The use and choice of multipartner alliances: an exploratory study

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Abstract

Studies on multipartner alliances (MPAs) with a limited number of partners remain sporadic since the literature has focused its attention mainly on alliance networks and consortia. This work aims to partially cover the existing gap, going more deeply into both the characteristics of MPAs with few partners and the factors determining their formation. Using a different theoretical approach, this study means to advance in the understanding and definition of the main factors that influence the choice between a dyadic alliance and an MPA. The analysis of the influence of these variables is carried out through an exploratory study in the empirical context of public works in Spain. This choice allows the evaluating of the behavior of firms and the factors that influence their decisions. Our results show that the value of the adjudication and the type of work influence the formation of both dyads and MPAs, but the results indicate that in an MPA this effect is strengthened and the search for a critical mass through cooperative behavior is more visible.

Keywords: Strategic alliances, Multipartner alliances, Alliance strategy.

JEL codes: M10, M19.
Introduction

Recent decades have witnessed changes in the competitive environment that have provoked a considerable increase in companies’ collaborative activities (Faems, de Visser, Andries & van Looy, 2010) which are oriented to acquiring and developing resources and capabilities (Marino, Strandholm, Steensma & Weaver, 2002). Many forms of cooperation between firms, such as Joint Ventures (JV), partnerships, contracts, licenses, agreements, etc., can be summarized under the broader term of ‘alliances’ (Kale & Singh, 2009).

The number of partners is a variable of considerable importance as it increases the need for control and coordination in an alliance due to the inherent tension between cooperation and competition between partners (Zeng & Chen, 2003). It determines both the choice of alliance type, such as its organization (García-Canal, 1996), and is a dimension of complexity (García-Canal, Valdés-Llaneza & Ariño, 2003) that may affect the extent to which the alliance achieves its objectives.

This is especially true as the kind of relationship that usually occurs between alliance partners is generalized exchange, as in the case of Multipartner Alliances (MPA) (Das & Teng, 2002). This is a kind of exchange in which there is no direct reciprocity between partners and, therefore, a higher degree of trust between the parties, or more controls are needed to limit free-riding problems and ensure the proper functioning of the alliance.

An MPA is “a collective, voluntary organizational association that interactively engages its multiple members in multilateral value chain activities, such as collaborative research, development, sourcing, production, or marketing of technologies, products, or services” (Lavie, Lechner & Singh, 2007:578). MPA covers a wide variety of situations, such as consortia, competitive networks or constellations. In general it can be said that, for some companies, participating in such alliances, especially those involving a larger number of partners such as alliance networks and consortia, can be extremely helpful as they provide the opportunity to establish links with companies which, under normal conditions, they would probably not come into contact with (Human & Provan, 2000).

An MPA is usually used in response to three possible challenges that companies face. The first is the possibility and necessity of establishing technical standards (Vanhaverbeke & Noorderhaven, 2001); the second is related to the increasing need to attain a global scale (Gomes-Casseres, 1994); while the last challenge comes from the bonds that are created between different industries (Nohria & Garcia-Pont, 1991).

The great majority of the literature on alliances has focused its attention and analysis on dyadic alliances (Varamäki & Vesalainen, 2003). Only a few studies have included the number of partners as a variable, giving it only a relatively minor status (Gong, Shenkar, Luo & Nyaw, 2007). This scant attention on MPAs does not fully reflect the reality, as an increasing number of alliances involving multiple partners are being formed. This is reflected in the study of Makino and Beamish (1998), on Japanese International Joint Ventures (IJVs), in which it can be observed that the
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The number of IJVs with more than 2 partners represent the majority of the sample (54.6%).

The few studies on MPAs have focused on matters relating to the governance and control of the alliance (García-Canal, 1996); on contractual issues (Gong et al. 2007); on network boards (Wincent, Anokhin & Örtqvist 2010); on trust relationships between the partners (Thorgren, Wincent & Boter 2012); on the cooperative orientation of the partners (Wincent, 2008); on the timing of entry into an MPA (Lavie et al., 2007); on the impact on performance of membership in a constellation (Lazzarini, 2007); and on decisions about participating, staying in or leaving a consortium (Olk & Young, 1997). In addition to these topics, studies have been conducted on a particular type of MPA, called triad alliances (Madhavan, Gnyawali & He 2004; Min & Mitsuhashi 2012). These have focused mainly on structural holes and brokerage activities.

In the literature on alliances there are no studies analyzing the reasons that lead companies to choose an MPA instead of dyads. To the extent that MPAs are substantially different from dyads, it may be interesting to analyze the reasons why companies select one solution rather than another. To do so, it is necessary to consider a context in which firms choose a type of MPA as a possible alternative to a dyadic alliance. This is the case of an MPA with a limited number of partners. The study of the reasons for choosing an MPA instead of a dyadic alliance will take place in a context – the procurement of public works in Spain – in which companies operate either individually, using a dyadic alliance or alliances with few partners. This will allow us to explore the factors that bring about one choice or another.

This exploratory study contributes to progress in this specific area – still rarely analyzed – by delving into the characteristics of this type of alliance, which remain rather unknown. Based on the main theories used to analyze the relationships between companies, such as the resource-based view (RBV) (Wernerfelt, 1984), the social network theory (Gulati, 1999) and the strategic action theory (Ozcan & Eisenhardt, 2009), this work helps to provide a first definition of the factors that influence the choice between dyadic alliances and MPAs with few partners. Furthermore, we also point out some of the empirical differences observed between these two types of alliances.

We present our arguments as follows. In the next section, we analyze the features and attributes of MPAs and we compare them with the features and attributes of dyads. Once these differences have been established, an exploratory study of MPAs with few partners will be presented, with a first approach concerning the factors that determine the formation of this form of cooperation. Finally, we present the overall conclusions and the contributions of our work.

Features and attributes of multipartner alliances

Multipartner Alliances

An MPA generates significant benefits for its members: it reduces development costs, allocates risk between its parties and improves technological predictability
(Sakakibara, 1997). However, companies involved in an MPA also face challenges and uncertainties that are not present in the agreements between two companies (Human & Provan, 2000). This is because partnerships with several partners involve multiple interactions between participants, a more complex governance and different collaboration dynamics (Lavie et al., 2007).

This converts MPAs into a very complex phenomenon, since an increase in the number of participants changes the organizational form used in the alliance, the objectives that are sought and the logic that governs the alliance. Depending on the number of partners, it is possible to establish in the literature a continuum with dyads at one end and constellations or alliance networks at the other (Gomes-Casseres, 1994). The alliance types that can be found in this range meet different demands from the companies that use them. It is possible to use the broader term of MPA to identify and describe three main archetypes: alliance networks, consortia and MPAs with a limited number of partners. The differences between these three archetypes of MPAs are considerable, but since the objective of this paper is to show the use and choice of MPAs instead of dyadic alliances, we will just briefly point out the main features of the three archetypes.

The first type of MPA we consider, “alliance networks” – also called networks, constellations or virtual corporations (Gomes-Casseres, 1994) – is an organizational form, developed in the late twentieth century, initially in specific industries such as aerospace, airlines, automotive and semiconductors that bring together numerous companies involved in the same activity and competing with each other. This type of cooperation is appropriate in global contexts, as companies cannot control and gain access to resources that they need to compete in the markets (Lazzarini, 2007).

Consortia are a second type of MPA. These are separate legal entities formed by several companies whose purpose can be the realization of cooperative research and development activities (Olk & Young, 1997), the shared management of a common resource (Sakakibara, 2002) or the achieving of a critical mass to perform certain operations, as in the case of export consortia (Varamäki & Vesalainen, 2003). Through consortia, companies can carry out research and development activities that might not be performed on an individual basis (Wincent et al., 2010). In addition, consortia promote the obtaining of knowledge and allow companies to overcome their innovative disadvantages while reducing their risks and incurred costs (Wincent et al., 2010).

In many cases, consortia are funded and sponsored by the governments of their countries (Sakakibara, 1997), since the value that they produce could scarcely be achieved through alliances or dyads of individual companies (Thorgren et al., 2012). This public support means that governments can influence a consortium, but it also increases the chances of participation by a company in a consortium (Sakakibara, 2002). These supports may be important as they facilitate the realization of large-scale cooperative projects, which would be very difficult to launch without public subsidies (Sakakibara, 2002). Usually, but not necessarily, consortia involve a relatively high number of partners and differ from alliance networks by the type of relationship their participants have between each other, resulting in a legal form of ownership.
The final MPA type is one with a limited number of partners. This category spans from the so-called triads (Madhavan et al., 2004) to alliances with few partners, therefore positioned in an intermediate level between dyads and alliance networks and consortia. The scant literature on triads has focused on the analysis of the structural holes (Burt, 1992) generated between the partners and their possible evolution. There are not many studies on MPAs with few partners or on the choice of such alliances with respect to dyads. To a great extent, this gap in the research may have its origin in the similarity between MPAs with few partners and dyadic alliances. This has led to focusing studies on the cooperation agreements between two partners. However, there are significant differences between the two types of partnerships.

The following table (an adaptation from Castiglioni, Castro & Galán, 2014) presents a comparison of the various attributes that characterize the different types of MPAs that have been presented.

Table 1. Attributes of different types of multipartner alliances

<table>
<thead>
<tr>
<th>Attribute</th>
<th>MPA with few partners</th>
<th>Consortium</th>
<th>Alliance Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of partners</td>
<td>Few</td>
<td>Usually many</td>
<td>Many</td>
</tr>
<tr>
<td>Features of the partners</td>
<td>Similar</td>
<td>Similar/ different</td>
<td>Similar/ different</td>
</tr>
<tr>
<td>Type of Relationship</td>
<td>Formal (contractual/ JV) Informal</td>
<td>Formal (property)</td>
<td>Formal/ implicit</td>
</tr>
<tr>
<td>Competition / competitive advantage</td>
<td>Individual</td>
<td>Collective (group)</td>
<td>Collective (strategic block)</td>
</tr>
<tr>
<td>Links between partners</td>
<td>Direct</td>
<td>Direct/ Indirect</td>
<td>Direct / Indirect</td>
</tr>
<tr>
<td>Context</td>
<td>Local</td>
<td>Local / Global</td>
<td>Global</td>
</tr>
<tr>
<td>Cooperation logic</td>
<td>Mutual specialization/ Learning</td>
<td>Learning/ Critical mass</td>
<td>Critical mass</td>
</tr>
<tr>
<td>Time of entry</td>
<td>Simultaneous/ Different moments</td>
<td>Simultaneous/ Different moments</td>
<td>Simultaneous/ Different moments</td>
</tr>
<tr>
<td>Kind of governance</td>
<td>Depends on the relationship</td>
<td>Specific organ</td>
<td>Specific organ</td>
</tr>
<tr>
<td>Public support</td>
<td>Absent</td>
<td>High</td>
<td>Depends</td>
</tr>
</tbody>
</table>
Multipartner Alliances versus Dyadic Alliances

MPAs are characterized by a specific set of conditions and characteristics that distinguish them from dyadic alliances (Thorgren, Wincent & Eriksson, 2011). Obviously, the main difference between a dyadic alliance and an MPA is the number of partners. Some authors, such as García-Canal et al. (2003), consider that the greater qualitative and quantitative transformation occurs when moving from a dyadic alliance to a triad, as the two-way relationship between partners is broken. Moreover, this marginal change in the number of partners causes a significant increase in the difficulty of managing the alliance due to the exponential increase in its level of complexity. The consequences of the increased number of partners can be classified into three categories: coordination, control and other factors.

Regarding coordination and communication between parties, the number of dyadic relationships between the partners of an MPA rises geometrically in line with the number of partners (García-Canal et al., 2003), causing an increase in coordination costs. The need for coordination is emphasized when the number and diversity of competing interests that have to be harmonized augments (García-Canal, 1996), and when the latent conflict that could be generated in the joint managing of a particular asset or task increases (García-Canal, 1996). Coordination problems are also intensified as an increase in the number of members means lower interaction opportunities, thus causing a less close relationship than in dyadic alliances (Gong et al., 2007). In addition, a greater number of partners increase the chances of ex post disagreement among participants and the formation of internal coalitions (Gong et al., 2007). These negative consequences may be compounded by the cultural distance between the partners (García-Canal et al., 2003). The difficulties of integrating different cultures and resources can result in a deterioration in the confidence of partners about future returns, hence leading to opportunistic behavior (Williamson, 1985).

Regarding control, it is more difficult to assess and limit opportunistic behavior in an MPA than in dyadic alliances (Li, Eden, Hitt, Ireland & Garrett, 2012), as well as to identify the real contribution and commitment of each company (García-Canal, 1996). This difficulty in assessing the behavior of the companies involved in an MPA can lead to a different cooperative orientation of the partners (Wincent, 2008) and to problems in establishing the appropriate compensation for partners (García-Canal, 1996).

Since free-riding behaviors are more likely when the number of partners is high, in an MPA there is a lower incentive to behave cooperatively. It is also more difficult to punish such types of behavior without hurting the other partners (García-Canal et al., 2003). Free-riding behavior is potentially present in every relationship between two parties (Williamson, 1985). In the case of dyadic alliances, the level of transparency and control is higher than in MPAs (Thorgren et al., 2011). These problems can therefore be solved more quickly and simply.

The need for control in an alliance depends on the type of exchange relations established between the partners. This can take two different forms: net-based and
chain-based (Li et al., 2012). In a net-based configuration each partner contributes to and receives from the entire group of partners, which is considered as a single element. In a chain-based environment partners have specific reciprocal relations with each other (Li et al., 2012). Normally, the reciprocity between partners in an MPA is usually indirect, according to a net-based model, while in dyadic alliances it tends to be direct, consistent with a chain-based model. Consequently, in MPAs there is less certainty regarding the reciprocation of the partner, as some companies may decide to contribute less to the alliance (Thorgren et al., 2011).

The different need for control, and the elements that determine it, shape the governance choice of an MPA. The greater difficulty of control justifies the presence of specific functions for the management of MPAs (Wincent et al., 2010), since it is more difficult for this type of alliance to use mutual hostage mechanisms than in dyadic alliances (Gong et al., 2007).

As mentioned, other factors differentiate dyadic alliances from MPAs. First, MPAs require more relational investment than dyadic alliances since a company has to learn the organizational routines and the way of working of multiple partners (García-Canal et al., 2003). This relational investment usually represents a sunk cost (Duyster & Lemmens, 2003) for the company, especially if we consider that the likelihood of new alliances with the same partners is smaller in MPAs than in dyadic alliances.

Second, an MPA tends to continue to operate despite the exit of one or more partners, unlike what happens in a dyadic alliance. The stability of the partners, therefore, is another distinctive aspect given that the factors which influence the continuation or exit of a partner are different between dyadic alliances and MPAs (Olk & Young, 1997).

Third, dyadic alliances offer greater opportunities to expand the scope of the alliance, because it is easier to reach an agreement when there are only two partners, such as is the case of the smooth control mechanisms of alliances (García-Canal et al., 2003).

Fourth and last, the experience that a company gets from its participation in a dyadic alliance is not easily transferred to the management of an MPA, and vice versa, reflecting the different nature of both types of cooperative agreements. Therefore, if a company decides to participate in an MPA, it will be difficult to rely on prior knowledge acquired in dyadic alliances (García-Canal et al., 2003).

All these considerations about the differences between dyads and MPAs suggest that the increased number of partners leads to a higher likelihood of failure and poorer outcomes. Faced with this conclusion, the work of Park and Russo (1996) on JV reaches a contrary result and justifies the greater chance of success in MPAs due to the previous experience of collaboration and the embeddedness of companies in certain subnetwork (Uzzi, 1996), with a greater commitment to these subnetworks than to other subnetworks of the industry (Min & Mitsuhashi, 2012). Consequently, the possible involvement of a company in an MPA is influenced both by the connections that a company maintains with other firms which regularly take part in
MPAs and by the past alliances that the firm has carried out with these companies (Sakakibara, 2002). Contrary to the conclusions of the work by Park and Russo, the results of other studies (García-Canal et al., 2003; Makino & Beamish, 1998) show that firms are more likely to achieve their objectives with dyadic alliances than with MPAs.

Despite the remarkable differences between dyadic alliances and MPAs, it is necessary to take into account a number of factors that may somehow reduce any discrepancies. The first factor refers to there being strong social norms that encourage reciprocity between the parties and increase the social cost of free-riding. These social norms may represent an informal governance mechanism that limits opportunistic behavior and promotes collaboration (Dyer & Singh, 1998). The second factor considers that in a context of repeated games, the opportunistic behavior of one party may be sanctioned by other participants and may even involve the exclusion of the opportunistic partner (Zeng & Chen, 2003). The third factor comes from the potential presence of a dominant partner in an MPA. This facilitates decision-making and improves the coordination between the parties (Varamäki & Vesalainen, 2003). The fourth factor is related to the type of exchange relations between the partners in an MPA, since in a chain-based relationship the communication and control tasks are more simplified than in a net-based relationship (Li et al., 2012). The fifth factor points out that contractual completeness increases the likelihood of the success of alliances (Gong et al., 2007). Nevertheless, the diversity of the goals, skills and behaviors of the parties extend the contingencies that must be considered when drawing up a contract, making it difficult for it to be truly comprehensive or complete (Gong et al., 2007). A sixth factor refers to the cooperation between partners. This is more likely when they have already had previous relationships, as these increase the trust between the parties and reduce opportunism (Gong et al., 2007). Previous experience between partners builds trust and limits opportunistic behavior, thus reducing the tensions present in an MPA (Thorgren et al., 2011).

In the following two tables (Table 2 and Table 3), the main differences and the various considerations that enable these differences between dyadic alliances and MPAs with few partners to be smoothed out are summarized.

**Table 2. Differences between MPAs and Dyadic alliances**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>MPAs</th>
<th>Dyadic alliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship between partners</td>
<td>Multiple</td>
<td>Biunivocal</td>
</tr>
<tr>
<td>Alliance complexity</td>
<td>High</td>
<td>Reduced</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Criteria</th>
<th>MPAs</th>
<th>Dyadic alliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for coordination</td>
<td>High</td>
<td>Reduced</td>
</tr>
<tr>
<td>Interaction between partners</td>
<td>Different communication channels</td>
<td>A single communication channel</td>
</tr>
<tr>
<td>Knowledge between partners</td>
<td>Less deep</td>
<td>Deep</td>
</tr>
<tr>
<td>Disagreements between partners</td>
<td>Difficult to manage (multiple interests)</td>
<td>Easier to manage</td>
</tr>
<tr>
<td>Internal Coalitions</td>
<td>Possible</td>
<td>Absent</td>
</tr>
<tr>
<td>Control</td>
<td>Difficult/hard</td>
<td>Simple/easy</td>
</tr>
<tr>
<td>Free-riding behavior</td>
<td>Common (difficult to detect)</td>
<td>Rare (easy to detect)</td>
</tr>
<tr>
<td>Types of relationships</td>
<td>Net/chain based</td>
<td>Chain based</td>
</tr>
<tr>
<td>Reciprocity</td>
<td>Direct and indirect</td>
<td>Direct</td>
</tr>
<tr>
<td>Governance</td>
<td>Specific organ</td>
<td>Chain based</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social norms</td>
<td>They limit opportunism</td>
</tr>
<tr>
<td>Situation of repeated alliances</td>
<td>Reduction in opportunistic behavior</td>
</tr>
<tr>
<td>Informal governance mechanism</td>
<td>Promote a collaborative behavior</td>
</tr>
<tr>
<td>Control / management</td>
<td>Presence of a dominant partner</td>
</tr>
<tr>
<td>Kind of relationship</td>
<td>Chain-based relations foster control and coordination</td>
</tr>
<tr>
<td>Contractual exhaustiveness</td>
<td>They set the rules of the alliance (but there are contingencies that impede their completeness)</td>
</tr>
<tr>
<td>Previous relationships between partners</td>
<td>Foster cooperation</td>
</tr>
</tbody>
</table>

Table 3. Factors that smooth out differences between MPAs and Dyadic alliances

The multipartner alliances with few partners: empirical context

In the literature on MPAs there are no studies that analyze the reasons which lead companies to select this type of alliance. This is because scholars in this matter have focused mainly on certain types of multiple alliances, such as alliance networks.
or constellations, whose formation and characteristics are quite different from those of dyadic alliances and MPAs with few partners (García-Canal et al., 2003), or on triads (Madhavan et al, 2004), whose nature is different from the MPAs analyzed in this work.

The study of the formation of MPAs with few partners has to be done in a context in which firms can choose, as an organizational form, to carry out a particular activity: either individual choice, the alliance with another partner (dyad) or an MPA with few partners. For this reason, the present study is conducted in the construction sector, and more specifically in the Spanish public works subsector, in which the activities undertaken are awarded by the Public Administration, through competitive bidding. The sector chosen is characterized by an intense cooperative activity, thus representing an ideal context for exploring the research question raised (Castro, Galán & Casanueva, 2009).

The present study has an exploratory nature, meaning to answer two basic questions. On the one hand, about the use of alliances in the development of a given activity and, on the other hand, concerning the reasons that explain the formation of MPAs compared to other types of partnerships, such as dyads. Consequently, rather than testing hypotheses in the traditional manner, this study uses the data and methods for analyzing these research questions and reflects on the generalizability of the findings.

The results of the study have an undoubted interest and value for the literature about alliances in general and MPAs in particular, as it goes deeper into the reasons that lead companies to use these organizational forms, –both the cooperation agreements and, within them, MPAs. The creation of a strategic alliance represents a significant challenge for a company compared to performing the same activity on an individual basis (Ireland, Hitt & Vaidyanath, 2002). Similarly, this has been theoretically reflected in the significant differences between dyads and MPAs with few partners (García-Canal et al., 2003), in that multiple relationships between the parties cause a more complex situation – intrinsically different from a dyad – leading to different problems of coordination and control. For this reason, it is interesting to empirically analyze the choice of firms opting to tender individually or in partnership, and between dyadic alliances and MPAs. This issue has not been explored to date and the results report on the reasons and circumstances that lead firms to choose between one alternative and another. In this way, we contribute to the study of MPAs that has been recently initiated in the literature (Castiglioni et al., 2014; Thorgren et al., 2011; Thorgren et al., 2012), and improve our understanding of the reasons that lead firms to choose this organizational form of cooperation, as well as the implications from the perspective of social embeddedness.

As noted, the research context is the sector of public works in Spain. Public works are awarded through public tender to companies that have been previously qualified according to certain technical, administrative and financial requirements.

Public tenders are advertised in official journals, in one or several depending on the amount of work, and all properly qualified companies can present an offer. After
the adjudication, which is based on technical and economic criteria, the decision is published in the official journals, indicating the company or the companies chosen, the amount of work, the type of adjudication, the location and the agency in charge.

The companies who participate in this adjudication process are numerous. For this study sample, we selected them based on two criteria: one attributive and one relational. The first criterion is determined by the size of the companies, as we have selected the companies with the highest turnover and membership of the network of constructors that compete in the market for public works (15, 16 or 67 as main SIC codes). For the second criterion, we have selected those companies that have at least two alliances with other companies. Thus, the resulting sample consists of 202 companies, for which we have collected all the adjudications that have been made since 1999, the first year available, to 2010. The awards granted to firms in the sample account for over 80% of the total and 95% of the total amount awarded during the period. Along with the data on awards, information has also been collected about the companies in the sample concerning turnover and assets, their number of employees, headquarters or location and their membership in business associations and business groups.

In the period 1999-2010, the total number of awards to the companies in the sample was 23,433, of which 21,131 were individual, 1,970 dyadic alliances and 332 MPAs of three to six members. MPAs represent only 1.5% of all awards but more than 14% of the number of alliance adjudications. A descriptive analysis of the sample show how of the 332 MPAs between the companies in the sample, 250 are triads, 42 are alliances with four partners, 37 are formed by five partners and 6 are formed by six participants. Partnerships with two and three partners represent 96% of all alliances, while triads account for 75% of all MPAs. This distribution is similar to that estimated by Makino and Beamish (1998) for their sample of Japanese IJV.

The distribution of the MPAs by companies shows that of the 202 companies in the sample only 102 have carried out an MPA during the period, of which 32 firms have only made one MPA in a period of 12 years. It is therefore a strategic option scarcely used by companies. One company has participated in 128 MPAs, almost 40% of the total, and the first four have held 75% of all the MPAs, after discounting repetitions according to their joint participation. These data are quite illustrative as they indicate that certain leading companies strategically employ such alliances to compete in the market of adjudications, while other firms, also relevant in terms of size and number of adjudications, do not follow the same strategy.

The reasons for the formation of alliances and mpas with few partners

Theoretical Background

Much has been written about the factors that influence the formation of partnerships, mostly on dyadic alliances (Ireland et al., 2002). Different theoretical
approaches have helped to provide reasons for this choice. Among them we can mention the resource dependence theory (Pfeffer & Salancik, 1978), the resources and capabilities based view (Wernerfelt, 1984), and the social embeddedness theory (Gulati, 1995b). From the RBV perspective, companies establish partnerships to share assets and capabilities that can be interdependent between them (Powell, Koput & Smith-Doerr, 1996), thus reaching a certain configuration of resources (Das & Teng, 2002). The literature has identified three main reasons for the creation of alliances: obtaining a critical mass, thus allowing cost reductions, the spreading of risks and making a better offer to customers; mutual specialization, which enables each partner to concentrate on activities that best suit its abilities; and, finally, skills development and learning from partners (Koza & Lewin, 1998; Johnson, Scholes & Whittington, 2006).

Wassmer and Dussauge (2011) consider, basing themselves on the extant RBV-alliance literature, the supplementarity and complementarity between partners as important explanatory factors for alliance formation. Supplementarity implies bringing together identical resources in the same product or geographic market domain (Das & Teng, 2002), to achieve a scale or critical mass. In contrast, complementarity between resource groups together different and non-overlapping resources (Das & Teng, 2002). In the first case, the size and the similarity between firms plays an important role in the formation of alliances; in the second, size is a secondary variable with respect to differences between partners, as in this case partners have to possess different resources and therefore they have to be somewhat different.

According to the social embeddedness perspective, as alliances are repeated, firms are embedded in a social network that promotes the formation of new relationships (Gulati & Gargiulo, 1999). Therefore, it can be said that the strategic actions of firms are affected by the social context in which they are embedded (Gulati, 1995b). In this context, partnerships are initiated between interdependent companies and then evolve through the accumulation of linkages between the increasingly embedded companies (Ozcan & Eisenhardt, 2009). Thus, this theory predicts that firms will tend to prefer forming alliances with previous partners (Gulati, 1995), and they will repeat these behaviors according to the social context in which they belong. In short, companies that use partnerships more often will continue to do so in the future, preferably with previous partners (Gulati & Gargiulo, 1999).

In the case of MPAs all the established ideas for partnerships in general can be logically applied, although there will also be some specific factors that determine the formation of this type of cooperation. However, few studies have analyzed the formation of MPAs and have practically focused on the phenomenon of triads and consortia. Madhavan et al. (2004) analyze the factors that determine the likelihood of a company being involved in transitive triads. These authors consider that companies are involved in this type of alliance due to cooperative and competitive reasons. The research on consortia has analyzed the reasons that lead companies to join in, stay or leave a consortium, but the factors that determine the creation of this type of MPA have not been investigated (Gong et al. 2007). Finally, in relation
to alliance networks, some studies have analyzed both the origin and formation of alliance portfolios (Ozcan & Eisenhardt, 2009), constellations (Lazzarini, 2007) and complete networks (Gulati & Gargiulo, 1999), but as noted above, they are clearly distinct phenomena concerning MPAs with few partners. Given this lack of work on the formation of MPAs, in this work an exploratory study of the factors that explain the creation of such a type of alliances will be presented. It will be done in a research context in which this organizational form competes with the opportunity to carry out individually or in partnership with another company.

Alone or Allied

Depending on the theories mentioned and the research context used, our first research question relates to the reasons for deciding to perform an activity individually or in partnership. In our case, the activity is the execution of an awarded public work, which can be performed by a single company or in cooperation with several of them. According to the RBV, companies can combine similar resources to achieve a critical mass or complementary resources that allow a certain specialization of the partners. Therefore, taking into account the criterion of supplementarity (Das & Teng, 2002; Wassmer & Dussauge, 2011), it is possible to affirm that the use of alliances will be more frequent in those awards that involve a greater value and require reaching a certain scale or critical mass which is achieved by joining the assets and resources of the partners. In turn, according to the criterion of complementarity (Das & Teng, 2002; Wassmer & Dussauge, 2011), it can be expected that the more complex works and activities, which require the combination of a larger number of different resources and capabilities, will have a higher chance of being carried out in cooperation between several companies. To empirically examine this research question we considered two independent variables: the first is the value of the award, conceived as a measure of the size of the work that the successful tenderers have to make; the second is the type of work that can be a rough indicator of the complexity of the work performed.

It is also interesting to analyze the characteristics of companies that use partnerships to carry out public works. To do so, we use for each company an indicator calculated as the ratio between the value of adjudications realized in partnership divided by the total value of adjudications of the company. In the present case, we conduct a strictly exploratory study, as there are no theoretical proposals which enable the establishing of the general characteristics of the companies that are more likely to set up partnerships, except some works that allude to size as an explanatory variable (Thorgren et al., 2011; Thorgren et al., 2012). In this paper, besides the size of the company we consider other variables such as its membership in certain strategic groups, its participation in associations, and its integration in a corporate group. We contemplate these additional variables because we consider that they can affect the partnership behavior of the companies.
Dyads or MPAs

The second research question aims to explain the reasons for the choice between a dyadic alliance and an MPA for carrying out a particular activity, in this case the execution of public works. According to the RBV, and for the same reasons of complementarity and complementarity that have been previously analyzed (Das & Teng, 2002; Wassmer & Dussauge, 2011), both the awards of greater value – for their need to reach a certain scale or critical mass – and the most complex works – due to the advisability of combining complementary resources – will preferably use an MPA.

This second question will also explore the similarities and differences between partners, thus discriminating between the reasons that lead companies to choose an MPA. Whether the companies participating in these MPAs are different in size, strategic orientation, etc., it can be said that the main reason that justifies their alliance is the complementarity of resources. In other cases, it is the need to reach a critical mass or scale that has led companies to establish this type of partnerships. To analyze the diversity between partners, we consider some features that are relevant from the perspective of the formulation of strategy (Porter, 1980), such as their size, their membership to the same or different strategic groups, their participation in business associations and their geographic proximity (Porter, 1991).

Finally, the social embeddedness perspective (Gulati, 1995; Gulati & Gargiulo, 1999) considers that the formation of alliances is affected by the social context in which the company is embedded. According to this theory, it is possible to explore how previous alliances determine future alliances, i.e., whether the participation in dyads affects the creation of new dyads in the future and whether the establishment of MPAs promotes the formation of new MPAs in later years. In addition, to the extent that the social context is reduced, these relationships may be expected to be mutually influencing, and therefore it is interesting to explore the meaning and intensity of this mutual influence.

Variables and methods

The dependent variables are those relating to the choice by firms to realize an award either individually or in partnership, and in the latter case through an alliance with one partner (dyad) or several partners (MPA). In both cases, we use a dichotomous variable. In the first research question, this variable takes the value 1 when the public work is executed through an alliance and the value 0 when the work is carried out individually. In the second research question, this variable takes the value 1 when the work is executed through an MPA and 0 when the work is carried out through a dyadic alliance. Moreover, as a dependent variable we analyze for every company the percentage represented by the value of awards made in partnerships with respect to the total value of awards. This allows us to analyze the characteristics of the companies that are more likely to use cooperative agreements.
There are four types of independent variables. First, variables related to the characteristics of the award: the *value of the award*, as an indicator of the size of the work, and the *type of work*, as an approximation of the activity’s complexity. The works are classified into five categories (civil works, building, studies and reports, service contracts, and others). It may be assumed that civil works (e.g., roads, bridges, railways) and building (e.g., building hospitals, schools) involve greater complexity than the other categories of works.

Secondly, we considered variables related to the company’s characteristics:

- **Company size** (*size*), measured by the number of employees (a logarithmic transformation of the variables was done to avoid problems with the distribution of the data) divided between tertiles: large companies (3), medium companies (2) and small companies (1);
- **Membership of the same strategic group** (*strategic group*), as an indicator of the development of a similar or different strategy (Porter, 1980). Thus, we divided our sample into four strategic groups on the basis of two types of indicators: individual and relational of public works (the sum of individual allocations, large works, regional leadership); and attributive (size, profitability, risk, market). A hierarchical cluster analysis with these dimensions was carried out with the 202 firms in the sample. Four large groups were differentiated. The first comprised of 7 firms has the indisputable leaders both at the national and international level. Five of the top ten most important contractors of public works are Spanish. The second, made up of 10 firms, has Spanish building companies operating at a national level but which lack an international vocation, size and diversification of the leaders. The third is of 25 firms that could be catalogued as important medium-sized firms which have both a regional and national scope. The fourth, formed of the rest of firms included in our sample, is made up of Spanish contractors operating at a local level and in specialized activities.
- **Membership of sectorial association** (*associations*). This is a dichotomous variable that takes the value 1 when the firm belongs to one of the industry’s associations (*Agrupación Nacional de Contratistas de Obras Públicas* (ANCOP), *Asociación de Empresas Constructoras de Ámbito Nacional* (SEOPAN), *SEOPAN Grupo Exportador*, *Asociación Nacional de Constructores Independientes* (ANCI), *Asociación Nacional de Empresas Constructoras de Obras Públicas* (AERCO))\(^1\) and 0 otherwise.
- **Belonging to the same corporate group** (*corporation*). There are various firms in the sample that belong to different branches of the same corporation. These firms are active in the same market for public works and possess similar

technology. In consequence, they could be thought of as related units from the RBV (Robins & Wiersema, 1995). This variable, like the previous one, is a dichotomous variable that takes the value 1 if the firm belongs to a corporate group, and 0 otherwise.

Thirdly, variables that attempt to express the divergence or heterogeneity between firms that are part of an alliance. The business variables previously identified (size, strategic group, associations, corporation) are used for the construction of these indicators and Blau’s (1977) index of heterogeneity will be determined for the various partnerships that companies have done. Along with these variables, we incorporate an additional one:

- Geographical location of the company (geographic). Various researchers noted the influence of geographical or territorial proximity on the establishment and management of strategic alliances. Thus, Walker et al. (1997) argued in favor of regional concentration, as the management of partners located in the same region should be less complex than those distributed across different areas. In the same vein, Rivera et al. (2010) have affirmed that geographical closeness moderates the effort or costs required to establish and to maintain relations. Moreover, these authors point out that geographical proximity facilitates the mobilization of partner resources such as employees or other tangibles as well as the formal and informal transfer of knowledge, coordination of operations, the control of consistency, and the sharing of activities (Rivera, Soderstrom, & Uzzi, 2010).

Finally, the fourth group includes variables related to previous alliances. According to the social embeddedness theory (Gulati, 1998), the skill of firms to enter into an MPA could be influenced by earlier social network alliances. Hence, previous strategic alliances between actors over time transform the economic and market relations embedding them in a social structure (Adler & Kwon, 2002). Therefore, the interorganizational networks that the firms have shaped in the past will guide future decisions concerning alliances, as these networks are an important source of information, learning and references. Many researchers have studied previous social networks in order to demonstrate that those firms that had more alliances in the past had a greater probability of entering more frequently into new alliances (Gulati, 1998 & 1999). However, the influence of social ties on the formation of new alliances has been observed mainly at a dyadic level (Gulati, 1995b). For this reason, in this study we are going to analyze if previous alliances – both individual dyad and MPAs – influence the establishment of or involvement with an MPA.

To do so, we divide the period analyzed into two subperiods with the same duration. Thus, on the one hand, our dependent matrix are the formation of dyads (DYADS ALLIANCES 2005-2010) and the formation of MPAs between three or more organizations in a given observation subperiod, in particular during the 2005-2010 period (MULTIPARTNER ALLIANCES 2005-2010). And, on the other hand,
previous cooperative ties both dyads and MPAs have been taken into consideration in our analysis. Hence, there are various studies that have used previous social networks to demonstrate that those firms that had more alliances in the past – which were found in positions of greater centrality in the network of alliances – had a greater probability of entering more frequently into new collaborative agreements (Gulati, 1995b, 1998). Two matrices were designed to examine this aspect more closely with those alliances that have been adjudicated public works in the form of both dyads (DYADS 1999-2004) and MPAs (MULTIPARTNER 1999-2004) during the subperiod 1999-2004.

With respect to the statistical methods used, these are adjusted to the nature of the variables employed. There are two types of variables: attributive and relational. For the first type of variables a logistic regression will be used – as the dependent variables are dichotomous – as well as non-parametric methods of hypothesis testing in order to determine the influence of business characteristics and the diversity of the alliance partners. For the second type of variables Social Network Analysis (SNA) will be used. SNA uses a procedure, known as the permutations test (Wasserman & Faust, 1994). This alternative procedure can be applied to different tests that are similar to correlation, regression or variance analyses. Specifically, it is possible to use various tests that are based on the QAP (Quadratic Assignment Procedure), as proposed by Krackhardt (1987), with a view to comparing a matrix that acts as a dependent variable (with data on a tie) with one or more matrices as independent variables. This technique uses the permutations test as an alternative to traditional statistical models for attributive data. It has been used in the field of firm management over a number of years and, recently, in studies on interorganizational ties, and, more specifically, on the study of strategic alliances (Gulati & Gargiulo, 1999; Koka & Prescott, 2008).

Results

Alone or Allied

To analyze the first research question, i.e., the reasons that influence the decision of a company to perform an activity individually or in partnership, we used a binomial logistic regression. For this first analysis we employed as a sample set both the individual awards (21,131 individual awards) and the alliances (2,302 alliances that include both dyads and MPAs).

The dichotomous dependent variable that we have analyzed was the use of individual awards (coded zero) and the use of partnerships (coded one). The two independent variables used were the type of work and the value of the award. In order to evaluate the type of work, we used a dichotomous variable that we coded 1 for civil works type and 0 for the other types of work. We chose this variable as we consider that civil works have a higher degree of complexity compared to other
kinds of works. This determines a greater use of partnerships instead of individual awards. For the independent variable value of the award we used, according to the data provided by our database Maninvest, a trichotomous variable that classified the value of the awards in three ranges: less than 600,000 euros; between 600,000 and 6 million euros; more than 6 million euros.

The following table (Table 4) shows the results of the logistic regression.

Table 4. Logistic Regression results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>B</th>
<th>EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWARD VALUE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BETWEEN 600,000 AND 6M</td>
<td>.901***</td>
<td>2.461</td>
</tr>
<tr>
<td>&gt; 6M</td>
<td>2.677***</td>
<td>14.539</td>
</tr>
<tr>
<td>TYPE OF WORK</td>
<td>.410***</td>
<td>1.507</td>
</tr>
</tbody>
</table>

STATISTICS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-squared (df)</td>
<td>35.824(3)</td>
<td>0.000</td>
</tr>
<tr>
<td>-2 log likelihood</td>
<td>12,865.795</td>
<td></td>
</tr>
<tr>
<td>% correct classification</td>
<td>90.2%</td>
<td></td>
</tr>
</tbody>
</table>

*p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

In order to analyze the results of the variable type of work, considered as dichotomous, it is to be contemplated that the second category (other types of work) was used as a reference. It is possible to observe that the positive value of β (.410) indicates that there is a greater propensity of firms to use alliances with respect to individual awards (both dyads and MPAs) when they are doing civil works.

Regarding the second independent variable, value of the award, in our analysis the first interval value (awards with a value of less than 600,000 euros) was used as a reference. In this sense, it is possible to observe how the positive values of β for the other two intervals (.091 and 2.677) indicate a greater propensity of firms to use cooperative forms, both MPAs and dyads, as they increment the value of the award.

Therefore, the results of the logistic regression confirm the theoretical hypothesis of supplementarity and complementarity that has been previously analyzed (Das & Teng, 2002; Wassmer & Dussauge, 2011). Thus, the awards of greater value will tend to be carried further through cooperative forms, because of the need to reach a certain scale or critical mass. Also, the most complex works will be preferably carried out through cooperatives forms due to the convenience of combining the complementary resources that different partners have.

In order to better understand the reasons why a company decides to undertake a project either individually or, on the contrary, together with other companies, we
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center our attention on certain aspects of the companies that are awarded with public works. Specifically, we focus on the size of the firm, the strategic group in which it is classified, its belonging to a corporate group and its membership in industry associations. The reason for the selection of these four variables is that they cover four critical aspects of a construction company that could affect its strategic decision to go alone or allied.

As dependent variable (Alliances Percentage), we calculated a ratio between the value of the awards that a company gets in alliances and the value of all the awards that the company obtains; that is, both the individual awards and the awards in alliances. We performed an Ordinary Least Squares Regression (OLS). The following table (Table 5) presents its results.

Table 5. Regression results

<table>
<thead>
<tr>
<th>Model</th>
<th>Beta</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm size</td>
<td>.273</td>
<td>3.428</td>
<td>.001</td>
</tr>
<tr>
<td>Strategic Group</td>
<td>-.237</td>
<td>-2.548</td>
<td>.012</td>
</tr>
<tr>
<td>Corporative Group</td>
<td>.005</td>
<td>.076</td>
<td>.940</td>
</tr>
<tr>
<td>Sectorial Associations</td>
<td>.083</td>
<td>.071</td>
<td>.329</td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Model F</th>
<th>3.405*</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.065</td>
</tr>
</tbody>
</table>

Thus, Table 5 shows the effects of the independent variables on Alliances Percentage. Accordingly, the model is significant (F=3.405*, R²=0.065) and, on the one hand, the Size of the focal firm has positive and significant effects on the Alliance Percentage but, on the other hand, Strategic Group has negative and significant effects on the dependent variable. The results indicate that size influences the propensity to do work or activities in alliances. In addition, the strategic groups comprised of companies with fewer resources and smaller fields of action are more inclined to use cooperative agreements. Conversely, the strategic groups with substantial resources and capabilities are capable of individually achieving a considerable amount of awards, and hence the percentages of partnerships and individual awards are quite similar.

Dyads or MPAs

In order to analyze the second research question – i.e., the reasons that lead a company to choose between a dyad and an MPA carry out a particular work, we used a binomial logistic regression. For this second analysis the database was limited to dyads (1970 alliances) and MPAs (332 alliances).
The binary dependent variable (type of alliance) takes the value 0 in the case of a dyad and the value of 1 in the case of an MPA. The two independent variables of the first question are: the type of work and the value of the award. We also used the same indicators and scale as in the previous analysis. The following table (Table 6) shows the results of the logistic regression.

Table 6. Logistic Regression results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>B</th>
<th>EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWARD VALUE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;600,000</td>
<td>-1.251***</td>
<td>.286</td>
</tr>
<tr>
<td>BETWEEN 600,000 AND 6M</td>
<td>-1.275***</td>
<td>.279</td>
</tr>
<tr>
<td>TYPE OF WORK</td>
<td>.345*</td>
<td>1.411</td>
</tr>
<tr>
<td>STATISTICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-squared (df)</td>
<td>13.891(4)</td>
<td>0.008</td>
</tr>
<tr>
<td>-2 log likelihood</td>
<td>1,787.141</td>
<td></td>
</tr>
<tr>
<td>% correct classification</td>
<td>85.6%</td>
<td></td>
</tr>
</tbody>
</table>

*p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

To analyze the results of the variable type of work, measured as dichotomous, the second category (other types of works) was used as a reference. It is possible to observe that the positive value of $b$ (.345) indicates that there is a greater propensity of firms to use MPAs instead of dyads when they have to carry out civil works.

With regards to the second independent variable, the value of the award, in our analysis the last interval value (awards with a value greater than 6 million euros) was used as a reference. It can be seen how the negative values of $b$ for the other two intervals (-1.251 and -1.275) indicate a lower propensity of companies to use MPAs, therefore preferring dyads when the value of the award decreases. Therefore, the results of the logistic regression confirm the hypothesis of supplementarity and complementarity that has been discussed previously (Das & Teng, 2002; Wassmer & Dussauge, 2011). The awards of greater value will tend to be carried out through MPAs, because of the need to reach a certain scale or a critical mass, as well as the most complex works also preferably being done through MPAs, due to the convenience of combining the complementary resources that different partners have.

As we proposed in the theoretical part of this paper, another important issue is to understand the reasons that lead a company to make an MPA. To explore this issue we have focused on the similarities and differences between the partners that compose the relationship. More in detail we analyzed the size diversity, strategic group and geographical diversity of the partners.
A logistic regression is performed in order to understand better the main reasons for the formation of MPAs. The results are presented in Table 7.

Table 7. Logistic Regression results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>B</th>
<th>EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE DIVERSITY</td>
<td>-.497</td>
<td>.608</td>
</tr>
<tr>
<td>STRATEGIC GROUP DIVERSITY</td>
<td>5.019</td>
<td>151.252</td>
</tr>
<tr>
<td>GEOGRAPHICAL DIVERSITY</td>
<td>1.661</td>
<td>5.262</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STATISTICS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-squared (df)</td>
<td>194.930(3)</td>
<td>0.000</td>
</tr>
<tr>
<td>-2 log likelihood</td>
<td>1704.473</td>
<td></td>
</tr>
<tr>
<td>% correct classification</td>
<td>85.6%</td>
<td></td>
</tr>
</tbody>
</table>

* p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

The dependent variable analyzed is dichotomous and takes the 1 value when the alliance is an MPA and 0 if the alliance is dyadic. The three explanatory variables were entered simultaneously in the model. The Chi-squared test is performed on all the models between the explanatory variables and product innovation, all of the associated values for p being less than 0.001. As a goodness of fit statistic we used the % of correct classification which reaches a value of 85.6%.

The results show that MPAs in the public works industry are negatively related to the diversity in size but have a reduced significance; and that the diversity of groups and strategic geographical location have positive and significant effects on the formation of MPAs. These results show that in choosing between making a MPA or dyad, it is the complementarity of resources that is especially relevant. That is, for the focal actor the heterogeneity of its partners in terms of belonging to different strategic groups and their location in different geographical areas is particularly relevant. Therefore, in this analysis the search for the complementarity of resources becomes more important than the supplementarity of resources.

Our final analysis includes variables related to previous alliances in order to go more deeply into how social embeddedness affects the formation of MPAs and dyads. Thus, Table 8 shows that both independent variables positively influence the establishment of MPAs. Moreover, previous MPAs have a stronger influence on the formation of subsequent MPAs than previous dyadic alliances. Regarding the other dependent variable (DYADS 2005-2010), Table 8 shows that previous dyads have a higher influence on the formation of subsequent dyadic alliances than previous MPAs, hence confirming the learning differences which exist between both types of strategic alliances (García-Canal et al., 2003). In conclusion, these findings reflect that an MPA requires the development of specific skills and capabilities which
facilitate the involvement in subsequent MPAs. Therefore, it is possible to state that previous experience in dyadic alliances is not easily transferred to MPA management (García-Canal et al., 2003). This demonstrates the differences existing between both types of cooperation agreement.

Table 8. Multiple Regression QAP “Independent”

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>MULTIPARTNER ALLIANCES 2005-2010</th>
<th>DYADS 2005-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized coefficients</td>
<td>Significance</td>
</tr>
<tr>
<td>MPAPs 1999-2004</td>
<td>0.331798</td>
<td>0.000</td>
</tr>
<tr>
<td>DYADS 1999-2004</td>
<td>0.132858</td>
<td>0.000</td>
</tr>
<tr>
<td>Statistics</td>
<td>$R^2$</td>
<td>0.103</td>
</tr>
</tbody>
</table>

Conclusions

The literature on MPAs is still very limited and very biased toward those types of partnerships that involve a greater number of partners: alliance networks (Lazzarini, 2007) and consortia (Sakakibara, 1997). For this reason, this work has aimed to partially cover the existing gap, going more deeply into both the characteristics of the MPA with few partners and the factors determining their formation.

Using a theoretical reflection based on the resources and capabilities view (Wernerfelt, 1984), social embeddedness (Gulati & Gargiulo, 1999) and to some extent strategic action (Ozcan & Eisenhardt, 2009), this study means to advance in the understanding and definition of the main factors that influence the choice between a dyadic alliance and an MPA. The analysis of the influence of these variables is carried out through an exploratory study in an appropriate empirical context—the field of public works in Spain—as the companies involved in this sector can carry out their activity independently or cooperatively, both through dyadic alliances or MPAs. This choice allows the evaluating of the behavior of firms and the factors that influence their decisions.

With regard to the first research question, our results show that the value of the adjudication and the type of work influence the decision of a company to perform an
activity individually or in partnership. These results confirm the theoretical hypothesis of supplementary and complementarity that has been raised in our work (Das & Teng, 2002; Wassmer & Dussauge, 2011). Thus, the awards of greater value will tend to be carried out more through cooperative forms, because of the need to reach a certain scale or a critical mass, and the most complex works will also preferably be realized through cooperatives forms due to the convenience of combining the complementary resources that different partners have.

With respect to the second research question, it is possible to highlight three key findings that advance the understanding of the differences between dyads and MPAs. First, the value of the adjudication and the type of work influence the formation of both dyads and MPAs, but the results indicate that in an MPA this effect is strengthened and the search for a critical mass through cooperative behavior is more visible.

Secondly, our study shows that the complementarity of resources is especially relevant for a company choosing between making an MPA or a dyad. That is, for the focal actor the heterogeneity of its partners in terms of belonging to different strategic groups and their location in different geographical areas is particularly relevant.

Third and last, previous partnerships are an important factor in the formation of new relationships (Gulati, 1995a), but in the case of MPAs an increased incidence occurs through previous partnerships of the same type as with dyadic alliances. This result reflects that the experience with dyads cannot easily be transferred to MPAs, since MPAs require different organizational skills in terms of coordination, governance and control (García-Canal et al., 2003). This demonstrates the differences which exist between both types of cooperation agreement.

The present study has three main limitations that future research should take into consideration. The first refers to the exploratory nature of the study not allowing a rigorous testing of solidly argued hypotheses, despite it having made it possible to advance in the understanding of a phenomenon which has still been scantily analyzed. The second limitation stems from the empirical context used. The construction sector has very specific characteristics. Even so, we consider that most findings can be generalized to other industries and contexts. In any case, future studies should test the generalizability of the results. Finally, this study focused on a partnership level, MPAs, and its relationship to a lower level, dyads, but carrying out multilevel studies would allow for an example to understand the relationships between MPAs and alliance portfolios, confirming the initial findings about strategic action.

References


The use and choice of multipartner alliances: an exploratory study


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