

# **Patterns in Domestic vs. International Cooperative Agreements: The Spanish Case \***

M. Dolores Robles Fernández\*

Universidad Complutense de Madrid

Lydia González Serrano♦

Universidad Rey Juan Carlos

Pilar Laguna Sánchez^

Universidad Rey Juan Carlos

## **Abstract**

This paper examines whether the behavioural patterns of international partnerships differ from those of domestic partnerships. For this purpose, we use a sample of partnerships established between 1990 and 2002 in which any Spanish company listed on the Spanish continuous market has participated. We find that the number of international partnerships has grown over this period. Spanish companies enter into agreements primarily to expand their activities abroad, although on occasion they serve as a bridge for foreign companies to penetrate the Spanish market. We contrast a set of exploratory hypotheses regarding the relationship between the types of partnerships and their main characteristics: number of partners, functional area, nature of the agreement, legal form, nature of the partners, sector to which they belong, etc. Our results indicate that, in most cases, there is a relationship between the type of partnership and these variables, which points to a differential behaviour of international partnerships.

**JEL CLASSIFICATION:** G3, L1, M2

**KEYWORDS:** Business cooperation, listed companies, international partnerships

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♦ Facultad CC. Económicas y Empresariales, Campus de Somosaguas, Pozuelo de Alarcón, 28223 Madrid. Tel. +34913942347, fax: +34913942613. [mdrobles@ccee.ucm.es](mailto:mdrobles@ccee.ucm.es).

♦ Facultad CC. Jurídicas y Sociales. Paseo Artilleros s/n. Vicálvaro. 28032 Madrid. [lydia.gonzalez@urjc.es](mailto:lydia.gonzalez@urjc.es).  
**Corresponding author.**

^ Facultad CC. Jurídicas y Sociales. Paseo Artilleros s/n. Vicálvaro. 28032 Madrid. [pilar.laguna@urjc.es](mailto:pilar.laguna@urjc.es)

## 1. Introduction

The corporate internationalization process is one of the most relevant phenomena in today's economic context. Globalization and growing competition on the markets have driven companies to increase their international presence (e.g., see Beamish and Delios, 1997). Partnerships have played a leading role in this process in recent decades because of their multiple advantages. The most important ones include: help to overcome the so-called "foreigner disadvantage", risk mitigation, and acceleration of international expansion. The "foreigner disadvantage" is related to the shortage of internal capabilities and resources normally resulting from a lack of knowledge of the culture, consumer habits or commercial practices in the target country. A partnership with local companies provides this information and a channel to take advantage of the network of relations already established by the partner. In fact, as García Canal (2004) points out, according to the Gradualist Theory (Johanson and Vahlne, 1977), the formation of partnerships makes sense in the early and intermediate phases of the internationalization process because the lack of knowledge of and experience in the new countries is made up for by the contribution of the local partners.

In the same way, cooperation helps to reduce risks because they are shared with the international partner. The level of uncertainty associated with entrance into a new market in a foreign country decreases. Kogut and Kulatilaka (1994) claim that cooperation is a real option that the company exercises on purchasing its share from its partner, since it has the choice of investing on its own. It also helps to reduce the level of international competition and accelerate the expansion process. On occasions, these agreements offer the possibility of very rapidly penetrating markets in which the company had no presence. The companies can thus become part of international networks that allow them to better compete with companies from other international networks or strategic blocks of the same nature.

Much attention has been paid in the literature to research on international cooperation in the last two decades, reflecting the growing importance of international partnerships in business practice (for recent reviews of the literature, see Lyons, 1991, or Moskalev and Swensen, 2007). In the Spanish case, some authors have stressed the important role of cooperation in the internationalization process of Spanish companies in the last few decades (García Canal, 2004). However, there is little specific literature on this phenomenon. We find works, such as those of García Canal *et al.* (1998), Vidal (1999) and Lopez Navarro (2000), that analyze different formulas of international cooperation for different kinds of companies (SMEs, large enterprises, etc.) from a descriptive point of view, or those of Vidal (2000) or Lopez Duarte and García-Canal (2004) that examine how the internationalization of Spanish

companies through strategic partnerships affects their market value. However, there are still many outstanding questions that should be studied in depth in the Spanish business context.

The Spanish case is especially relevant. The environment has changed considerably in the last 25 years, after Spain's membership in the European Economic Community (EEC) in 1986 and the economic reforms that culminated in the entry of the Spanish currency into the Euro system. Traditionally, the Spanish economy has posted one of the highest growth rates in Europe. These changes have forced Spanish companies to make major adjustments, in which international collaboration has played a crucial role.

In this paper, we try to provide new evidence on the determining factors of the behavior of international partnerships. To do so, we analyze a sample of agreements entered into by Spanish companies listed on the continuous market between 1990 and 2002. We are interested in ascertaining up to what point Spanish companies have used international cooperation as a specific tool to boost their presence in international markets or whether, on the contrary, the characteristics of this type of cooperation are the same as those of cooperation between domestic companies.

We focus on the companies listed on the Spanish continuous market for several reasons. As demonstrated by Crespí and García Cestona (2002), although the number of companies quoted on the continuous market accounts for a very small percentage of the total number of companies listed in Spain, their number has grown spectacularly in the last few years, from 606 in 1995 to 1869 in 2000.<sup>1</sup> This seems to show a certain trend towards going public in order to drive the company growth process. Moreover, these companies are very important to the Spanish economy. For instance, whereas in 1995 they accounted for 33% of GDP, in 2000 this figure reached 93% in terms of capitalization. In addition, the stock market acts as a corporate control market, which leads us to believe that the strategic decisions of these companies will be clearly oriented to creating value for the shareholder.

The rest of the work is structured as follows. In section 2, we review the literature on international agreements, focusing on the Spanish case. Section 3 describes the database and establishes the different hypotheses to be compared. Section 4 contains the results of the empirical analysis, while section 5 describes the main conclusions.

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<sup>1</sup> Care must be taken with this figure, since it includes the SIMCAV (equity investment firms) and other companies specialized in fund management and investment portfolios.

## 2. International Partnerships in Spain

Although the issue of international cooperation is of enormous interest to researchers, there are at present still numerous unanswered questions. Many researchers have been interested in defining the characteristics of international agreements and detecting the possible differences with domestic ones, although they usually focus on concrete formulas of collaboration such as joint ventures, specific sectors (especially technology-intensive sectors) or environments familiar to them (normally USA and Europe).

The situation is similar in Spain, although the study of this phenomenon is still in a very early stage. Most works have used news reported in the press as their source of information, since the databases on agreements have been built with different methodologies and are hard to compare. We will not expand here on the very debatable shortage of valid databases on cooperation between companies. Many researchers have resorted to the communication media, primarily the specialized press: Miranda (1992), Rialp and Rialp (1996), García Canal *et al.* (1998 A and B), Rialp and Salas (1999), García Ochoa (2002), Escribá *et al.* (2003). However, only the agreements of a large and preferentially national scope have been published, which discriminates against smaller companies, international agreements and pacts that are kept secret or involve “sensitive” aspects such as takeovers. Moreover, this type of analysis usually does not allow for a very in-depth study of internal aspects, which yields results of an eminently descriptive nature.

Others have preferred to use alternative sources such as Official Agencies or surveys and, although this gives the studies greater depth in terms of objectives, it does not allow for overall conclusions. In this respect, there is a wide range of bases that have been consulted, generally adapted to the methodology and objectives pursued in the analysis. For instance, Menguzzato (1992) resorts to LAREA (Laboratoire de Recherche en Economie Appliquée) in his effort to study international cooperation of Spanish companies, whereas López Navarro (2000) examines the export consortiums developed by Spanish companies under the auspices of the promotion programs of the ICEX. The object of study and the dimension and concept of the cooperation are also not homogeneous, nor are the time periods considered. Therefore, we choose to emphasize the more important results of the most representative studies, in order to obtain some patterns to contrast the conclusions on domestic and international agreements signed by companies listed on the stock market.

Menguzzato (1992) analyzed 76 cooperation agreements launched between 1980 and 1989 and in which a Spanish company was involved. The sectors to which they belong are information technology, biotechnology and materials. He found that the growth of

cooperation in the decade of the 1980s in Spain is comparable to that of both the EEC and the world. The large majority of the agreements are bilateral, with community companies, multifunctional, without a structured form and of a horizontal nature. Miranda (1992) also reached this conclusion, after studying 150 international agreements between 1991 and 1992 and determining that France, Germany and Great Britain were the favourite partners.

To study the internationalization processes of Spanish enterprise, Rialp and Rialp (1996) analyzed a total of 1148 agreements, most of which are international. By sectors, those with the highest number of agreements were energy and water, finance, services, and computers and semiconductors. Rialp and Salas (1999) extended this analysis and found that most of the partnerships were formed with foreign companies (primarily from Western Europe), between two partners, and created multiple activity coalitions. More than 65% of them were horizontal and 76.8% developed the activity in a single country (especially in Spain).

García Canal *et al.* (1998A) examined 461 international joint ventures created by Spanish companies during the period 1986-1996. They noted an upward trend in the creation of these ventures up to 1990. Bilateral ventures with European partners predominated. The purpose of most of them was to undertake multiple activities. They found that the most active sectors were agro-food, services, financial services and other industrial products. García Canal *et al.* (1998B) analyzed the international partnerships formed by the 11 Spanish companies with the largest international presence. They found that nearly 68% of these were partnerships with foreign companies, 27% were global (with the aim of expanding in several countries), and the rest were with other Spanish companies to undertake activities abroad.

López Navarro (2000) studied 83 export consortiums developed by Spanish companies under the auspices of the promotion programs of the ICEX from 1983 to 1996. In this case, the number of partners is relatively high and they are usually agreements of complementariness, where the products of some companies boost the sale of the products of the rest. These alliances are usually formed by small sized companies and are created mainly in fragmented sectors where SMEs predominate.

García Ochoa (2002) compiled 239 cases of strategic partnerships formalized during the period from 1994 to 1998 and in which at least one Spanish partner participated. He found sustained growth in the number of agreements and a larger number of international than national agreements (and especially with companies belonging to the EU). Most alliances were bilateral and in the form of a joint venture. The most active sectors were finance,

telecommunications and energy. Multiple activity agreements predominated, followed by commercial, production and technology agreements.

Finally, Escribá *et al.* (2003) considered 611 partnerships between 1994 and 1996, a large portion of which were international, between two partners, and with a good balance between joint ventures and non-formalized agreements. The international agreements were signed between competitive companies, and the national ones between complementary companies. Most of them are multiple activity agreements, followed by marketing and production. The most active sectors are telecommunications, communication media, services, finance, agro-food and construction.

In short, based on the evidence found by the above mentioned studies and in spite of the indicated difficulties, certain regularities can be perceived in the characteristics of the cooperation agreements signed by Spanish companies, including the following: a certain growth trend, especially at the national level, and a low number of partners, although when the agreements are national this number is usually higher. When international cooperation occurs, community partners are preferred. The most active sectors are the high-tech sectors (electronics, energy, etc.), although at the national level others such as finance and agro-food are prevalent. Normally, the purpose is to undertake multiple activities. There is a certain tendency to structure the collaborations through joint ventures although, depending on the type in question, there are many informal agreements.

### **3. Hypotheses and Data**

For our analysis, we define different types of partnerships depending on the nationality of the partners (Spanish or foreign) and the place where the activity is developed (in Spain or abroad), resulting in the specification of four different types of agreements. International cooperation agreements (ICA) are those in which at least one of the partners has its headquarters outside Spain and they are developed abroad. International domestic cooperation agreements (IDCA) are those in which all the signatory companies are Spanish and they are developed abroad. Domestic international cooperation agreements (DICA) are those in which at least one of the partners has its headquarters outside Spain and its area of action is Spain. Finally, domestic collaboration agreements (DCA) are those in which all the signatory companies are Spanish and they are developed in Spain.

Since our purpose is to determine the particularities of international and domestic agreements signed by listed Spanish companies, we contrast the differences between the type of agreement and the characteristics of the partnerships and the partner companies. To do so,

we focus on the most commonly cited characteristics in the previous literature. For instance, with respect to the partners that sign the agreement, we analyze the following: number, sectors to which they belong, nationality and nature. As for the agreements themselves, we consider: date of signature, purpose, place where they are developed, functional area, nature and degree of formalization.

In addition, we want to investigate the systematic trends of the data and know if the fact of being an international agreement is independent of the characteristics of the partners and the agreement. For this purpose, we will contrast the independence between the fact of being an international agreement and the following features:

1°. Size: measured in terms of the *number of partners that take part and number of different sectors* involved.

2°. Nationality: in the case of purely international agreements (ICA and DICA), we are interested in knowing if the fact of being an agreement that will be developed in Spain or outside Spain is associated with the fact that partners from only one country or from several countries are taking part. For this, we will consider both the *number of countries of origin of the participants* and *their continent of origin*.

3°. Functional area: marketing, production, finance, research, personal or multiple.

4°. Nature of the agreement: vertical, complementary horizontal or competitive horizontal.

5°. Legal form: joint venture, consortium, etc.

6°. Nature of the partners: private, governmental or mixed.

7°. Sector: in addition, we will investigate whether there are differences between sector. In this respect, we analyze separately the partnerships that have been formed by the most relevant sectors, e.g. banking, electricity sector, etc. To this end, we will compare the independence between the fact that a company from these sectors participates and whether or not it is an international agreement.

### 3.1. Database

To be able to contrast these hypotheses, we have built a database containing information on the number and characteristics of agreements signed by companies listed on the Spanish continuous market<sup>2</sup> from January 1990 to December 2002. The information on

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<sup>2</sup> We have only considered the partnerships in which one of the partners was listed on the stock market at that time.

the agreements is selected from the economic press. In particular, we have consulted the Baratz (Servicios de Teledocumentación, S.A.) database, which contains news from the leading general information newspapers (*El País*, *El Mundo*, *ABC*, etc.) and from the economic information newspapers (*Expansión*, *Cinco Días*, *Gaceta de los Negocios*, etc.). In addition, we have examined the news published by *El País* and *Cinco Días* in the *El País* newspaper archives ([www.elpais.es](http://www.elpais.es)) and on two Internet financial information sites: [www.finanzas.com](http://www.finanzas.com) (Ya.com Internet Factory) and [www.invertia.com](http://www.invertia.com) (Terra Networks, S.A.), which report news from agencies such as EFE and *Europa Press*. Our aim here is to eliminate any bias that the media reporting the news could introduce and complete the information they provide as much as possible.<sup>3</sup> Although it is true that using the economic press leads to some problems, e.g. lack of relevant information, misinterpretation, or tendency to focus more on agreements of national companies or those undertaken in their own country, as acknowledged by some authors (e.g., Terpstra and Simonin, 1993), this is normally the only feasible way to examine a phenomenon as widespread as international partnerships. In any event, as we have already commented, this procedure of compiling information is widely used in previous studies.

The database includes all the agreements regardless of their legal form or degree of formalization. These agreements should show a certain mutual dependency between the signatory companies and, therefore, those that involve specific market transactions are rejected. Moreover, the independent legal identity of the partners should be maintained, which is why mergers or acquisitions are not included. The important thing are the relations that are formed based on the coordination of activities. In this respect, we adhere to the criterion applied by authors such as Rialp and Rialp (1996) and Escribá *et al.* (2003) and, therefore, concessions of lines of credit or credits syndicates are included.

The search criteria used to compile the information are based on keywords such as the following: agreement, partnership, strategic partnership, cooperation, collaboration, consortium, joint venture, UTE (*temporary joint venture*), etc., in combination with the names of the companies covered by the analysis. Possible changes in the company names over the study period have been considered.

The selected variables have been related to the characteristics normally used in the earlier literature that can identify the nature of the cooperation and on the basis of which we

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<sup>3</sup> The press data can cause problems related to incomplete or misinterpreted information and they are usually biased towards large enterprise.

have established the hypotheses to be compared. Table 1 shows these characteristics, which are: the *date* on which the partnership is established, the companies that sign it (*name* and *number*), the *purpose* for which the partnership is established, and the *sectors* to which the participating companies belong. We have followed the sector ranking in use on the continuous market during the study period.

[Insert Table 1]

The *partner Nationality* shows the country of origin of the companies that take part in the partnership. It should be noted that, of the companies under consideration, there are some whose nationality is not easy to determine because they are multinationals with a significant implementation in different countries. In these cases, we have chosen not to assign them to a specific country, but rather to treat them separately. This will enable us to classify the agreements as international or domestic depending on whether a foreign company has a share in the partnership.

We are also interested in knowing the *place where the agreement is developed*, in order to determine if it is signed to enable the penetration or expansion of Spanish companies abroad or if, on the contrary, the purpose is to develop activities in the national territory. This variable, together with the partner nationality, will enable us to classify the partnerships as ICA, DICA, DCA or IDCA.

The *Nature of the partners* variable includes three categories: private, governmental (agreements in which the State and/or public powers participate), and mixed (in which entities such as universities, associations, foundations, etc. take part).<sup>4</sup> The *functional area* of the agreement shows whether it is signed to carry out marketing, production, research, financial or personal activities, and also whether the collaboration is developed in several functional areas at the same time (when it is then characterized as multiple). It is important to note that the agreements classified as production are those in which the activity falls within the core business of the partners. For example, agreements of a financial nature signed by banking firms have been considered as production and not as finance. We also consider as production agreements the partnerships formed between companies from high-tech sectors (and not as research agreements).

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<sup>4</sup> Other authors, such as Miranda (1992), include the agreements entered into with public enterprises in the governmental category.

The relationship between the partner activities is defined by the *Nature of the agreement* variable. This considers whether there is a vertical, competitive horizontal or complementary horizontal relationship between the companies taking part in the partnership.

#### **4. Empirical Results**

The sample includes 3234 agreements collected over the 13-year period under consideration. In some cases, the agreement has been signed by more than one company listed on the Spanish continuous market, which results in duplication. After filtering the database to account for this duplicity, the effective number of agreements compiled is 2465. The number of companies that have signed an agreement during the entire period is 161 of the total of 227 market companies, which, in each year of the survey, is approximately 50% of the listed companies. This fact confirms the hypothesis of the importance of using cooperation, although it also gives an idea of how this strategy is concentrated in a relatively low number of companies.

##### *4.1. Sample Distribution*

Table 2 shows the types of partnerships found in the analyzed sample according to the partner nationality and the place where the agreement is developed. We find that 54.6% are domestic partnerships signed between Spanish companies, while the remaining 45.4% are international partnerships in which at least one foreign company takes part. In this respect, it is worth mentioning that, in the case of listed Spanish companies, there does not seem to be a clear preference for national partners when signing agreements, which points to a growing willingness of these companies to undertake foreign ventures. Moreover, as indicated by Peña and Aranguren (2002), larger companies have more of a tendency to formalize agreements with international partners than the rest. The same is true of companies that have a higher percentage of sales on foreign markets (Peña and Aranguren, 2002), such as those listed on the Continuous Market.

The agreements reached for purposes of expanding activities abroad, regardless of the partner nationality, amount to 32.7%. In other words, almost 70% is developed in national territory, although the weight of these partnerships may be overrated because they are agreements reported in the national press. Of the agreements involving a business development outside our borders, the most representative ones are the ICAs with nearly 30%, while the IDCAs represent a very small part of the sample with only 133 partnerships.

We can also affirm that the purpose of many of the agreements executed – 18.1% – is to help the foreign company enter the national market and, therefore, although they are cases

of collaboration with international companies, in principle they do not imply a channel of internationalization for the Spanish companies. In short, the companies on the Spanish continuous market do not have a clear preference for national partners when establishing their partnerships, but they do show a clear tendency to develop them inside our borders. Nevertheless, when they do decide to expand beyond them, they usually do so with the help of foreign companies.

[Insert Table 2]

#### 4.2. *Temporal Evolution*

Table 3 and Graphic 1 show the time evolution of the four types of partnerships analyzed in the sample. As we can see, in all cases there is a general growth trend with fluctuations during the period and a sharp drop in the last two years of the sample. In this respect, García Canal and López Duarte (2005), in their work on the Madrid Stock Market valuation of the multinationalization of Spanish enterprise during the period 1990-2003, found that Spanish investors prefer different modes of entry in each period. While the preferred form of entry in the early years (1990-1995) was the joint venture, in the later years acquisitions took priority. According to the gradualist theory, it is logical that a company will opt for partnerships in the early phases of the internationalization process and later choose formulas, such as acquisitions, involving a firmer commitment. This fact could explain the downward trend detected in the last two years of our sample.

[Insert Figure 1]

Worth mentioning is the different pattern of the ICAs and the DICAs. The former show a downward trend up to the middle of the sample and then start to increase as of 1996. The Madrid Stock Market experienced an important bull cycle from 1996-1999 in which most of the investments are concentrated and, therefore the listed companies are more willing to undertake projects with foreign companies outside our borders. The DICAs, on the contrary, show an erratic behaviour with slight growth at the end of the sample. The expansion cycle of the Spanish economy has encouraged foreign companies to develop projects in our country. This also seems to be confirmed by the fact that, in the intermediate periods between 1995 and 1998, the ICA and IDCA series intersect, which indicates that in those years the number of partnerships whose purpose was the entry of foreign companies into Spain was higher than those whose aim was the expansion of Spanish companies abroad.

[Insert Table 3]

### 4.3. Size

Table 4 shows the size of the domestic and international partnerships. Panel A describes the number of participants. We find that most agreements have been executed between two partners (as in the majority of the studies mentioned under the corresponding heading), regardless of their nationality and the place where the partnership is developed, although the percentage is slightly higher in the case of ICAs with 76% versus 70%, which is the percentage around which the rest of the cases fluctuate. Some of the most commonly mentioned drawbacks of cooperation refer to the coordination costs (Porter and Fuller, 1998) and the cultural clash between the partners (Fernández Sánchez, 1991), whose negative effects diminish as the number of participant decreases. Moreover, cultural clash is more likely to occur between companies from different countries, and thus it is logical that a higher percentage of bilateral agreements are of the ICA type. Both Miranda (1992) and Garcíá Canal *et al.* (1998A) had already observed a certain trend towards a lower number of partners in international partnerships, and this seems to be confirmed in our case.

[Insert Table 4]

Alliances with 3 partners also have a relatively important weight, ranging from 12.01% of the IDCAs to 14.83% of the DICAs.

On the other hand, we are interested in knowing whether there is an association between the number of participants and the type of partnership, so we have compared the null hypothesis of independence between the two variables with the Chi-square statistic. As we can see in Table 4, the p-value associated with the comparison is very high – 0.321 – which means we cannot reject the null hypothesis of independence between the two variables, i.e., we find no evidence that indicates there is a relationship between the type of agreement and the number of participating partners. Although the greater weight of partnerships formed by a low number of partners has been explained by previous authors as resulting from the high transaction costs involved in agreements with a high number of participants (Rialp and Salas, 1999; Menguzzato, 1992), we cannot affirm that the fact that a foreign company takes part, or that the agreement is going to be developed inside or outside our borders, is related to a higher number of members in the partnership.

Panel B of Table 4 shows the size of the partnership, but now in terms of the number of sectors taking part in it. We find that, in the case of the ICAs, most partnerships (58.16%) are formed between companies that are in the same sector, whereas for the other three types of alliances, most of the agreements are signed between companies from two different sectors (68.26% DCA, 51.13% IDCA and 62.02% DICA).

Without entering into the possible relations of competition/complementariness between the partners that will be analyzed hereinafter, competition in the same sector on an international scale, from the perspective of strategic conduct, requires companies to seek functional specialization, complementariness of resources, and distribution of risks among the partners (Yoshino and Srinivasa, 1996). To this end, companies listed on the stock market prefer foreign partners from their same sector when undertaking projects in other countries, as this is the traditional channel for achieving international expansion (Rialp and Salas, 1999).

On the other hand, when the market targeted by the agreement is the Spanish market, the highest percentages of agreements are signed by companies from different sectors, along the lines of the findings of Escribá *et al.* (2003). This indicates that Spanish companies are more reluctant to cooperate with other Spanish or foreign companies with which they directly compete in the domestic market. A loss of competitive advantages, an excessive transfer of specific skills, or an increased dependence of the members (Jarrillo, 1989; Nueno and Oosterveld, 1988) that could result in the creation of a major competitor in the future seem to be at the root of this behaviour.

In addition, the null hypothesis of independence between the two variables is clearly rejected, as the p-value of the comparison is zero. This result indicates that there is an association between the type of partnership and the number of sections participating in it, which supports the foregoing observation.

#### 4.4. Nationality

If we focus exclusively on the international partnerships in which at least one foreign company takes part, we can assess their size in terms of the countries of origin of the foreign company. Panel A of Table 5 shows the number of countries of origin of these companies. As we can see, in a large majority of the cases they come from a single country. This result is consistent with the fact that most of the agreements only involve two participants and one of them is Spanish. In 4.3% of the ICAs and 2.25% of the DICAs, one of the signatory companies is a large multinational. In other words, the multinationals cooperate to a greater extent with national companies to conduct business outside our borders.

[Insert Table 5]

Panel B of Table 5 breaks down the international agreements by the continent of origin of the foreign companies. We find that most partnerships are established with European companies, with the percentage exceeding 50% in the case of DICAs. This result shows us that, in most cases, European partners are sought, which is consistent with the results obtained in the previous Spanish literature. In addition, the work of García Canal *et al.*

(1998A) had already detected a predomination of European partners in the joint ventures through which a foreign company accessed the Spanish market. As Vidal (1999) indicates, the preference for European partners is a specific trait of Spanish companies, since most of the companies from the EU prefer alliances with partners from countries that do not belong to the Union. This reflects the importance of market globalization (Montoro, 1999).

The second continent in number of ICAs is Latin America, followed closely by North America (USA and Canada).<sup>5</sup> The two continents together account for almost 33% of the international partnerships developed outside Spain. The flows of foreign direct investment to Latin America have grown significantly, driven by liberalization and high growth expectations in these markets, as well as by the consolidation of the single market in Europe. Spanish companies have taken advantage of their cultural links with Latin America to begin an ambitious process of internationalization. The interesting thing about the Spanish experience (for a more thorough analysis, see González, 2003) is that most of the income from FDI in Latin America is concentrated in a very limited number of companies (e.g., Telefónica de España, Endesa España or Repsol-YPF).

The result is different in the case of the DICAs, as only 2.47% of them are signed with Latin American companies, whereas almost 30% is signed with North American firms. This result seems to indicate that, while Spanish companies use partnerships as a means of expansion in Latin America, not many Latin American companies cooperate with Spanish companies to enter our country. The former are suffering from significantly stronger competition in their regular environment and, therefore, they seek alliances that allow them to improve their position and obtain access to the know-how and experience of the foreign partners (González, 2003). Latin American companies are new in the global village and they still are not very well known, which is why they seek to consolidate themselves more in their own markets or those that are geographically closer.

In the case of North American companies, on the contrary, partnerships are used more to enter our market than for the Spanish companies to expand in theirs. The reasons may lie in the strong regulation of the North American economy (which makes it difficult for foreign companies to enter) and the considerable international experience that makes it easier for them to enter other markets. The tendency of American companies to enter into agreements

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<sup>5</sup> In this case, more than 90% of the strategic partnerships with North America have been signed with U.S. companies.

with European partners has already been observed in previous studies (Morris and Hergert, 1987; Murray, 1995).

#### 4.5. Functional Area

Going back to the analysis of the complete sample of strategic partnerships, we are now interested in examining different characteristics related to the types of activities for which the agreement is signed, their nature, their form, and the nature of the participating partners. All this is shown in Table 6. Panel A describes the Functional Area of the partnership. As we can see, the most frequent one in all cases is Production. This confirms the upward trend of cooperation agreements in the area of production detected in previous studies (Escribá *et al.*, 2003). However, we must again stress the particularities we have introduced into our study in relation to this criterion, which could cause an increase in the number of this type of partnership.

[Insert Table 6]

60.1% of the domestic partnerships developed in Spain are formed to undertake production activities. For the rest of the partnership types, the percentage is clearly lower – around 45% - and the lowest percentage corresponds to the ICAs. The second most frequent activity is Marketing. In this case, the purely domestic alliances post the lowest proportion with 19.62%. The percentage is higher for the partnerships that involve an international relationship, whether in the development or between the member partners, with around 29% of the agreements. This seems to confirm previous results, in the sense that marketing agreements represent the type of partnership that is usually created when the aim is international expansion (Dussauge and Garrette, 1991). When a company seeks to expand a market, it can be expected that it will apply the agreement to the marketing area, whereas a diversification of activities will give rise to agreements in multiple fields (Rialp and Salas, 1999).

The next most frequent activity in the case of agreements developed inside Spain is Research, with 8.33% in the case of DCAs and 9.66% in the case of DICAs. Research is more important in agreements developed inside our borders than abroad. Nevertheless, and in spite of a significant decline in the number of agreements developed in the R&D area that had already been detected previously (Escribá *et al.*, 2003), we should not forget that, in our case, the partnerships formed between high-tech companies are included as production and not as research agreements (since they involve the partners' core business). The difficulty of managing technological alliances, and the scant experience of Spanish companies that

augments their fear of losing their technological know-how, are some of the reasons given to explain this decline (Escribá *et al.*, 2003).

For partnerships that are developed outside Spanish territory, the third activity is the one we have designated as multiple, i.e., the agreements are developed in more than one activity, with 10.53% in the case of the IDCAs and 10.98% in the case of the ICAs. Of note is the low percentage of multiple activity agreements between the listed companies in comparison to previous studies. It is true that, on some occasions, the press does not report complete information on the objectives of the partnerships, and for this reason other sources of information such as interviews or questionnaires are more useful. In any event, it is coincidental that international expansion is developed to a greater extent in multiple functional areas. The reason may be that these agreements are more complex.

We find a certain degree of association between the functional area and the type of partnership, where the p-value of the Chi-squared statistic is equal to zero. Also important is the weight of partnerships formed in the area of Finance, which is the fourth most important area in all the cases except for the IDCAs, where it is fifth.

#### *4.6. Nature of the Agreement*

When we analyze the nature of the agreement (Panel B, Table 6), we find differences in the frequencies of partnerships that depend on whether the agreement is vertical, complementary horizontal or competitive horizontal. Although in all cases the horizontal agreements (of either type) are more frequent, the vertical agreements are the majority in the case of partnerships with domestic development, with 47.24% for the DCAs and 41.35% for the DICAs. The order of the rest is similar for this type of partnership, with the next most frequent category being complementary horizontal agreements, followed by competitive horizontal agreements. For partnerships with international development, the most common thing is to sign competitive horizontal agreements, with this category exceeding 56% in the case of ICAs and ranging around 39% for IDCAs. In the case of ICAs, the next category is the vertical agreement, followed by complementary horizontal agreements which represent only 19.88% of the total. We must not forget, however, that there may be a certain methodological bias, as the press tends to pay less attention to vertical agreements (García Canal, 1993).

Our results coincide with the previous literature since, among the international agreements, the ones between competing companies to jointly undertake an activity predominate, whereas vertical agreements are more common in the domestic realm (Escribá *et al.*, 2003). This seems to confirm the fact that Spanish companies are afraid to cooperate

with others with which they compete in the Spanish market, whereas the perception of this risk is not as great in international markets. National agreements are primarily motivated by the complementariness between the companies that develop them (Rialp and Salas, 1999), since strengthening market positions requires partnerships with companies situated in the anterior and posterior stages of the value chain. Competitive horizontal partnerships favor learning and obtainment of information and have significant effects on restructuring of the competition (Fernández, 1996), which could be beneficial in the international environment but may be perceived as more dangerous in the company's national environment. The possibility of appropriating and internalizing the resources provided by another partner becomes a particularly critical issue when the cooperation is between competing companies, due to the impact this could have in the future from a competitive point of view: loss of specific know-how, increased dependency of the members, etc. (González, 2003).

As a result, we reject the independence of the nature of the partnership and the type in question (p-value=0).

#### 4.7. Legal Form

Panel C of Table 6 shows the results of our analysis of the legal form given to the strategic partnership. As we can see, in the majority of cases and for all the partnership types, these do not have a defined legal structure. The proportion exceeds 70%, except in the case of the IDCAs, for which it is 57.14%. In this case, the next most frequent category is the Consortium with 18.8%, followed by the Joint Venture with 14.29%. For DCAs, the second most frequent legal form is the UTE (*union temporal de empresas* – temporary joint venture) with 14.34%, followed by the Joint Venture with 6.92%. In the case of partnerships with foreign companies (ICA and DICA), the second most preferred legal form is the Joint Venture with 15.43% in the case of ICAs and 9.89% for DICAs. In this case, the UTE is rarely used. It would seem that the fact of having a foreign partner would increase the complexity and undermine trust, which should result in a more formalized alliance. However, it does not seem that the partners' nationality in itself has an influence on the different degrees of mutual trust between them (Rialp and Salas, 1999). Our results also seem to confirm this, as the agreements with a greater degree of formalization are those established between national companies for developing activities abroad.

In the final years of the decade of the 90s, it had already been observed that contractual agreements between companies were increasingly being used, to the detriment of other more structured forms such as consortiums or joint ventures. The reasons could lie in

the intensification of globalization and institutionalization and a greater familiarity with cooperation, which minimize the need to formalize agreements (Escribá *et al.*, 2003).

The greater flexibility and lower cost of the less structured forms may also be at the root of this fact. Since in unstructured partnerships no entity is created separately from the partnered companies themselves, the transactions costs are lower. This makes more funds available for undertaking the corresponding activity than in the case of legal forms with a greater degree of formalization, e.g., the joint venture. However, non-formalized partnerships are not likely to grow and generate new assets, whereas this is more probable in the case of joint ventures. Nevertheless, we must be cautious about interpreting these results. Information in the press does not always report on all the characteristics of partnerships and may not indicate the legal form used. The legal form has been included in the database only if the news explicitly mentions it. Therefore, it may be that some of the agreements indicated under the heading “without form” do in fact correspond to structured forms of cooperation.

#### *4.8. Nature of the Partners*

Finally, Panel D of Table 6 shows the frequency of the partnerships based on the nature of the partners. In general, the most frequent ones are between private enterprises, although we find some interesting differences between the different types of partnerships. In the case of the DCAs, 66.61% of the agreements are between private enterprises, followed by 17.39% with entities such as universities, foundations, etc., and finally the remaining 15.99% with the Government or AAPP. In cooperation agreements with an international component, the partnerships between private companies are much more frequent, with 93.23% in the case of the IDCAs, 90.8% for ICAs and 88.76% for DICAs. For the ICAs, the next most significant category is that of governmental alliances with 6.53%, whereas in the case of IDCAs and DICAs the next category is the mixed category with 5.26% and 8.09%, respectively.

One reason for this may be that the companies with a higher percentage of sales on the foreign market may show less of a tendency to enter into agreements with universities or research centers (Peña and Aranguren, 2002). Companies with an international outlook penetrate foreign markets more for the purpose of making a return on the investments made in marketing and, therefore, instead of looking for partners such as universities or research centers, they prefer other companies (clients, vendors or competitors).

We find a significant association between these variables based on the result of the independence comparison shown in Panel D of Table 6.

#### 4.9. Sector

As for the sectors to which the companies that sign agreements belong, the results are shown in Table 7. In this case, we have selected only the 5 most active sectors in terms of execution of agreements. The figures contained in this table show the number of partnerships in which at least one of the signatory companies is from the corresponding sector. We also analyze how the proportion of agreements signed per sector is distributed among the different types of partnerships. It is true that, since we are dealing with listed companies, there is an overrepresentation of those sectors in which the companies are larger (and therefore more concentrated) versus the more atomized sectors whose companies have less of a presence on the Spanish continuous market.

[Insert Table 7]

As seen in the last two columns of Table 7, the banking sector clearly predominates. A bank participates in 31.93% of the total. This percentage is almost double that of the second most important sector (construction) with 17.04%, closely followed by the electricity sector with 15.09%. These are followed by the sector of Oil, gas and other sources and by Telecommunications, with 11.64% and 10.75%, respectively. For all the sectors, the most frequent type of partnership is purely domestic (DCA), followed by international agreements (ICA).

The financial, energy and construction sectors were found to be quite active in previous studies (Rialp and Salas, 1999; Escribá *et al.*, 2003). The literature normally reveals that, although cooperation is a strategy used in all the sectors, those with a high degree of technological intensity (telecommunications, energy, etc.) or with major changes in regulation and intensity of the competition (finance, telecommunications, distribution, etc.) are usually the most representative. It is true that the studies that do not use the press as an information source (Casani, 1995; Valdés and García Canal, 1995) usually find a high share of cooperation in mature sectors without a strong technological component (such as manufacturers).

If we analyze the partnerships in which a bank takes part, we find that more than half are DCAs, with 55.65%. The Spanish banking sector has traditionally had large groups formed by different types of companies and based on the creation of banking consortiums with a major presence on the domestic market. Banks seem to prefer cooperation with foreign companies to penetrate international markets, with 22.11% of ICA versus 5.08% of IDCA. The remaining 17.5% of the agreements in which at least one bank participates enables them to collaborate with foreign companies to develop projects in Spain. García Ochoa (2002)

points out that financial market globalization has forced financial institutions to form alliances in order to acquire a competitive size and provide their services to companies that are international players.

Companies from the construction sector seem to focus on domestic cooperation, as 69.76% of the partnerships are type DCA. The next most frequent type is ICA but lagging far behind with 13.1%. The least frequent in this case are the IDCAs, with 6.9% of the total number of agreements in which at least one company from the Construction sector participates. We coincide with Escribá *et al.* (2003) in their perception that the press has paid considerable attention to tender agreements and public works construction, which could explain the high number of agreements of this sector in Spain. Nevertheless, the scant presence of international agreements or of companies from the sector in markets other than the domestic market could be explained by the high concentration, large size and heavy investments required to bid on tenders and concessions that act as an entrance barrier to foreign capital.

On the other hand, the companies from the electricity sector show a lower proportion of DCAs (51.88%) than the former, and a higher percentage of ICAs (27.69%). Just as in the case of banking and construction, international domestic cooperation is the least frequent type with 6.45%. The second energy-related sector of Oil, gas, and other sources is more active in cooperation at the international level than at the national level. For instance, of the total number of partnerships, only 40.77% are DCAs, although this continues to be the most frequent category. This sector is the one that forms proportionally more international partnerships, with 35.19% of ICAs and 18.82% of DICAs. Because of the global structure of this market, the companies need to develop more agreements with foreign companies at both the national and international level.

Finally, if we analyze the partnerships formed by a company from the Telecommunications sector, we see that again the majority of the agreements are international, with 29.06% of ACIs and 21.13% of IDCAs. Proportionately, this is the sector that collaborates most with foreign companies to develop projects in Spain. With the end of state regulation of telecommunications, the presence and influence of foreign companies on national economies has increased. This internationalization has affected international operators and major suppliers alike, as they have had to adapt to competition in a worldwide market with an oligopolistic structure and develop forms of collaboration in an uncertain environment characterized by constant technological innovation (López *et al.*, 2002).

When we contrast the independence between the sector and the type of agreement, we conclude the following: we clearly reject the hypothesis of the non-existence of a relationship between the type of agreement and the sector in all cases, except in the case of the Electricity sector, for which we cannot reject the absence of an association between the type of agreement and the fact that one of the signatory companies is from this sector.

## **5. Conclusions**

This article examines whether international partnerships have a different pattern of behaviour than domestic partnerships. To do so, we have used a sample formed by the agreements entered into between 1990 and 2002 in which a Spanish company listed on the Spanish continuous market has participated.

First of all, there is a certain balance between cooperation between Spanish companies and cooperation with international companies, which shows there is no clear preference for national partners, as was to be expected given the size and broader international experience of the companies in our sample. On the other hand, the number of international partnerships has grown over the period under consideration, although there is a sharp drop in the last two years considered, which could demonstrate an international maturing process that motivates more committed formulas such as acquisitions. Spanish companies sign agreements primarily to expand their activities abroad, although on occasions they also serve as a bridge for foreign companies to penetrate the Spanish market. When they cross over our borders, they usually do so with the help of a foreign partner.

Just as in previous studies, bilateral partnerships are the most representative and seem to confirm the detected trends of fewer partners in international partnerships, although we find no evidence of a relationship between the number of partners and the type of agreement. However, we do detect a relationship between the number of sectors involved in the partnership and its national or international nature. Agreements in which companies from two sectors take part are more frequent in all cases, except in type ICA partnerships, which are usually single-sector. This confirms that these companies follow the traditional channels to achieve international expansion, forming alliances with foreign partners from their same sector, whereas they prefer non-competitive companies to cooperate in the domestic market.

It is also observed that in international partnerships, the companies generally seek partners from a single country, mainly European or American along the lines of the results of previous research. The preference for European partners is a typical characteristic of Spanish companies, as is their close cooperation with Latin American companies because of their

cultural and linguistic links. We find that, while Spanish companies form partnerships with Latin American companies to expand their activities in Latin America (encouraged by the liberalization and high growth expectations of these markets), there are practically no agreements whose objective is the entrance of Latin American companies into Spain (because their lack of global experience and increasing national competition force them to consolidate in their own markets). Also of note is that North American companies sign more agreements to penetrate the Spanish market than to help Spanish companies enter their markets (which, on the other hand, are strongly regulated).

We find that, in all cases, there is a tendency to sign production agreements; although they account for more than 50% of the DCAs, in the rest of the cases the percentage is lower. In international agreements, the partnerships formed in the area of marketing have a very significant weight. This confirms the theory that marketing agreements are used when the aim is international expansion, while production agreements are used to a greater extent in the national markets. Similarly, international expansion is developed to a greater extent in multiple functional areas because of the greater complexity of this type of collaboration, although there is a significantly diminished presence for the companies in our sample. These results should be viewed with caution because of the different criterion used to classify production agreements. Nonetheless, there is an association between the functional area and the type of agreement.

The nature of the partnerships is usually horizontal, although the proportion of each type depends on whether they are domestic or international partnerships. We also find dependence between the two variables, which confirms the tendency for competing companies to enter into agreements at the international level and vertical agreements at the national level. The loss of specific know-how, increased dependence between the partners, and the possibility of creating a strong competitor in the future seem to have an important weight when choosing partners and developing collaboration within our borders. However, the companies seem to place a greater value on learning and obtainment of information provided by competitors when entering into international agreements.

In all cases, the partnerships without a concrete legal form predominate, and it does not seem that the nationality of the partners in itself has an influence on a greater need for formalization in spite of the diminished trust that this could entail. Again, the limitations of the analysis should be considered, because the information reported by the press does not always explicitly indicate the structure of the agreements.

The partners usually prefer other private companies as collaborators. The reason for this may lie in the decline of R&D agreements, as well as the fact that companies with a high percentage of sales on the foreign market tend less to enter into agreements with universities or research centres. Moreover, we find a significant association between the two factors.

When we analyze the frequency of this type of business strategy by sectors, we see that the most active sector is banking, followed by construction, electricity, oil and other sources, and telecommunications. These sectors, which are very representative in previous studies, are characterized by being technologically intense and by major changes in regulation and competition. Nevertheless, the sectors with larger companies (with a presence on equity markets) are represented to a greater extent than the more atomized sectors. All of them tend to form domestic partnerships, followed by ICAs.

Although the fact that our study focuses on listed companies entails some limitations, as commented above, we can affirm that, because of their size and importance, they seem to be representative of the behaviour of Spanish companies as a whole, as they confirm the general trends detected by previous studies, albeit with certain particularities. Moreover, their nature also enables us to ascertain the market appraisal of the different types of agreements in terms of the analyzed variables; this information is especially important when making decisions on this issue.

Finally, we have observed a relationship between the type of partnership and the majority of the considered variables. We cannot affirm there is an association only in the case of the number of partners of the agreement and when one of the signatory companies is from the electricity sector. Although this first paper is of a fundamentally exploratory nature, it would be interesting to conduct a more in-depth study of the importance of these relationships, as our results seem to indicate that the pattern of behaviour of international partnerships differs from that of domestic alliances. Therefore, a future study of the factors that increase the probability that a company will opt for an international partnership instead of a domestic one when planning its cooperation strategy would be relevant.

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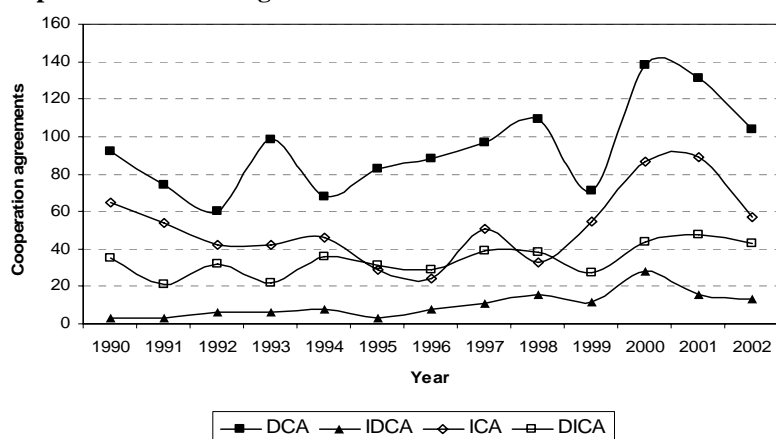
**Table 1. Collected information about characteristics of the agreements**

• Date on which the partnership is established	• Sectors to which the participating companies belong
• Number of participants (natives and foreigners)	• Nature of the partners
• Name of the participating companies	• Functional area of the agreement
• Partner nationality	• Nature of the agreement
• Purpose for which the partnership is established	• Legal form
• Place where the agreement is developed (Spain or abroad)	

**Table 2. Different types of partnerships defined depending on the nationality of the partners and the place where the activity is developed**

	<i>N</i>	<i>%</i>
Domestic cooperation agreements (DCA) <i>Spanish partners - developed in Spain</i>	1213	49.2%
International domestic cooperation agreements (IDCA) <i>Spanish partners – developed abroad</i>	133	5.4%
International cooperation agreements (ICA) <i>Foreign partners – developed abroad</i>	674	27.3%
Domestic international cooperation agreements (DICA) <i>Foreign partners – developed in Spain</i>	445	18.1%
<i>Total</i>	2465	100.0%

**Figure 1: Temporal evolution of agreements**



**Table 3: Frequency of international alliances per year**

Year:	DCA		IDCA		ICA		DICA		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1990	92	7.58%	3	2.26%	65	9.64%	35	7.87%	195	7.91%
1991	74	6.10%	3	2.26%	54	8.01%	21	4.72%	152	6.17%
1992	60	4.95%	6	4.51%	42	6.23%	32	7.19%	140	5.68%
1993	98	8.08%	6	4.51%	42	6.23%	22	4.94%	168	6.82%
1994	68	5.61%	8	6.02%	46	6.82%	36	8.09%	158	6.41%
1995	83	6.84%	3	2.26%	29	4.30%	31	6.97%	146	5.92%
1996	88	7.25%	8	6.02%	24	3.56%	29	6.52%	149	6.04%
1997	97	8.00%	11	8.27%	51	7.57%	39	8.76%	198	8.03%
1998	109	8.99%	16	12.03%	33	4.90%	38	8.54%	196	7.95%
1999	71	5.85%	12	9.02%	55	8.16%	27	6.07%	165	6.69%
2000	138	11.38%	28	21.05%	87	12.91%	44	9.89%	297	12.05%
2001	131	10.80%	16	12.03%	89	13.20%	48	10.79%	284	11.52%
2002	104	8.57%	13	9.77%	57	8.46%	43	9.66%	217	8.80%
<b>Total</b>	<b>1213</b>	<b>100.00%</b>	<b>133</b>	<b>100.00%</b>	<b>674</b>	<b>100.00%</b>	<b>445</b>	<b>100.00%</b>	<b>2465</b>	<b>100.00%</b>

**Table 4: Size of domestic and international partnerships**

	DCA		IDCA		ICA		DICA		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<b>Panel A – Number of participants</b>										
Participants:	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
2	889	73.29%	91	68.42%	512	75.96%	317	71.24%	1809	73.39%
3	163	13.44%	16	12.03%	87	12.91%	66	14.83%	332	13.47%
4	64	5.28%	13	9.77%	32	4.75%	22	4.94%	131	5.31%
5	33	2.72%	2	1.50%	16	2.37%	13	2.92%	64	2.60%
> 5	64	5.28%	11	8.27%	27	4.01%	27	6.07%	129	5.23%
<b>Total</b>	<b>1213</b>	<b>100.0%</b>	<b>133</b>	<b>100.0%</b>	<b>674</b>	<b>100.0%</b>	<b>445</b>	<b>100.0%</b>	<b>2465</b>	<b>100.0%</b>
Chi-square	13.693	d.f: 12	p-value: 0.321							
<b>Panel B – Size of the partnership</b>										
Number of Sectors:	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1	317	26.13%	51	38.35%	392	58.16%	126	28.31%	886	35.94%
2	828	68.26%	68	51.13%	247	36.65%	276	62.02%	1419	57.57%
3	59	4.86%	10	7.52%	27	4.01%	29	6.52%	125	5.07%
> 3	9	0.74%	4	3.01%	8	1.19%	14	3.15%	35	1.42%
<b>Total</b>	<b>1213</b>	<b>100.0%</b>	<b>133</b>	<b>100.0%</b>	<b>674</b>	<b>100.0%</b>	<b>445</b>	<b>100.0%</b>	<b>2465</b>	<b>100.0%</b>
Chi-square	231.181*	d.f: 9	p-value: 0.000							

\* indicate the rejection of the independence hypothesis at any significance level.

**Table 5. Foreign companies participation in the international alliances**

	ICA		DICA		Total	
<b>Panel A – Number of countries of origin of the companies</b>						
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
1	545	80.86%	386	86.74%	931	83.20%
2	75	11.13%	46	10.34%	121	10.81%
Multinational <sup>a</sup>	29	4.30%	10	2.25%	39	3.49%
More than 2	25	3.71%	3	0.67%	28	2.50%
<i>Total</i>	674	100.0%	445	100.0%	1119	100.0%
<b>Chi-square</b>	14.386*	d.f: 3	p-value:	0.002		

**Panel B – Continent of origin of the foreign companies**

	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Europe	291	43.18%	242	54.38%	533	47.63%
Ibero America	111	16.47%	11	2.47%	122	10.90%
North America	109	16.17%	124	27.87%	233	20.82%
Remaining	103	15.28%	33	7.42%	136	12.15%
Mixed <sup>b</sup>	60	8.90%	35	7.87%	95	8.49%
<i>Total</i>	674	100.0%	445	100.0%	1119	100.0%
<b>Chi-square</b>	86.818*	d.f: 4	p-value:	0.000		

<sup>a</sup> In this case we include alliances in which at least one company is a multinational that is not possible to assign to a single country.

<sup>b</sup> In this case countries from different continents and/or multinational enterprises participate in the agreement.

\* \* indicate the rejection of the independence hypothesis at any significance level.

**Table 6. Cooperation agreement main characteristics**

	DCA		IDCA		ICA		DICA		Total	
<b>Panel A – Functional Area</b>										
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Production	729	60.10%	62	46.62%	293	43.47%	203	45.62%	1287	52.21%
Marketing	238	19.62%	39	29.32%	194	28.78%	128	28.76%	599	24.30%
Research	101	8.33%	11	8.27%	52	7.72%	43	9.66%	207	8.40%
Finances	87	7.17%	7	5.26%	60	8.90%	33	7.42%	187	7.59%
Multiple	50	4.12%	14	10.53%	74	10.98%	33	7.42%	171	6.94%
Personal	8	0.66%	0	0.00%	1	0.15%	5	1.12%	14	0.57%
<i>Total</i>	1213	100.0%	133	100.0%	674	100.0%	445	100.0%	2465	100.0%
Chi-square	92.150*	d.f:	15	p-value:	0.000					
<b>Panel B – Nature of the agreement</b>										
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Vertical	573	47.24%	33	24.81%	158	23.44%	184	41.35%	948	38.46%
Competitive Horizontal	310	25.56%	52	39.10%	382	56.68%	122	27.42%	866	35.13%
Complementary Horizontal	330	27.21%	48	36.09%	134	19.88%	139	31.24%	651	26.41%
<i>Total</i>	1213	100.0%	133	100.0%	674	100.0%	445	100.0%	2465	100.0%
Chi-square	219.89*	d.f:	6	p-value:	0.000					
<b>Panel C – Legal Form</b>										
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
No form	851	70.16%	76	57.14%	472	70.03%	335	75.28%	1734	70.34%
Joint Venture	84	6.92%	19	14.29%	104	15.43%	44	9.89%	251	10.18%
UTE	174	14.34%	6	4.51%	2	0.30%	12	2.70%	194	7.87%
Consortium	55	4.53%	25	18.80%	63	9.35%	20	4.49%	163	6.61%
Other	49	4.04%	7	5.26%	33	4.90%	34	7.64%	123	4.99%
<i>Total</i>	1213	100.0%	133	100.0%	674	100.0%	445	100.0%	2465	100.0%
Chi-square	225.64*	d.f:	12	p-value:	0.000					
<b>Panel D – Nature of the Partners</b>										
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Private	808	66.61%	124	93.23%	612	90.80%	395	88.76%	1939	78.66%
Mixed	211	17.39%	7	5.26%	18	2.67%	36	8.09%	272	11.03%
Governmental	194	15.99%	2	1.50%	44	6.53%	14	3.15%	254	10.30%
<i>Total</i>	1213	100.0%	133	100.0%	674	100.0%	445	100.0%	2465	100.0%
Chi-square	218.65*	d.f:	6	p-value:	0.000					

\* indicate the rejection of the independence hypothesis at any significance level.

**Table 7. Cooperative agreements in the main sectors**

Sector:	DCA		IDCA		ICA		DICA		Total	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i> <sup>a</sup>	% <sup>a</sup>
Banking	438	55.65%	40	5.08%	174	22.11%	135	17.15%	787	31.93%
Construction	293	69.76%	29	6.90%	55	13.10%	43	10.24%	420	17.04%
Electricity	193	51.88%	24	6.45%	103	27.69%	52	13.98%	372	15.09%
Oil, gas and other sources	117	40.77%	15	5.23%	101	35.19%	54	18.82%	287	11.64%
Telecommunications	110	41.51%	22	8.30%	77	29.06%	56	21.13%	265	10.75%
<i>Total</i>	1213	49.21%	133	5.40%	674	27.34%	445	18.05%	2465	100%

## Chi-square:

Banking	22.07*	d.f:	3	p-value:	0.000
Construction	100.3*	d.f:	3	p-value:	0.000
Electricity	5.59	d.f:	3	p-value:	0.133
Oil, gas and other sources	12.14	d.f:	3	p-value:	0.007
Telecommunications	10.10	d.f:	3	p-value:	0.018

<sup>a</sup> We consider alliances in which at least one firm (the Spanish or the foreigner) belong to the corresponding sector. For this reason, the total sum of the values in this column is not the total of alliances. The percentages are computed from the total of alliances, and hence their sum is not 100%.

\* indicate the rejection of the independence hypothesis at any significance level lower than 2%.