country-level cluster-robust p-values in square brackets

VIII. Extension model 1: dimensions of NIS

Dependent variable Firm-level innovation (FLI)	(1) RE	(2) RE	(3) RE	(4) RE	(5) RE	(6) RE
Independent variables						
PAP	**40.65**					

	(33.66) [0.227]					
IPP		**36.63** (14.83) [0.013]				
Infr			**51.04** (22.56) [0.024]			
SRI				**58.53** (17.38) [0.001]		
Educ					**54.82** (19.62) [0.005]	
VCA						**28.72** (11.54) [0.013]
Developed-market experience (DME)	**3.601** (3.383) [0.287]	**3.680** (3.395) [0.278]	**3.641** (3.371) [0.280]	**3.594** (3.381) [0.288]	**3.589** (3.392) [0.290]	**3.716** (3.418) [0.277]
Control variables						
R&D intensity/ commitment (RDI)	**4.462** (1.865) [0.017]	**4.371** (1.999) [0.029]	**4.004** (1.776) [0.024]	**4.087** (1.754) [0.020]	**3.936** (1.654) [0.017]	**4.161** (2.261) [0.066]
Firm size (SIZE)	**60.00** (13.16) [0.000]	**58.97** (11.83) [0.000]	**58.27** (11.55) [0.000]	**59.15** (11.48) [0.000]	**58.34** (11.58) [0.000]	**56.81** (11.54) [0.000]
Firm age (AGE)	**-2.293** (0.757) [0.002]	**-2.840** (0.862) [0.001]	**-2.741** (0.875) [0.002]	**-2.748** (0.860) [0.001]	**-2.617** (0.873) [0.003]	**-2.743** (0.884) [0.002]
Degree of internationalization (DOI)	**-0.466** (0.280) [0.096]	**-0.561** (0.268) [0.036]	**-0.560** (0.267) [0.036]	**-0.579** (0.251) [0.021]	**-0.567** (0.249) [0.023]	**-0.497** (0.286) [0.082]
INDUSTRY						
Agriculture	Base category	Base category	Base category	Base category	Base Category	Base category
Mining	**88.58** (38.88) [0.023]	**96.86** (43.41) [0.026]	**91.12** (48.72) [0.061]	**99.52** (46.73) [0.033]	**86.92** 49.82 [0.081]	**84.11** (39.86) [0.035]
Construction	**574.3** (405.1) [0.156]	**579.9** (406.2) [0.153]	**585.1** (408.1) [0.152]	**576.0** (412.3) [0.162]	**558.1** (422.6) [0.187]	**572.6** (412.5) [0.165]
Manufacturing	**148.9** (33.08) [0.000]	**146.9** (37.15) [0.000]	**140.6** (45.84) [0.002]	**150.9** (37.88) [0.000]	**142.5** (45.52) [0.002]	**143.4** (33.56) [0.000]
Transportation	**23.42** (46.90) [0.618]	**14.66** (49.93) [0.769]	**3.750** (52.72) [0.943]	**14.42** (51.42) [0.779]	**18.51** (52.58) [0.725]	**17.11** (46.63) [0.714]

Wholesale trade	**80.63** (38.28) [0.035]	**75.80** (42.65) [0.076]	**67.77** (50.44) [0.179]	**77.87** (42.62) [0.068]	**65.14** (48.89) [0.183]	**69.86** (41.11) [0.089]
Retail trade	**77.58** (39.54) [0.050]	**78.89** (41.12) [0.055]	**84.33** (50.30) [0.094]	**86.46** (44.11) [0.050]	**83.69** (52.95) [0.114]	**72.02** (40.05) [0.072]
Finance	**155.4** (79.18) [0.050]	**170.2** (78.10) [0.029]	**178.7** (78.80) [0.023]	**166.2** (79.72) [0.037]	**134.4** (95.30) [0.158]	**149.2** (85.64) [0.081]
Services	**39.45** (96.72) [0.683]	**32.03** (101.4) [0.752]	**31.60** (99.62) [0.751]	**38.11** (98.47) [0.699]	**33.40** (96.47) [0.729]	**30.29** (98.94) [0.760]
Constant	**-705.1** (194.0) [0.000]	**-660.6** (103.7) [0.000]	**-727.5** (137.5) [0.000]	**-773.1** (108.9) [0.000]	**-726.2** (90.89) [0.000]	**-596.3** (83.15) [0.000]
Model statistics						
Observations	745	745	745	745	745	745
No. firms/countries	187/17	187/17	187/17	187/17	187/17	187/17
Overall r2	0.2428	0.2395	0.2371	0.2384	0.2357	0.2330
Hausman	0.1285	0.1944	0.5817	0.6125	0.8301	0.3932

Country-level cluster-robust standard errors in parentheses
Country-level cluster-robust p-values in square brackets

IX. Supplementary analysis model 1: correlations matrix for alternative independent variable DMI

	FLI	NIS	DMI	RDI	SIZE	AGE	DOI	INDUSTRY
FLI	1.00							
NIS	0.18	1.00						
DMI	0.11	0.23	1.00					
RDI	0.01	0.27	0.14	1.00				
SIZE	0.39	-0.19	-0.31	-0.23	1.00			
AGE	-0.1	-0.34	0.25	-0.11	0.20	1.00		
DOI	-0.11	-0.09	0.17	0.05	0.05	0.23	1.00	
INDUSTRY	-0.09	0.1	0.01	-0.08	-0.09	0.01	-0.05	1.00

There seems to be no concern of multicollinearity since all correlation between independent variables is below 0.7.

X. Supplementary analysis model 1: Regression analysis with LnBRANDS$_{t-1}$ as dependent variable

Dependent variable LnBRANDS	(1) RE	(2) RE
Independent variable		
Quality of national innovation system (NIS, centered in (2))	**1.038** (0.205) [0.000]	**1.118** (0.164) [0.000]

Developed-market experience (DME, centered in (2))	**0.00844** (0.00456) [0.064]	**0.00689** (0.00370) [0.063]
NIS * DME		**-0.00923** (0.00783) [0.239]
Control variables		
R&D intensity/commitment (RDI)	**-0.0412** (0.0178) [0.020]	**-0.0430** (0.0184) [0.019]
Firm size (SIZE)	**1.053** (0.0861) [0.000]	**1.057** (0.0849) [0.000]
Firm age (AGE)	**0.0100** (0.0167) [0.549]	**0.0107** (0.0165) [0.519]
Degree of internationalization (DOI)	**0.0172** (0.00163) [0.000]	**0.0173** (0.00160) [0.000]
Industry control		
Mining	Base category	Base category
Construction	**-2.846** (0.873) [0.001]	**-2.818** (0.882) [0.001]
Manufacturing	**1.867** (0.365) [0.000]	**1.930** (0.367) [0.000]
Transportation	**3.378** (0.749) [0.000]	**3.514** (0.735) [0.000]
Wholesale trade	**-0.952** (0.163) [0.000]	**-0.907** (0.170) [0.000]
Retail trade	**3.897** (0.323) [0.000]	**3.986** (0.350) [0.000]
Finance	**4.240** (0.855) [0.000]	**4.303** (0.830) [0.000]
Services	**0.849** (0.858) [0.323]	**1.183** (0.634) [0.062]
Constant	**-7.566** (1.480) [0.000]	**-3.251** (0.826) [0.000]
Model statistics Observations No. firms/countries Overall r2 Hausman	 432 113/15 0.3252 0.1712	 432 113/15 0.3311 0.3111

Country-level cluster-robust standard errors in parentheses
Country-level cluster-robust p-values in square brackets

XI. Extension model 2: Number of DM-acquisitions (NOSA)

Dependent variable International competitiveness (IS)	(1) RE
Independent variable	
Firm-level innovation (FLI_{t-1})	**2167.9** (2389.6) [0.364]
FLI_{t-1} * NOSA	

NOSA =1	Base category
NOSA =2	**835.1** (2311.4) [0.718]
NOSA =3	**6684.2** (8491.2) [0.431]
NOSA =4	**-2593.0** (2372.4) [0.274]
Control variables	
Firm size (SIZE)	**1622705.1** (527967.1) [0.002]
Firm age (AGE)	**-14084.4** (28276.8) [0.618]
Degree of internationalization (DOI)	**69119.1** (22538.6) [0.002]
Constant	**-13874563.7** (4397617.2) [0.002]
Model statistics Observations No. firms Overall r2 Hausman statistic	 673 185 0.1780 0.5631

Firm-level cluster-robust standard errors in parentheses
Firm-level cluster-robust p-values in square brackets

XII. Supplementary analysis model 2: correlations matrix for alternative independent variable lnBRANDSt-1

	IS	LnBRANDSt-1	SIZE	AGE	DOI
IS	1.00				
LnBRANDSt-1	0.33	1.00			
SIZE	0.39	0.36	1.00		
AGE	0.07	0.10	0.07	1.00	
DOI	0.33	0.17	0.06	0.18	1.00

There seems to be no concern of multicollinearity since all correlation between independent variables is below 0.7.

XIII. Supplementary analysis model 2: Regression analysis with LnBRANDSt-1 as independent variable

Dependent variable International competitiveness (IS)	(1) FE
Independent variable	
Lagged value of brands, trademarks and patents (LnBRANDSt-1)	**68726.4** (36114.9) [0.059]
Firm controls	
Firm size (SIZE)	**373323.7** (225938.6) [0.100]

Firm age (AGE)	**137952.4** (62476.9) [0.028]
Degree of internationalization (DOI)	**23536.5** (5518.3) [0.000]
Constant	**-7311000.5** (3491365.2) [0.038]
Model statistics Observations No. firms Overall r2 Hausman statistic	 742 194 0.0430 0.0000

Firm-level cluster-robust standard errors in parentheses
Firm-level cluster-robust p-values in square brackets