

Domestic and International Corporate Entrepreneurship through Alliances

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Abstract

In recent years, international entrepreneurship and international corporate entrepreneurship have attracted great interest. This paper analyzes the effects of asset similarity and complementarity on the decision to use alliances as a means of achieving corporate entrepreneurship. This study reveals that firms with similar assets are more likely to use mergers and acquisitions to achieve corporate entrepreneurship. This is particularly common when these mergers and acquisitions take place between firms from the same country. In contrast, however, firms prefer alliances to achieve international entrepreneurship. In these cases, firms search for partners whose assets are complementary to their own. These findings demonstrate the key role that firms' assets play in choosing alliances as the means of achieving corporate entrepreneurship, especially in an international context. Copyright © 2010 ASAC. Published by John Wiley & Sons, Ltd.

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Keywords: corporate entrepreneurship, international entrepreneurship, alliances, similarity, complementarity

Résumé

Au cours des dernières années, de plus en plus de chercheurs se sont intéressés à l'entrepreneuriat international et à l'entrepreneuriat des entreprises internationales. Le présent article examine les effets de la similarité et de la complémentarité des actifs sur la décision de s'allier pour mettre sur pied un entrepreneuriat d'entreprise. L'étude révèle que les firmes qui ont des actifs similaires sont plus susceptibles de recourir aux fusions et aux acquisitions pour réussir l'entrepreneuriat d'entreprise. Cette situation est particulièrement courante lorsque les fusions et les acquisitions impliquent des entreprises basées dans les mêmes pays. A contrario, pour l'entrepreneuriat international, les firmes préfèrent plutôt les alliances. Dans ces cas de figure, elles cherchent des partenaires dont les actifs complètent les leurs. Nos résultats mettent en évidence le rôle primordial que les actifs des entreprises jouent dans le choix des alliances en tant que mode de réalisation de l'entrepreneuriat d'entreprise, en l'occurrence dans un contexte international. Copyright © 2010 ASAC. Published by John Wiley & Sons, Ltd.

Mots-clés : entrepreneuriat d'entreprise, entrepreneuriat international, alliances, similarité, complémentarité

Research on entrepreneurship has seen considerable development over recent years, and continues to offer significant potential for future research (Zahra, 2007). Specific interest is growing in the fields of international entrepre-

neurship and international corporate entrepreneurship (Gamboa & Brouthers, 2008; Welch & Welch, 2004; Zhara & George, 2002). Engaging in international corporate entrepreneurship through international venturing can renew a firm, improving its ability to compete and take risks by redefining its business concept, reorganizing its operations, and introducing system-wide innovations (Miller, 1983).

While scholars recognize the importance of entrepreneurial efforts in foreign markets and have called for research on this issue (Guth & Ginsberg, 1990), few empirical studies specifically examine international corporate

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entrepreneurship. This may be due in part to the concentration of research efforts on defining the domain of corporate entrepreneurship and establishing its contributions to firm performance. Another reason may be the difficulty of obtaining data on international corporate entrepreneurship (Zahra & Garvis, 2000). Consequently, little is known about many aspects of international corporate entrepreneurship, such as its effect on firm performance, the role of environmental conditions, and the way of implementing new venturing activities. This study addresses this gap by exploring the use of strategic alliances mainly by large firms.

There are many ways for firms to engage in corporate entrepreneurship, including organic growth, mergers and acquisitions, and alliances. In recent years, however, alliances have emerged as the method of choice to achieve corporate entrepreneurship (Ireland, Hitt, & Webb, 2006). In the current competitive business environment, a growing number of entrepreneurial firms rely on strategic alliances to capture the assets they need to achieve their strategic objectives (Bragge, Merisalo-Rantanen, Nurmi, & Tanner, 2007; Montoro-Sánchez, Ortiz-de-Urbina-Criado, & Romero-Martínez, 2009). Examining alliances in the context of entrepreneurship presents new avenues of research (Alvarez, Ireland, & Reuer, 2006). Most of the existing literature, however, examines alliances between small and medium-sized firms, and very few studies analyze the establishment of entrepreneurial activities in large firms through strategic alliances (Marino, Strandholma, & Steensman, 2002; Montoro-Sánchez et al., 2009; Zacharakis, 1998). Even less research examines the implementation of these activities in a domestic or international context. One of the issues that requires further exploration and analysis are the factors that lead firms to make use of strategic alliances to put their entrepreneurial activities into practice. Examining whether the use of alliances depends on where the firm's entrepreneurial activities take place (in the domestic or international market, i.e., international entrepreneurship) is of interest here.

This paper focuses on the similarity and complementarity of assets between firms, which are two factors that may affect a firm's decision to set up strategic alliances (Gulati, Nohria, & Zaheer, 2000; Wang & Zajac, 2007). These are key factors that may be even more significant when the activities are linked to a firm's entrepreneurial behaviour. The choice of which new activities to develop and how to implement them will depend on the firm's asset endowment (its degree of similarity and complementarity, Teng, 2007) and the markets the firm seeks to reach (Gamboa & Brouthers, 2008).

This paper, then, has two aims: First, to analyze the effects of asset similarity, asset complementarity, and scope of the operation (domestic or international) on the decision to use alliances as a means of achieving corporate entrepreneurship. And second, to examine whether the effects of asset similarity and complementarity on the decision to use

alliances are different in domestic and international operations. The paper is organized as follows. The next section reviews the theoretical background on the effects of similarity and complementarity on the use of strategic alliances to perform entrepreneurial activities, along with their possible differences in domestic and international contexts. The methodology, sample of entrepreneurial operations, and measurement of the variables are then described. The final sections of the paper contain our results and conclusions.

Theoretical Background and Hypotheses

Entrepreneurship as a research concept became meaningful at the corporate level during the 1980s, when researchers began looking at the entrepreneurial behaviour of established firms. Miller (1983) and Stevenson (1983) defined an entrepreneurial firm as one that innovates and creates new business. To be successful, a firm must identify new ways of doing business, develop new technologies and products, and enter new markets. For the resource-based view, corporate entrepreneurship involves introducing new products or entering new markets, and creating value through discovering and exploiting profitable business opportunities (Lumpkin & Dess, 1996; Teng, 2007).

The skill of entrepreneurial firms in recognizing and exploiting opportunities is generally agreed to be what sets them apart from their competitors (Shane & Venkataraman, 2000), along with the fact that they do this despite their resource limitations (Zahra & Dess, 2001). Establishing an entrepreneurial activity makes it necessary to have access to certain assets, especially if this activity takes place beyond the firm's national boundaries.

Corporate entrepreneurship includes three dimensions: innovation, corporate venturing, and strategic renewal (Covin & Miles, 1999; Guth & Ginsberg, 1990; Zahra, 1996). Entrepreneurial activities can stimulate growth by renewing established firms through innovation and venturing activities that provide access to different skills, capabilities, and resources (McGrath, MacMillan, & Venkataraman, 1995; Stopford & Baden-Fuller, 1994). Innovation generates new products, processes, and organizational systems that the firm can apply both to its domestic and international activities (Hitt, Hoskisson, & Kim, 1997; Zahra & Garvis, 2000). A firm, therefore, can modify its business base by entering new economic regions or foreign markets, capitalizing on the differences in the resources that may exist in various locations (Porter, 1990).

Firms that opt to grow via an entrepreneurial activity need to decide what method they will use, as the various alternatives all require different assets. The options include "going it alone," by relying on the firm's own assets (organic growth), or looking for other firms with which to share assets and risks. Firms choosing the second option can obtain the assets they need through strategic alliances or

mergers and acquisitions. Given the high level of competition and complexity of current markets, enterprising firms need a large volume of assets and capabilities, which makes going it alone tough. Most firms, then, tend to cast their eyes in the direction of other firms.

This paper focuses on firms that decide to achieve corporate entrepreneurship via alliances, mergers, and acquisitions. The resource-based view and transaction cost theory outline the factors that determine which of these alternatives are chosen. The resource-based view posits that obtaining and maintaining mainly strategic resources, depending on the degree of asset similarity and complementarity, is the determining factor (Das & Teng, 2000). Transaction cost theory recommends choosing the growth method that brings a mode of organization (i.e., a means of coordinating activities and allocating assets) that minimizes the transaction costs of the firm. Previous research related to these costs exists on the effects of asset specificity (Anderson & Gatignon, 1986), and on the degree of similarity and complementarity of assets (Balakrishnan & Koza, 1993; Hennart, 1991).

This study combines these approaches by focusing its analysis on the similarity and complementarity of assets. First, the paper examines the effects of asset similarity, asset complementarity, and the scope of their application (domestic or international) on the choice of alliances as a means of achieving corporate entrepreneurship. Second, we investigate whether the impact of similarity and complementarity on the choice of alliances is the same in domestic and international corporate entrepreneurship.

Similarity and Complementarity of Assets

To start corporate entrepreneurship activities, firms need to know whether they require assets that are similar or complementary to those they already possess. The concept of similarity refers to the extent to which firms share products, markets, technologies, or competences (Chatterjee, 1986; Lubatkin, 1987), while complementarity is the potential that firms have for value creation by combining different, yet related, products, technologies, or markets (Ansoff, 1965; Porter, 1985).

Wang and Zajac (2007) take the definitions of substitute (i.e., goods with similar uses) or complementary (i.e., goods that can be used jointly) goods from the economic theory to offer a more operative definition of these concepts. Assets will be similar if firms are closely related, and complementary if the relation is at an intermediate level (Chung, Singh, & Lee, 2000). In accordance with these definitions, we believe that firms with very similar businesses will have similar assets, while the assets will be more complementary if the businesses are related.

Firms can use alliances or mergers and acquisitions to obtain new, valuable, and essential assets—either similar or complementary (Gulati et al., 2000; Harrison, Hitt, Hoskis-

son, & Ireland, 2001). The resource-based view argues that alliances, mergers, and acquisitions provide firms access to resources and capacities needed to develop entrepreneurial activities, which are difficult to attain if they work alone (Teng, 2007). Deciding among mergers and acquisitions or alliances, however, will depend on the similarity or complementarity of the assets (Wang & Zajac, 2007).

Similarity of assets. Similarity refers to the level of the relationship between the businesses of the firms (Koh & Venkatraman, 1991). Datta and Puia (1995) demonstrated that firms whose businesses are highly related (high level of similarity between firms) are more likely to choose acquisitions over alliances as a means of obtaining needed assets.

Several reasons for this exist. First, if assets are similar, the effects of economies of scale and scope produce more sources of value creation. The firm's market power increases as does its access to technologies available in similar industries. Second, acquisitions allow more complete access to assets than do alliances, and sometimes this access is faster (King, Covin, & Hebart, 2003). This is especially important when technological assets are acquired, because more complete access can reduce the effect of uncertainty and facilitate the use of these assets (Harrison et al., 2001; Wang & Zajac, 2007). Lastly, alliances with partners with similar assets usually occur among competitors. Conflicts are more likely to arise in these cases, with the result that trust, commitment, and communication are more difficult among partners seeking a successful implementation of entrepreneurial activities (Montoro-Sanchez, 2005). These arguments led us to expect that acquisitions will be used as a way to obtain assets when firms have high asset similarities.

Hypothesis 1: A greater degree of asset similarity between firms negatively influences the choice of alliances over mergers and acquisitions when engaging in entrepreneurial activities.

Complementarity of assets. When firms act in complementary businesses, their assets will be complementary. Complementarity of assets can enable a firm to develop new competitive advantages (Ireland, Hitt, Camp, & Sexton, 2001) from entrepreneurial activities, which is an important aspect in the formation of alliances (Duysters & Hagedoorn, 2000; Dyer & Singh, 1998). Hitt, Ireland, Camp, and Sexton (2001) found that complementary capacities are one of the most important criteria for the choice of partners in strategic alliances. Strategic alliances enable one firm to take advantage of another's experience in areas in which they have no (or only partial) knowledge (Bleeke & Ernst, 1995).

Although alliances, mergers, and acquisitions all make it possible to obtain assets from a firm, the resource-based view provides several reasons for choosing alliances over mergers and acquisitions when complementary assets are sought. Alliances are usually established because firms do not have all assets necessary to compete in a particular

market, or because they need to share uncertainty and risks (Harrison et al., 2001). In this situation, alliances with firms possessing complementary assets offer the chance to learn and gain knowledge from the partner's experience. Alliances can avoid conflicts of interest between firms, which are more typical in acquisitions (depending on the degree of control over the target company) (Bleeke & Ernst, 1995). In addition, they allow a more efficient learning of new capabilities when assets are complementary (Garette & Dussauge, 2000). Alliances also enable firms to obtain more reliable information and size up their partners, as well as learn from them. And when the relationship is not satisfactory, they are easier to reverse than are acquisitions (King et al., 2003; Wang & Zajac, 2007).

Hennart and Reddy (1997) pointed out that acquisitions inevitably lead to obtaining unneeded assets when these are mixed with required assets, and that the two are not easily separable. In contrast, strategic alliances allow partner firms to access only those assets they want, which increases their global value (Wang & Zajac, 2007). These arguments led us to the following hypothesis:

Hypothesis 2: A greater degree of complementarity of assets between firms positively influences the choice of alliances over mergers and acquisitions when engaging in entrepreneurial activities.

Scope

In the field of corporate entrepreneurship, interest in international entrepreneurship has grown recently (Crick & Jones, 2000; Welch, 2004), its focus lying at the intersection of entrepreneurship and international business (McDougall & Oviatt, 2000). The meaning of the term international entrepreneurship has evolved over the last decade with increasing academic interest in the topic. Early definitions focused only on international start-up activities, which exclude established firms (McDougall, 1989). More recent studies, however, include established firms, and, as a result, international entrepreneurship can be defined as the study of processes related to the discovery, evaluation, and exploitation of market opportunities that take place across national boundaries, as well as cross-national comparisons of these three entrepreneurial processes. The study of international entrepreneurship should, therefore, include two lines of research: the analysis of how, why, when, and where firms internationalize their operations, and secondly, a comparison of how and why business processes differ across national contexts, and what the implications of these differences are (Baker, Gedajlovic, & Lubatkin, 2005).

McDougall and Oviatt (2000) included alliances as one of the key topics within the domain of international entrepreneurship. They argued that international alliances are a mode of internationalization because the value creation of the firm is often based on a cross-border combination of

valuable assets. Alliances are vehicles for discovering, evaluating, and exploiting opportunities across national borders (Al-Laham & Souitaris, 2008). In the longer term, there is evidence that international alliances increase the firm's potential for further international expansion in terms of sales (Leiblein & Reuer, 2004).

Firms decide to enter alliances for many reasons, such as sharing risks, capital, technology, and firm-specific assets (Das & Teng, 2000; Gulati, 1998, 1999). Alliances also favour the development of new business (Baum & Silverman, 2004), and promote internationalization because they provide access to knowledge and complementary assets (Chung, et al., 2000). Alliances, however, also have limits and risks (Alvarez & Barney, 2001; Rothaermel & Deeds, 2004): They may create complex coordination problems and leak technological knowledge that allows competitors to innovate (George, Zahra, & Robley Wood, 2002). To achieve international corporate entrepreneurship, however, alliances do offer advantages over the alternatives of organic growth and mergers and acquisitions. They allow firms to pool their assets, and thus increase productivity and improve their competitive positions in a way that they could not do alone (Pearce, 1982). Alliances are also faster, more flexible, less risky, and less costly than internal start-ups and acquisitions, and provide greater access to critical assets such as marketing, technology, financial assets, managerial expertise, and political influence (Kogut, 1988; Pearce & Hatfield, 2002). In some cases, an alliance is the only way to enter a country, sector, or specific market.

Firms, then, enter international alliances to draw upon country-specific knowledge (Almeida, Song, & Grant, 2002) that can be used for exploration or exploitation (Al-Laham & Souitaris, 2008; Coombs, Mudambi, & Deeds, 2006). For these reasons, we expected firms to opt for strategic alliances over mergers and acquisitions when starting international entrepreneurial activities.

Hypothesis 3: In international corporate entrepreneurship, firms are more likely to prefer alliances over mergers and acquisitions.

Method

Sample and Measures

A sample of operations to achieve corporate entrepreneurship was selected to test the hypotheses. The European Union firms included in the 2005 European *BusinessWeek* ranking were used as a reference to identify these actions. This ranking includes 350 firms selected and classified by market capitalization, sales, profit growth in the last three years, net margins, and return on equity (ROE). This study includes only those firms in the European Union in 2004 that had performed corporate entrepreneurship (235 firms of the 350 in the ranking). Information on the alliances,

mergers, and acquisitions of these European firms between January 1st 2000 and December 31st 2004 was obtained from the Securities Data Company database (SDC Platinum). To ensure that the operations constituted corporate entrepreneurship, only those alliances, mergers, and acquisitions made by firms to entering a new business (operations involving a change of Standard Industrial Classification -SIC-code) were selected. In this way, the final sample included 927 corporate entrepreneurship operations, established via mergers, acquisitions, joint ventures, nonequity alliances in technology, Research and Development (R&D) and manufacturing, and nonequity alliances in marketing and licensing.¹

The dependent variable is defined as a dummy variable with a value of 1 for alliances and 0 for mergers/acquisitions. The study uses similarity and complementarity as the explanatory variables, measured in-line with previous work by Cassiman, Colombo, Garrone, and Veugelers (2005), Vidal-Suárez and García-Canal (2003), Wang and Zajac (2007), and Zollo and Singh (2004). Similarity and complementarity are usually measured by adapting quantitative measurements from SIC codes (Balakrishnan & Koza, 1993; Villalonga & McGahan, 2005; Wang & Zajac, 2007).

Similarity reflects to what extent the two firms have similar products and markets. To measure this, we considered two dimensions of similarity: product similarity and market similarity. Product similarity is measured by comparing the main four-digit SIC codes of the firms participating in the operation. Based on this comparison, a variable was constructed that takes values 0, 0.25, 0.50, 0.75, and 1 depending on the degree of similarity. Value 1 represents maximum similarity (when the four digits of the firms' main SIC codes coincide), and value 0 represents no similarity (when none of the SIC digits coincide). Market similarity is measured by comparing the countries in which the participating firms performed their main activity. In this case the variable takes values 0 or 1. Value 1 representing market similarity (when the countries coincide), and value 0 no similarity (when the countries are different). The similarity variable, then, is the sum of product and market similarity. This is a limited continuous variable (values from 0 to 2), where value 0 represents no similarity and 2 maximum similarity.

Complementarity refers to the firm's potential for creating value by combining different but related products and markets. To measure complementarity, this study follows Wang and Zajac (2007) in stating that complementarity is at a maximum when similarity between firms is at an intermediate level (value 0.5). Thus, as with similarity, the resulting variable is continuous but limited, taking values between 0 and 2, where 0 represents noncomplementarity and 2 represents maximum complementarity. A dummy variable is used to measure scope; it takes value 1 when the operation is international and 0 when it is domestic (all firms involved in the operation have the same country of origin). To analyze potential differences in ways of achieving corporate entrepreneurship, this variable is used to divide the sample into two subsets: domestic operations ($n = 437$) and international operations ($n = 490$).

The following measurements are used as control variables. Previous experience of mergers and acquisitions was measured by the number of mergers and acquisitions undertaken by the firm in the five years previous to the operation (Hagedoorn & Duysters, 2002). Previous experience of alliances was measured by the sum of previous alliances over the last five years (Kale, Dyer, & Singh, 2002; Robertson & Gatignon, 1998). Firm size was measured by a categorical variable differentiating between small, medium, and large firms, following the criteria regarding to employees of the European Commission. Industry sector was accounted for by a variable with three categories: primary sector, secondary sector (manufacturing), and tertiary sector (services). The year was controlled for by a categorical variable with five values (one for each year).

Results

To test the impact of the independent variables on the probability of establishing alliances or undertaking mergers and acquisitions, several models of binary logistic regression were used. Logistic regression is one of the appropriate statistical techniques for predicting and explaining relationships that influence an object category. Specifically, binomial logistic regression is used when the dependent variable is a dummy variable. Tables 1–3 display the correlations of

Table 1
Correlation Matrix: Complete Sample

| Spearman's Rho | Similarity | Complementarity | Scope | M&A experience | Alliance experience |
|---------------------|------------|-----------------|----------|----------------|---------------------|
| Similarity | 1 | .667*** | .246*** | .011 | .037 |
| Complementarity | .667*** | 1 | -.254*** | .007 | .027 |
| Scope | .246*** | -.254*** | 1 | -.404 | .059 |
| M&A experience | .011 | .007 | -.404 | 1 | .117*** |
| Alliance experience | .037 | .027 | .059 | .117*** | 1 |

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$ (bilateral).

Table 2
Correlation Matrix: Domestic Sample

| Spearman's Rho | Similarity | Complementarity | M&A experience | Alliance experience |
|---------------------|------------|-----------------|----------------|---------------------|
| Similarity | 1 | .595*** | .074 | -.076 |
| Complementarity | .595*** | 1 | .090 | -.082 |
| M&A experience | .074 | .090 | 1 | .071 |
| Alliance experience | -.076 | -.082 | .071 | 1 |

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$ (bilateral).

Table 3
Correlation Matrix: International Sample

| Spearman's Rho | Similarity | Complementarity | M&A experience | Alliance experience |
|---------------------|------------|-----------------|----------------|---------------------|
| Similarity | 1 | .682*** | .074 | .163*** |
| Complementarity | .682*** | 1 | .090 | .143*** |
| M&A experience | -.048 | -.064 | 1 | .159*** |
| Alliance experience | .163*** | .143*** | .071 | 1 |

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$ (bilateral).

the explanatory variables, and Table 4 contains the results of the regressions for each model. Due to the correlation between some of the independent variables, we used different regression models. Thus, models 1, 2, and 3 present the results for the complete sample of operations; models 4, 5, and 6 display the results of the domestic operations; and models 7, 8, and 9 report the results of the international operations.

The goodness of fit indicators in Table 4 reveal a good fit for all of the models. The chi-squared statistic for the models is highly representative, showing that the models' coefficients are all non zero. In addition, the classification matrix shows that more than 75% of the sample cases for all models are correctly classified. Lastly, the Nagelkerke pseudo R-squared statistic indicates the proportion of variance that is explained in the resulting logistic regression model, with the high explanatory capacity of models 6 (51.3%), 8 (62.8%), and 9 (43.5%) standing out.

The results of models 2 and 3 for the complete sample of operations confirm Hypothesis 1, but not Hypothesis 2. With regard to asset similarity, Hypothesis 1 results verify that firms look for similar organizations with which to merge or acquire. The literature argues that asset similarity promotes a preference for acquisitions because this option avoids the conflicts associated with the incompatibility of the mutual economic interests (Bleeke & Ernst, 1995). The similarity of firm knowledge and operating systems makes it possible to achieve better synergies (Dussauge & Garette, 1995) and greater efficiency (Folta, 1998; Garette & Dussauge, 2000). In addition, problems associated with

asymmetric information (Balakishnan & Koza, 1993) and integration (Reuer & Koza, 2000) is avoided. Many acquisitions in the 1990s focused on target firms with highly similar assets, where the achievement of economies of scale was a primary goal (Hitt, Ireland, & Harrison, 2001). Wang and Zajac (2007) reported similar results.

For Hypothesis 2, the study finds no significant relationship between the complementarity of assets and the preference for alliances over other methods. This may be because both options allow access to similar and complementary assets. In this case, the results for the complete sample differ from those expected by the resource-based view. The relationship is confirmed, however, when domestic and international operations are differentiated (see below).

The results of model 2 show that scope is a determining factor. Our results indicate firms prefer alliances when they want to achieve international corporate entrepreneurship. This finding is in-line with Kogut (1988) and Pearce and Hatfield (2002), who highlighted the advantages of alliances in an international context. International operations are more complex than domestic ones and require a greater commitment of assets and assumption of risks. In this situation, alliances are a more flexible, less risky, and less costly option than mergers and acquisitions, and provide better access to critical assets.

Models 5, 6, 8, and 9 (Table 4) analyze whether the impact of asset similarity and complementarity on the choice of alliances is the same for domestic (models 5 and 6) and international (models 8 and 9) operations.

Table 4
Results from Binary Logistic Regression

| Variable models | Complete sample | | | Domestic | | | International | | |
|-------------------------------|-----------------|----------|-----------|----------|-----------|-----------|---------------|-----------|-----------|
| | Mod. 1 | Mod. 2 | Mod. 3 | Mod. 4 | Mod. 5 | Mod. 6 | Mod. 7 | Mod. 8 | Mod. 9 |
| Asset similarity | – | –0.96*** | – | – | –1.16*** | – | – | 34.56 | – |
| Asset complementarity | – | – | n.s. | – | – | –36.06 | – | – | 2.51*** |
| Scope (domestic) | – | –0.61*** | n.s. | – | – | – | – | – | – |
| Previous experience M&A | –0.13*** | –0.14*** | –0.13*** | –0.17*** | –0.16*** | –0.16*** | –0.10*** | –0.15*** | –0.11*** |
| Previous experience alliances | 0.13*** | 0.13*** | 0.13*** | 0.13*** | 0.13*** | 0.13*** | 0.14*** | 0.15*** | 0.15*** |
| Size (small) | Ref. | n.s. | n.s. | Ref. | Ref. | n.s. | Ref. | n.s. | n.s. |
| Size (medium) | –1.10 | n.s. | n.s. | –2.24* | –2.50** | n.s. | 20.45 | n.s. | n.s. |
| Size (large) | 0.13 | n.s. | n.s. | –0.17 | –0.50 | n.s. | 0.52 | n.s. | n.s. |
| Primary sector | Ref. | Ref. | Ref. | Ref. | n.s. | Ref. | Ref. | Ref. | Ref. |
| Secondary sector | 1.16** | 1.20** | 1.15** | 1.41 | n.s. | 18.38 | 1.02 | 17.34 | 1.64** |
| Tertiary sector | 0.90* | 0.96* | 0.89* | 1.14 | n.s. | 18.12 | 0.87 | 17.08 | 1.36* |
| Year 2000 | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Year 2001 | –0.10 | –0.14 | –0.10 | 0.01 | 0.00 | –0.09 | –0.21 | –0.52 | –0.32 |
| Year 2002 | –1.13*** | –0.99*** | –1.11*** | –0.89** | –1.11*** | –1.67*** | –1.40*** | –1.38*** | –1.38*** |
| Year 2003 | –1.05*** | –1.28*** | –1.02*** | –2.12*** | –2.03*** | –2.14*** | –0.37 | –1.00* | –0.46 |
| Year 2004 | –1.18*** | –1.32*** | –1.16*** | –1.88*** | –1.75*** | –1.57*** | –0.66 | –0.93* | –0.75* |
| Constant | 0.05 | –0.12 | 0.17 | 0.24 | 2.78*** | 54.65 | –0.42 | –17.01 | –3.52*** |
| χ^2 | 157.37*** | 188.14** | 155.07*** | 99.94*** | 113.31*** | 188.51*** | 79.719*** | 255.20*** | 161.80*** |
| –2 loglikelihood | 856.24 | 825.47 | 858.54 | 402.451 | 388.34 | 313.14 | 429.469 | 253.99 | 347.38 |
| R ² Nagelkerke | 0.235 | 0.276 | 0.232 | 0.297 | 0.335 | 0.513 | 0.232 | 0.628 | 0.435 |
| Classific. matrix | 78.20% | 77.80% | 78.30% | 76.40% | 78.00% | 82.40% | 81.00% | 87.60% | 82.20% |
| N | 927 | 927 | 927 | 437 | 437 | 437 | 490 | 490 | 490 |

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

Note: the values for the dependent variable are 1 for alliances and 0 for merger/acquisition.

Our findings reveal that the effects of asset similarity and complementarity are different for domestic and international cases. In domestic cases, similarity has a significant effect (model 5): Alliances are 0.313 times (odd ratio) more probable than mergers and acquisitions. In international cases, however, similarity does not exert a significant effect (model 8). In contrast, complementarity makes the choice of alliances 12.24 times (odd ratio) more probable than mergers and acquisitions in international corporate entrepreneurship (model 9). This last result partly supports Hypothesis 2. For the complete sample, complementarity plays no significant role in the decision to opt for alliances; it is, though, a determining factor when only international operations are considered.

Corporate entrepreneurship generates the need for firms to access new assets. Thus, firms show more interest in accessing one type of asset (similar and/or complementary) depending on scope (domestic or international). Firms implementing domestic corporate entrepreneurship seek assets that match their existing asset endowments and prefer mergers and acquisitions. Size and competitive position may also be more important factors in domestic operations and make firms prefer partners that are similar to them. In these cases, mergers and acquisitions of firms with similar assets may produce more short-term value because economies of scale are easier to achieve than economies of scope or other forms of synergy (Harrison et al., 2001).

In cases of international corporate entrepreneurship, however, complementary assets are preferred and alliances are the method of choice to obtain them (model 9). A firm choosing the riskier option of international corporate entrepreneurship will need to access assets that complement its own, both to facilitate entry into the new business and to adapt to the new environment. In the international environment, then, firms are less familiar with their new surroundings and are likely to look for complementary assets. In addition, alliances may be preferred to mergers and acquisitions if there is a higher level of uncertainty because they provide more strategic flexibility and may reduce risk. Alliances provide access to complementary assets, but they do not require the investment or long-term commitment to those assets that acquisitions do (Harrison et al., 2001; Ireland & Hitt, 1999). Additionally, alliances can garner legitimacy that may be needed in order to enter foreign markets through corporate entrepreneurship activities.

The results of the control variables presented in Table 4 show that previous experience of one option is significantly associated with the choice of the same option again. In other words, previous experience with alliances makes the choice of alliances more probable. Likewise, previous experience with mergers and acquisitions makes it more likely that these options will be selected again. Wang and Zajac (2007) consider "relational capability" to be an indication of the firm's ability to interact with others and to manage these relationships. These relational capabilities are

determined by a firm's previous experience with alliances or acquisitions. Previous experience of acquisitions allows the firm to develop a set of routines, such as the ability to find partners that fit their strategy and structure (Fowler & Schmidt, 1989), and the management of the integration process, which can facilitate further acquisitions (Hagedoorn & Duysters, 2002). Moreover, previous experience with alliances helps the firm obtain more precise information in order to assess the combination of assets necessary to obtain relational income and to determine whether or not the partner has the complementary assets required (Dyer & Singh, 1998).

An analysis of the effect of previous experience on the two subsamples reveals no differences between domestic and international operations. This may be because previous experience has a higher specificity in the decision. Therefore, assets that are specific have no impact on the choice of corporate entrepreneurship operation in the two different situations (domestic and international). When one asset is specific to alliances or acquisitions, this asset is unlikely to be involved in the trade-off between the two alternatives (Chatterjee & Sing, 1999).

Of the other control variables, the year is a significant factor in all cases. A stronger preference for mergers and acquisitions has emerged in recent years. In terms of sector, only international operations (model 9) show a greater preference for alliances when the firms belong to the manufacturing and services sector as compared to the primary sector.

Discussion

Summary

Alliances are one of the most important options firms have to achieve international corporate entrepreneurship. This paper focuses on two factors that may influence a firm's decision to enter strategic alliances: asset similarity and complementarity. The study's objectives were two-fold: (a) to analyze the effects of asset similarity, asset complementarity, and scope of the operation (domestic or international) on the decision to use alliances as a means of achieving corporate entrepreneurship; and (b) to examine whether the effects of asset similarity and complementarity on the decision to use alliances are different in domestic and international operations.

Contributions to Scholarship

This paper makes three important contributions for scholars. First, the study relates three areas: internationalization, entrepreneurship, and alliances. These areas have developed substantially along separate tracks over the years, but only recently have they begun to be interrelated. While

literature exists on internationalization and entrepreneurship, internationalization and alliances, and to a lesser extent entrepreneurship and alliances, there is a lack of research that combines these three areas simultaneously. This study sets out to find links among these three important issues.

Second, this paper focuses on two characteristics of assets—similarity and complementarity—that may influence choices on how to achieve corporate entrepreneurship. Despite the obvious importance of similarity and complementarity, they have not often been included in empirical papers because of the problems of measuring them.

And finally, the sample used in our empirical study is different from those most commonly analyzed. The little empirical evidence that exists tends to analyze operations performed by US firms. We feel that collecting data on the operations of the leading European Union firms is an important contribution.

Applied Implications

This paper has several applied implications. The findings of this work may help firms make decisions on corporate entrepreneurship activities based on the degree of similarity and complementarity of assets. The study also reveals the different options that exist for corporate entrepreneurship operations when the scenario is domestic or international. On a practical level, we believe that this research will help firms decide how to perform corporate entrepreneurship in both domestic and international contexts. In addition, our results show that previous experience of alliances, mergers, and acquisitions is an important factor when firms choose how to perform corporate entrepreneurship operations. Prior experience of alliances makes firms more likely to choose this method of growth again in future corporate entrepreneurship operations.

Limitations and Future Research

This research is not free from limitations. The proxies for similarity and complementarity (used as a result of secondary information sources) are one such limitation. Some authors point out that measures based on SIC codes could have limitations because they are subject to a bias effect and are discrete measures that may not accurately reflect types and degrees of relationships. For this reason, combining these information sources with primary sources (such as surveys, structured, and semistructured interviews) would be interesting, and this would provide a more comprehensive approach to studying these concepts.

Future research is likely to develop integrated models that combine the variables and relationships under study. Subsequent empirical research should perform longitudinal studies that analyze this decision within different timeframes and in different countries.

Notes

- 1 Duplicate observations resulting from repeated announcements or operations associated with more than one growth form (alliance and/or acquisition) were eliminated.

References

- Al-Laham, A., & Souitaris, V. (2008). Network embeddedness and new-venture internationalization: Analyzing international linkages in the German biotech industry. *Journal of Business Venturing, 23*(5), 567–586.
- Almeida, P., Song, J., & Grant, R.M. (2002). Are firms superior to alliances and markets? An empirical test of cross-border knowledge building. *Organization Science, 13*(2), 147–161.
- Alvarez, S.A., & Barney, J.B. (2001). How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Executive, 15*(1), 139–148.
- Alvarez, S.A., Ireland, R.D., & Reuer, J.J. (2006). Entrepreneurship and strategic alliances. *Journal of Business Venturing, 21*, 401–401.
- Anderson, E., & Gatignon, H. (1986). Modes of foreign entry: a transaction cost analysis and propositions. *Journal of International Business Studies, 17*(3), 1–26.
- Ansoff, H.I. (1965). *Corporate Strategy*, New York: McGraw-Hill.
- Baker, T., Gedajlovic, E., & Lubatkin, M. (2005). A framework for comparing entrepreneurship processes across nations. *Journal of International Business Studies, 36*, 492–504.
- Balakrishnan, S., & Koza, M.P. (1993). Information asymmetry, adverse selection and joint ventures. theory and evidence. *Journal of Economic Behaviour and Organization, 20*(1), 99–117.
- Baum, J.A.C., & Silverman, B. (2004). Picking winners or building them? Alliance, intellectual and human capital as selection criteria in venture financing and performance of biotechnology startups. *Journal of Business Venturing, 19*(3), 411–436.
- Bleeke, J., & Ernst, D. (1995). Is your strategic alliance really a sale? *Harvard Business Review, 73*(1), 97–105.
- Bragge, J., Merisalo-Rentanen, H., Nurmi, A., & Tanner, L. (2007). A repeatable e-collaboration process based on thinklets for multi-organization strategy development. *Group Decision and Negotiation, 16*(4), 363–380.
- Cassiman, B., Colombo, M.G., Garrone, P., & Veugelers, R. (2005). The impact of M&A on the R&D process. An empirical analysis of the role of technological and market relatedness. *Research Policy, 34*(2), 195–220.
- Chatterjee, S. (1986). Types of synergy and economic value: The impact of acquisitions on merging and rival firms. *Strategic Management Journal, 7*(2), 119–139.
- Chatterjee, S., & Singh, J. (1999). Are tradeoffs inherent in diversification and mode of expansion decisions. *Management Science, 45*(1), 25–41.
- Chung, S.H., Singh, H., & Lee, K. (2000). Complementariness, status similarity and social capital as drivers of alliance formation. *Strategic Management Journal, 21*(1), 1–22.

- Coombs, J.E., Mudambi, R., & Deeds, D.L. (2006). An examination of the investment in U.S. biotechnology firms by foreign and domestic partners. *Journal of Business Venturing*, 21(4), 405–428.
- Covin, J.G., & Miles, M.P. (1999). Corporate entrepreneurship and the pursuit of competitive advantage. *Entrepreneurship: Theory and Practice*, 23(3), 47–63.
- Crick, D., & Jones, M.V. (2000). Small high-technology firms and international high-technology markets. *Journal of International Marketing*, 8(2), 63–85.
- Datta, D.K., & Puia, G. (1995). Cross-border acquisitions: An examination of the influence of relatedness and cultural fit on shareholder value creation in U.S. acquiring firms. *Management International Review*, 35, 337–359.
- Das, T.K., & Teng, B.S. (2000). A resource-based theory of strategic alliances. *Journal of Management*, 26(1), 31–61.
- Dussauge, P., & Garrette, B. (1995). Determinants of success in international strategic alliances. Evidence from the global aerospace industry. *Journal of International Business Studies*, 26(3), 505–530.
- Duysters, G., & Hagedoorn, J. (2000). Core competences and company performance in the world-wide computer industry. *Journal of High Technology Management Research*, 11(1), 75–91.
- Dyer, J.H., & Singh, H. (1998). The relational view: cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660–679.
- Folta, T.B. (1998). Governance and uncertainty: The trade-off between administrative control and commitment. *Strategic Management Journal*, 19(11), 1007–1028.
- Fowler, W.S., & Schmidt, D. (1989). Determinants of tender offer post-acquisition financial performance. *Strategic Management Journal*, 10(4), 339–350.
- Gamboa, E.C., & Brouthers, L.E. (2008). How international is entrepreneurship? *Entrepreneurship Theory and Practice*, 32(3), 551–558.
- Garrette, B., & Dussauge, P. (2000). Alliances versus acquisitions: Choosing the right option. *European Management Journal*, 18(1), 63–69.
- George, G., Zahra, S., & Robley Wood, D. (2002). The effects of business-university alliances on innovative output and financial performance: A study of publicly traded biotechnology companies. *Journal of Business Venturing*, 17(6), 577–609.
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, 19(4), 293–317.
- Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20(5), 397–420.
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203–215.
- Guth, W.D., & Ginsberg, A. (1990). Guest editors' introduction: Corporate entrepreneurship. *Strategic Management Journal*, 11, 5–15.
- Hagedoorn, J., & Duysters, G. (2002). External sources of innovative capabilities: The preference for strategic alliances or mergers and acquisitions. *Journal of Management Studies*, 39(2), 167–188.
- Harrison, J.S., Hitt, M.A., Hoskisson, R.E., & Ireland, R.D. (2001). Resource complementariness in business combinations: Extending the logic to organizational alliances. *Journal of Management*, 27(6), 679–690.
- Hennart, J.F. (1991). The transactions costs theory of joint ventures: An empirical study of Japanese subsidiaries in the United States. *Management Science*, 37(4), 483–497.
- Hennart, J.F., & Reddy, S. (1997). The choice between mergers/acquisitions and joint ventures: The case of Japanese investors in the United States. *Strategic Management Journal*, 18(1), 1–12.
- Hitt, M.A., Hoskisson, R.E., & Kim, H. (1997). International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40(4), 767–798.
- Hitt, M.A., Ireland, R.D., Camp, S.M., & Sexton, D.L. (2001). Strategic entrepreneurship: entrepreneurial strategies for wealth creation. *Strategic Management Journal*, 22(6–7), 479–491.
- Hitt, M.A., Ireland, R.D., & Harrison, J.S. (2001). Mergers and acquisitions: A value creating or value destroying strategy? In M.A. Hitt, R.E. Freeman, & J.S. Harrison (Eds.), *Blackwell Handbook of Strategic Management* (pp. 384–408). Oxford: Blackwell.
- Ireland, R.D., & Hitt, M.A. (1999). Achieving and maintaining strategic competitiveness in the 21st century: The role of strategic leadership. *Academy of Management Executive*, 13(1), 43–57.
- Ireland, R.D., Hitt, M.A., Camp, S.M., & Sexton, D.L. (2001). Integrating entrepreneurship and strategic management thinking to create firm wealth. *Academy of Management Executive*, 15(1), 49–63.
- Ireland, R.D., Hitt, M.A., & Webb, J.W. (2006). Entrepreneurial alliances and networks. In: J. Shenkar & J.J. Reuer (Eds.), *Handbook of Strategic Alliances*. Thousand Oaks: Sage Publishers.
- Kale, P., Dyer, J.H., & Singh, H. (2002). Alliance capability, stock market response, and long-term alliance success: The role of the alliance function. *Strategic Management Journal*, 23(8), 747–767.
- King, D.R., Covin, J.G., & Hebart, W.H. (2003). Complementary resources and the exploitation of technological innovations. *Journal of Management*, 29(4), 589–606.
- Kogut, B. (1988). Joint ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, 9(4), 319–332.
- Koh, J., & Venkatraman, N. (1991). Joint venture formations and stock market reactions: an assessment in the information technology sector. *Academy of Management Journal*, 34(4), 869–893.
- Leiblein, M.J., & Reuer, J.J. (2004). Building a foreign sales base: The roles of capabilities and alliances for entrepreneurial firms. *Journal of Business Venturing*, 19(2), 285–307.
- Lubatkin, M. (1987). “Merger strategies and stockholder value”, *Strategic Management Journal*, 8 (1), 39–53.
- Lumpkin, G.T., & Dess, G.G. (1996). Simplicity as a strategy-making process: The effects of stage of organizational development and environment on performance. *Academy of Management Journal*, 38(5), 135–172.
- Marino, L., Strandholma, K., & Steensman, H.K. (2002). The moderating effect of national culture on the relationship between entrepreneurial orientation and strategic alliance

- portfolio extensiveness. *Entrepreneurship, Theory and Practice*, 26, 35–172.
- McDougall, P.P. (1989) International versus domestic entrepreneurship: new venture strategic behavior and industry structure. *Journal of Business Venturing*, 4, 387–399.
- McDougall, P., & Oviatt, B. (2000). International entrepreneurship: The intersection of two research paths. *Academy of Management Journal*, 43(5), 902–906.
- McGrath, R.G., MacMillan, I.C., & Venkataraman, S. (1995). Global dimensions of new competencies. In S. Birley & I.C. MacMillan (Eds.), *International Entrepreneurship*. New York: Routledge.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29, 770–791.
- Montoro-Sánchez, A. (2005). La Cooperación Internacional en Investigación y Desarrollo. Un Análisis de los Factores Organizativos. *Revista de Economía Aplicada*, 13(39), 21–46.
- Montoro-Sánchez, A., Ortiz-de-Urbina-Criado, M., & Romero-Martínez, A.M. (2009). The decision to use alliances as corporate entrepreneurship. The role of resources and skills. *Group Decision and Negotiation*, 18(5), 431–448.
- Pearce, J.A. II (1982). Selecting among alternative grand strategies. *California Management Review*, 30(2), 23–31.
- Pearce, J.A. II, & Hatfield, L. (2002). Performance effects of alternative joint venture resource responsibility structures. *Journal of Business Venturing*, 17, 343–364.
- Porter, M.E. (1985). *Competitive advantage: Creating and sustaining superior performance*. New York: Free Press.
- Porter, M. (1990). *The competitive advantage of nations*. London: Collier-MacMillan.
- Reuer, J.J., & Koza, M.P. (2000). Asymmetric information and joint venture performance: Theory and evidence for domestic and international joint ventures. *Strategic Management Journal*, 21(1), 81–88.
- Rothaermel, F.T., & Deeds, D.L. (2004). Exploration and exploitation alliances in biotechnology: A System of new product development. *Strategic Management Journal*, 25(3), 201–221.
- Robertson, T.S., & Gatignon, H. (1998). Technology development mode: A transaction cost conceptualization. *Strategic Management Journal*, 19(6), 515–531.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Stevenson, H.H. (1983). A perspective on entrepreneurship. *Harvard Business School Working Paper*, 9, 384–131.
- Stopford, J., & Baden-Fuller, C. (1994). Creating corporate entrepreneurship. *Strategic Management Journal*, 15(7), 521–536.
- Teng, B.S. (2007). Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management Studies*, 44(1), 119–142.
- Vidal-Suárez, M., & García-Canal, E. (2003). Complementariness and leverage as drivers of the stock market reaction to global alliance formation. *Long Range Planning*, 36(6), 565–578.
- Villalonga, B., & McGahan, A. (2005). The choice among acquisitions, alliances and divestitures. *Strategic Management Journal*, 26(13), 1183–1208.
- Wang, L., & Zajac, E.J. (2007). Alliance or acquisition? A dyadic perspective on interfirm resource combinations. *Strategic Management Journal*, 28(13), 1291–1317.
- Welch, L.S. (2004). International entrepreneurship and internationalisation: Common Threads'. In L. Dana (Ed.), *Handbook of research on international entrepreneurship*. Cheltenham, UK: Edward Elgar.
- Welch, C.L., & Welch, L.S. (2004). Broadening the concept of international entrepreneurship: Internationalisation, networks and politics. *Journal of International Entrepreneurship*, 2, 217–237.
- Zacharakis, A.L. (1998). Entrepreneurial entry into foreign markets: a transaction cost perspective. *Entrepreneurship, Theory and Practice*, 21, 23–39.
- Zahra, S.A. (1996). Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technological opportunities. *Academy of Management Journal*, 39(6), 1713–1735.
- Zahra, S.A. (2007). Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing*, 22, 443–452.
- Zahra, S., & Dess, G.D. (2001). Entrepreneurship as a field of research: encouraging dialogue and debate. *Academy of Management Review*, 26(1), 8–10.
- Zahra, S.A., & Garvis, D.M. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing*, 15, 469–492.
- Zahra, S., & George, G. (2002). International entrepreneurship: Research contributions and future directions. In M. Hitt, D.R. Ireland, M. Camp, & D.L. Sexton (Eds.), *Strategic entrepreneurship: Entrepreneurial strategies for wealth creation* (pp. 255–288). New York: Blackwell.
- Zollo, M., & Singh, H. (2004). Deliberate learning in corporate acquisitions: Post-acquisition strategies and integration capability in U.S. bank mergers. *Strategic Management Journal*, 25(13), 1233–1256.