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Working Paper

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Economics Discussion Papers, No. 2015-23

Provided in Cooperation with:

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

Suggested Citation: Caicedo Marulanda, Carolina; Mora Rodríguez, Jhon James; Barber, José Bla; Darder, Fidel León (2015) : A microeconomic analysis of the springboard subsidiary: The case of Spanish firms, Economics Discussion Papers, No. 2015-23, Kiel Institute for the World Economy (IfW), Kiel

This Version is available at:

<https://hdl.handle.net/10419/109220>

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Discussion Paper

No. 2015-23 | March 30, 2015 | <http://www.economics-ejournal.org/economics/discussionpapers/2015-23>

A Microeconometric Analysis of the Springboard Subsidiary: The Case of Spanish Firms

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Abstract

This article provides a microeconometric analysis of the distinctive characteristics of springboard subsidiaries that have a positive impact on the subsidiaries' performance. Based on panel data estimations for subsidiaries of European multinational companies with a presence in Spain, the authors found that if the subsidiary located in the springboard country is a springboard subsidiary, its performance increases by 3.6%. When the subsidiary has a technological relationship with another subsidiary, its performance increases by 1.9%. If the subsidiary that has the technological relationship is a springboard subsidiary located in a springboard country, this increases performance by 1.8%. Growth of 1% in absorption capacity increases a subsidiary's performance by 1.2%. Finally, low autonomy reduces the performance of a subsidiary by 34.4% compared to independent subsidiaries or those with a high degree of autonomy.

(Published in Special Issue [Micro-econometric Analyses of International Firm Activities](#))

JEL C23 D22

Keywords Microeconometric Analysis, Springboard country, springboard subsidiary, subsidiary – specific advantage, Firms Performance, Panel Data

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Citation Carolina Caicedo Marulanda, Jhon James Mora Rodríguez, José Bla Barber, and Fidel León Darder (2015). A Microeconometric Analysis of the Springboard Subsidiary: The Case of Spanish Firms. *Economics Discussion Papers*, No 2015-23, Kiel Institute for the World Economy. <http://www.economics-ejournal.org/economics/discussionpapers/2015-23>

1. Introduction

Recent decades have witnessed significant changes in economics, politics, technology and culture; all of these changes have been bolstered by what is known today as globalization. Many academics from global institutions view this as a solely economic phenomenon: A strong interdependence develops among countries around the world (Stiglitz, 2006) in which their national or regional economies are immersed in a process of expanding integration (Whitley, 2001) aimed at stimulating the creation of and strengthening global institutions that advocate for adherence to international standards and behaviors (Benito, 2005). This phenomenon goes far beyond economic matters to encompass multiple dimensions, creating an environment in which business is carried out not only in a domestic context but in a global one as well.

Globalization is changing ways of doing business (O'Donnell, 2000) and the competitive environment in which companies carry out their corporate strategies (Meyer, 2006). Multinational companies (MNCs) are the main proponents of growing economic interdependence between nations and regions, which has transformed them into "key actors in the globalization process" (Rugman and Verbeke, 2004). One long-held perception of MNCs was that they possessed large structures and strong ties to domestic markets and to centralized governance structures that exercised control over most activities in the value chain. But globalization has changed this perception to one in which they are viewed as organizations in which linkages are prioritized over structure, flexibility over size, and frequently the intangible is valued more highly than what is physical assets (Pla and León, 2004).

However, not all approaches point toward domination of the economic environment by unfettered globalization. According to Yeung, Poon and Perry (2001), parallel to the globalization process there has been a process of "regionalization in which three regions have emerged as leading pillars of a tripolar world economy—North America, Western Europe and East Asia" (Lasserre, 1996). In their view, the driving force of globalization is the existence of relatively homogeneous markets that have arisen as a result of regional economic integration policies. These integration policies may be organized by product, which is the most widely used form in Latin America and implies trade flows and direct foreign investment; or by capital, work and knowledge, which move internationally as a result of deeper integration treaties (Ghemawat, 2003). And although these treaties have made significant progress in terms of integration (e.g., the EU), they are still far from what Ghemawat (2003) has referred to as "semiglobalization."

In these new types of integration, subsidiaries become an important unit of analysis (Rugman and Verbeke, 2001). Their significance lies in the key strategic role that subsidiaries can play in the development of the firm's specific advantages due to their operation in foreign markets, and the resulting impact not only on their performance but on the MNC's entire network. In addition, international expansion of MNCs has been an important topic of research both in the field of international business and in management strategy (Delios and Beamish, 2001). Although initially many considered subsidiaries to be merely organizational units of the parent company located in distant geographic locations and exposed to the idiosyncratic elements of the business environments in which they operated, today the perception of them has changed considerably not only in the research field but also within MNCs (parent companies) themselves. The latter have now come to view them as essential elements from strategic, competitive and financial points of view, given their influence on the MNC's overall performance.

The principal contribution of this article consists of providing an empirical validation of the springboard approach to internationalization, where the subsidiary of an MNC that is located in a springboard country will begin its internationalization process based on the development of distinctive capacities that generate advantages, enabling it to signal to the parent company and other subsidiaries its position as a springboard subsidiary. These capacities enable such subsidiaries to become semi-autonomous actors with incremental resources of influence and power that they are willing to use to stimulate change, innovation, and growth within their corporate networks.

This article is organized as follows: the first section provides an introduction, while the second section presents a review of the literature and the hypotheses. In the third section we describe the sample, the data used, operationalizations of the variables and the data panel model. The fourth section provides the study findings and general conclusions are presented in the fifth section.

2. Literature Review and Hypotheses

One characteristic of MNCs is having a large number of subsidiary companies (Birkinshaw and Hood, 1998). For Taggart (1998), subsidiaries are “generally distant tools of corporate management that react like nodes to impulses sent downward through the bureaucratic nervous system” (1998). For Bouquet and Birkinshaw (2008) they are subordinate entities within the MNC. Meanwhile, White and Poynter (1984) view them as semi-autonomous actors with their own resources and distinct environments, capable of taking their own strategic actions within certain limitations and contributing to reaching the objectives of the overall organization.

While there are numerous points of view on what defines a subsidiary, all of them consider it part of the MNC and its role within the MNC has been the subject of numerous studies (Youssef, 1975; Brandt and Hulbert, 1976; Sim, 1977; Garnier, 1982; and Birkinshaw and Hood, 1998). Studies initially focused on the parent company-subsidary relationship and the parent company's decisions to invest abroad (Birkinshaw and Morrison, 1995; Gupta and Govindarajan, 1991; Ghoshal and Bartlett, 1990; Dunning, 1988). Later, the research focus shifted to coordination of management tasks for a network of subsidiaries based overseas (Birkinshaw and Morrison, 1995) and analysis of the competitive advantage that emerges from the possibilities of obtaining profits from economies within the scope of such networks (Ghoshal and Bartlett, 1990; Birkinshaw and Hood, 1998; Rugman and Verbeke, 2001). In the 1990s, studies increasingly examined networks and/or strategies of subsidiaries (Taggart, 1998; Ghoshal and Bartlett, 1990; Gupta and Govindarajan, 1991; Jarillo and Martínez, 1990; Roth and Morrison, 1992; and Surlemont, 1998, among others).

Globalization's impact on business and changing global competitive conditions have transformed the view of the MNC. The relationship between the parent company and the subsidiary is no longer seen as hierarchical, but as “a web of diverse and differentiated inter- and intra-firm relationships” (O'Donnell, 2000, p. 526). Under this lens, significant attention is paid to lateral relationships within the MNC and the benefit that may be derived from transferring resources and competencies that can be developed in different locations where the MNC has subsidiaries (O'Donnell, 2000).

The springboard perspective (Pla and Camps, 2012) is based on two inseparable concepts: the springboard country and the springboard subsidiary. A springboard country is one that maintains an intermediate position in terms of distance, institutional knowledge, and business knowledge between the country of origin and the country

where the investment is being made. The springboard subsidiary is located in the springboard country and has successfully incorporated the specific advantage of the springboard country into its competitive strategy. This enables the subsidiary to gain external legitimacy to the extent that it incorporates organizational and business knowledge that deepens its connection to the target country. It also provides it with internal legitimacy, to the degree that it is recognized, by the parent company and the company's other subsidiaries, as a regional headquarters outside the geographical region of the subsidiaries over which it has influence or for which it develops management practices.

Knowledge alone can be used in a local and static sense but can generate dynamic benefits for the organization as a whole (Rugman and Verbeke, 1992). For this to be possible, the knowledge acquired must be *relevant, specialized, recognized and sustainable in the long term* (Rugman and Verbeke, 2001).

When the subsidiary is effectively able to meet these conditions and is perceived as being clearly differentiated, it may receive more resources and obtain a greater degree of autonomy (Monteiro *et al.*, 2008). The aforementioned aspects are fundamental in enabling a subsidiary to perform the role of a springboard and formulate strategies and implement autonomous decisions in the target country or region (Pla and Camps, 2012). However, although the conditions for being a springboard subsidiary are fairly specific, like any other subsidiary they can perform different functions. Regarding the role of subsidiaries, they have changed from fulfilling more or less the same functions to a network model, where each subsidiary is constantly seeking to differentiate itself (Rugman and Verbeke, 2001, 2003). This is conditioned more by the specific external environments of the countries in which they are located and entails unique challenges for development of specialized competencies that enable subsidiaries to move up within the network of subsidiaries and become key aspects of their stability and performance. Considering the definition provided for the springboard subsidiary, an initial approximation is to frame this concept within existing typologies of subsidiaries and then differentiate among the multiple roles that a subsidiary may play, in order to define its basic characteristics.

In classifying the strategic roles of subsidiaries, two possibilities emerge: the Integration-Responsibility (I-R) structure and the structure based on knowledge flows. In an exploration of the evolution of strategy in subsidiaries, Taggart (1998a) proposes that one of the dominant paradigms in the 1980s and 1990s was the Integration-Responsibility structure, which was developed by Prahalad and Doz (1987) and evaluated empirically by Roth and Morrison (1990) and Johnson (1995). Harzing and Noorderhaven (2006) consider that one of the most influential contributions on subsidiary role typologies is that put forward by Gupta and Govindarajan (1991), who proposed a structure based on knowledge flows such that they can be classified as either a global innovator, integrated player, implementor, or local innovator (Gupta and Govindarajan, 1991).

The first characteristic of the springboard subsidiary is autonomy, which is not limited to its local market but extends to a regional sphere, given that it is a springboard. In this same sense, it will need to have developed strong ties to other units within the network of subsidiaries (to the degree that these are managed by the springboard subsidiary) and with the parent company itself, which will delegate to the springboard subsidiary the focus on a geographic area over which it once exercised influence. The springboard subsidiary will serve as a source of knowledge for other units but will be responsible for creating new knowledge, knowledge that is not tied to the subsidiary's

geographical location and that the MNC can take advantage as a whole (Gupta and Govindarajan, 1991; Rugman and Verbeke, 1992).

Because the springboard subsidiary has influence not only over its own management but also the management of other subsidiaries, it takes on the characteristics of centers of excellence to the extent that it acquires expertise in specific areas and leverages those resources within the organization. They also become more generalist, a characteristic of administrative centers (Surlemont, 1998). Finally, there is one characteristic that differentiates springboard subsidiaries from regional centers or headquarters: While the latter are located in the region (as is the case of a regional headquarters for East Asia that is located in Singapore), the springboard subsidiary is based outside the region, constituting an extra-regional headquarters (Pla and Camps, 2012).

2.1 Formulation of Hypotheses

The role of the springboard subsidiary depends fundamentally on whether the subsidiary is able to internalize the specific advantages of the host country in which it operates and develop specific advantages for the firm.

Springboard Country and Subsidiary Performance: The springboard country is the strategic role that a country can perform when it is in an intermediate position between two countries that seek to establish inflows and outflows of direct foreign investment. Its advantageous position is based, rather than on the aspect of geographical distance, on the institutional distance that becomes decisive for these types of relationships involving flows of capital, knowledge, and final products. The position of the springboard country has advantages, given the possibility that firms have of exploiting this "natural" advantage and incorporating it into their competitive advantage based on their location in this country and the development of some capacity in terms of knowledge absorption and transfer. Specifically, what the springboard country offers the firm is an institutional proximity [cultural, commercial, economic, geographical, demographic, innovation, financial, regulatory, political, trade practice, connectivity and labor market distance] that is closer than what would exist directly between the country of origin and the country to which the investment is directed. As the springboard subsidiary has been located in the springboard country and has developed the capacity for knowledge absorption and transfer, it is possible to pose that:

Hypothesis 1a. Locating in a springboard country improves the subsidiary's performance.

Hypothesis 1b. The effect of the springboard subsidiary on performance is positively moderated by location in the springboard country.

Hypothesis 1c. The effect on performance of the springboard subsidiary located in the springboard country is positively moderated by the technological relationship.

Subsidiary's Absorption Capacity and Performance: The knowledge base is perhaps the greatest skill that serves as a source of sustainable differentiation and therefore competitive advantage for firms (Gupta and Govindarajan, 2000). Intangible assets are defined as the knowledge incorporated into intellectual assets and absorption capacity is defined simply as the ability to exploit knowledge—obtained both internally and externally—that is incorporated into intangible assets (Harris and Moffat, 2013; Cohen and Levinthal, 1990). A firm's intangible assets are a key element of its competitiveness, since they improve its capacity to combine internal and external sources of knowledge to exploit business opportunities as a distinctive competency of the firm and expand into new markets (Eustace, 2000; Dunning, 1988; Barney, 1991; Delios and Beamish, 2001). Harris and Moffat (2013) show that there is a positive relationship between the possession of intangible assets by an MNC and the market value of its subsidiaries by justifying that the possession of intangible assets influences the subsidiary's performance. Therefore, it is possible to pose the following hypothesis:

Hypothesis 2. A change in the absorption capacity of the subsidiary will be positively related to a change in the subsidiary's performance.

Technological Relationship and Subsidiary Performance: A stronger relationship between the subsidiary and the parent company facilitates the dynamic capacity of the subsidiary to receive and assimilate knowledge from the parent company (Fang, Wade, Delios, and Beamish, 2013), allowing for greater familiarity with the knowledge transferred and the capacity to absorb such knowledge (Lane, Salk, and Lyles, 2001). Subsidiaries also have a greater motivation to learn from the parent company when the knowledge that resides with the parent is more valuable and relevant (Fang *et al.*, 2013). Relevance provides the path along which the new knowledge is connected to previous knowledge (Schulz, 2003). The existence of a relationship between the subsidiaries that links them together in some aspects of knowledge (markets, products, technology) makes the process of transferring knowledge between them more effective and this is reflected in the firm's improved performance. Based on the foregoing, the following hypothesis is posed:

Hypothesis 3. Subsidiaries that have a technological relationship with the parent company will perform better than subsidiaries that do not have a technological relationship with the parent company.

Autonomy and Subsidiary Performance: Autonomy allows subsidiaries to develop and contribute to development of their host economies (Edwards, Ahmad and Moss, 2002). Gammelgaard, McDonald, Stephan, Tüselmann, and Dörrenbäche (2012) and Slangen and Hennart (2008) have analyzed subsidiary autonomy and its effect on performance. The findings, both theoretical and empirical, are mixed. On the one hand, Mudambi and Navarra (2004) suggest that subsidiary autonomy increases the ability to appropriate income, leading to inferior subsidiary performance, while Kawai and Strange (2013) find that subsidiary autonomy doesn't independently affect the firm's competitive advantage although it does when other values are considered, such as technological uncertainty and internal coordination. On the other hand, Slangen and Hennart (2008), Ambos and Birkinshaw (2010) and Tran, Mahnke, and Ambos (2010) find a relationship between autonomy and subsidiary performance. Meanwhile, McDonald, Warhurst, and Allen (2008) find limited evidence for a positive relationship between some types of autonomy and performance. Therefore, the following hypothesis is posed:

Hypothesis 4. Low subsidiary autonomy reduces subsidiary performance.

Ownership and Subsidiary Performance: Ownership frequently, although not always, represents the degree to which the parent company exercises control over the subsidiary's activities and has strong implications for performance (Erramilli, 1996). Foreign ownership is correlated with improvements in productivity (Aitken and Harrison, 1999). Foreign ownership leads to improvements in productivity in the year of acquisition and also in subsequent years (Arnold and Javorcik, 2005). Companies that are foreign-owned tend to improve their performance after acquisition (Chary, Chen, and Domínguez, 2012). Given this, the following hypothesis is posed:

Hypothesis 5. Foreign ownership improves the subsidiary's performance.

3. The Data and the Econometric Model

European MNCs with subsidiaries in Spain and Latin America were chosen, given the economic relationships and historical ties that connect these two regions in several aspects. According to UNCTAD (2013), Europe is first among the world's leading investors¹ and three Latin American economies are among the largest recipients of investment: Brazil, Chile, and Colombia. As a region, Latin America and the Caribbean is ranked second in terms of inflows and outflows of direct foreign investment and Europe is its primary investor. Historically, Europe has maintained colonial ties with countries in Latin America, which implies the existence of a political, social, commercial, cultural, language, and religious connection. In the past, the European cooperation policy has maintained ties to Latin America and this has been closely associated with the colonial roots that have existed and still exist between the two regions (Sanahuja, 2002).

The data are from the AMADEUS database, based on which 2,582 subsidiaries were chosen from an eight-year period (2003-2010). The subsidiaries had parent companies in 18 European countries and the Spanish subsidiaries, in turn, had subsidiaries in 17 countries in Latin America and the Caribbean. The subsidiaries were

¹ United Kingdom, Germany, Switzerland, France, Sweden, Italy; Norway: Ireland and Luxembourg are among the leading 20 investor countries in the world (WIR 2013).

in industries classified in 20 different sections, using the European Community's Nomenclature of Economic Activities (NACE).

To analyze the subsidiary's *performance*, the *profit margin* of the subsidiaries of European MNCs located in Spain were used, which allowed for evaluation of the subsidiary's performance from a comparative perspective (Andersson *et al.*, 2001).

Fixed intangible assets were used to analyze the *absorption capacity* (Cohen and Levinthal, 1990). Intangible assets generate advantages that can be exploited in foreign markets (Delios and Beamish, 2001). At the firm level, company financial statements are the principal source of data. International accounting standards define intangible assets as "non-monetary assets which are without physical substance and are identifiable and are used in the production or supply of goods and services" (International Accounting Standards Committee, 1998). Thus, the data correspond to the intangible fixed assets of Spain-based subsidiaries of European MNCs.

With respect to subsidiary autonomy, Oberhofer and Pfaffermayr (2012) use the Bureau van Dijk independence indicator, which characterizes the degree of independence of a company with respect to its shareholders as a proxy for subsidiary autonomy. The independence indicator classifies firms as either those in situations in which managers are relatively independent of their shareholders and can expect little influence, and those in a situation of low independence in relation to their shareholders (Stellner, 2013). Like Oberhofer and Pfaffermayr (2012) we will use the independence indicator as a measure of subsidiary autonomy. For this purpose, the independence indicator becomes a dummy variable that takes a value of 1 if the subsidiary is independent (autonomous) and 0 if it is not independent (not autonomous).

With respect to the springboard country, the compound indicator developed by Caicedo, León, Mora and Pla (2015) was used. This indicator considers all aspects of distance that affect international business and is measured among three countries involved in managing the subsidiaries of an MNC—the parent company's country of origin, the host country of the subsidiary and an intermediate country considered a springboard—since it reduces the institutional distance between the aforementioned countries. This variable can take three intervals for analysis: $0 < distPt < 1$, which represents the case of the springboard country; $distPt = 1$, when the firm is indifferent to using the country as the springboard country, and $distPt > 1$, when the country is not considered a springboard.

To analyze the technological relationship, the NACE code of both subsidiaries was compared up to two digits of disaggregation, which is a proxy measure widely used to measure related products (Grant *et al.*, 1998; Morosini *et al.*, 1998; Shane and Singh, 1998; Robins and Wiersema, 1995; Wade and Gravill, 2003; Fang *et al.*, 2013). This was used to construct a dummy variable that takes a value of 1 when the subsidiaries are technologically related and 0 when they are not.

To analyze the springboard subsidiary, ownership was used. Specifically, if the Spanish subsidiary owns 25% or more of the subsidiary in Latin America, the Spanish subsidiary is considered a springboard subsidiary. Thus, a dummy variable was created that takes a value of 1 when ownership is equal to or greater than 25% and 0 when it is less than 25% or does not have a subsidiary. The data for this variable correspond to the *Total Ownership* variable from Bureau van Dijk's Ownership Database. This variable tends to reflect relationships of control rather than property relationships (BvDEP, 2009).

In addition, the interaction of the springboard subsidiary with the springboard country was considered. This is a fundamental interaction that allows for analyzing whether a subsidiary located in a springboard country performs better than a

springboard subsidiary that is not located in a springboard country (Pla and Camps, 2012).

The interaction of the springboard country with the technological relationship allows for analysis of whether the technological relationship serves as a moderator between the springboard subsidiary located in the springboard country and the firm's performance.

Finally, control variables were included: firm age, dummy variables for the manufacturing, education and financial activities sectors, and dummy variables for year.

The basic regression model for N firms and T time periods, where the firms are indexed by i and time by t , takes the following form:

$$\begin{aligned}
 Performance_{i,t} = & \alpha_0 + \beta_1 PtEsp_{i,t} \times Springboard\ Subsidiary_{i,t} + \beta_2 PTFT \times Reltec_{i,t} + \\
 & \beta_3 Ind_{i,t} + \beta_4 ActIntFix_{i,t} + \beta_5 Year_{i,t} + \beta_6 SectManuf_{i,t} + \\
 & \beta_7 SectEdu_{i,t} + \beta_8 SecActFin_{i,t} + \beta_9 D2003_{i,t} + \beta_{10} D2004_{i,t} + \\
 & \beta_{11} D2005_{i,t} + \beta_{12} D2006_{i,t} + \beta_{13} D2007_{i,t} + \beta_{14} D2009_{i,t} + \vartheta_{i,t}
 \end{aligned}
 \tag{1}$$

Where, $i = 2582$ subsidiaries and $t = 8$ periods, so the total number of observations is 20,656. $Performance_{i,t}$ reflects a measure of subsidiary performance, α_i is the constant, $PtEsp \times Springboard\ Subsidiary$ shows the interaction of the springboard subsidiary and the springboard country ($PtEsp$), $Reltec$ is the technological relationship between the Spanish subsidiary and the Latin American subsidiary, ind is a dummy variable for the independence indicator, $ActIntFix$ are the intangible fixed assets (Absorption Capacity). We include the following control variables: $Year$ is the age of the springboard subsidiary and $sector$ is either the manufacturing, education or financial activities sector, while $\vartheta_{i,t}$ represents the random effects

Table 1 provides descriptive statistics of the variables and what can be seen is how the performance mean increases over the study period. However, this trend falls abruptly in 2008, an effect which may be attributable to the global financial crisis, which had an enormous impact on Europe and particularly on Spain, where the subsidiaries are located. The average age of the subsidiary at the end of the period considered is 25.9 years. $PtEsp$ is the springboard country variable and shows the proportion to which Spain fulfills the function of a springboard country when considering the country of origin of the parent company of the Spanish subsidiary and the destination country of the Latin American subsidiary of which the Spanish subsidiary has ownership. The mean indicates that Spain plays the role of a springboard country in 59.7% of the cases included in the study. The ownership variable represents the times when the Spanish subsidiary plays the role of springboard subsidiary. Thus, the Spanish subsidiary is a springboard subsidiary in 10.2% of the cases (265 of 2,582 firms). The Spanish subsidiary owns 25% or more of the Latin American subsidiary. Just 3.2% of the Spanish subsidiaries have a technological relationship with the Latin America subsidiary and 31% of the Spanish subsidiaries are in the manufacturing sector, while 1.3% belong to the financial activities sector.

Table 1. Descriptive Statistics

Variable	2003		2004		2005		2006	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Performance	3.961767	13.03032	4.805759	10.97982	4.97043	10.62235	5.503002	11.07276
PtEsp × Springboard Subsidiary	.0631294	.2432426	.0631294	.2432426	.0631294	.2432426	.0631294	.2432426
PtEsp	.5979861	.4903997	.5979861	.4903997	.5979861	.4903997	.5979861	.4903997
Reltec	.0325329	.177445	.0325329	.177445	.0325329	.177445	.0325329	.177445
ActIntFix	14373.46	90196.58	12490.7	80064.32	81648.64	604625.3	76415.54	568409.8
ind	.919055	.2728035	.919055	.2728035	.919055	.2728035	.919055	.2728035
Year	18.9849	16.44194	19.9849	16.44194	20.9849	16.44194	21.9849	16.44194
sectEdu	.0019365	.0439714	.0019365	.0439714	.0019365	.0439714	.0019365	.0439714
sectManuf	.3106119	.4628338	.3106119	.4628338	.3106119	.4628338	.3106119	.4628338
sectActFin	.0135554	.1156582	.0135554	.1156582	.0135554	.1156582	.0135554	.1156582
Variable	2007		2008		2009		2010	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Performance	5.412684	11.24557	3.363007	13.21335	1.391082	14.20896	3.466969	13.08374
PtEsp × Springboard Subsidiary	.0631294	.2432426	.0631294	.2432426	.0631294	.2432426	.0631294	.2432426
PtEsp	.5979861	.4903997	.5979861	.4903997	.5979861	.4903997	.5979861	.4903997
Reltec	.0325329	.177445	.0325329	.177445	.0325329	.177445	.0325329	.177445
ActIntFix	105285	802275.4	27331.84	184294.8	27020.75	178610.2	96679.35	704111.9
ind	.919055	.2728035	.919055	.2728035	.919055	.2728035	.919055	.2728035
Year	22.9849	16.44194	23.9849	16.44194	24.9849	16.44194	25.9849	16.44194
sectEdu	.0019365	.0439714	.0019365	.0439714	.0019365	.0439714	.0019365	.0439714
sectManuf	.3106119	.4628338	.3106119	.4628338	.3106119	.4628338	.3106119	.4628338
sectActFin	.0135554	.1156582	.0135554	.1156582	.0135554	.1156582	.0135554	.1156582

Source: Authors' calculations. Observations: 2,582.

4. Results

Table 2 shows the results of the model. Hypothesis 1a predicts that being located in a springboard country improves the subsidiary's performance. This hypothesis is proven in model 1, since the coefficient of the springboard country is positive and statistically significant ($p < 0.01$). The results are robust as the variable's statistical significance is maintained in both model 2 and model 3.

Hypothesis 2 predicts that an increase in the absorption capacity is positively related to an improvement in subsidiary performance. This hypothesis is proven in model 2, where the coefficient is positive and statistically significant ($p < 0.01$).

Hypothesis 3 predicts that the technological relationship between subsidiaries increases the performance of the subsidiary. The results support this hypothesis, with a positive and statistically significant coefficient ($p < 0.05$).

Hypothesis 4 predicts that a low degree of subsidiary autonomy reduces the subsidiary's performance. In this case the results show a negative and statistically significant coefficient ($p < 0.05$).

Table 2. Regression Model

	Hypothesis	Model 1 b/se	Model 2 b/se	Model 3 b/se	Model 4 b/se	Model 5 b/se	Model 6 b/se
PtEsp	+	1.21066869** (0.37754063)	1.32892318*** (0.37286775)	1.28175115*** (0.37130989)	1.07136468** (0.36552127)		
ActIntFix	+		0.00000123*** (0.00000018)	0.00000127*** (0.00000018)	0.00000091*** (0.00000018)	0.00000087*** (0.00000018)	0.00000092*** (0.00000018)
RelTec	+	5.53823590*** (1.04192215)	4.79479248*** (1.03376054)	2.87727661* (1.11966779)	2.82342192* (1.10378682)	3.49468418** (1.06541994)	
Ind	-	-1.37676824* (0.67804420)	-1.43003968* (0.66896084)	-1.39616715* (0.66591607)	-1.34730611* (0.65481821)	-1.44592840* (0.65664232)	-1.42925529* (0.65780442)
Spring-Subsidiary(SS)	+			2.82128830*** (0.65014010)	2.60683024*** (0.63844758)		
PtEsp × SS	+					2.37286396** (0.77009778)	
PtEsp × SS × Reltec	+						4.97567391*** (1.48979914)
Controls							
Year					0.07603805*** (0.01117131)	0.07782219*** (0.01120528)	0.08302875*** (0.01116624)
SectEdu					9.07880179* (4.05081845)	8.76283955* (4.06699383)	8.58226997* (4.07500022)
SectManuf					-2.88896893*** (0.39411486)	-2.95276552*** (0.39517549)	-2.99273417*** (0.39616867)
SectActFin					9.02900128*** (1.54654952)	9.00934190*** (1.55258540)	8.95854296*** (1.55558623)
Year 2003					0.59023433** (0.20095505)	0.58805408** (0.20091864)	0.59083288** (0.20094888)
Year 2004					1.43594427*** (0.20097012)	1.43367784*** (0.20093367)	1.43656648*** (0.20096375)
Year 2005					1.53752075*** (0.20079979)	1.53841987*** (0.20076380)	1.53727392*** (0.20079569)
Year 2006					2.07486705*** (0.20078509)	2.07552663*** (0.20074914)	2.07468597*** (0.20078118)
Year 2007					1.95821042*** (0.20092243)	1.96019144*** (0.20088611)	1.95766657*** (0.20091669)
Year 2009					-1.99198881*** (0.20086891)	-1.99359016*** (0.20083273)	-1.99154918*** (0.20086389)
R2-Between		0.016	0.032	0.039	0.080	0.074	0.068
R2-Within		4.51e-37	0.0007897	0.0007897	0.0267604	0.0268055	0.0267471
Chi2		41.63757	88.47058	108.0487	721.0686	703.1496	684.8962
Rho		0.5264745	0.5185348	0.5158517	0.5129696	0.5154112	0.5164511
Number of Firms		2,582	2,582	2,582	2,582	2,582	2,582
Number of Years		8	8	8	8	8	8
N		20,656	20,656	20,656	20,656	20,656	20,656

Note: Authors' calculations based on AMADEUS. * p<0.05, ** p<0.01, *** p<0.001

Hypothesis 5 states that foreign ownership increases the subsidiary's performance. Model 3 presents results that support this hypothesis, indicating a positive and significant coefficient ($p < 0.01$). Model 4 shows the results of the basic model in the presence of controls. All controls are highly significant except for the year 2009 dummy. The dummy for the manufacturing sector and the dummy for the year 2008 have negative and highly significant coefficients ($p < 0.001$). Model 5 also includes controls for interaction between the springboard subsidiary and the springboard country.

Hypothesis 1b predicts that the effect of the springboard subsidiary on performance is positively moderated by the springboard country variable. The results show a positive and statistically significant coefficient ($p < 0.01$). This result strongly supports hypothesis 1b and provides empirical validation of the springboard perspective and the advantages derived from locating the springboard subsidiary in the springboard country. Model 6 also incorporates another moderating effect through the interaction of the PTFT variable and the technological relationship variable.

Hypothesis 1c predicts that the technological relationship exercises a moderating role between the location of the springboard subsidiary in the springboard country and subsidiary performance. The results support this hypothesis, showing a positive and statistically significant coefficient ($p < 0.001$).

Subsequently the marginal effects – MFX - for models 3, 4, 5 and 6 were calculated. These were calculated as:

$$MFX_{Desempeño, X} = \frac{\partial Desempeño}{\partial X} \times \frac{X^{\circ}}{Desempeño^{\circ}}$$

Where the superscript ($^{\circ}$) indicates that the average value of the variable is evaluated.

Regarding the springboard country variable, the results show (model with controls: Table 3, column 2) that firms that are located in a springboard country perform 18.9% better than those subsidiaries not located in springboard countries.

Table 3. Elasticities

	Marginal Effects Without controls	Marginal Effects With Controls	Marginal Effects With interaction 1	Marginal Effects With interaction 2
PtEsp	0.173** (0.054)	0.156** (0.054)		
Spring-Subsidiary (SS)	0.068*** (0.016)	0.065*** (0.016)		
RelTec	0.019* (0.009)	0.022* (0.009)	0.028** (0.009)	
ActIntFix	0.016*** (0.003)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)
ind	-0.311* (0.149)	-0.301* (0.147)	-0.323* (0.148)	-0.320* (0.148)
PtEsp × SS			0.036** (0.012)	
PtEsp × SS × Reltec				0.018*** (0.005)
Controls				
Year		0.509*** (0.078)	0.521*** (0.078)	0.555*** (0.079)
SectEdu		0.004* (0.002)	0.004* (0.002)	0.004* (0.002)
SectManuf		-0.218*** (0.031)	-0.223*** (0.031)	-0.226*** (0.032)
SctActFin		0.030*** (0.005)	0.030*** (0.005)	0.030*** (0.005)
Year 2003		0.018** (0.006)	0.018** (0.006)	0.018** (0.006)
Year 2004		0.044*** (0.006)	0.044*** (0.006)	0.044*** (0.006)
Year 2005		0.047*** (0.006)	0.047*** (0.006)	0.047*** (0.006)
Year 2006		0.063*** (0.007)	0.063*** (0.007)	0.063*** (0.007)
Year 2007		0.060*** (0.007)	0.060*** (0.007)	0.060*** (0.007)
Year 2009		-0.061*** (0.007)	-0.061*** (0.007)	-0.061*** (0.007)

Source: Authors' calculations. * p<0.05, ** p<0.01, *** p<0.001

When the subsidiary that is located in the springboard country is a springboard subsidiary, the effect on its performance increases by an additional 3.6% compared to subsidiaries that are not springboards (Table 3, row 6). If the subsidiary has a technological relationship with another subsidiary, its performance increases by 1.9% compared to other subsidiaries that do not have a technological relationship (Table 3, row 3). However, when the subsidiary that has a technological relationship is a springboard subsidiary that is located in a springboard country, there is an additional 1.8% increase in the performance of that subsidiary, as a result of its moderating effect (Table 3, row 7, column 4). A 1% increase in absorption capacity increases the subsidiary's performance by 1.2%. On the other hand, if the firm is not independent and therefore has low autonomy, this reduces the performance of the subsidiary by 34.4% compared to subsidiaries that are independent or have a high level of autonomy.

Finally, with respect to the control variables, we can say that an additional year of age of the subsidiary increases its performance by 49%, while belonging to the education sector increases it by 0.5%, and belonging to the financial sector increases it by 2.8%.

5. Conclusions

The findings here show that locating a subsidiary in a springboard country increases that subsidiary's performance by 18% compared to subsidiaries that are not located in a springboard country. The fact that one subsidiary has an ownership tie to a subsidiary in another country indicates the control that the former has over the latter and its role in the springboard subsidiary. Thus, the performance of the subsidiary increases by 5.4% compared to other subsidiaries that don't have any ownership ties abroad and are therefore not springboard subsidiaries.

When the springboard subsidiary is located in the springboard country, this provides an additional performance increase of 3.6%, which proves how the incorporation of a specific advantage of the springboard country by the springboard subsidiary translates into a better result for the subsidiary and an improvement of its position relative to other subsidiaries in the MNC's network that do not benefit from that location.

We also found that the technological relationship with other subsidiaries is not only an important element that increases subsidiary performance (by 1.9%) but that when the subsidiary is a springboard and is located in a springboard country, the technological relationship increases performance by another 1.8%.

Finally, the position of springboard subsidiary is associated, from a theoretical point of view, with its ability to exploit the knowledge derived from its location in the springboard country. Our results support the hypothesis that the absorption capacity of the subsidiary increases its performance by 1.2%.

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