
Contractual Form in Domestic and International Strategic Alliances

Esteban García-Canal*

*Esteban
García-Canal*
Faculty of
Economic
Sciences,
University of
Oviedo, Spain

Abstract

This paper studies the factors that influence the adoption of a contractual form in strategic alliances within a transaction cost framework. It is argued that joint ventures are preferred to contractual agreements as cooperation becomes increasingly complex. An analysis of 663 strategic alliances has confirmed this proposition while showing the differences that exist between domestic and international alliances. The former are more intensively influenced by variables relative to organizational complexity such as the number of partners and the number of functional areas; the latter being influenced to a greater extent by strategic complexity and the need to learn.

Descriptors: contractual agreements, equity exchanges, domestic and international strategic alliances, transaction costs, joint ventures

Introduction

This paper examines the factors that influence the choice of the joint venture form in strategic alliances between firms. There is no need for firms that are willing to cooperate to set up a new entity, owned by them, to coordinate the cooperative activities. However, in the business world, the setting up of joint ventures is a very frequent practice. This justifies our effort to discover the factors which lead to the adoption of this form of business cooperation, instead of signing a contractual agreement which would include the rights and obligations of the parties without setting up a new entity.

Apart from joint ventures, a strategic alliance can certainly be created under many contractual forms. In this paper we distinguish two types of contractual agreements: horizontal and vertical. In vertical agreements a unilateral buyer-seller relationship exists between partners: the activities subject to the agreement are carried out by one of the parties who transfers output to the other party in exchange for cash. In horizontal agreements however, all partners participate directly in the performance of the activities, subject to the agreement; all of them sharing part of their assets. The main reason for introducing such a distinction is that the greater the horizontal character of the alliance, the higher the degree

Organization
Studies
1996, 17/5
773-794
© 1996 EGOS
01708406-99605
0017-0032 \$3.00

to which the partners share the property rights over the assets involved in the activities. Since all partners are directly involved in the performance of the activities, none of them will either receive all the residual revenue obtained from such activities nor will they have full capacity to direct them. This circumstance generates a latent conflict for the control of the activities and the distribution of the profits earned. In this paper, we maintain that the adoption of the joint venture form allows this conflict of interests to be harmonized better than in contractual agreements.

Joint ventures have frequently been studied as an alternative to internal organization of the activities within a firm; for instance, Gatignon and Anderson (1988), Gomes-Casseres (1989), Hennart (1991). However, the establishment of joint ventures as an alternative to other forms of interorganizational cooperation has also been studied: for instance, Pisano et al. (1988) and Pisano (1989) from an economic point of view, and Osborn and Baughn (1990), Gupta and Singh (1991) and Tallman and Shenkar (1990, 1994) from a more interdisciplinary view. All the same, they hardly share common hypotheses, as they have approached the subject from different perspectives.

The main contributions of this paper are the following:

- We analyze the choice of the joint venture form on the basis of the conflicts originating from the fact that partners share the property rights on the assets being used.
- In the tests of our hypothesis we make a distinction between horizontal and vertical contractual agreements.
- We analyze the impact that the domestic or international character of the alliance may have on the contractual form adopted.
- We broaden the scope of the analysis by considering equity exchanges as an alternative to the initial setting up of a joint venture.

In particular, we consider that the analysis of the choice between joint ventures and contractual agreements must be based on their capacity to economize on the governance costs (transaction costs) of the activities involved in the alliance, since both forms allow relationships of a similar nature. Thus, the establishment of a joint venture entails additional transaction costs due to the set up and running costs of the new firm. However, when this form is adopted, the number of aspects to be negotiated by the partners decreases, reducing *ex-ante* transaction costs. Also, the establishment of a joint venture favours a more flexible and precise assignment of the property rights over the assets involved, contributing to a harmonization of the latent conflicts of interests produced when such rights are not possessed by a sole owner. On the basis of this, we maintain that there will be a higher propensity for the establishment of joint ventures when a combination of circumstances increases the complexity of the alliance, making necessary a more precise definition of property rights. In order to identify situations where the complexity of the alliance is high, we characterize activities organized according to the attributes used in transaction cost economics. We also

discuss the effect of the domestic or international nature of the alliance on the choice of the contractual form, and the circumstances under which equity exchanges may be preferred over an initial setting up of a joint venture. This has led to the formulation of six verifiable hypotheses which have been confirmed by estimating the relations raised from them by means of multinomial logit models applied to a sample of 663 strategic alliances adopted by Spanish firms.

Possible Contractual Forms in Strategic Alliances

For the purposes of this paper, what characterizes joint ventures is the existence of an entity, legally independent from partners and owned by them, which is responsible for the coordination of the activities involved in the cooperation. Two important consequences of the existence of this entity are, firstly, the establishment of an administrative hierarchy which controls and coordinates the performance of the activities involved in the alliance, and secondly, the fact that partners participate directly in a percentage of the residual value of the new firm, equivalent to the share of their contribution. Despite this, not all joint ventures are the same. Killing (1983: 16) distinguishes three types of joint ventures: dominant parent, shared management and independent joint ventures. In the first, one of the partners controls the management of the new firm and usually has a majority of the equity. In shared management joint ventures all the partners play an active role. In independent joint ventures none of the partners plays a strong role in the management of the new venture. According to Pisano (1989: 114) the control of one partner over the entire collaboration can be understood as a safeguard, if their investments are more vulnerable to opportunism than the investments of the other partners.

In contractual agreements the relationship between partners is governed by a contract, specifying the rights and obligations of the parties, not implying the establishment of a new entity. In this way, all the details related to the control of the activities and the distribution of their residual returns must be negotiated between the partners; all details not explicitly treated remain unspecified. Obviously, this category is more diverse than the previous one, as it includes all contracts that can govern an activity in cooperation without implying the creation of a joint venture. According to Killing's typology (1988: 62), the following types of contractual agreements can be listed.

- *Trading*: Agreement in which one of the parties transfers information, goods or services to the other. This is a vertical alliance.
- *Coordinated activities*: The firms establish a partial coordination of their activities by fixing a goal and dividing the task among the partners, e.g. research agreements in which the task is divided among partners, or agreements on the interchange of distribution networks.
- *Shared activities*: Agreement by which the firms consent to work jointly

in order to reach a common objective. An example of this is the joint research laboratory established by Bull, ICL and Siemens in 1984.

- *Multiple activities*: Agreement which includes several collaborative activities. An example is the Honda–Austin Rover agreement to design and jointly develop two new cars, among other activities.

Certainly, joint ventures and agreements are not the only contractual forms available in strategic alliances. Both can be reinforced by equity exchanges where one partner purchases equity in another, or all the partners interchange equity. However, equity exchanges are usually a first step in cooperative agreements. Often, no cooperative activity is undertaken at the time of the equity investment, but is left for further negotiations (Noble 1994: 20). In fact, one of their main advantages is the possibility of establishing direct communication channels between the organizations through the participation in the governance boards (Pisano et al. 1988: 33) which are ‘an instrument for dealing with important external organizations’, as previously shown by Pfeffer (1972: 222).

Factors Affecting the Choice of a Contractual Form

According to Williamson (1979: 245), the choice of organization forms is based on the criteria of minimizing the sum of production and transaction costs. Since in joint ventures and contractual agreements partners can maintain relationships of a similar nature, keeping the same production costs, the reasons to adopt one or another depend on their different capacity to reduce transaction costs. By transaction costs, we mean those incurred when planning, adapting and controlling the performance of the activities in order to avoid or harmonize potential conflicts of interests among partners (Williamson 1985: 2). Transaction costs are usually divided between *ex-ante* and *ex-post* costs (Williamson 1985: 20–21). *Ex-ante* costs consist of those resulting from negotiating, drafting and safeguarding the contracts; *ex-post* costs consist of those resulting from inadequate adaptation to changing circumstances, from disputes among partners, from the set up and running costs associated with the governance structures and from bonding costs.

An important source of conflicts in strategic alliances is that the property rights on the assets being used, understood as the residual rights of control over those activities subject to the alliance and the right to receive their residual returns (Milgrom and Roberts 1992: 289), do not rely on only one person. This leads alliances to a latent conflict over the control of their activities and the distribution of their residual returns; the greater the involvement of the partners in the performance of the activities (i.e. the more horizontal the nature of the alliance) the more fierce the conflict. In this respect, joint ventures and contractual agreements harmonize these conflicts in a different way. Contractual agreements incur higher *ex-ante* transaction costs than joint ventures,

since the contract will cover all possible compensations in the relationship, anticipating solutions for the potential contingencies that could arise (Kogut 1988: 321). In the case of joint ventures, initial negotiations aim at reaching an outline agreement in respect of the characteristics and composition of the joint venture, leaving the management of the activities and adaptation to changing circumstances in the hands of its own administrative structure and governance boards. Nevertheless, the set up and running costs of the joint venture (to maintain an administrative hierarchy which runs its activities) accounts for an *ex-post* transaction cost, unavoidable when this form is adopted.

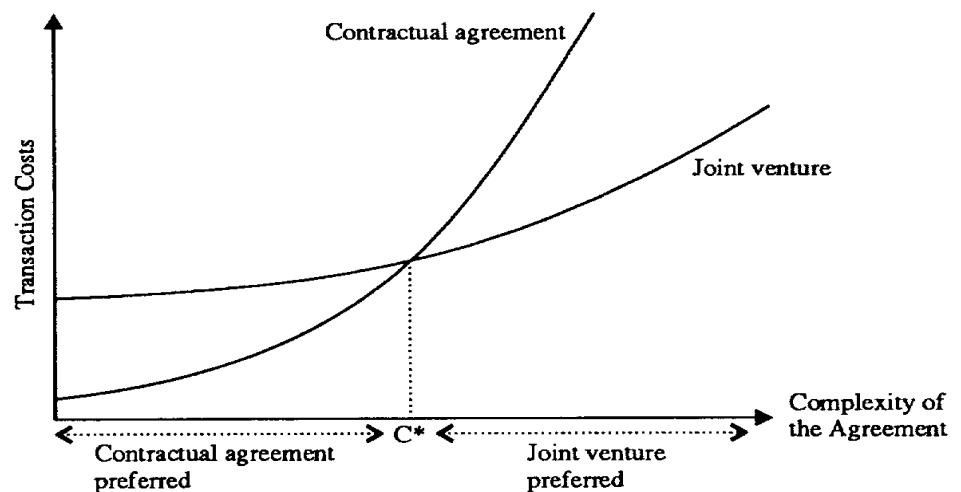
As a consequence of the above, in joint ventures there is a more precise and flexible definition of the property rights on the assets being used in the performance of the activities. In joint ventures there is a more explicit definition of residual rights of control, because a new entity is created to manage and control the use of the assets, where the partners are represented on the governance boards. Thus, it is unnecessary to specify *ex-ante* complex rules (Pisano et al. 1988: 32; Pisano 1989). In contrast, in contractual agreements, unnegotiated aspects can be a source of future conflicts of interests, given the lack of clarity on this matter that could make the partners unwilling to participate in the alliance. In joint ventures, there is also a more detailed distribution (according to the assets brought in) of the residual returns which result from the activities involved in the alliance. This makes it unnecessary to specify *ex-ante* performance requirements, as happens in contractual agreements (Kogut 1988: 321), so joint ventures avoid *ex-ante* negotiations of costly and rigid clauses since they define rights of control on the performance of the activities and distribute the residual value of the new firm among the partners.

According to this, we maintain in this paper that, as the alliance becomes more complex, joint ventures will be adopted, because their more precise definition of the property rights allows them to reduce transaction costs. If no factors combine to make alliances complex, contractual agreements become a valid option. Property rights will be assigned efficiently to the parties without incurring high *ex-ante* transaction costs arising from negotiations. However, as the complexity of the alliance increases, the efforts made to negotiate a contractual agreement would be very high, whereas a lower flexibility in assigning property rights would result in less ability to adapt to changing circumstances. In this way, although joint ventures have additional costs derived from the administrative structure of the new firm, they will be adopted when certain contingencies combine to make the alliances more complex.

Figure 1 summarizes these ideas. When the complexity of the alliance is low and to a certain extent (C^*), contractual agreements are the organizational option which minimizes transaction costs. Previous negotiations have allowed an appropriate *ex-ante* assignment of property rights, and therefore lower transaction costs than those arising from

the management of a joint venture. Nevertheless, once this complexity threshold has been crossed, the high *ex-ante* transaction costs needed to anticipate contingencies and find solutions and/or the *ex-post* costs arising from an inadequate adaptation or renegotiations among partners, turn out to be higher than those of joint ventures (their management costs plus the costs arising from the adjustments required, which are easier within joint ventures, due to the factors previously mentioned); that is why joint ventures are the most efficient organizational option. Extremely complex alliances can make transaction costs so high, even for joint ventures, that the partners may decide not to implement them. As we will see later, in these circumstances, partners can use an equity exchange as a means to establish a minimum level of trust and commitment that will facilitate future cooperative relationships.

Figure 1
Transaction Costs
in Joint Ventures
and Contractual
Agreements



In order to identify situations in which the complexity of the alliance is high, we have analysed the impact on the governance of the alliance of the attributes acting on transactions costs (Williamson 1985, 1991; Milgrom and Roberts 1992). This analysis will allow us to derive testable implications. We will first discuss four factors directly related to some of those attributes, and then the effect of the international or domestic character of the alliance, while at the same time we relate our hypothesis with the use of equity exchanges as a first step in cooperative relationships.

Duration

This factor is connected with two attributes used in transaction cost analysis: frequency and uncertainty. With respect to the former, transaction cost theory predicts that no specialized governance form is adopted in occasional transactions (Williamson 1985: 60–61). Its application to the contractual problem being analysed implies that joint ventures are not likely to be created in short-term cooperative agreements, such as

those created for the performance of a particular task — e.g. an R&D project or a construction. The short time required for the performance of the task cancels the advantages associated with the joint venture — a better governance of the relationship between partners all along the agreement — to exceed the extra costs involved.

With regard to uncertainty, it is pointed out that the higher the uncertainty the higher the need to introduce more precise governance mechanisms into contracts, because it is impossible to predict all possible contingencies and to anticipate the solutions for them (Williamson 1985: 56–60). This is why a high degree of uncertainty makes difficult the governance of the relationship by means of contractual agreements (Pisano 1989: 116). In contrast, in the case of joint ventures, their more precise residual rights of control facilitate the adaptation to changing circumstances. This is due not only to the administrative structure created to manage the activities, but also to the governance boards of the joint venture which provide an appropriate forum for renegotiations among partners. It must be stressed that in short-term alliances there is less uncertainty than in those of indefinite duration, since the probability of the appearance of initially unforeseen contingencies diminishes as the life of the alliance decreases. All these arguments allow us to propose the following verifiable hypothesis:

H1: In horizontal alliances established to perform a particular task (the duration of which is marked by the execution time of the task) a contractual agreement will tend to be adopted.

Number of Partners

This factor is related to two other attributes of transaction cost analysis: connectedness to other transactions and difficulty of performance measurement. The former refers to the fact that the higher the interconnections between the activities performed and other transactions of the partners, the higher the problems of coordination. Consequently, a large number of partners intensifies the problem of coordination; there are more interests to be harmonized. This situation increases the difficulty of drawing up *ex-ante* a contract which satisfies all parties. This would make it advisable to establish a joint venture since the more precise control rights in joint ventures allow each partner to be sure that their interests with respect to interconnections are taken into account.

As to the difficulty of performance measurement, this creates a problem of incentives, because it is arduous to associate effective performance with compensation. As for cooperation, in so far as it might be difficult to assess the individual performance of partners, they will tend to minimize their contributions and benefit from the rest of the members. Such is the case in alliances where there are a large number of partners (Alchian and Demsetz 1972: 786; Stigler 1974; Grandori 1987: 71–72; Salas 1989: 59). Under such circumstances, joint ventures provide higher incentives to the partners than contractual agreements. On the

one hand, a more precise definition of the rights of participation in residual returns leads to a distribution of them according to the partners' contribution to the joint venture. On the other hand, more explicit rights of control — in particular, the administrative body that has been established — permit a better supervision of the contributions of the partners. All these considerations allow us to propose the following hypothesis:

H2: As the number of partners increases, there will be a tendency towards the use of joint ventures.

Number of Functional Areas

This is another factor linked to the connectedness to other transactions. Not only the number of partners increases the interconnections that might arise between the activities of the alliance and those of the partners. These interconnections also increase according to the dimension of the activities subject to the cooperation. Killing (1988: 57–59) believes that the number of functional areas covered by the alliance is one of the factors which worsens the problems of coordination; the higher the number (the extreme case would be an alliance involving R&D, production and marketing activities) the greater the difficulty of drawing up a satisfactory contractual agreement which justifies the establishment of a joint venture. Therefore, the following hypothesis can be proposed:

H3: As the number of functional areas increases, there will be a tendency towards the use of joint ventures.

Transfer of Knowledge

This last factor is related to the difficulty of performance measurement. In many strategic alliances the main motivation of the participants is organizational learning, obtaining the knowledge and capabilities of the other partners. However, the tacit character of the knowledge to be obtained makes its transmission difficult. That is why it is usually necessary for the staff of the partners to keep a close contact (Killing 1980: 38–39; Badaracco 1991: 109). Under these circumstances, conflicts among partners may arise when some of them are unwilling to share information or work as a team, thus making it difficult to attain the goals sought by means of the alliance. Kogut (1988: 323–324) points out that when the transfer of knowledge is pursued, the control of it is, in itself, a cause of instability. Therefore, it will be more difficult to control this process through contractual agreements, since it is difficult to stipulate *ex-ante* the behaviour to be maintained by the partners (in order to facilitate this transfer of knowledge) to a point where the accomplishment of the agreed behaviour would be easily identifiable *ex-post*. These conflicts are better solved within joint ventures, due to their more precise definition of control rights and better incentives for cooperation (Kogut 1988: 321). Hence, the following hypothesis derives:

H4: In those alliances in which at least one of the partners wishes to have access to the knowledge and capabilities of the others, the tendency will be to adopt the joint venture form.

On the Role of Equity Exchanges

Equity exchanges can be considered as an alternative option to an initial establishment of a joint venture. In particular, equity exchanges can be the starting point for future projects in the case of partners not having sufficient trust and/or acquaintance to carry out jointly activities of a certain complexity. Alliances intended to carry out complex activities, when signed by companies with no previous relations, very often require the establishment of a less complex initial alliance so that a minimum mutual trust can be generated, enabling further projects (Killing 1988: 55; Buckley and Casson 1988: 49). Noble (1994: 20) states that 'minority equity investments serve as an umbrella for activities identified later'. They reduce uncertainty, contribute to generate trust and facilitate future negotiations within governance boards. It is to be expected that this type of equity exchange will be adopted as a prior step to the establishment of extremely complex alliances, especially in the case of international alliances, where partners belong to different cultures. It seems, therefore, that the same factors which explain the creation of joint ventures, instead of contractual agreements, would justify the initial adoption of equity exchanges, and that the hypotheses formulated here would be applicable to them. However, a deeper analysis reveals that not all of them are applicable. Such is the case of the hypothesis relative to the number of partners, as equity exchanges are only efficient where there are few partners. In these links, access to governance boards is a substantial question, and very difficult to carry out with a great number of partners. The hypothesis relative to the willingness to learn is not applicable either, because what is relevant in organizational learning is the direct control that partners have on the activities of the alliance, and that is achieved to a greater extent through equity investments in a joint venture.

Domestic and International Alliances

The nationality of the partners gives the alliances different peculiarities. Aspects such as processes of globalization of markets or the development of international networks are important in international alliances. In this sense, it is possible to distinguish among international alliances where the cooperative activities are performed in only one country and those whose activities are performed in several countries. One-country alliances correspond with the traditional view of international cooperation; a company uses alliances to introduce its products and/or elicit local know-how. With respect to this type of alliance, we have already stressed the advantages of joint ventures in the transfer of know-

ledge. Multicountry alliances are a more recent phenomenon, related to market globalization (Porter and Fuller 1986: 326). Very often, companies participating in these alliances open their markets mutually (Ohmae 1989). A higher occurrence of equity exchanges and contractual agreements are expected in this second type of international alliance. The following paragraphs support this view.

It is evident that an alliance among companies of different nationality and culture, actual or potential competitors, and intending to act in several countries, has a high degree of complexity from a strategic point of view. That is why an equity exchange can facilitate the development of the alliance, fulfilling the 'umbrella' function mentioned before, generating trust and facilitating negotiations. This reasoning, together with those previously developed on equity exchanges, leads to the formulation of the following hypothesis:

H5: Equity exchanges will be preferred to an initial establishment of joint ventures in international alliances whose activities cover several functional areas and countries.

Although international alliances covering several countries are complex from a strategic point of view, they are not necessarily so from an organizational one. In effect, in this sort of global alliance, relations of complementarity tend to be developed. Usually they involve companies with incomplete global networks where these alliances contribute to their global position (Porter and Fuller 1986: 338–339). On account of this, partners find many opportunities to divide the task between them, reducing the need to establish joint ventures. This division of work has the advantage of reducing the problem of incentives which arises when working jointly, as it allows the more precise measure of individual performance. In addition, it establishes a mechanism of reciprocity as a way of adding incentive to the relationship (Williamson 1985: 191; Teece 1992: 19). These circumstances reduce the need to set up a joint venture. This reasoning leads us to formulate the following hypothesis:

H6: In international alliances performing activities in several countries, there will be a tendency to adopt contractual agreements rather than joint ventures.

Tests of the Theory

Data Features

In order to test the hypotheses mentioned above, we used a database of strategic alliances signed by Spanish firms, compiled by the author, in the course of previous research, gathering all information on the forma-

tion of strategic alliances which were published by the Spanish economic press. The characteristics of such agreements, as compared with other European or worldwide databases, are discussed in García-Canal (1992). The database found 663 alliances (459 international and 204 domestic) in which at least one Spanish firm had participated and publicized in the press with a sufficient amount of relevant information (e.g. contractual form of the alliance, identification of all the partners and functional areas covered). In particular, we reviewed the daily newspapers *Expansión* and *ABC-Diario de Economía*, as well as the journal *Actualidad Económica*, during the period 1986 to 1989. Concerning the contractual form, the sample consists of 242 joint ventures, 354 contractual agreements (196 horizontal and 158 vertical) and 67 equity exchanges. In the database, only Spanish firms were included because the press tends to give priority to news referring to national companies. A limitation of the methodology used in the collection of data should also be noted, i.e. not all the existing agreements were collected because some of them had not been made public or had not been published in the press.

Dependent Variable and Method of Analysis

A qualitative dependent variable was set, representing the contractual form of the alliance. This variable is valued zero in those agreements where a joint venture has been established, valued 1 in vertical contractual agreements, valued 2 in horizontal contractual agreements and valued 3 in equity exchanges. As previously noted, the distinction between vertical and horizontal agreements, for the purpose of this paper, is based upon the nature of the relationship between partners; on the one hand, unilateral interchange agreements and, on the other hand, agreements where there is an involvement of all partners in the activities. We made a distinction between vertical and horizontal agreements in order to highlight some of our hypotheses. It is difficult to imagine customer-supplier agreements of more than two partners or covering several functional areas. In addition, as they are agreements of a differing nature, they are expected to show some distinctive features.

Given that the dependent variable presents more than two categories, in order to test the previously formulated hypotheses, several multinomial logit models were estimated. In the binomial logit models, the estimates of coefficients for independent variables measure the effect of the variations of such variables on the probability that the dependent variable will be valued 1. However, in multinomial logit models, the estimated coefficients measure the effect of the variation of the independent variable on the relative probability that the dependent variable will take a particular value. In other words, it is not so much the effect on the probability itself that the dependent variable will take a particular value that is estimated, but rather that the effect

on this probability in relation to the probability that the variable will take another value is used as reference.

Another difference with binomial logit is that in multinomial models ($n - 1$) coefficients are estimated for each independent variable, where n is the number of categories of the dependent variable. It is advisable to point out that it is irrelevant to sort such categories (Aldrich and Nelson 1984). In this particular case, we have taken the value 0 as reference, since we are interested in the reasons which lead to the creation of joint ventures rather than to other contractual forms. Therefore, every multinomial logit model will estimate three coefficients for the independent variables which are defined later.

Such coefficients indicate the effect (positive or negative) of an increase of the independent variable with respect to the relative probability of adopting the contractual agreement form (horizontal or vertical) or equity exchange versus a joint venture. For instance, a positive sign for a coefficient associated with an independent variable indicates that the probability to adopt this form increases with respect to the probability of adopting a joint venture when the independent variable increases. Thus, the hypotheses are considered to be accepted when the sign of the coefficients associated to every independent variable coincides with the relation expected, and such coefficients are statistically significant. The estimates were obtained by using the LOGIT procedure of the LIMDEP statistical package.

Independent Variables

To test Hypothesis 1, relative to the duration of the alliance, the CONTA dummy variable was created, which is valued 1 when the alliance has a definite duration, marked by the time of performance of a particular task, and 0 in the other cases. In order to test Hypothesis 2, relative to the relevance of the number of partners, we used the NUMPAR variable, which measures this number. To test Hypothesis 3, relative to the number of functional areas comprised in the alliance, the MULFUN dummy variable was created, which is valued 1 for alliances covering several functional areas (no greater breakdown was available in the database, regarding this variable), and 0 for those covering one functional area — only production, R&D or marketing.

With regard to Hypothesis 4, relative to the transfer of knowledge, it was taken as proxy of the willingness to learn the fact that through alliance, at least one of the partners could expand the business internationally or enter new sectors. In such cases, the lack of knowledge about the products and/or the markets concerned increases the need to obtain such knowledge (Killing 1980: 39; Gomes-Casseres 1989: 13–15; Hennart 1991: 485) and, accordingly, predisposes firms to learn from their partners. For this purpose, the following variables were set:

EXPINT: Dummy variable, which is valued 1 when, at least for some of the partners, the alliance implies expansion into new geographical markets, and 0 in the other cases.

ENTNSEC: Dummy variable, which is valued 1 when, at least for some of the partners, the alliance implies entering new businesses, and value 0 in the other cases.

In order to test Hypotheses 5 and 6, in addition to using the MULFUN variable, already defined, we set the LOCMUL variable, which is valued 1 for alliances performing activities in several countries, and 0 for the other alliances. Furthermore, in relation to Hypothesis 5, in order to verify whether previous cooperative relationships condition the contractual form adopted, as Tallman and Shenkar (1994: 107) suggest, we have created the PREVREL variable, which is valued 1 when previous cooperative relationships between partners existed prior to the alliance, and 0 in the other cases.

We have also added the R&DACT variable. This variable measures whether the alliance comprises only R&D activities and it had been used in other studies on the same subject, although the results obtained were contradictory (Pisano et al. 1988; Pisano 1989; Osborn and Baughn 1990). It has been included to try to establish its real effect. Finally, in order to test the existence of different sectorial tendencies in the choice of the contractual form, as has been suggested in the literature on strategy (Porter and Fuller 1986; Harrigan 1988; Osborn and Baughn 1990), we have also included the following dummy variables:

- AGRIB: is valued 1 for those alliances (73) whose activities are included in the Agricultural, Fishing and Food Industries sectors.
- ENERG: is valued 1 for those alliances (55) whose activities are included in the Energy and Water sectors.
- MET&MIN: is valued 1 for those alliances (58) whose activities are included in the Minerals, Basic Metals, Concrete and Building Materials and Chemicals sectors.
- METMEC: is valued 1 for those alliances (142) whose activities are included in the Transformation of Metal Products sectors (Machines and Electric Material, Automobiles and Other Material for Transport).
- OTMANUF: is valued 1 for those alliances (36) whose activities are included in Other Manufacturing sectors (Textiles, Paper and Wood Products, and other manufacturing not included in other variables).
- CONSTR: is valued 1 for those alliances (33) whose activities are included in the Construction sector.
- TRANSP: is valued 1 for those alliances (54) whose activities are included in the Transport, Communications and Distribution sectors.
- FINANC: is valued 1 for those alliances (109) whose activities are included in the Financial Services sector.
- OTSERV: is valued 1 for those alliances (103) whose activities are included in the Other Services sector.

Table 1
Multinomial
Logit Model 1:
All Alliances
($N = 663$,
standard errors in
parentheses)

Variables	Agreement or Equity Exchange versus Joint Venture		
	Vertical agreements	Horizontal agreements	Equity exchanges
CONSTANT	7.513*** (1.359)	1.332** (0.434)	20.151 (272.0)
NUMPAR	-2.656*** (0.626)	-0.283*** (0.082)	-11.729 (136.0)
MULFUN	-2.562*** (0.331)	-0.521† (0.299)	1.698*** (0.499)
R&DACT	1.323* (0.530)	1.582** (0.518)	1.274 (1.214)
EXPINT	-0.524† (0.303)	-1.885*** (0.299)	-0.593 (0.376)
ENTNSEC	-1.791*** (0.467)	-2.100*** (0.382)	-1.093* (0.408)
LOCMUL	0.051 (0.397)	2.058*** (0.309)	1.883*** (0.389)
PREVREL	-0.778 (0.604)	0.075 (0.527)	0.324 (0.540)
AGRIB	-0.438 (0.447)	-1.440* (0.664)	1.455* (0.738)
ENERG	-1.688** (0.580)	0.164 (0.495)	0.498 (0.934)
MET&MIN	-1.233* (0.476)	-1.289* (0.558)	1.069 (0.783)
OTMANUF	-1.093† (0.625)	-2.195* (0.790)	0.236 (0.909)
CONSTR	-14.563 (754.4)	1.267* (0.546)	0.468 (1.040)
TRANSP	-1.601* (0.599)	-0.398 (0.502)	0.632 (0.826)
FINANC	-2.782*** (0.817)	0.787† (0.415)	1.920* (0.695)
OTSERV	-0.462 (0.426)	-0.070 (0.436)	0.945 (0.763)
Chi-square	668.91 ($p < 0.00001$)		

Key: † $p < 0.1$; * $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.

Results

Three logit multinomial models have been estimated on the basis of these independent variables, for the whole sample, for international alliances and for domestic alliances. The results have been collected in Tables 1, 2 and 3, respectively. The tables show, for each model, the value of coefficients, their standard error and an indication of their level of significance. Generally speaking, it is observed that the three models offer estimates that are statistically significant. Also, they make it possible to classify satisfactorily the different observations in percentages higher than 68 percent, as shown in Table 4. The CONTA variable does not appear in any of these variables, because none of the 98 alliances created for the performance of a particular project lead to a joint venture (all of them were horizontal contractual agreements). This provides both

Table 2
Multinomial
Logit Model 2:
International
Alliances ($N =$
459, standard
errors in
parentheses)

Variables	Agreement or Equity Exchange versus Joint Venture		
	Vertical agreements	Horizontal agreements	Equity exchanges
CONSTANT	7.959*** (1.690)	0.582 (0.634)	18.239 (458.9)
NUMPAR	-2.791*** (0.768)	-0.142 (0.123)	-11.868 (229.4)
MULFUN	-2.336*** (0.372)	-0.305 (0.392)	1.924** (0.608)
R&DACT	1.173† (0.676)	1.265† (0.667)	1.978 (1.382)
EXPINT	-0.754† (0.428)	-1.805*** (0.406)	1.479 (1.103)
ENTNSEC	-1.957* (0.699)	-2.268*** (0.568)	-3.246*** (0.853)
LOCMUL	-0.264 (0.434)	2.299*** (0.356)	1.905*** (0.452)
PREVREL	-0.784 (0.620)	-0.900 (0.648)	0.099 (0.666)
AGRIB	-0.213 (0.509)	-0.853 (0.834)	1.057 (0.926)
ENERG	-1.151 (0.720)	0.865 (0.674)	1.576 (1.156)
MET&MIN	-1.141* (0.531)	-1.244† (0.711)	0.946 (0.958)
OTMANUF	-1.070 (0.708)	-2.099* (1.041)	0.069 (1.118)
CONSTR	-14.400 (963.8)	1.069 (0.695)	0.913 (1.213)
TRANSP	-1.437† (0.767)	-0.065 (0.640)	1.417 (0.972)
FINANC	-14.890 (480.7)	1.363* (0.533)	2.611** (0.869)
OTSERV	-0.409 (0.501)	0.007 (0.559)	-0.358 (1.308)
Chi-square	525.66 ($p < 0.00001$)		

Key: † $p < 0.1$; * $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.

strong evidence in favour of Hypothesis 1 and reveals CONTA as a subclassification of the dependent variable.

As far as the tests of Hypotheses 2 to 6 are concerned, all variables involved present the expected sign and are statistically significant. In relation to Hypothesis 2, it is observed that in the three models, the NUMPAR variable shows a negative coefficient, statistically significant, in almost all the estimates regarding contractual agreements. This shows that a higher number of partners reduces the probability of a contractual agreement being adopted rather than a joint venture, as Brockhoff's work (1992: 520) has shown, although in the field of R&D alliances. We also made estimates with a dummy variable, which is valued 1 when there are more than two partners and 0 when there are only two. Subsequently, we introduced a squared NUMPAR variable. Nevertheless, the models obtained in this way did not improve the pre-

Table 3
Multinomial
Logit Model 3:
Domestic
Alliances ($N =$
204, standard
errors in
parentheses)

Variables	Agreement or Equity Exchange versus Joint Venture		
	Vertical agreements	Horizontal agreements	Equity exchanges
CONSTANT	13.193* (4.827)	2.053* (0.779)	17.790 (349.8)
NUMPAR	-5.458* (2.345)	-0.364* (0.168)	-10.744 (174.9)
MULFUN	-4.826*** (1.315)	-1.126* (0.556)	2.256 (1.388)
R&DACT	1.603 (1.014)	1.618† (0.934)	-10.219 (672.5)
EXPINT	-4.179* (1.834)	-1.858 (1.287)	-2.505 (1.853)
ENTNSEC	-1.403† (0.800)	-1.788** (0.558)	0.433 (0.721)
LOCMUL	5.171* (1.977)	-0.411 (1.774)	4.057 (3.025)
PREVREL	-0.563 (2399.0)	17.757 (1598.0)	17.864 (1598.0)
AGRIB	-0.135 (1.164)	-2.914† (1.594)	1.730 (1.350)
ENERG	-2.675* (1.183)	-0.301 (0.846)	-13.055 (851.8)
MET&MIN	-1.602 (1.176)	-1.354 (1.101)	1.423 (1.513)
OTMANUF	0.036 (1.871)	-1.651 (1.357)	0.953 (1.737)
CONSTR	-13.696 (1162.0)	1.549 (0.961)	-13.672 (1230.0)
TRANSP	-1.787 (1.117)	-1.532 (1.076)	-16.496 (981.2)
FINANC	-1.770 (1.150)	0.109 (0.814)	-0.023 (1.306)
OTSERV	-0.817 (0.935)	-0.363 (0.787)	0.593 (1.267)
Chi-square	239.21 ($p < 0.00001$)		

Key: † $p < 0.1$; * $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.

dictive capacity of the initial model. According to the results shown in the tables it is observed that, on the one hand, the impact of the number of partners is stronger in vertical alliances, for obvious reasons, and on the other hand, this impact is stronger in domestic than in international alliances.

As far as the choice joint venture–contractual agreement is concerned, the MULFUN variable behaves similarly to the NUMPAR variable; it shows a negative coefficient, statistically significant in general terms, which validates the hypothesis, but its effect is stronger in domestic and vertical alliances than in horizontal and international alliances, respectively. In contrast, other variables such as EXPINT and ENTNSEC seem to have a greater impact on international alliances. This provides evidence that in international alliances, factors related to organizational learning have a greater impact than in domestic alliances where aspects

Table 4
Classification
Table

	<i>Model 1: All Alliances (predicted)</i>				Total
	J.V.	V.A.	E.E.	H.A.	
Actual:					
Joint venture	177	29	7	29	242
Vertical agreement	20	120	1	17	158
Equity exchange	34	3	19	11	67
Horiz. agreement	29	22	9	136	196
Total	260	174	36	193	663
% Cases predicted correctly	68.17%				
	<i>Model 2: International Alliances (predicted)</i>				Total
	J.V.	V.A.	E.E.	H.A.	
Actual:					
Joint venture	115	22	6	17	160
Vertical agreement	16	90	1	7	114
Equity exchange	12	3	26	7	48
Horiz. agreement	19	11	11	96	137
Total	162	126	44	127	459
% Cases predicted correctly	71.24%				
	<i>Model 3: Domestic Alliances (predicted)</i>				Total
	J.V.	V.A.	E.E.	H.A.	
Actual:					
Joint venture	68	8	2	4	82
Vertical agreement	0	39	1	4	44
Equity exchange	8	1	8	2	19
Horiz. agreement	13	11	0	35	59
Total	89	59	11	45	204
% Cases predicted correctly	73.52%				

related to organizational complexity seem to predominate. It is therefore confirmed that when at least one of the partners aims at expanding internationally or entering new sectors, there is a higher probability that a joint venture will be adopted rather than a contractual agreement, which confirms Hypothesis 4. This result is complementary to the evidence obtained by Gomes-Casseres (1989: 13–15, 18–22) and Hennart (1991: 491) in their studies on the ownership structure of foreign subsidiaries of multinational firms. These authors noted that joint ventures were preferred to wholly owned subsidiaries when a firm expanded towards geographical markets or sectors in which they lacked relevant experience.

As for equity exchanges being an alternative to the initial establishment of joint ventures, we observe that variables related to Hypothesis 5 — LOCMUL and MULFUN — show the predicted sign, with coefficients statistically significant. In alliances covering several functional areas, therefore, or whose activities comprise several countries, there is a higher probability that an equity exchange will be adopted rather than a joint venture. It is also observed, as was expected to some extent, that these variables are not influential within domestic alliances. This shows that the ‘umbrella’ role played by equity exchanges is more important in international alliances where, generally speaking, there is lesser affinity and acquaintance among partners. We have been unable to find empirical support for the hypothesis about the effect of previous cooperative relations on the adoption of the contractual form, as the coefficients associated with PREVREL have never shown statistical significance. However, it should be noted that collection of that data would not be reliable since the existence of previous cooperative relations is not always made public in the press. As for Hypothesis 6, it is observed that in alliances whose activities are performed in different countries, there is a tendency to adopt the contractual agreement form (horizontal) rather than a joint venture. In fact, if we compare the results in all categories, our data show that it is unlikely that an alliance performing activities in different countries will adopt the form of a joint venture, although it may include joint ventures within its network.

An overall assessment of the results relative to the various hypotheses would say that all of them refer to variables which have a significant effect on the probability of a joint venture being adopted, although there are variables that have a greater effect on domestic alliances — those relative to the organizational complexity (number of partners, number of functional areas) — and others having a greater effect on international alliances — those relative to strategic complexity (need to learn). Also, in international alliances, the development of global networks by means of contractual agreements seems to be important.

As to the R&DACT variable, it shows a positive sign, statistically significant, which validates the line of argument by Pisano et al. (1988: 59) when they state that when technological cooperation is carried out project by project, it is not necessary to establish a joint venture, because of the temporary character of the cooperation. In fact, when estimating multinomial logit models excluding temporary alliances from the sample, we come to the conclusion that the coefficient associated to the R&DACT variable is not more statistically significant (there are no relevant differences in the estimates for the other variables). This result leads us to interpret that the impact of the R&DACT variable is due to the temporary character of R&D activities rather than to their performance.

With regard to the estimates to check the influence of the sector, we observe that significant differences exist among sectors with respect to the contractual form to be adopted. The coefficients in vertical agree-

ment columns show sectorial tendencies towards horizontal and vertical cooperation. The influence of the sector is more relevant in international than in domestic alliances. In this sense, we note those results which refer to the financial sector. The dummy variables of this sector behave similarly to the LOCMUL variable, in that they are positive in horizontal agreement and equity exchange columns of international alliances. It indicates that, in this sector, equity exchanges are more likely to be adopted in international alliances, and that there is a tendency to develop complementarity relations through contractual agreements (it is common practice to interchange distribution networks). On the other hand, in industrial sectors, it is less probable to use contractual agreements than joint ventures.

Conclusions

In this paper, we have studied different factors that explain, at least in part, why strategic alliances adopt the joint venture form, and not other options. From our analysis, several conclusions can be drawn.

In the first place, our results, taken as a whole, confirm the main proposition of this work that joint ventures are preferred to contractual agreements when the complexity of the alliance is high. In alliances with a large number of partners, with an uncertain duration, comprising several functional areas, and where, at least one of the partners is seeking to learn from the rest, our data confirm a trend towards the creation of joint ventures. The underlying argument behind these hypotheses, based on transaction cost analysis, is that in joint ventures the co-participation of the partners in the equity of the new firm allows a more explicit definition of residual rights of control and a fairer distribution of costs and benefits. Therefore, the adoption of a joint venture reduces the impact of two problems, frequent in strategic alliances — the control of the activities and the distribution of the residual returns.

The differences found in the adoption of a contractual form between domestic and international strategic alliances is another conclusion to be noted. The empirical tests have made evident that some of the previously mentioned variables have a greater impact on domestic alliances — those relative to organizational complexity (number of partners, number of functional areas) — and others on international alliances — those relative to strategic complexity (need to learn). These results confirm the existence of two types of complexity that influence the adoption of a contractual form. They could also prove that the motivation of the partners to participate in an alliance determines future organizational problems.

Third, in international alliances, the development of global networks also seems important. In these alliances complementary relations are promoted and joint ventures are adopted to a lesser extent. This result is consistent with the arguments developed earlier in this paper, since

joint ventures are a more convenient option for the alliances in which all partners participate directly in the performance of the activities. It is under these circumstances where problems related to the control of the activities and the distribution of the residual returns occur more frequently. On the contrary, when the total task is divided between partners these problems are minimized and there is a lesser need for joint ventures.

Finally, our results show that the capacity of joint ventures to reduce problems in relation to coordination and motivation in strategic alliances is not unlimited. Data have confirmed the role of equity exchanges as a first step in cooperative relationships where a minimum of trust and acquaintance among partners is not present. They have shown a greater tendency to adopt equity exchanges rather than joint ventures in complex international alliances. It is well known that the lack of trust between parties, people or organizations, makes cooperative relationships difficult. Arrow (1969: 62) has shown how arduous the solution to this problem was, saying 'it is difficult to conceive of buying trust in any direct way'. However, equity links between firms willing to cooperate facilitate the development of cooperative relationships, since these links are a proof of commitment between partners that lead them to take the 'calculated risk' of cooperation (Williamson 1993), thereby facilitating future negotiations.

Note

* I would like to thank Jesús Alfaro, Carlos Arias, Benito Arruñada, Esteban Fernández Sánchez, J. M. Menéndez Estébanez, Gema Pérez, Guillermo Pérez-Bustamante, Juan Prieto, Ana Valdés, Vicente Salas and the reviewers and editor of this journal for their valuable comments. Financial support from the Universidad de Oviedo (Project DF-93-212-29) is gratefully acknowledged.

References

- | | |
|---|--|
| <p>Alchian, Armen A., and Harold Demsetz
1972 'Production, information costs and economic organization'. <i>American Economic Review</i> 62: 777-795.</p> <p>Aldrich, John H., and Forrest D. Nelson
1984 <i>Linear probability, logit, and probit models</i>. Beverly Hills: Sage.</p> <p>Arrow, Kenneth J.
1969 'The organization of economic activity: Issues pertinent to the choice of market versus nonmarket allocation' in <i>The analysis and evaluation of public expenditure: The PPB system</i>, Vol. 1. U.S. Joint Economic Committee, 91st Congress, 1st Session, 47-64. Washington: U.S. Government Printing Office.</p> | <p>Badaracco, Joseph L.
1991 <i>The knowledge link: How firms compete through strategic alliances</i>. Boston: Harvard Business School Press.</p> <p>Brockhoff, Klaus
1992 'R&D cooperation between firms: A perceived transaction cost perspective'. <i>Management Science</i> 38: 514-524.</p> <p>Buckley, Peter J., and Mark Casson
1988 'A theory of cooperation in international business' in <i>Cooperative strategies in international business</i>. Farok J. Contractor and Peter Lorange (eds.), 31-53. Lexington: Lexington Books.</p> |
|---|--|

- García-Canal, Esteban
1994 'Formas de cooperación horizontal: empresas conjuntas frente a acuerdos contractuales'. *Revista de Economía Aplicada* 2/5: 51–68.
- Gatignon, Hubert, and Erin Anderson
1988 'The multinational corporation degree of control over subsidiaries: An empirical test of a transaction cost explanation'. *Journal of Law, Economics and Organization* 4: 305–336.
- Gomes-Casseres, Benjamin
1989 'Ownership structures of foreign subsidiaries: Theory and evidence'. *Journal of Economic Behavior and Organization* 11: 1–25.
- Grandori, Anna
1987 *Perspectives on organization theory*. Cambridge, MA: Ballinger.
- Gupta, Anil K., and Singh, Harbir
1991 'The governance of synergy: Inter-SBU coordination vs. external strategic alliances. Academy of Management Conference, Miami.
- Harrigan, Kathryn R.
1988 'Joint ventures and competitive strategy'. *Strategic Management Journal* 9: 141–158.
- Hennart, Jean-Francois
1991 'The transaction costs theory of joint ventures: An empirical study of Japanese subsidiaries in the United States'. *Management Science* 37: 483–497.
- Killing, J. Peter
1980 'Technology acquisition: License agreement or joint venture'. *Columbia Journal of World Business* 15/3: 38–46.
- Killing, J. Peter
1983 *Strategies for joint venture success*. New York: Praeger.
- Killing, J. Peter
1988 'Understanding alliances: The role of task and organizational complexity' in *Cooperative strategies in international business*. Farok J. Contractor and Peter Lorange (eds.), 55–67. Lexington: Lexington Books.
- Kogut, Bruce
1988 'Joint ventures: Theoretical and empirical perspectives'. *Strategic Management Journal* 9: 319–332.
- Milgrom, Paul, and John Roberts
1992 *Economics, organization and management*. Englewood Cliffs: Prentice Hall.
- Noble, Dorothea
1994 'Spanish and U.K. firms and cooperation: An examination of cooperative strategies in the FDI expansions of Spanish parent companies in the U.K. and of U.K. companies in Spain. Proceedings of the 21st annual conference of the U.K. Academy of International Business, UMIST, March.
- Ohmae, Kenichi
1989 'The global logic of strategic alliances'. *Harvard Business Review* 67/2: 143–154.
- Osborn, Richard N., and C. Christopher Baughn
1990 'Forms of interorganizational governance for multinational alliances'. *Academy of Management Journal* 33: 503–519.
- Pfeffer, Jeffrey
1972 'Size and composition of corporate boards of directors: The organization and its environment'. *Administrative Science Quarterly* 17: 218–228.
- Pisano, Gary P.
1989 'Using equity participation to support exchange: Evidence from the biotechnology industry'. *Journal of Law, Economics and Organization* 35: 109–126.

- Pisano, Gary P., Michael V. Russo, and David J. Teece
1988 'Joint ventures and collaborative arrangements in the telecommunications equipment industry' in *International collaborative ventures in U.S. manufacturing*. David C. Mowery (ed.), 23–70. Cambridge, MA: Ballinger.
- Porter, Michael E., and Mark B. Fuller
1986 'Coalitions and global strategy' in *Competition in global industries*. Michael E. Porter (ed.), 315–343. Boston: Harvard Business School Press.
- Salas, Vicente
1989 'Acuerdos de cooperación entre empresas: bases teóricas'. *Economía Industrial* 266: 47–60.
- Stigler, George J.
1974 'Free-riders and collective action: An appendix to theories of economic regulation'. *Bell Journal of Economics* 5: 359–365.
- Tallman, Stephen B., and Oded Shenkar
1990 'International cooperative venture strategies: Outward investment and small firms from NICs'. *Management International Review* 30: 299–315.
- Tallman, Stephen B., and Oded Shenkar
1994 'A managerial decision model of international cooperative venture formation'. *Journal of International Business Studies* 25/1: 91–113.
- Teece, David J.
1992 'Competition, cooperation and innovation'. *Journal of Economic Behavior and Organization* 18: 1–25.
- Williamson, Oliver E.
1979 'Transaction cost economics: The governance of contractual relations'. *Journal of Law and Economics* 22: 233–261.
- Williamson, Oliver E.
1985 *The economic institutions of capitalism: Firms, markets, relational contracting*. New York: Free Press.
- Williamson, Oliver E.
1991 'Comparative economic organization: The analysis of discrete structural alternatives'. *Administrative Science Quarterly* 36: 269–296.
- Williamson, Oliver E.
1993 'Calculativeness, trust, and economic organization'. *Journal of Law and Economics* 36: 453–500.