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Jean Beuve
Stéphane Saussier

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Jean Beuve, Stéphane Saussier

Gregor IAE – University of Paris I, 21 rue Broca, 75 005 Paris

(jean.beuve@univ-paris1.fr, stephane.saussier@univ-paris1.fr)

**Abstract**

 *In this paper, we use a large database of more than 3 700 strategic relationships in force between French firms in 2003 to study the way they achieve cooperation. We find that cooperation is enhanced by a partner's reputation and the perceived balance of the relationship. Our results also suggest that while formal contracts have a negative impact on ex-post cooperation when relationships are "simple," contracts are an enhancing factor of cooperative behaviors as soon as the intrinsic hazards of the relationship require higher ex-ante contractual safeguards to secure agreements. As a result, formal contracts can, on the one hand, have a pernicious effect on the willingness of firms to implement cooperative behaviors; and, on the other, and under precise circumstances, appear a prerequisite allowing the emergence of ex-post interfirm cooperation.*

*Keywords*: cooperation, formal contract, interfirm relationships, reputation.

*JEL codes*: L14

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## 1. Introduction

Value creation in strategic relationships is only possible to the extent that contracting parties adapt to their environment during the lifespan of their contractual relationship. In fact, like alliances Parkhe (1993) describes, strategic relationships are "often characterized by inherent instability arising from uncertainty regarding a partner's future behavior and the absence of higher authority to enforce agreements." In the face of this necessity for adaptation, firms have to structure their relationships to promote cooperative behaviors. As underlined by Arend (2009), major consulting firms attribute the failure of alliances to opportunistic—that is, non-cooperative—behavior by one or both partners. Given the necessity to adapt, and the likelihood of failure due to opportunism, determining the way firms can implement cooperation in their strategic relationships is an important topic in organizational research. Mutual cooperation is not automatic, since it is not in the players' interest to behave cooperatively if there are no guarantees that each player will reciprocate (Gibbons, 1992). Contractual parties have to find efficient ways to enhance those cooperative behaviors. In practice, this can be anticipated and dictated ex-ante through

formal contractual arrangements that provide a framework for cooperation. However, the contracting parties are often uncertain of the enforceability of the real intent of the contract by a court or third party. As Grossman and Hart (1986) point out, verifiability of contractual provisions, a requirement for ex-post enforceability, makes formal contracting costly if not impossible, leading to incomplete contracting. Furthermore, it is impossible to foresee all future relevant contingencies at the time the contract is signed (Williamson 1985).

Adaptation and cooperation can also be managed ex-post through informal agreements dependent on trust and relational contracting. A broad literature now insists on the fact that relational contracting has long played a role in vertical and horizontal inter-firm relationships. However, Telser (1980), Bull (1987), and Klein (1996) note that a relational contract cannot be enforced by a third party and must therefore be self-enforcing. Because of the close relationships that firms have with their partners, implicit contracts might be implemented. Partners attribute dispositions to each other—reliable, dependable, committed to providing expected rewards, and so on. Once trust has grown, there is an increasing willingness to expose oneself to risk, rely on a partner's promises, and to sacrifice present for future gains (Rempel, Holmes and Zanna 1985, Parkhe, 1993). Through repeated interactions, contracting parties can make it costly for each other to breach the contract (i.e., loss of future trade value). However, the self-enforcing range of such implicit agreements is limited (Klein 2007), mainly by the level of trust parties have for each other.

The fact that there are two ways to foster cooperation naturally leads to a trade-off between formal and relational contracting, depending on their relative efficiency. Previous literature usually studies the emergence of informal contracting when formal contracting may yield suboptimal outcomes (Klein and Leffer 1981, Bull 1987, Baker, Gibbons and Murphy 1994, Klein 1996, and more recently Lafontaine and Raynaud 2002, Board 2008, Halac 2008, and Kvaloy and Olsen 2009). Informal agreements will only emerge when they improve on the result of formal agreements. Fewer studies suggest that formal contracting might go hand-in-hand with implicit contracting and indeed improve the enforcement of relational contracts (Poppo and Zenger, 2002; Iossa and Spagnolo, 2009).

In this paper we examine empirically how firms achieve cooperation to create value in their strategic relationships, using an original database constructed by the French National Institute of Statistics to characterize inter-firm contractual agreements. Previous empirical literature mainly stresses the complementarity/substitutability of formal and relational contractual dimensions (Poppo and Zenger 2002, Lazzarini et al. 2003) or the link between past interactions, trust, and the way contracting partners draft contracts (Reuer and Arino 2007, Corts and Singh 2004, Gulati and Nickerson (2008) and Vanneste and Puranam 2009) or bid (Gil and Marion 2009). In contrast to this literature, we do not focus primarily on the formal-relational dimensions of contractual agreements. Taking for granted that a relationship is efficient and creates value only to the extent that it fits its environment and

adapts through time without any conflict dissipating the surplus, we study the conditions under which such adaptation is achieved. Our contribution to the literature is to analyze the conditions under which ex-post cooperation is more likely to develop, depending on the characteristics of the contracting parties and transactions, as well as ex-ante contractual choices.

Interestingly, we find that ex-post cooperation can be achieved without any ex-ante effort to frame a formal contract encompassing the dimensions of their future relationship. We do not find any evidence that formal contracts undermine trust or encourage the opportunistic behavior they are designed to prevent. In accordance with Luo (2002), we find that contracts could serve as "a framework guiding the course of cooperation, while cooperation overcomes the adaptive limits of contracts." More precisely, our results show that formal contracting increases the probability of ex-post cooperation between the contracting parties when hazards become severe. This suggests that ex-ante formal contracting efforts are not always destructive but can actually encourage partners to cooperate ex-post and to rely on relational agreements, leaving room to adapt cooperatively to unanticipated changes in the environment. Our results also reinforce the idea that contracts and cooperation have to be assessed conjointly for a more subtle explanation of the interaction between ex-ante governance mechanisms and subsequent adaptations.

The paper is organized as follows. In the next section we present our theoretical framework and hypotheses. In section 3 we describe data, measures, and the empirical strategy. Section 4 presents results and robustness checks. Finally, in section 5 we discuss our results and explore a future research agenda.

## 2. Theory

### Cooperation and Formal Agreements

By cooperation, we mean informal cooperation that "involves adaptable arrangements in which behavioral norms rather than contractual obligations determine the contributions of parties" (Smith, Carroll and Ashford 1995, p. 10). It is well known that cooperation between partners creates value, enhancing learning and knowledge (Dyer and Singh, 1998) and enabling efficient adaptation in the face of unanticipated events (Gibbons, 2005). As Poppo and Zenger (2002) remark, cooperation is an important safety mechanism, mitigating external and internal hazards. Surprisingly, while cooperation is often presented as a way to cope with the limitations of a contract, one of the common features of every firm relationship is that a contract is signed. As a consequence, the role assigned to the contract is questionable. Does it help to achieve ex-post cooperation? Does it help to secure the agreement ex-ante? Do ex-ante contractual safeguards enhance or reduce ex-post

cooperation? Does a contract help to achieve other goals? The need for formal agreements to sustain exchanges between contracting parties is viewed differently, depending which theoretical lens is turned on the role ascribed to contracts. In the agency literature, the primary motives for contracting are risk transfer (insurance) and incentive alignment (see Hart and Holmström 1987). Transaction cost economists take contracts as devices for structuring ex-post adjustments and for constraining wasteful (rent-dissipating) efforts to influence the distribution of gains from trade (Masten-Saussier 2002). Those ex-post adjustments especially include bargaining and hold-up activities in transactions supported by relationship-specific investments (Williamson 1975, Klein, Crawford, and Alchian 1978). The main purpose of contracting boils down to generating (1) adequate ex-ante incentives to invest (Grossman and Hart 1986) by securing the parties and (2) adequate incentives to adapt to unanticipated ex-post events and to avoid hold-up. Those two objectives are often seen as antagonistic. As pointed out by Williamson 1985 and highlighted in empirical studies (Crocker-Masten 1991, Crocker-Reynolds 1993, Saussier 2000), contracting partners might want to shape a complete contract ex-ante and then sacrifice it to ex-post adaptation and cooperation. From this perspective, the contract may be analyzed as a tool to generate trust, with contracting parties investing ex-ante at the cost of less ex-post cooperation.

Other commentators (Kogut and Zender 1996, Conner and Prahalad 1996) argue that formal governance devices hinder the development of cooperative behavior, limiting the contracting parties to the contractual terms rather than encouraging the exploration of new solutions (Macaulay 1963, Sorenson and Sorensen 2001). Many have highlighted the pernicious effect of formal institutions and formal controls on cooperation. According to them, the intensive use of contractual control mechanisms tends to destroy trust between partners (Lorange and Roos 1992, Goshal and Moran 1996).

These various theoretical perspectives conclude that detailed formal contracts have a negative effect on ex-post cooperation. This leads us to our first hypothesis:

HYPOTHESIS *1. The use of detailed formal contracts restrains the ability of the parties to adapt ex-post through cooperative agreements.*

## Cooperation and balanced relationships

Recent theoretical developments (Hart and Moore 2008) and recent experimental studies suggest that cooperation depends on both parties sense of fairness in their on-going relationship (Fehr, Hart and Zehnder 2008). These results confirm older economic (transaction cost) studies, showing that parties greatly disadvantaged by the terms of a contract are more likely to evade or renegotiate a previous deal. Imbalanced situations often induce fear of opportunistic behavior and may lead to diminished performance levels

(Williamson 1985). White and Siu-Yun Lui (2005) reach the same conclusion, pointing out that "as the perception of inequity increases, in either absolute terms or relative to a partner or other referent, a firm will be less willing to undertake an alliance or continue a particular alliance in the same form." Partners' assessment and reaction to perceived inequity in the partnership will influence alliance outcomes (Humar and Nti 1998). To enhance cooperative behaviors and achieve ex-post adaptation, contracting parties attempt to design their governance structure so that ex-post rents are divided "equitably," keeping the relationship within the "self-enforcing range" (Telser 1980, Klein 1996); or, alternatively, achieve what Oliver Williamson has called "hazard equilibration" (1985, p. 34). This leads us to the following hypothesis:

***HYPOTHESIS 2. A balanced relationship between contracting parties will positively impact on ex-post cooperation.***

However, contracts can be used in order to achieve Williamson's "hazard equilibration" (Fehr, Hart and Zehnder 2008; Iossa and Spagnollo 2009). According to this view, the contract is pushed to the background in the daily relationship between firms and is considered only as a reference point in case of conflict. Fehr, Hart and Zehnder (2008) maintain that one drawback of flexible agreements with a low level of contractual details is that they cause a significant amount of shading on ex-post performance, because the contracting parties perceive them as unfair as soon as events occur. Nevertheless, over time a relationship can evolve from formal to informal types of contract in which rules and regulations are no longer needed (Ring and Van de Ven 1992, 1994). A detailed contract would then help to generate trust ex-ante and give incentives to invest, leading to ex-post cooperation. This would be particularly true in transactions for which ex-ante hazards are important, making a case for a detailed contract to secure ex-ante parties. At least two reasons for the generation of high levels of ex-ante contractual hazards have been offered in the literature: specific investments and strategic intensity.

On the one hand, specific investments developed by one partner put that partner in a weak position, creating room for potential conflict between partners over the appropriation of the quasi-rent (Alchian et al. 1976, Williamson 1983). The link between asset specificity and interfirm cooperation is not obvious. When both firms invest in specific assets, the reciprocal dependency reduces each partner's incentive to engage in opportunism and enhances ex-post cooperation (Klein and Murphy 1988). But when only one firm makes a specific investment, the situation is unbalanced and could lead to reduced cooperation. Ex-ante efforts to frame the contractual design can help to equilibrate the hazards of unilateral investments and permit ex-post cooperation. This leads us to the following hypothesis:

***HYPOTHESIS 2a. Detailed contracts help to balance the relationship when asset specificity is developed unilaterally, enhancing ex-post cooperation.***

On the other hand, the strategic dimension of the partnership for one of the parties also generates important ex-ante hazards. The similarity between strategic interfirms' relationships is that each party needs the other to foster its individual interest. But, as noted by Parkhe (1993), these "needs intersect with behavioral uncertainty to create vulnerability to opportunism". In fact, as said before, strategic relationships are often characterized by inherent instability arising from uncertainty regarding a partner's future behavior. As a result, in case of conflicts, the party for which the partnership is strategic anticipates a huge impact on his revenues stressing the need for probity of its partner. This probity concern is crucial in private agreements for which damage payments payable should a firm not perform, are likely to be far outweighed by the costs. This is typically the case where you are considering strategic agreements. Here again, the contract can act as prerequisite insurance, equilibrating hazards and, finally, allowing parties to implement cooperative behaviors ex-post. We thus have the following hypothesis:

HYPOTHESIS **2b. The use of detailed formal contracts helps to balance the relationships when the transaction is a strategic one, enhancing ex-post cooperation**

## Cooperation and reputation

If contractual devices impact on ex-post cooperation, the identity of partners can also play a role. As Parkhe (1993) and many others suggest, one way for a firm to deal with potentially opportunistic partners is to take their cumulative past behavior as a guide to their future behavior, or—when such information is unavailable—to use reputation as a proxy for knowledge of opportunistic intentions. Reputation is often considered a means to increase alliance cooperation (Houston 2003) because it can be a substitute for costly mechanisms that verify the intentions and monitor the actions of business partners (Kogut 1989). Some authors extend this argument by saying that reputation effects can sometimes be more efficient than the threat of legal sanctions in assuring cooperation in strategic relationships (Dore 1983, Wright and Lockett 2003). As Dellarocas (2005) argues, reputation networks are a solution to the problem of trust-building, since their objective is to enable efficient transactions in social interactions where cooperation is compromised by post-contractual opportunism (moral hazard) or information asymmetries (adverse selection). Those mechanisms act as sanctioning devices in the former instance and as signaling devices in the latter. As a consequence, firms have an incentive to foster and maintain a good reputation (i.e. a reputation for high reliability) to valorize their ongoing relationships and to increase the possibility of developing new ones. In practice, each partner's reputation can act as a hostage by securing the on-going relationship (Williamson 1983), avoiding mutual distrust prompted by fears of opportunistic intentions. Moreover, as Holmstrom and Tirole (1989) emphasize, "the more faith the firm's trading partners have in the firm's ability and willingness to fill in contractual voids in a reasonable (efficient) manner, the lower the cost

of contracting." As a result, reputation appears as an intangible asset (Hall 1992) that can be an important factor in competitive advantage (Hall 1993), can attract partners (Dollinger et al. 1997) and contributes to relationship success (Saxton 1997). As long as a good reputation enhances and a questionable reputation hampers the emergence and maintenance of cooperative, interfirm relationships, reputation is likely to be important where there are pervasive hazard problems. This leads us to the following hypothesis:

HYPOTHESIS *3. The reputation of contracting parties helps to sustain ex-post cooperation.*

## 3. Methods

**Data**

To test our hypotheses, we used an original data set, developed by the French National Institute of Statistics and Economic Studies, which described strategic relationships between industrial firms in France in 2003. There were approximately 22 000 firms in the data set, each with more than 20 employees or more than €5 million of sales and with an industrial main activity. A compulsory questionnaire was sent to 5 220 companies corresponding to a representative sub-sample. (The sampling strata were obtained by crossing size and business sectors. Inside those strata, firms were randomly selected.) This survey gives a global picture of the strategic relationships between firms and allows cross-sectional comparisons. Because it was a compulsory questionnaire, there was a satisfying rate of response, varying between 63% and 83%, depending on sector, and producing 3,904 responses.[1] An important feature of our data is that the questionnaire asked firms to focus on their three most strategic relationships. As a consequence, all simple spot agreements without any kind of specific investment (simple purchases and/or sales relationships, strictly financial relationships, or relationships with a temping agency) were excluded from the survey field. In our final sample, we retained only 1,101 of the 3,904 respondent firms—those that declared strategic relationships with other firms, leading us to a final sample of 3,359 strategic interfirm relationships.

This database has three major advantages for our study. First, the questionnaire has an approach by sector (transport, storage and services, research, design activities) and function (production, supply, distribution and research and development), permitting cross-sectional comparisons. Second, the focus on strategic relationships allows us to avoid a classic drawback of firm surveys: of the description of the "average" relationship. Here, we elicit descriptions of three different strategic relationships by function. Third, the data develop a set of indicators that captures firms' *perceptions* of their relationships, instead of only external indicators. In short, our data set gives us a global picture of the relationships

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[1] Firms that did not answer the questionnaire preferred to pay the fine associated with no response.

between firms, encompassing many functions and sectors. At the same time, it is restricted to strategic relationships for which ex-post cooperation is likely to be crucial.

## Dependent Variables

*Cooperation*

We are interested in the way firms generate and sustain informal cooperation where behavioral norms rather than contractual obligations determine the parties' contributions. This sort of characteristic is not easy to measure. In our study, we used the variable *Cooperation* to measure the firm's perception of its ongoing relationships. This is a dummy variable that takes value 1 when firms declare that cooperation is one of the main characteristics of the ongoing relationship and zero otherwise. In our sample, more than 57% of the firms consider that cooperation is a crucial feature of their relationship. This suggests that a large proportion of strategic relationships lack ex-post cooperation.

## Independent Variables

*Formal agreements*

Our propositions suggest that the degree of formalism in relationships, as it is depicted in the ex-ante contract, might interfere positively or negatively on the effective ex-post cooperation between contracting parties. Contracts may be considered either as the cornerstone of the governance structure or as a simple reference point, allowing discussion and adaptation within the relationship. To take care of the formal dimension of contractual agreements we used the variable *Contract*, which is equal to 1 if the formal contract is perceived by firms as a central element of their relationship and zero otherwise. More than 24% of our firm sample considers the contract a central coordinating device. This suggests that there may be no direct connection between signing a formal contract that is central for coordination and the development of ex-post cooperation.

*Balanced agreements*

As we mentioned earlier, to reach a high level of ex-post cooperation contracting parties should design contracts so that ex-post rents are divided equitably. Then, none of the parties is tempted to renegotiate contract terms to their advantage. We capture the fact that the contractual relationship is equilibrated with the variable *Balance*, which is equal to 1 when respondent firm says its relationships are balanced and zero otherwise. This is the case in more than 60% of our sample observations. It means that, in 40% of cases, one party imposes its conditions on the other.

*Asymmetric-specific investments*

Specific investments are one of the main sources of contractual hazards. In our data, every relationship described involves specific investments. These explain the necessity to prevent opportunistic behavior and to equilibrate hazards because firms have to resolve eventual hold-up problems by mitigating the parties' temptations to renege on agreements. To control against those opportunist risks, safeguards can be written into contracts in the form of additional detail and stipulations. As we noted earlier, temptations to renege are especially high when only one of the parties develops specific investments. To capture this in our data, we distinguish cases where only one of the contracting parties makes specific investments and cases where both invest. Hence we define a variable *OSSI*, for one-side specific investment, equal to 1 when those investments are asymmetric and zero if they are symmetric. Only 6% of our respondents are in this situation, suggesting that very frequently both parties invest.

*Strategic agreements*

Even if we focus only on strategic relationships (i.e., relationships that involve specific investments), it is clear that not all relationships have the same importance for firms. Some of the strategic relationships we study impact on the firm's development and may, in the case of failure, compromise its future. To capture this in the survey, firms can pinpoint whether the relationship described is particularly strategic, in the sense that its aim is to strengthen firm development. Thus we define a variable *Strategic Importance* taking the value 1 if the firm pays great attention to a particular relationship and zero otherwise. This is the case in 37% of the relationships we study in our sample.

*Reputation*

Reputation, as we have discussed, can generate trust and ease cooperation ex-post. Indeed, contracting parties might screen potential partners on the basis of their reputation. Even if we have no information about prior ties between partners that would give us an indication of their mutual trust, we nonetheless know whether or not the partner is selected for its reputation. We take this possibility into account with our variable *Reputation* taking the value 1 if the firm selects its partner according to its reputation for reliability and zero otherwise. This is the case in 13% of our relationships.


**Control Variables**

A large part of the observed variance in the way interfirm agreements are shaped can be explained by differences in firm and sector characteristics, as well as differences in other relationship characteristics. To control for these potential differences, we introduce control variables such as the foreseeable duration of the relationship at the beginning (Duration), its type (Type), the motivation of its setup (Economic Logic), and the criteria used to select the partner (Partner Selection). For each respondent firm, we add control variables about size (Size), sales value due to its relationships (Sales), experience (Number of Relationships), age (Age), and geographical distance from its partner

(Distance). Finally, to factor for the potential influence of functions and sectors in which relationships take place, we introduce dummies variables for each (Function and Sector). Table 1 shows the variables used in the empirical analysis and their descriptive statistics.

**Empirical Strategy**

We are interested in estimating the following logit model,

$$C_i = 1 \begin{bmatrix} C_i^* = FormalContract_i a_1 + Reputation_i a_2 + Balance_i a_3 \\ + OSSI_i a_4 + StrategicImportance_i a_5 + z_i a_7 + e_i < 0 \end{bmatrix}$$

giving the probability of observing an agreement characterized by a high level of cooperation between firms, where 1 is the indicator function taking value 1 whenever the statement in brackets is true, and zero otherwise; $C_i$ is the binary variable indicating whether relationship $i$ is governed through cooperation or not; $e$ is the error term and ($a_1,...,a_5$) are the parameters corresponding to our key variables. $z$ is a vector of additional control variables about firms (number of on-going strategic relationships, age, level of sales due to their relationships) and relationships (reasons to select a particular partner, economic logic, type, duration, geographical proximity of the partner, functions and sectors affected by relationships) to take into account the specific characteristics of each individual relationship as well as aspects of the environment in which they arise.

The baseline model only includes the variables corresponding to the hypotheses we want to test: the selection of a partner (*Reputation*), the importance of the formal contract (*Formal Contract*), the balance of the relationship (*Balance*), asymmetry in  specific investments (*OSSI*) and the strategic importance of the relationship (*Strategic Importance*).

We also added cross variables to disentangle direct and indirect effects of formal contracting on the level of cooperation observed in our agreements, as our theoretical discussion suggested.

Finally, we try as far as possible to take care of possible fixed effects coming from functions, sectors, and firms affected by the agreement (our $c_j$, $d_k$, $f_l$ variables):

$$C_i = 1 \begin{bmatrix} C_i^* = FormalContract_i a_1 + FormalContract_i * OSSI_i a_{11} \\ + FormalContract_i * StrategicImportance_i a_{12} + Reputation_i a_2 \\ + Balance_i a_3 + OSSI_i a_4 + StrategicImportance_i a_5 + z_i a_7 + c_j + d_k + f_l + e_i < 0 \end{bmatrix}$$

Hence, we expect a negative impact from the existence of a formal contract on observed ex-post cooperation (H1: $a_1<0$); but we also expect indirect positive impacts of higher magnitude when the relationship is strategic and involves asymmetric specific investments (H2a: $a_{11}>0$, H2b: $a_{12}>0$). Additionally, we expect a positive impact of the selection of a reputed partner on ex-post cooperation (H3: $a_2>0$). Pairwise correlations of variables use in our analysis are presented in Table 2.

## 4. Results

Table 3 reports results from logit regression models for cooperation. The first column (Model 1) reports our basic specification. Results provide good support for the hypotheses of our theoretical discussion. First, the variables *Reputation* and *Balance* (both significant at 1% level, $p < 0.01$) clearly appear to be factors enhancing ex-post cooperation. Consistent with Hypothesis 3, it seems that parties have greater chance of developing cooperative behaviors when reputation is a key motivation of partner selection. Similarly, consistent with Hypothesis 2, we find a significant and positive effect for balanced situation on the ability of parties to cooperate ex-post. When neither of the contractual parties imposes its conditions on the other, neither has any interest in trying to evade or renegotiate the previous deal. The impact of "hazard equilibration" on cooperation could also be observed through asymmetric specific investments. As our results show, the variable *OSSI* has a significant ($p < 0.01$) negative impact on ex-post cooperation. Thus, when both firms invest in specific assets, the reciprocal dependency reduces each partner's incentive to engage in opportunistic strategy, and enhances interfirm cooperation; but conversely, if only one party incurs specific investment, disputes for quasi-rent appropriation could lead to less cooperation. Finally, consistent with our Hypothesis 1, the coefficient for *Formal Contract* is significant ($p < 0.01$) and negative, indicating that the probability of cooperation ex-post decreases with the degree of formalism in the relationship. In other words, as soon as a detailed formal contract is considered the central element of a relationship, the ability of parties to adapt through cooperation ex-post is reduced.

Preliminary results thus provide strong support to Hypotheses 1, 2, and 3. To test Hypotheses 2a and 2b, we introduce cross variables. As previously stated, we cross the variable *Formal Contract* with variables *OSSI* and *Strategic Importance* to disentangle direct and indirect effects of formal contracting on the level of cooperation observed in relationships concerned with high levels of ex-ante contractual hazard. The test of those interaction terms of formal contract with the asymmetry of specific investments and the strategic importance of the relationship clearly shows that the use of detailed formal contracts can help to balance the relationship and enhance ex-post cooperation. As expected, we observe significant and positive effects of our interaction terms (Model 2).

The results from baseline estimations (Models 1 and 2) provide strong support for our hypotheses. Nevertheless, there are potential issues of specification and/or endogeneity that we consider in the following sections.

## Robustness check

In Table 3, columns 3 to 6, we present various robustness checks by successively introducing additional control variables that could potentially affect the probability of cooperative behaviors.

First, cooperation could be driven by unobserved characteristics of the respondent firms. As a consequence, variables in our baseline model could be correlated with those unobserved characteristics and mistakenly appear to have an explanatory power. To control those potential biases, we introduce an initial set of control variables about firms (*Age*, *Size*, *Sales* and *Number of Relationships*) (see Model 3). Second, cooperation could also be explained by unobserved attributes particular to each relationship. For this reason, we add a second set of control variables about relationships (*Duration*, geographical *Distance* of the partner, *Economic Logic*, *Type* and motivations for *Partner Selection*) (see Model 4). Moreover, we take into account the potential influence of functions affected by relationships and the sectors in which they take place by adding dummies for each different function and sector (see Model 5). Finally, to deal with the fact that described relationships are not equally distributed among the firms in the data set (Mean of Number of Relationships = 4.33; S.D. = 2.31—see Table 1), we have to control for the presence of firms-fixed-effects. Thus, we create dummy variables for each respondent firm (see Model 6a) and run conditional logit regressions (McFadden 1973) (see Model 6b).

The results of those successive estimations prompt several comments. First, some of our control variables appear significant. In particular, the significant ($p < 0,01$) and positive coefficient of our variable *Duration* indicates that the longer the initial foreseeable duration of the relationship, the more the cooperative the relationship between partners will be. More precisely, according to a similar result obtained by Parkhe (1993), we find that the level of cooperation between partners is positively related to the length of time horizons, which in turn is related to the initial expected duration of the relationship and the perceived likelihood of its lasting for the expected duration. This suggests that relational concerns might be at stake and generate ex-post cooperation (Baker, Gibbons and Murphy 2002). We can also observe that the introduction of our different sets of control variables lead to an increase of the explanatory power of our models and does not change the results previously obtained in the baseline model. Except for the coefficient of our variable *Balance*, we do not observe loss of significance for any of the other variables ($p < 001$). The stability of our results (noticeably across firms, sectors, and functions) suggests that links between our explanatory variables and cooperation are weakly related to the more general environment

but are essentially driven by the characteristics of the relationship itself. It also gives us some confidence that our findings are robust. This consistency can be illustrated by marginal effects presented in Table 4, where we report the impact of a discrete change of independent variables (from 0 to 1) on the likelihood for the relationship to be cooperative. Not surprisingly, those marginal effects are consistent with the sign of logit estimations presented in Table 3. Figure 1 plots those marginal effects to focus our attention on disentangling the direct and indirect effects of using a detailed formal contract. Considered separately, formal contract, asymmetric specific investment, and strategic importance of the relationship decrease the marginal probability of observing cooperation. But, as expected, interaction terms increase this probability. In other words, ex-post cooperation is higher when formal contracts are used to equilibrate ex-ante hazards.

## Addressing endogeneity issues

Even if we do not face any simultaneity problems, we might be confronted with endogeneity issues. Our estimators provide consistent estimates, to the extent that our independent variables are independent of our error term $e$. Nevertheless, there might be a correlation between some of our explanatory variables and the error term because of non-observed, omitted characteristics of the sector to which the contracting parties belong, and of the functions affected by the contract, even if we account for sector and function fixed effects in our empirical specification. Because of this, we have tried to go a step further by building instruments that are correlated with the decision reflected by our explanatory variables, but not with the decision to cooperate ex-post.

To address this issue, we have to instrumentalize the explanatory variables of the baseline model and test their eventual endogeneity. Potential instruments are already present in the data (see Control Variables); others were built. In addition, we built two further instruments: (1) the average prevalence of the variable we want to instrumentalize in the same function in different sectors (Instrument1); and (2) the average prevalence of the variable we want to instrumentalize in the same sector in different functions (Instrument2). These instruments are valid because the correlation between the decision to select a partner on the basis of reputation, for example, within a specific function in a given sector, is only correlated to Instrument 1 through aspects, which by construction are independent of sector-specific effects. Similarly, it is only correlated to Instrument 2 through aspects, which by construction are independent of both sector- and function-specific effects.

We run logit estimates of the variables we want to instrumentalize using the whole sample. Thereafter, we test for exogeneity of the variables under scrutiny, using the approach suggested by Rivers and Vuong (1988) and Nakamura and Nakamura (1998). This method simply consists of estimating instrumented variables using exogenous variables of the model and our instruments and, afterwards, running the standard logit estimation augmented by

the residuals of first-stage estimations (see also Woolridge 2002). Table 5 reports the results of first-stage estimations where we instrumentalize the variables of the baseline model. It also provides the p-value of Rivers-Vuong test for endogeneity. As can be seen, the endogeneity hypothesis is rejected for *all* our explanatory variables: *Formal Contract*, *Reputation*, *Balance*, *OSSI* and *LT*. This gives us confidence in the results previously mentioned.

## 5. Discussion

**Our Results and Previous Literature**

In this study, we are interested in the way firms achieve cooperation in their relationships. More precisely, we investigate the interplay between formal contracts and cooperation related to informal agreements. Our approach and results are compatible with the transaction cost approach and the resource-based view. On the one hand, the role played by formal contracts in securing agreements when hazards are important (asymmetric-specific investments and strategic intensity) and the hostage embodied by the reputation of parties are clearly related to seminal results of the transaction cost theory (Williamson 1975, 1983, 1985). On the other hand, the focus on firms' perceptions and beliefs about balance and mutual trust in a relationship is consistent with the resource-based view (Conner and Prahalad 1996).

We find that ex-ante formal dimensions of a relationship do not have a monotonic impact on the likelihood of ex-post cooperative behaviors. While relationships do not entail asymmetric specific investments or particular strategic intensity, the existence of a formal contract, central to the relationship, decreases the likelihood of cooperation ex-post; but as soon as they do, a formal contract appears to enhance cooperative behaviors ex-post. They no longer undermine trust, encouraging the opportunistic behavior they are designed to discourage. These results relating to the interaction between formal contracts and informal cooperation link our paper to the debate about the substitutability or complementarity between formal and informal governance structures. Relational governance and formal contracts have been considered as substitutes rather than complements for a very long time. In fact, numerous commentators consider that the presence of either device makes the presence of the other useless, or, from a starker perspective, dangerous. Lazzarini, Poppo and Zenger (2004) refer to these two kinds of substitutability as, respectively, weak and strong substitution. Concerning the weak substitution, several authors emphasize that, by reducing relational risk, trust economizes on costly contract. In fact, trust involves the expectation of reduced opportunistic behavior and so relaxes the need for protective governance mechanisms. Similarly, Sullivan and Peterson (1982) argue that interpersonal ties between business leaders are to a large part substitutes for the redaction of complex contracts and Granovetter (1985) notes that formal institutions do not produce trust but are

a functional substitute for it. This substitution is due to the enforcement capacities of informal institutions. The later, defined as trust and social norm, are ways of enhancing cooperative behavior without the costs and complexity associated with formal agreements (Dore 1983, Gulati 1995, Powell 1990, Uzzi 1996). According to the strong substitution view, the existence of a formal contract will undermine the possibility of implementing relational exchange. By its simple existence, a formal contract sows the seeds of mutual suspicion, causing a decline in mutual trust and making the development of cooperative behavior impossible (Macaulay 1963, Bernheim and Whinston 1998). This strong substitution approach suggests a pernicious effect of formal controls on cooperation. But, following North's (1990)[2] intuition, other authors study the way formal and informal dimensions of the relationship can complement one another and, when combined, can improve the overall performance of relationships. Poppo and Zenger (2002) and, more recently, Ryall and Sampson (2009) have presented evidence that suggests that relational governance and formal contracts can be complementary, increasing exchange performance. Thus, "contract provides an institutional framework guiding the course of cooperation, while cooperation overcomes the adaptive limits of contract" (Luo 2002). From this perspective, a formal contract secures an agreement, increases transparency in the partnership, facilitates learning processes about each partner's conduct, and helps to promote cooperation.

Our results suggest, in accordance with few other studies (Corts and Singh 2001), that the real question is not to determine *whether* or not formal and informal modes of governance structure are substitutes or complements, but rather *when* they are so. Our results reinforce the idea that this debate is, primarily, an empirical issue. In fact, we find different net effects of formal contract on ex-post cooperation, which are positive or negative depending on transaction and partner characteristics. As a consequence, our findings invite us to reconsider the role of contracts in interfirm relationships. They cannot be considered merely as pure incentive mechanisms; they also have to be viewed as a means of setting procedures for establishing ex-post cooperation, adapting exchange, and resolving disputes (Crocker and Masten 1991, Luo 2002). Thus, more than a simple complement, contract can be a condition for relational governance and ex-post cooperation: "The process of contracting may itself promote expectations of cooperation consistent with relational governance," (Lazzarini, Poppo and Zenger 2007, p. 16).[3]

## Limitations and Future Research

Like any research, our study has limitations. Although our data make cross-sectional comparisons possible, our study is jeopardized by a lack of longitudinal insights. As a

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[2] "Formal rules can complement and increase the effectiveness of informal constraints. They may lower information, monitoring, and enforcement costs and hence make informal constraints possible solutions to more complex exchange" (North, 1990, pp. 46-47).

consequence, our data do not allow us to disentangle the effect of prior attempts and future business on the likelihood of relationships being cooperative. As Parkhe (1993, p. 819) rightly emphasizes, "interfirm cooperation is complex, embedded in various institutional arrangements, and at once forward-looking (linked to the shadow of future) and backward-looking (linked to the cooperative history of the partners)." While our study does not suffer from the shadow of future concerns (our control variable *Duration* serves as a proxy for long-term commitment and results are consistent with previous empirical studies showing that long-term horizons foster cooperative behaviors), the question of cooperative history is more problematic. Because we do not know if the relationships in our data set are new or renewed, in our study we are not able to determine the existence of prior ties between partners. Such a lack is damaging, since it is obvious that the willingness of partners to cooperate and the role they assign to the formal contract will be influenced by their past history. The only way we can tackle this issue is to observe the impact of reputation since, as often emphasized in the literature, a reputation for reliability can act as a proxy for good behaviors in the past. Indeed, our results suggest that reputation can act as insurance for trustworthiness and enhance the emergence of cooperative behaviors. Nevertheless, a study of the effect of reputation on ex-post cooperation has to determine precisely the source of reputation, which can come from personal learning (prior ties between the same partners) or from general knowledge about firms (network effects). It is legitimate to think that the trust coming from learning effect could lead to a higher level of cooperation than trust coming from reputation in the market, since learning during past common experiences also underlies the development of mutual knowledge and understanding. The evolutionary nature of the link between contract and cooperation clearly requires longitudinal investigation and the key research question is how a non-cooperative relationship can become cooperative (and vice versa).

Our study is also limited by its setting (France). Like any sample focusing on only one country, all our observations are biased by their environment in terms of political and legal systems, regulatory modes, and business cultures. A cross-national setting could increase the generalization of our findings and would offer deeper insights into cross-cultural differences in the role assigned to formal contracts and the way firms achieve cooperation in their strategic relationships. All of these limitations form an important agenda for future research.

## 6. Conclusion

Many conditions are essential to allow contracting parties to achieve cooperation in their relationships. Results from our quantitative analysis suggest that cooperation is enhanced by the reputation of the partners and perceived balance within the relationship. Our findings on the influence of formal contracts deserve more attention. Indeed, while formal contracts have a negative impact on ex-post cooperation when relationships are "simple," they appear

to be an enhancing factor of cooperative behaviors as soon as the intrinsic hazards of a relationship require higher ex-ante contractual safeguards to secure agreements. As a result, on the one hand, formal contract can have a pernicious effect on the willingness of firms to implement cooperative behaviors; and, on the other, under precise circumstances, formal contracts appear to be a prerequisite for the emergence of ex-post interfirm cooperation. Consequently, the results of this study have important implications for governance research because, since formal contract can strengthen or weaken ex-post cooperation, academics and practitioners have to think deeply about the ex-ante efforts and costs incurred to frame an appropriate formal contract.

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## Tables and Figures

### Table 1. List of Variables and Summary Statistics

| Dummy variable, 1 = Yes, 0 = No | Yes | No |
|---|---|---|
| **Independent variable** | | |
| *Cooperation*: variable indicating whether the relationship is characterized by a high degree of cooperation. | 1933 (57.7%) | 1420 (42.3%) |
| **Dependant variable** | | |
| *Formal Contract*: variable indicating whether the formal contract is considered a central element of the relationship. | 821 (24.5%) | 2532 (75.5%) |
| *Balance*: variable indicating whether or not the relationship is balanced. | 2058 (61.4%) | 1295 (38.6%) |
| *OSSI* (*One Side Specific Investment*): variable indicating whether or not only one partner engaged in specific investments. | 208 (6.2%) | 3145 (93.8%) |
| *Strategic Importance*: variable indicating whether or not the relationship is strategic for the development of firms. | 1264 (37.7%) | 2089 (62.3%) |
| **Partner Selection** | | |
| Dummy variables indicating whether the partner was selected according to: | | |
| *Reputation*: its reputation for reliability. | 435 (13%) | 2918 (87 %) |
| *Delay*: its guarantee of delays. | 235 (7%) | 3118 (93%) |
| *Price*: its price. | 519 (15.5%) | 2834 (84.5%) |
| *Proximity*: its geographical proximity. | 221 (6.6%) | 3132 (93.4%) |
| *Label*: its label certification for quality. | 292 (8.7%) | 3061 (91.3%) |
| *Techni*: its technical competence. | 1086 (32.4%) | 2267 (67.6%) |
| *Long-term Contract*: the guarantee to sign a long-term contract. | 205 (6.1%) | 3148 (93.9%) |
| *Group*: its belonging to the same group. | 1476 (44%) | 1877 (56%) |
| **Economic Logic** | | |
| Dummy variables indicating whether the motivation of the relationship was: | | |
| *New Market*: to access a new market. | 888 (26.5%) | 2465 (73.5%) |
| *Investment*: to secure a return on investment. | 615 (18.3%) | 2738 (81.7%) |
| *Abs Equipment*: to compensate for equipment lacking. | 870 (25.9%) | 2483 (74.1%) |
| *Abs Competence*: to compensate for competences lacking. | 440 (13.1%) | 2913 (86.9%) |
| *More Flexibility*: to obtain more flexibility. | 951 (28.4%) | 2402 (71.6%) |
| *Primary Business*: to refocus on the primary business. | 238 (7.1%) | 3115 (92.9%) |
| **Type** | | |
| Dummy variables indicating whether the type of the relationship is: | | |
| *Pooling Resources*: pooling of resources. | 1128 (33.6%) | 2225 (66.4%) |
| *Subcontracting*: subcontracting. | 631 (18.8%) | 2722 (81.2%) |
| *Exclusive Contract*: exclusive contracting. | 763 (22.8%) | 2590 (77.2%) |
| *Common Structure*: managing a common structure. | 295 (8.8%) | 3058 (91.2%) |
| *Other*: none of the above. | 409 (12.2%) | 2944 (87.8%) |
| **Functions and Sectors** | | |
| Dummy variables indicating whether the sector of the relationship is: | | |
| *Transport*: transport. | 1434 (42.8%) | 1919 (57.2%) |
| *Storage and Services*: storage and services. | 532 (15.9%) | 2821 (84.1%) |
| *Research*: research. | 210 (6.3%) | 3143 (93.7%) |
| *Design*: design. | 1001 (29.8%) | 2352 (70.2%) |
| Dummy variables indicating whether the function concerned by the relationship is: | | |
| *Production*: production. | 1487 (44.3%) | 1866 (55.7%) |
| *Supplying*: supply. | 1376 (41%) | 1977 (59%) |
| *Research2*: research. | 386 (11.5%) | 2967 (88.5%) |
| *Distribution*: distribution. | 280 (8.3%) | 3073 (91.7%) |
| **Ordered variable** | **Mean** | **S.D.** |
| *Duration*: variable equal to 1 when the foreseeable initial duration of the relationship is inferior to 1 year; 2 when the duration is superior to 1 year and inferior to 5 years; and 3 when the duration is superior to 5 years. | 2.59 | 0.58 |
| *Distance*: variable equal to 1 when the partner is located in the same city; 2 when it is located in the same region: 3 in the same country; 4 in Europe; and 5 outside Europe. | 2.68 | 1.09 |
| **Continuous variable** | **Mean** | **S.D.** |

| | | 4.0 | 12.84 |
|---|---|---|---|
| *Sales*: level of sales due to interfirms' relationships. | | 4.0 | 12.84 |
| *Size*: in number of employees. | | 0.19 | 0.65 |
| *Number of Relationships*: number of on going relationships. | | 4.33 | 2.31 |
| *Age*: experience of the firm, in years. | | 23.13 | 20.41 |

### Table 2. Pairwise Correlations

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Cooperation | | | | | | | | | | | |
| 2. | Formal Contract | -0,192 | | | | | | | | | | |
| 3. | Reputation | 0,047 | 0,030 | | | | | | | | | |
| 4. | Balance | 0,062 | -0,035 | -0,055 | | | | | | | | |
| 5. | OSSI | -0,091 | 0,012 | -0,007 | -0,084 | | | | | | | |
| 6. | Strategic Importance | -0,253 | -0,066 | 0,043 | 0,054 | -0,051 | | | | | | |
| 7. | Duration | 0,132 | -0,143 | -0,002 | 0,062 | -0,022 | 0,030 | | | | | |
| 8. | Age | -0,024 | -0,029 | 0,019 | -0,042 | -0,004 | 0,008 | 0,057 | | | | |
| 9. | Size | -0,055 | 0,057 | -0,035 | -0,008 | 0,041 | 0,019 | -0,042 | -0,041 | | | |
| 10. | Sales | -0,034 | 0,010 | -0,024 | -0,045 | 0,021 | 0,016 | 0,031 | 0,024 | 0,656 | | |
| 11. | Number of Relationships | -0,034 | 0,100 | 0,032 | -0,012 | 0,019 | -0,059 | -0,132 | -0,032 | 0,046 | 0,024 | |
| 12. | Distance | -0,037 | 0,025 | 0,006 | -0,022 | 0,038 | 0,101 | 0,010 | 0,037 | 0,018 | 0,052 | -0,003 |

### Table 3. Results of Logit Regressions for *Cooperation*

| | 1 (Logit) | 2 (Logit) | 3 (Logit) | 4 (Logit) | 5 (Logit) | 6a (Logit) | 6b (Conditional Logit[b]) |
|---|---|---|---|---|---|---|---|
| **Dependant Variables** | | | | | | | |
| Formal Contract | -1.085*** | -2.029*** | -1.965*** | -2.013*** | -2.053*** | -3.399*** | -2,355*** |
| | (0.095) | (0.113) | (0.114) | (0.116) | (0.118) | (0.279) | (0,214) |
| OSSI x FC | - | 1.791*** | 1.858*** | 1.861*** | 1.843*** | 3.366*** | 2,423*** |
| | | (0.350) | (0.364) | (0.377) | (0.379) | (0.755) | (0,586) |
| Strategic Importance x FC | - | 2.408*** | 2.418*** | 2.441*** | 2.482*** | 3.932*** | 2,788*** |
| | | (0.179) | (0.180) | (0.183) | (0.185) | (0.419) | (0,317) |
| Reputation | 0.487*** | 0.396** | 0.400** | 0.646*** | 0.645*** | 1.256*** | 0,674** |
| | (0.123) | (0.122) | (0.123) | (0.138) | (0.138) | (0.294) | (0,222) |
| Balance | 0.310*** | 0.289*** | 0.260** | 0.219** | 0.236** | 0.102 | 0,096 |
| | (0.077) | (0.080) | (0.081) | (0.083) | (0.084) | (0.188) | (0,148) |
| OSSI | -0.948*** | -1.591*** | -1.583*** | -1.591*** | -1.639*** | -2.830*** | -2,038*** |
| | (0.183) | (0.214) | (0.219) | (0.222) | (0.225) | (0.492) | (0,345) |
| Strategic Importance | -1.261*** | -1.887*** | -1.923*** | -2.007*** | -2.064*** | -3.566*** | -2,478*** |
| | (0.083) | (0.097) | (0.098) | (0.102) | (0.105) | (0.235) | (0,179) |
| **Control variables** | | | | | | | |
| Age | - | - | -0.041* | -0.037 | -0.027 | -0.135 | - |
| | | | (0.019) | (0.020) | (0.020) | (0.162) | |
| Size | - | - | -0.065 | -0.097 | -0.121 | 0.775 | - |
| | | | (0.072) | (0.077) | (0.082) | (0.495) | |
| Sales | - | - | -0.005 | -0.003 | -0.003 | -0.096*** | - |
| | | | (0.003) | (0.003) | (0.003) | (0.005) | |
| Number of Relationships | - | - | -0.020 | -0.023 | -0.032 | 0.127 | - |
| | | | (0.017) | (0.018) | (0.018) | (0.327) | |
| Duration | - | - | - | 0.475*** | 0.500*** | 1.179*** | 0,793*** |
| | | | | (0.074) | (0.076) | (0.203) | (0,151) |
| Distance | - | - | - | 0.007 | -0.011 | 0.022 | 0,013 |
| | | | | (0.037) | (0.038) | (0.088) | (0,073) |
| **Dummies variables[a]** | | | | | | | |
| Type | No | No | No | Yes | Yes | Yes | Yes |
| Economic Logic | No | No | No | Yes* | Yes* | Yes* | Yes* |
| Partner Selection | No | No | No | Yes** | Yes** | Yes** | Yes |
| Function | No | No | No | No | Yes** | Yes** | Yes* |
| Sector | No | No | No | No | Yes** | Yes** | Yes* |
| Firms | No | No | No | No | No | Yes*** | No |
| Constant | 0.888*** | 1.251*** | 0.399 | -0.388 | -0.869* | 13.796*** | - |
| | (0.072) | (0.081) | (0.218) | (0.396) | (0.414) | (1.971) | |
| McFadden R² | 0.10 | 0.14 | 0.15 | 0.17 | 0.17 | 0.35 | 0.34 |
| % of well predicted obs. | 67.8 % | 70.6 % | 70.6 % | 70.7 % | 71.4 % | 80.1 % | - |
| N | 3353 | 3348 | 3348 | 3348 | 3348 | 1803 | 1803 |

Coefficients significant at the 1% (***), 5% (**), and 10% (*) level. [a] We introduce all control dummies presented in Table 1.
[b] Control variables about firms disappear due to no within-group variance.
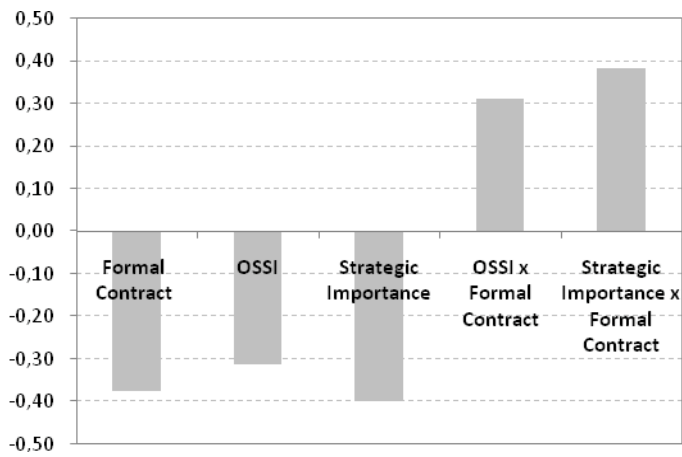
**Table 4. Marginal effects[a]**

| Marginal effects (dy/dx) | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Formal Contract | -0,245 | -0.466 | -0,452 | -0,463 | -0,470 |
| OSSI x FC | | 0.306 | 0,312 | 0,312 | 0,309 |
| Strategic Importance x FC | | 0.381 | 0,381 | 0,382 | 0,384 |
| Reputation | 0,115 | 0.0918 | 0,094 | 0,151 | 0,153 |
| Balance | 0,069 | 0.070 | 0,062 | 0,054 | 0,057 |
| OSSI | -0,228 | -0.370 | -0,366 | -0,369 | -0,378 |
| Strategic Importance | -0,308 | -0.437 | -0,444 | -0,463 | -0,474 |
| Age | | | -0,010 | -0,001 | -0,006 |
| Size | | | -0,016 | -0,023 | -0,029 |
| Sales | | | -0,001 | -0,001 | -0,000 |
| Number of Relationships | | | -0,005 | -0,005 | -0,008 |
| Duration | | | 0,123 | 0,142 | 0,150 |
| Distance | | | -0,004 | 0,002 | -0,003 |

[a] For dummy variables, dy/dx is for discrete change from 0 to1.
For continuous variables, it corresponds to an increase of 1 unit.

**Figure 1. Marginal effects of regressors[a]**



[a] Mean of marginal effects presented in Table 4.

**Table 5. First-stage estimations**

| | Logit<br>Formal Contract | Logit<br>Reputation | Logit<br>Balance | Logit<br>OSSI | Logit<br>Strategic Importance |
|---|---|---|---|---|---|
| Duration | -0.377*** | 0.000 | 0.245*** | -0.058 | 0.107 |
| | (0.068) | (0.090) | (0.066) | (0.123) | (0.066) |
| Age | -0.013 | 0.026 | -0.046* | -0.009 | 0.007 |
| | (0.022) | (0.025) | (0.018) | (0.039) | (0.018) |
| Size | 0.213* | -0.420 | 0.115 | 0.196* | 0.038 |
| | (0.092) | (0.279) | (0.069) | (0.084) | (0.069) |
| Sales | -0.004 | -0.001 | -0.010** | -0.002 | 0.002 |
| | (0.006) | (0.008) | (0.003) | (0.005) | (0.004) |
| Number of Relationships | 0.071*** | 0.042 | -0.016 | 0.019 | -0.069*** |
| | (0.018) | (0.023) | (0.016) | (0.032) | (0.016) |
| Distance | 0.049 | 0.011 | -0.003 | 0.138 | 0.213*** |
| | (0.039) | (0.047) | (0.035) | (0.079) | (0.035) |
| **Dummies variables** | | | | | |
| Type | Yes | Yes | Yes | Yes | Yes |
| Economic Logic | Yes* | Yes* | Yes* | Yes* | Yes* |
| **Instruments** | | | | | |
| INST1FC_FE | -0.142 | | | | |
| | (1.097) | | | | |
| INST2FC_SE | 2.248 | | | | |
| | (1.257) | | | | |
| INST1REP_FE | | -2.897* | | | |
| | | (1.213) | | | |
| INST2REP_SE | | -16.723*** | | | |
| | | (3.531) | | | |
| INST1BAL_FE | | | 1.386 | | |
| | | | (1.238) | | |
| INST2BAL_SE | | | 4.518*** | | |
| | | | (0.984) | | |
| INST1OSSI_FE | | | | 11.084* | |
| | | | | (5.198) | |
| INST2OSSI_SE | | | | -5.316 | |
| | | | | (6.087) | |
| INST1SI_FE | | | | | 3.199*** |
| | | | | | (0.663) |
| INST2SI_SE | | | | | 1.628 |
| | | | | | (1.132) |
| Constant | -1.169* | 0.400 | -3.345** | -3.812*** | -2.227** |
| | (0.534) | (0.696) | (1.059) | (0.921) | (0.690) |
| R-squared | 0.05 | 0.03 | 0.03 | 0.02 | 0.02 |
| Rivers-Vong test: $p$-value | 0.51 | 0.82 | 0.65 | 0.79 | 0.15 |
| N | 3348 | 3348 | 3348 | 3348 | 3348 |

Coefficients significant at the 1% (***), 5% (**), and 10% (*) level.
We introduce all control dummies presented in Table 1.