Learning processes and knowledge transfer in the upward spiral model: an empirical assessment of springboard multinational enterprises

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Abstract

Purpose – The springboard theory for multinational enterprises and the upward spiral model address the expansion of emerging countries' multinational enterprises (MNEs) abroad as a set of resource-building stages. This paper aims to analyze this model by qualifying knowledge flows in three domains: learning effects, transfer flows and global connections.

Design/methodology/approach – The authors use 2018 data from the ORBIS database to identify evidence concerning the springboard MNE (SMNE) phenomenon. The authors select MNE firms from 93 emerging economies with presence in 71 developed and 93 developing countries. In addition, the authors differentiate between the levels of technological intensity of emerging market MNEs' sectors.

Findings – The results highlight the existence of learning processes taking place in subsidiaries and feeding back into parent firms, as well as the existence of capability transfer from home to host units.

Originality/value – The main contribution is the addition of empirical evidence on the SMNE and specifically the upward spiral model, considering the micro-level and the productivity differences between parent firm and subsidiaries.

Keywords Springboard MNE, Emerging multinational enterprises, Foreign direct investment, Learning abroad, Domestic learning, Parent firms, International business

Paper type Research paper

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1. Introduction

Since the 1990s, a new branch in the international business (IB) literature has devoted efforts to explain the key factors driving strategic moves in multinational enterprises (MNEs) from developing and emerging markets (EMNEs). While some authors propose that these companies fall within the scope of traditional internationalization theories (Cuervo-Cazurra and Genc, 2008; Hennart, 2012; Luo and Wang, 2012), new theories are gaining traction in more recent approaches. A particular case of interest concerns the springboard MNE theory developed by Luo and Tung (2007, 2018).

Following its rationale, EMNEs can leverage the acquisition of critical competitive resources from the internationalization process, avoiding institutional constraints they might face at their respective home markets and overcoming potential liabilities associated with developing economies. To achieve this, these companies get involved in an evolutionary trajectory defined by the upward spiral model (USM) in which linkages between home-based competences and foreign capabilities are combined to foster competitiveness. In an ideal model, this spiral takes place along the following stages: *inward internationalization, outward foreign direct investment (FDI), capability transfer to home, home-centered capability upgrading and global catapulting with enhanced capabilities* (Luo and Tung, 2018).

In this article, we dedicate efforts to add some bridges between different frameworks found in the literature. In particular, the connection between emerging multinational studies (sra pc-Cuervo-Cazurra, 2012; Gammeltoft *et al.*, 2010a; Luo and Tung, 2018) and firm-level heterogeneity and knowledge transfer analysis (Contractor *et al.*, 2016; Mudambi and Navarra, 2004). This research aims at addressing research avenues brought forward by Luo and Zhang (2016) and Luo and Tung (2018) about the need of empirical analysis of emerging multinational enterprises, as well as assessments testing the USM. Concretely, our research objectives deal with assessments of the role of inward internationalization for the transmission of capabilities between parent firm and subsidiaries, as well as the role of conventional ownership advantages and the transfer of knowledge between subsidiary units to parent firms in generating increased productivity. Lastly, we also analyzed how global networks increase the parent firms' capabilities.

Our analytical structure is designed to approach learning effects in internationalization processes (both domestically and abroad), the dynamics of knowledge transfer taking place between subsidiaries and headquarters and the associated capability-building effects of an enhanced global presence. To do so, we apply a cross-section analysis using the ORBIS data set in 2018 [1].

The remaining of the article is structured as follows: after this introduction, Section 2 brings a literature review. In Section 3, we derive a set of research hypotheses. The methodological approach is delineated in Section 4. Empirical results are presented and discussed in Section 5. Section 6 concludes with final remarks, limitations and avenues for future research.

2. Multinational enterprises from developing and emerging markets

Knowledge acquisition and learning processes through internationalization of firms have been considered as a source of competitive advantages in IB literature (Mudambi and Navarra, 2004). Traditionally, it was recognized that firms could have experiential knowledge (Uppsala School) and could follow knowledge-seeking motives as an extension of the ownership, location, internalization (OLI) paradigm (Forsgren, 2002). The issue of knowledge flows in the MNE literature has started to consider the transference of knowledge between parent firms and subsidiaries (Mudambi *et al.*, 2013; Driffield *et al.*, 2016; Contractor *et al.*, 2016; Fariñas *et al.*, 2018).

More recently, these views were complemented by the analysis of trajectories of microeconomic agents in establishing strategies to develop *dynamic capabilities* (Teece *et al.*, 1997; Teece, 2010; Kapoor and Aggarwal, 2020). In this regard, international presence can expand the ecosystem boundaries in which firms operate, providing enhanced opportunities for capability building (Teece, 2014). In this regard, internationalization might become a strategy to tap into knowledge and assets available in different agents embedded in triple, quadruple or quintuple-helix collaborative environments (Del Giudice *et al.*, 2017). In a similar vein, the *organizational learning theory* suggests that firms can learn from their context routines, polices, experiences and from their foreign market experiences (Cohen and Levinthal, 1990; Levitt and March, 1988; Love and Ganotakis, 2013).

However, since the 1980s, shifts in the IB scenario have defied the validity of key elements in these theories (Kumar and Mcleod, 1981; Lall, 1984; Cuervo-Cazurra and Genc, 2008; Dunning, 2009; Gammeltoft *et al.*, 2010a; Gammeltoft *et al.*, 2010b; Guillén and García-Canal, 2010; Hennart, 2012; Luo and Wang, 2012). Consequently, emerging multinationals were associated with asset-seeking motives or knowledge seeking strategies in the internationalization process (Kedia *et al.*, 2012; Guillén and García-Canal, 2010; Piperopoulos *et al.*, 2018). Accordingly, firms might internationalize with the aim of acquiring competitive capabilities that can enhance innovative output and productivity levels (Santos-Arteaga *et al.*, 2019).

New theoretical insights were required to deal with this changing scenario in the IB field, and new approaches have been developed for the explanation of this phenomenon. One of these explanations has been provided by the *springboard investment theory* and the *USM* (Luo and Tung, 2007, 2018).

2.1 Theory of springboard multinational enterprises and upward spiral model

The theoretical approach on springboard multinational enterprises (SMNEs) was introduced by Luo and Tung (2007) as an alternative mode for the study of MNEs from developing countries. This theory has been based in five main premises (Luo and Tung, 2007, 2018):

(1) EMNEs can *learn abroad* and acquire strategic resources (knowledge-seeking motives);

(2) for these firms, internationalization becomes a way to overcome disadvantages associated with laggard economic systems;

(3) they acquire capabilities that allow resource exploitation in overseas markets;

(4) the entry process in foreign markets alleviates liabilities faced at home (such as institutional voids, market constraints and trade barriers to enter advanced markets); and

(5) they aim at ultimately becoming globally competitive after the acquisition of strategic assets.

These processes take place in a distinct fashion than those predicted in traditional theories. Instead, the internationalization stages in the springboard theory occur at a much faster pace than suggested in evolutionary models and firm-level strategies end up making these processes somewhat idiosyncratic (Gaffney *et al.*, 2016).

Since the introduction of this theory, several authors have dedicated efforts to test aspects of the premises described above. *Catching-up strategies and learning* have been addressed among others by De Beule *et al.* (2014), Gubbi *et al.* (2010), Kotabe and Kothari (2016), Li *et al.* (2012), Maksimov and Luo, (2021) and Enderwick and Buckley (2021). Other authors have analyzed the different internationalization motives that justified the *foreign expansion of EMNEs* (Lu *et al.*, 2011; Ahsan *et al.*, 2020), *rapid internationalization processes*

(Kumar *et al.*, 2019), *the ability to overcome initial home disadvantages* (Kedia *et al.*, 2012), *the* role *of the home country and institutions* in the internationalization process (Álvarez and Torrecillas, 2020; Hennart, 2012), the *differences between technological sectors* and advanced and less advanced MNEs (De Beule *et al.*, 2014) and how the *concept of ownership advantages differs* between EMNEs and advanced MNEs (AMNEs).

In this latter case, literature demonstrates that in fact there are distinct ownership advantages when comparing multinationals from divergent socioeconomic contexts (Cuervo-Cazurra, 2012; Hennart, 2012; Verbeke and Kano, 2015). For instance, some authors recognize a different package of advantages, called AAA: adaptability, amalgamation and ambidexterity (Luo and Tung, 2018; Ahsan *et al.*, 2020).

Following the evolution of the springboard theory and the generation of empirical insights, Luo and Tung (2018) have developed the USM. This additional element to the springboard theoretical foundations dedicates attention to bidirectional transfer flows of competences between home and host economies and therefore, between parent firms and subsidiaries.

In the *first stage*, inward internationalization in the form of *experience with foreign companies, networks and absorbing capacities* is used to improve SMNEs' capabilities. In other words, **inward internationalization** can be considered an important "ownership advantage" for SMNEs, leveraging upon connections based in their respective home countries. Buckley *et al.* (2016) highlighted this perspective identifying that the internationalization process can begin through the establishment of international networks taking place in companies' own home markets. Subsequently, once firms may have derived a solid competitive base from inward internationalization, they move up to a *second stage* consisting in acquiring knowledge and other assets from foreign markets, i.e. by **learning abroad** (Álvarez and Torrecillas, 2020). In this second stage, two mechanisms stand out as pivotal elements: the establishment of a flagship subsidiary and location strategies (customer responsiveness, market scope and local cooperativeness). These learning abroad processes are opposed to traditional postulates that point out that parent firms will unidirectionally transfer knowledge to subsidiaries. Instead, it encompasses the fact that EMNE do not have the conventional advantages such as brands, names, technological know-how or research and organizational capabilities (Nair *et al.*, 2016).

In the *third stage*, subsidiaries **transfer** the acquired knowledge to parent firms. In turn, these flows fortify corporate capabilities and drive the company to become a global player (*fourth stage*) (Maksimov and Luo, 2021; Su *et al.*, 2020). Finally, in the *fifth stage*, spillover effects take place where the home market upgrades its capabilities along supply chains related to the SMNE, driving up the level of competitiveness in the focal firm and allowing a **"global catapulting"** process based on stronger sets of capabilities. In turn, this last stage might comprehend significant systemic impacts in terms of technology upgrading and qualitative levels of participation in global value chains. These propositions are also aligned with perspectives on firm- and system-level technological catchup (Miao *et al.*, 2018; Lee *et al.*, 2018).

3. Research hypotheses

Regarding these learning processes, several studies have found that inward internationalization in the form of linkages and networks (Luo and Tung, 2018; Luo and Bu, 2018) is critical in driving competitive capabilities in MNE firms from emerging economies (Deng, 2009, 2013; Cantwell and Santangelo, 2006; Narula and Dunning, 2010). The potential transfer of capabilities or technology and knowledge between foreign and domestic firms can facilitate the process of capabilities accumulation and outward FDI flows (Mathews, 2006; Luo and Tung, 2007; Narula, 2012;

Kumaraswamy *et al.*, 2012; Álvarez and Torrecillas, 2020). These linkages may imply that firms can exploit a minimum set of ownership advantages obtained as a result of the internal MNE networks found in the home country (Deng, 2009, 2013; Narula, 2012). Therefore, we propose the first hypothesis of our study comprising the notion of this cumulative learning from linkages with international networks as **domestic learning effects**:

H1. Inward internationalization in the parent firms positively affects the productivity of subsidiaries in EMNEs.

As per learning abroad effects, we refer to studies that have justified that firms could follow knowledge-seeking motives or asset-seeking strategies as it has been recognized in Luo and Tung, (2018) and Luo and Bu (2018). Particularly, the internationalization of firms with the goal of learning abroad has been one of the key points in the new arguments explaining the internationalization process of firms from emerging economies (Mathews, 2006; Luo and Tung, 2007; Guillén and García-Canal, 2010; Luo and Tung, 2018). These new ideas diverge from traditional postulates that define the transmission of conventional ownership advantages – such as technology and market power – between parent firms and subsidiaries (Dunning, 2009).

In fact, authors agree that EMNEs have different ownership advantages than multinationals from developed markets (Cuervo-Cazurra, 2012; Hennart, 2012). For instance, the former firms can present cost and speed advantages (Guillén and García-Canal, 2010), learning and linkages advantages (Mathews, 2006) and the ability to transform initial disadvantages into advantages (Cuervo-Cazurra and Genc, 2008). Therefore, there are other advantages that justify the internationalization process of EMNEs and those advantages can be acquired abroad (Luo and Tung, 2018). Based on this background related to **conventional ownership advantages,** we propose our second hypothesis:

H2. Conventional ownership advantages in the parent firm do not affect subsidiaries' productivity in EMNE.

On the other hand, the USM proposes the transfer of capabilities between subsidiary units back to home countries for the compensation of the weaknesses that home markets might face (Luo and Tung, 2018). In this regard, the springboard theory introduces the importance of transferring capabilities acquired abroad as part of the integration of foreign knowledge in its value chain. Consequently, external and internal linkages, as well as learning capabilities, will produce enhanced firm performance (Kumar *et al.*, 2019; Luo and Tung, 2018). Drawing from these arguments on **transfer flows,** our third hypothesis can be stated as follows:

H3. Subsidiaries' productivity positively affects parent firm's productivity in EMNEs.

Finally, the reproduction of the knowledge transfer process between subsidiaries and parent firms will be translated in the augmentation of home capabilities and competitiveness strengths based on the firm-level globalization, where the home country is the base platform for the integration of dispersed activities (Luo and Tung, 2018; Luo and Zhang, 2016). In fact, there seems to be a positive relationship between the external linkages and the rising competitiveness of EMNEs (Puthusserry *et al.*, 2020). This argument allows us to propose our fourth hypothesis:

H4. Global catapulting will positively affect parent firms' productivity in EMNEs.

4. Methodological approach

Data for this research is obtained from the ORBIS dataset. The data are collected and made available by Bureau van Dijk, a large international consultancy firm. This source contains information of firms' accounts on more than 400 million companies around the world. Also, it provides detailed information for both parent firms and their respective subsidiaries. Information about the linkages of the parent and the subsidiary is only available for the past year (2018) in which the parent firm appears in the data set.

Following the classification of Hoskisson *et al.* (2000) and Luo and Zhang (2016), our sample comprises multinationals from 93 developing countries (low- and upper-middle economies). To determine which firms could be considered emerging multinational enterprises, we established that at least 50% of the companies' social capital should be owned by an investor based in a developing market (Ribeiro *et al.*, 2010). Our sampling procedure includes only firms with at least 250 employees, given the connection that literature has found about firm size and the status of the MNE (Fariñas *et al.*, 2018). Finally, we select the host destination of EMNEs, differentiating between those located in developed markets (high-income classification according to the World Bank) and EMNEs located in emerging economies (low- and upper-middle economies).

We have identified 2732 EMNEs following the sampling criteria. These companies are divided according to the host destination. Therefore, the 2,732 firms are divided as follows: 270 firms from developing countries have at least five host countries as developed destinations of their subsidiaries (we apply here the counting criterium of breadth [2] used among other studies in Elia *et al.*, 2020, and Alon *et al.*, 2020), while the remaining 2,462 EMNEs have 2,4446 subsidiaries in developing economies. For the analysis, some firms were excluded because of the missing data in key variables. According to our research goal, analyzing internationalization patterns in a general group of EMNEs can provide relevant insights on the manifestation (or lack thereof) of the springboard phenomenon. The description of the sample of firms can be found in Table 1

4.1 Parent and subsidiaries' productivity

Theoretical and empirical studies have analyzed the knowledge transfer between parent firms and subsidiaries using productivity levels as a key indicator (Mudambi and Navarra, 2004; Driffield, *et al.*, 2016). We use the parent's firm productivity and subsidiary productivity as dependent and independent variable measured by the ratio between gross output and total number of employees [3].

4.2 Inward internationalization

The springboard MNE theory recognizes the role that a foreign MNE installed in the home country of a potential SMNE has in the transfer of capabilities that will explain

Table 1.
Number of parent firms, subsidiaries and countries used in the analysis

Number of firms (parent and subsidiaries) and countries used in the analysis	EMNE in developed countries	EMNE in developing countries
Number of parent firms	669	6,799
Number of subsidiaries	1,925	17,062
Home country	93	93
Host countries	71	93

the latter's success abroad (Li *et al.*, 2012; Cui *et al.*, 2014; Satta *et al.*, 2014; Piperopoulos *et al.*, 2018). We use a dummy variable for capturing the foreign composition of the foreign shareholders of firms as a representative vector of formal channels of inward internationalization.

4.3 Conventional ownership advantages

Traditional MNE theories consider technological assets such as patents, brands or intangible assets as ownership advantages that justify the internationalization process of firms (Dunning, 1981). The variable used for capturing conventional ownership advantages (Oa) is *patents*, which refers to the number of issued patents in the parent firms, a measure of existing technological capabilities at the firm level [4]. With this variable, we try to capture the transfer of capabilities between parent firms and subsidiaries that would explain the internationalization process according to traditional postulates. In multinationals from developed countries, a positive relationship is expected between parent firms' technological prowess and subsidiary performance (Contractor *et al.*, 2016). On the other hand, for EMNEs, assuming that the springboard theory applies, the existence of such conventional ownership advantages should be marginal – in favor of knowledge-seeking strategies.

4.4 Global catapulting

EMNE literature, firm heterogeneity literature and specifically the theory of springboard MNEs match the argument that the effects of subsidiary productivity and parent performance will be higher as the degree of multinationalism increases (Driffield, 2016). We use a multiplicative interaction term for capturing the degree of global presence as a composition of productivity subsidiary and the number of subsidiaries (global catapulting = *subsidiary productivity * number of subsidiaries*).

4.5 Control variables

Age refers to the number of years reported by the firm in the data set, and size collects the number of employees (Cui *et al.*, 2014; Liou and Nicholson, 2018). Table 2 provides the description of the variables used in the empirical analysis.

To test our research hypotheses, we include all variables described above in the following three equations, and we apply a cross-section analysis for 2018 [5], following similar analytical strategies to those of Fariñas *et al.* (2018). These equations correspond to the stages of the USM proposed by Luo and Tung, (2018). The first equation describes the learning channels of the subsidiary firms, the second equation comprises knowledge transfer processes between subsidiaries and parent firms, testing the effects of subsidiaries on the home capabilities, and the third equation describes the role of multinationalism on home capabilities.

Stage 1 and 2. *Learning effects:*

$$Sp_{ij} = \beta_0 + \beta_2 Oa_{ij} + \beta_3 Inward_{ij} + C_{ij} + u_{ij} \quad (1)$$

Stage 3. *Knowledge transfer:*

$$Pp_{ij} = \beta_0 + \beta_1 Sp_{ij} + \beta_2 Oa_{ij} + \beta_3 Inward_{ij} + C_{ij} + u_{ij} \quad (2)$$

Stage 4 and 5. *Global catapulting:*

Variables	Description
Parent firms	
Gross output	Operating revenue (US$)
Employment	Total number of employees
Parent labor productivity *(Pp)*	Gross output/employment (in natural logarithms)
Patent *(Oa)*	Number of patents in the parent firm (in natural logarithms)
Inward internationalization	Dummy that takes the value (1) if the parent firm has more than one foreign shareholder and (0) otherwise
Age	Dummy variable that takes the value of 1 if the firm's age is greater than 5, 0 otherwise
Size	Number of employees in natural logarithms
Subsidiaries[a]	
Gross output	Operating revenue (US$)
Employment	Total number of employees
Subsidiary labor productivity *(Sp)*	Gross output/employment (in natural logarithms)
Global catapulting	Multiplicative interaction term measuring the number of subsidiaries of the parent firms and the level of productivity of the subsidiaries

Table 2.
Variables used in the analysis

Note: [a]We also use the number of employees in subsidiaries as a proxy of the subsidiary size in the robustness check

$$Pp_{ij} = \beta_0 + \beta_1 Networks_{ij} + \beta_2 Oa_{ij} + \beta_3 Inward_{ij} + C_{ij} + u_{ij} \quad (3)$$

where Sp_{ij} corresponds to the subsidiary's productivity, and Pp_{ij} corresponds to parents' productivity. "i" refers to developing countries as home of EMNEs (springboard MNEs – SMNE) and "j" refers to the host destination that could be developed or developing countries. Oa_{ij} refers to patents measuring the conventional ownership advantages, and global measures the number of subsidiary productivity moderated by the number of subsidiaries abroad. C_{ij} refers to the control variables included in the analysis: age and size.

As a robustness test, we also estimate these equations considering the technological intensity of EMNEs' sectors [6]. In addition, we have replicated equation (1) considering size of subsidiaries. The results confirm the previous finding in equation (1) and are incorporated in Appendix (Table A2).

5. Results

The results of the estimations are presented in Tables 3–6, and they illustrate the existence of different paths of learning in the USM. This indicates the existence of different knowledge dynamics in SMNEs regarding the host destination (developed or developing countries).

Regarding EMNEs' presence in *developed countries* (Table 3, Column 1) and according to the first equation, the results show that subsidiary productivity would be explained by the external knowledge transfer between parent and subsidiary in the form of inward internationalization. This result allows us to conclude that external home linkages in the form of inward internationalization are key for the success of MNE firms from developing countries in developed ones, confirming *H1*. On the other hand, conventional ownership advantages transferred between parent firms and subsidiaries, captured through patents are significant and negative. This result conflicts with conventional MNE postulates and suggest that other "Oa" might be at play. In fact, there is a learning process of strategic asset such as technology and know-how, abroad (Su *et al.*, 2020). Therefore, we accept *H2* by

	EMNE to developed countries		
	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)
Sp		0.248***	0.006**
		(0.066)	(0.002)
Global			
Inward internationalization	0.693**	0.216	0.349*
	(0.323)	(0.180)	(0.214)
Oa (patents)	–0.099	0.006	–0.032
	(0.085)	(0.040)	(0.054)
Controls			
Age	0.432	0.498	0.692**
	(0.430)	(0.306)	(0.306)
Size	–0.089	–0.029	–0.196***
	(0.137)	(0.102)	(0.072)
_cons	–1.108	5.531***	6.166***
	(1.073)	(0.744)	0.489
R^2	0.05	0.230	0.11
F-statistics	1.66***	4.17***	3.34***
Observations	120	110	186

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Robust standard errors in parentheses

Table 3. Estimation results: EMNE to developed countries

which conventional "Oa" does not affect or negatively affect the internationalization of EMNEs in developed countries, and therefore, there are other ownership advantages that justify the acquisition of capabilities for the internationalization process of EMNE in developed countries. This is not a surprising result, given that EMNEs are embedded in fragile innovation systems. Hence, the internationalization to developed countries can include knowledge-seeking strategies for acquisition of capabilities abroad. These results are in line with the first and second stages of the USM.

Regarding equation (2) (Table 3, Column 2) and considering developed countries as host destinations for EMNEs, there is a transfer of capabilities between subsidiaries and parent firms (this is shown by Sp "Subsidiary productivity," which is significant at $p > 0.01$). These results provide evidence in favor of our third hypothesis (*H3* – transfer flows).

equation (3) (Table 3, Column 3) shows that parent firms' productivity increases following higher levels of productivity in subsidiaries *moderated* by the extension of multinationalism. This provides evidence in favor of global networks' positive effects on competitive capabilities of parent firms, confirming *H4* (*H4* – global catapulting). Hence, our estimations offer evidence in favor of the third and following stages of the USM.

Regarding EMNEs' presence in *developing countries* and focusing on equation (1), Table 4 (Column 1) shows that inward internationalization is not affecting subsidiaries' productivity, while conventional Oa is significant. Therefore, *H1* – domestic learning and *H2* – learning abroad are not confirmed for these specific host countries. Hence, contrary to what has been observed for developed countries as host destinations, we can show a transmission of knowledge in form of traditional ownership advantages when the host destination of the EMNEs involves developing countries. Therefore, the acquisition of knowledge as a main

	EMNE to developing countries		
	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)
Sp		0.173***	
		0.027	
Global			0.002***
			0.001
Inward internationalization	0.072	–0.018	0.398***
	0.138	0.092	0.046
Oa (patents)	0.141***	0.153***	0.191***
	0.041	0.023	0.012
Controls			
Age	–0.951***	–0.415***	0.375***
	0.147	0.115	0.049
Size	0.268***	–0.074	–0.052*
	0.081	0.050	0.029
_cons	–3.771***	5.642***	4.012***
	0.548	0.365	0.188
R^2	0.104	0.1523	0.0514
F-statistics	22.56***	30.12***	74.05***
Observations	816	809	642

Table 4. Estimation results: EMNE to developing countries

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Robust standard errors in parentheses

motive in the internationalization process of EMNE is limited when the host destination is associated with immature innovation systems.

The results also show that parent productivity is positively affected by subsidiary productivity. This provides elements in favor of our third hypothesis. Finally, equation (3) presents a positive relationship between the number of subsidiaries * productivity and parent's productivity, confirming *H4*. Our results offer partial evidence in favor of the USM, particularly for its final stages.

As expected, these results allow us to postulate that the USM can be applied when developed countries are taken as host markets for EMNEs, an aspect that is in accordance with the knowledge-seeking axioms of the springboard theory. We can attribute this situation to capability-seeking strategies, where EMNEs learn abroad and conventional ownership advantages have their contributions diminished. On the other hand, the application of USM when EMNEs approach other developing countries is more limited in the first stages of the process and the role of inward internationalization diminished. In turn, conventional ownership advantages are positively associated with competitiveness levels when EMNEs address developing countries – an indication of the distinct strategic positions these firms occupy in international markets. In turn, these findings also shed initial light on knowledge transfer flows between subsidiaries and parent firms according to distinct localization strategies.

As robustness checks, we consider different samples *according to the technological content* of EMNEs. Tables 5 and 6 summarize these results dividing the sample in low and medium-low technological sectors and high and medium-high technological sectors

	High and medium-high-tech sectors			Low and medium-low-tech sectors		
	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)
Sp		0.248***			0.303**	
		0.048)			0.134)	
Global			0.010***			0.005
			0.004)			0.003)
Inward internationalization	0.611	0.260	0.517*	1.031*	0.515	0.576
	0.448)	0.178)	0.296)	0.712)	0.436)	0.468)
Oa (patents)	–0.049	0.057	–0.045	–0.031	–0.040	0.019
	0.095)	0.044)	0.076)	0.158)	0.086)	0.074)
Controls						
Age	–0.088	0.688***	1.098*	0.929	0.609	1.158*
	0.814)	0.227)	0.572)	0.708)	0.553)	0.694)
Size	0.193	–0.112	–0.200*	–0.567*	0.019	–0.227**
	0.189)	0.120)	0.111)	0.300)	0.157)	0.090)
_cons	–2.818*	5.687***	5.600***	1.675	5.061***	5.736***
	1.453)	0.749)	0.582)	2.394)	1.346)	0.819)
R^2	0.050	0.42	0.25	0.183	0.3	0.1559
F-statistics	0.93*	7.97***	2.06**	2.5**	3.51**	2.52**
Observations	82	82	82	64	64	64

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Robust standard errors in parentheses

Table 5. Estimation results: EMNE to developed countries by technological sectors

Considering EMNEs and the host destination of *developed countries* (Table 5, Columns 1 and 4), the results show that inward internationalization plays a significant role as a source of learning for subsidiaries in low tech sectors. However, we could not validate this hypothesis in high-tech sectors. As per the ownership advantages analysis, patents are not significant in the sample of low- and high-tech sectors. Therefore, *H2* of knowledge transfer associated with learning abroad from subsidiaries appears to apply.

Regarding the knowledge transfer hypothesis between subsidiaries and parent firms (Columns 2 and 5), productivity results show a concentration of capability transmission in all the technological sectors. Our variables of transfer between subsidiary to parent and global catapulting affect positively parent firms' productivity in high-tech sectors (Colum 2–3 and 5–6). This result allows us to confirm *H3* regardless of sectoral aspects of technological intensity and *H4* for high-tech sectors.

On the other hand, when host destinations are *developing countries* and analyzing the subsidiary productivity equation (Table 6, Columns 1 and 4), inward internationalization is not associated with subsidiary productivity in high- and low-tech sectors, while patents present a positive relationship with subsidiaries' productivity in both groups. These results are in conflict with *H1* and *H2*. When EMNEs approach other emerging markets, a minimum level of ownership advantages seems to be required – as argued by Narula (2012). In addition, these companies are essentially addressing laggard innovation systems. Hence, possibilities of knowledge acquisition are limited.

The effect of subsidiaries on parent firms' productivity appears both in sectors of higher and lower technological intensities (Table 6, Columns 2 and 5). This result allows us to

	High and medium-high-tech sectors			Low and medium-low-tech sectors		
	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)	Subsidiary productivity Equation (1)	Parent productivity Equation (2)	Parent productivity Equation (3)
Sp		0.207***			0.116***	
		(0.034)			(0.042)	
Global			0.002***			0.003***
			(0.000)			(0.001)
Inward internationalization	0.029	0.032	0.301***	0.153	–0.055	0.485***
	(0.179)	(0.118)	(0.053)	(0.214)	(0.139)	(0.077)
Oa (patents)	0.116**	0.147***	0.137***	0.237***	0.217***	0.281***
	(0.048)	(0.027)	(0.013)	(0.079)	(0.047)	(0.036)
Controls						
Size	0.204*	–0.137**	–0.097***	0.340***	0.022	–0.012
	(0.111)	(0.064)	(0.032)	(0.114)	(0.080)	(0.050)
Age	–0.610***	–0.249*	0.182***	–1.474***	–0.717***	0.691***
	(0.177)	(0.139)	(0.054)	(0.264)	(0.200)	(0.088)
_cons	–3.477***	6.005***	4.722***	–3.938***	5.117***	3.255***
	(0.743)	(0.454)	(0.214)	(0.822)	(0.614)	(0.327)
R^2	0.064	0.15	0.04	0.15	0.160***	0.064
F-statistics	7.40***	19.28***	32.48***	16.92***	13.91***	34.24***
Observations	456	452	450	360	357	350

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Robust standard errors in parentheses

Table 6.
Estimation results: EMNE to developing countries and technological sector

confirm *H3*, further highlighting the scant learning opportunities available in laggard economies. Complementarily, our variable of global units is significant for parent firm productivity in both lower and higher technological sectors (Table 6, Columns 3 and 6). These results show evidence in favor of *H4* of global competitiveness or networks.

The results found in the above paragraphs allow us to propose the following conclusions: first, domestic learning through inward internationalization in EMNEs applies in low-tech sectors in developed countries. Alternatively, it should be highlighted that ownership advantages play a key role in the transfer of capabilities in both low- and high-tech sectors when these companies approach other developing countries. Second, knowledge transfer from abroad seem to take place regardless of sectoral technological intensity. Third, the increase of global competitiveness through participation in global value chains is relevant when EMNEs approach both developed and developing countries.

6. Concluding remarks

This paper has devoted efforts to add empirical evidence to the USM by assessing the role of inward internationalization for the transmission of capabilities between parent firm and subsidiaries, the role of conventional ownership advantages and the transfer of knowledge between subsidiary units to parent firms. It has been also analyzed how global networks increase the parent firms' capabilities. The findings highlighted the heterogeneity in the dynamics of capability generation and flows, considering characteristics of the host location of EMNEs and technological intensity of sectors.

Our main contribution is the addition of empirical evidence on the springboard MNE theory and specifically the USM, considering the micro-level and the productivity differences between parent firm and subsidiaries. In light of our findings, we were able to add some remarks to the USM, most notably regarding the differentiation between learning processes (at the domestic and foreign levels), knowledge transfer flows and extent of the global presence. While emerging market firms can invest overseas to enhance their technological capabilities, they should also evaluate the possibility of securing technological resources from their interactions with foreign firms operating in the domestic market. In addition, the use of FDI as an entry mode can offer interesting possibilities for learning effects to take place – contingent on the learning opportunities offered by host markets.

In addition, the understanding of the USM brings critical implications for managers and policymakers. Managers in developing or emerging economies should consider that knowledge can be acquired abroad, and this knowledge can be transferred to the home country, enhancing the overall competitiveness levels of the firm. While the usual foreign entry approach based on the exploitation of preexisting capabilities can be effective when addressing countries in similar stages of development, knowledge-seeking strategies – based on the location in developed economies – are likely to offer extensive opportunities to strengthen innovative capabilities in these firms. Yet, as demonstrated in our assessment, the mechanisms through which these events take place present some dissimilarities with what has been advocated by the traditional IB theory. In this regard, practitioners should be aware of the advantages of the reverse knowledge flows in the productivity of the MNEs. In turn, they should facilitate the transmission of knowledge between different units of the MNE, given that the acquisition of knowledge is vital for the success of EMNE.

From the perspective of policymakers, our analysis has underscored the positive effects and mechanisms through which companies can leverage their capabilities by getting involved in outward FDI activity. In this regard, support for early internationalization in priority sectors can generate competitiveness gains that go beyond the limits of the firm in the domestic market, potentially leading to knowledge spillovers that benefit other agents in the home system. Accordingly, these internationalization strategies can be perceived as strategic for technology upgrading processes.

Our analyses do not go without limitations. First, we were not able to consider specifically the timing of different stages the in the internationalization process proposed by the USM. Therefore, we are testing the USM in a static way because we cannot capture when a stage begins or ends. Second, we could not find more proxies of ownership advantages for testing our results. Third, related to the productivity measure, we were not able to run the analysis using total factor productivity (TFP) because of a lack of data at the subsidiary level. Specifically, we had not the measure of intermediate consumption for the calculation of the TFP in subsidiaries (Levinsohn and Petrin, 2003; Petrin *et al.*, 2004). In addition, we could not approximate in a better way the characteristics of the subsidiaries age or size as found in prior literature (Borini *et al.*, 2012; Das and Mahalik, 2020; Rabbiosi and Santangelo, 2013). Fourth, regarding the methodology, we were not able to apply panel data or a lag structure in the model because with our data set, we have information only about the connection between parent and subsidiaries firms in the last year available. Finally, the process of internationalization will be unique for each MNE and each country will have different results, thus calling for future qualitative assessments of this phenomenon. To have a more consistent look into the strategic nature of EMNEs internationalization processes, in-depth case studies can offer complementary insights on the dynamics of the springboard behavior, as well as on the dynamics of the USM – particularly concerning the complexity involved in its advanced stages and in the measurement of the different ownership advantages.

Notes

1. The ORBIS data set comprises standardized and comparable data from more than 160 sources for a population of over 400 million companies worldwide. Thus, it offers rich information for micro-level analytical exercises. See the methodological section for the description of the data set.
2. Breadth means the access to a large number of countries where new knowledge and technology can be exploited (Elia *et al.*, 2020; Alon *et al.*, 2020). In this case, we consider the host destination developed when at least five host countries are developed.
3. We were not able to calculate TFP, given the lack of data.
4. As a robustness check, we replicate this estimation considering intangibles instead of patents as ownership advantages.
5. We are not able to apply panel data analysis (random or fixed effects) because subsidiary data obtained by ORBIS refers only to the last year of the sample (2018), and we have subsidiaries data in all of our equations. Although we recognize that this causes simultaneity issues in our approach, it still offers a relevant initial step in addressing the empirics of the USM.
6. Appendix (Table A1) presents the technological classification of sectors.

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Appendix

Table A1. Technological classification

High Technology	21; 26; 30,3
Middle-high technology	20; 25,4; 27; 28; 29; 30; 32,5
Middle-low technology	18,2; 19; 22; 23; 24; 25; 30,1; 33
Low technology	10; 11; 12; 13; 14; 15; 16; 17; 18; 31; 32

Note: NACE rev 2.2 according to Eurostat

Table A2. Estimation of subsidiary productivity considering other subsidiary characteristics

	Subsidiary productivity (Host developed – Equation (1))	Subsidiary productivity (Host developing – Equation (1))
Inward internationalization	0.696**	0.076
	(0.325)	(0.136)
Oa (patents)	–0.097	0.141***
	(0.086)	(0.040)
Controls		
Age	0.443	–0.958***
	(0.439)	(0.147)
Size	–0.100	0.276***
	(0.148)	(0.082)
Size subsidiary	0.000	–0.000
	(0.000)	(0.000)
_cons	–1.057	–3.803***
	(1.102)	(0.552)
R^2	0.051	0.104***
F-statistics	1.33*	18.15***
Observations	120	816

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$; Standard errors in parentheses

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