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RELATIONAL QUALITY: A DYNAMIC
FRAMEWORK FOR ASSESSING THE ROLE
OF TRUST IN STRATEGIC ALLIANCES

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Abstract

The organizational literature has always posited that “trust” plays a key role in economic exchanges, particularly when one or another party is subject to the risk of opportunistic behavior, incomplete monitoring, or when moral hazard problems arise. These conditions are almost always present in the case of alliances and joint ventures between independent parties. This paper explores the concept of “relational quality” in one such inter-organizational form — dyadic alliances — where past experience and the shadow of the future play an important role. Relational quality is important, as it affects the extent to which partners substitute reliance on trust for more formal control mechanisms. Building on theory, case studies and survey data, we develop a framework for thinking about trust in dynamic and practical terms. We define three elements affecting relational quality in alliances: the initial conditions surrounding the exchange, the cumulative experiences of the parties with each other’s behaviors as they interact, and the impact that external events have on perceptions of behavior and attitudes of the parties about each other’s trustworthiness. We use data on a sample of alliances with one Spanish partner to explore the relative impact of these elements and develop a more precise set of propositions from this framework. The paper should guide further work towards quantifying the role of trust as a control mechanism in the performance of strategic alliances.

RELATIONAL QUALITY: A DYNAMIC FRAMEWORK FOR ASSESSING THE ROLE OF TRUST IN STRATEGIC ALLIANCES

Judging by recent special issues of *Organization Science* (1998), the *Academy of Management Review* (1998) and the *Academy of Management Journal* (1995 and 1997), as well as the French journal *Economies et Sociétés; Sciences et Gestion* (1998), discussions of issues related to inter-organizational collaboration and trust currently dominate much of the management literature. The five volumes just mentioned are being followed by this issue of *Organization Studies* on trust, and a special issue of the *Strategic Management Journal* on strategic networks. These comprehensive collections of conceptual and empirical research on these two topics build on an impressive foundation of economic and behavioral studies laid during the last ten years (1). Furthermore, the international business literature goes back even further in its examination of the role and durability of joint venture structures (2).

Nonetheless, as Koza and Lewin (1998:261) have observed: "It is clear that research on trust needs to advance beyond a catch-all residual in the unexplained random error." This paper heeds their call for "systemic research on the role of trust in alliances." We begin by defining strategic alliances and explaining the reasoning behind our focus on this form of inter-organizational collaboration. This is followed by a very brief discussion of the role of alliances in modern business contexts (the literature just cited provides a more comprehensive treatment). Next, we explore briefly the research on trust, setting the stage for a discussion of our construct of "relational quality." The following section tests these concepts in an exploratory manner with a sample of alliances in which at least one partner is a Spanish company. The paper concludes with a series of propositions regarding the role of trust in inter-organizational alliances, a discussion of issues related to its operationalization, and suggestions for further research.

(1) The list is long, but a reasonable collection should include at least the following: Gambetta (1988); Gray (1989); Gerlach (1992); Larsen (1992); Nohria and Eccles (1992); Ring and Van de Ven (1992); Sako (1992); Alter and Hage (1993); Bleeke and Ernst (1993); Grabher (1993); Sitkin and Roth (1993); Zajac and Olsen (1993); Barney and Hansen (1994); Ring and Van de Ven (1994); Gulati (1995); Grandori and Soda (1995); Häkansson and Snehota (1995); Hosmer (1995); Mayer, Davis and Schoorman (1995); Zaheer and Venkatraman (1995); Doz (1996); Gomes-Casseres (1996); Kramer and Tyler (1996); Lane and Bachmann (1996); Ring (1996a); Ring (1996b); Uzzi (1996); Ariño (1997); Bidault (1997); Ebers (1997); Ring (1997b); Uzzi (1997); Doz and Hamel (1998); and Gulati (1998).

(2) Among the principal studies are Franko (1971); Berg, Duncan and Friedman (1982); Hladik (1985); Harrigan (1986); Contractor and Lorange (1988); Beamish and Killing (1997).

Definitions of alliances and trust

Collaborative structures as a choice for the exploitation of business opportunities have been reported as rising dramatically as the twin impacts of globalization and technological complexity combine to challenge any organization's capability to maintain competitive advantage on the strength of its own resources (3). The literature on inter-organizational collaboration is rich in definitions of alliances, but less so in what makes them strategic. Doz and Hamel (1998) as well as Hitt, Ireland and Hoskisson (1998) have identified a number of reasons why firms appear to be relying more heavily on strategic alliances. Ring, Hoskisson and Lorenzoni (forthcoming) categorize the motivations of alliance partners in terms of strategic and managerial logics. Koza and Lewin (1998), relying on March (1991, 1995), suggest that alliances can be classified either as exploitative (performance oriented) or explorative (learning oriented).

Here, we define an alliance as a formal agreement between two or more business organizations to pursue a set of private and common interests (Ariño, 1995) through the sharing of resources (physical assets, intellectual properties, people, capital, and/or organizational capabilities) in contexts involving contested markets and uncertainty over outcomes. An alliance is strategic when it is the means by which a firm seeks to implement, in part or in whole, elements of management's strategic intent (Hamel and Prahalad, 1989) (4). Whereas alliances may be governed by many forms — equity joint ventures, non-equity collaborative arrangements, licensing or franchising agreements, management contracts, and long-term supply contracts, among others (see Yoshino and Rangan, 1995, for a fuller treatment of all options) — and may involve either dyads, consortia or networked organizations (Ring, 1996a), the developmental objectives of our research lead us to focus on dyads (5).

What do we mean by trust in this paper? First, we believe that trust is a function of risk and interdependence (Ring and Van de Ven, 1992; Koza and Lewin, 1998; Sheppard and Sherman, 1998). Trust does not involve faith, nor is it particularly relevant in contexts involving certainty (Dasgupta, 1988; Gambetta, 1988). Second, our framework assumes that in business the issue is not whether some people are more or less predisposed to trust other people, nor whether people are "trustworthy." Third, as Koza and Lewin (1998) have pointed out, economic actors are no more likely to "suspend self-interest" in alliances than in other contexts. Our focus is on whether people, and more importantly firms, rely on trust as a control mechanism in their business dealings as a substitute for other governance structures, processes and principles (Dore, 1983; Madhok and Tallman, 1998). Moreover, reliance on trust may produce the same results in terms of efficiency and effectiveness as reliance on more contractual governance provisions (Ring and Van de Ven, 1992, 1994; Ariño and de la Torre, 1998).

The literature on trust suggests that the term can be subjected to many adjectives. For example, Sako (1992) identifies three dimensions to trust, tied respectively to contractual (ethical), competence (technical) and attitude (goodwill) considerations. Barney and Hansen (1994) discuss weak, semi-strong and strong forms of trust, whereas Ring (1996b) describes

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- (3) One consulting organization focusing on the management and performance of strategic alliances, Booz-Allen & Hamilton, reports a data base of more than 20,000 such structures formed worldwide since 1995 (Harbison and Pekar, 1998).
 - (4) A type of alliance considered not strategic would be, for example, those oriented towards divesting or harvesting a business (see Hamel, Doz and Prahalad, 1989).
 - (5) Although it is an empirical issue, we believe that the nature of relational quality in network contexts is likely to be more complex than our formulation allows for dyadic situations.

fragile and resilient trust. Rousseau, Sitkin, Burt and Camerer (1998) categorize trust as being based on either deterrence, calculus, relations or institutions. These definitions, as well as others, cut across a number of levels and units of analysis. As will become clear, our view of trust is generally compatible with arguments made by Sheppard and Sherman (1998:427) that trust is “a *manageable* act of faith in people, relationships and social institutions” (emphasis added). We argue, however, that reliance on trust is a somewhat more probabilistic decision than a simple act of faith. Our framework is designed to make it easier for managers or researchers to consider both interdependence and risk in their decisions to rely on trust as a mechanism for governance, as well as to make explicit the implications of the multi-dimensionality of trust. Thus, consistent with arguments made by Rousseau et. al. (1998) and House, Rousseau and Thomas-Hunt (1995), we will explore trust at the meso level of analysis.

Theoretical foundations

Macneil (1974) describes economic exchanges as being of two types: transactional and relational. Transactional exchanges are characterized as those which involve relatively discrete exchanges of goods or services in which the parties act with little or no regard for the impact the transaction (or their behavior in it) might have on future exchanges. The parties view themselves as independent, autonomous economic actors, and they view the transaction as being unrelated to all other exchanges, past, present, or future. In Macneil’s terms, the transaction is “sharp in-sharp out.”

In contrast, relational exchanges assume that the parties have a past (one that is known and remembered), and may be associated with each other in the future. Any previous associations are likely to be relevant to the decision to undertake the current exchange; and the parties will conduct themselves with an eye to the future. In short, past experiences and the shadow of the future (Axelrod, 1984) are important factors in shaping the way parties conduct themselves in relational exchanges. Further, relational embeddedness influences not only whether the particular exchange is undertaken, but also the extent to which the parties will substitute trust for formal control in the exchange. This will depend on the strength of the relationship, which “is a property not of the transactors but of their concrete relations” (Granovetter, 1985:491). Reliance on trust, we therefore argue, depends on relational quality, itself conditioned by past experiences and the shadow of the future (Ariño and de la Torre, 1998).

The concept of relational quality explored in this paper is composed of three elements. First, it will be important to consider the circumstances related to:

- 1) the prior experiences of the parties with each other (they may be “familiar” or “unfamiliar” [Bigley and Pearce, 1998] with each other);
- 2) what each knows about the other through third party gossip (Burt and Knez, 1995) and/or reputation (Hill, 1990; Barney and Hansen, 1994);
- 3) what may be inferred from the parties’ institutional affiliations or demographic characteristics (Coleman, 1984; Granovetter, 1985; Zucker, 1986), or the institutions that may impact the relationship as it evolves (Lewis and Weigert, 1985; Shapiro, 1987; Lane and Bachmann, 1996); and
- 4) the mutual confidence built through the negotiation process prior to the commencement of operations (Gray, 1989; Ring and Van de Ven, 1994; Browning et. al., 1995).

Second, we posit that the experience of the parties with each other's behavior as the exchange unfolds, particularly under conditions of stress caused by environmental change or other similar challenges, will influence the parties' views of each other's trustworthiness (Lewicki and Bunker, 1996; McKnight, Cummings and Chervany, 1998), and is a critical determinant of relational quality. Finally, we argue that external events that do not directly affect the exchange relationship nonetheless will impact the perceptions and attitudes of the parties regarding each other's trustworthiness (Khanna, 1998) and must be taken into consideration.

We believe that this approach provides a more dynamic and measurable way of conceptualizing the role that trust may play in economic exchanges relative to more conventional or limited treatments of trust (6).

Initial conditions

Meyerson, Weick and Kramer (1996:167) describe "traditional" sources of trust as: "familiarity, shared experience, reciprocal disclosure, threats and deterrents, fulfilled promises, and demonstrations of non-exploitation of vulnerability." Similarly, Zucker (1986) defines trust as a set of shared expectations "taken for granted" as part of a "world known in common" among certain members of society. She relates these expectations to three sources, two of which — person-based and institution-based — derive their legitimacy from characteristics inherent to the individuals (e.g., similar culture or family background) or the institutions (e.g., professional or corporate affiliation) involved in the transaction. Zucker's third source of trust — process-based — relates to a history of past experiences more in line with our concept of reputation effects, as described above. In this sense, national differences in values, social context and institutions could be expected to have a significant impact on trust formation and the rate of change in relational quality (Dore, 1983; Fukujama, 1995; Doney, Cannon and Mullen, 1998; Hagen and Choe, 1998). Thus, we argue that each partner approaches the negotiation process with a set of a priori expectations of the standards of behavior the other party will hold to, and the probability that it will abide by those standards. Figures 1a-1c present some preliminary and merely illustrative classifications of both the level of "community standards" one might expect from these actors, and the variance one might observe in their behavior.

Figure 1a. Baseline expectations of trustworthiness: hypothetical country effects

| | | | |
|-----------------------------------|------|--|---|
| Variability in Performance | High | United States Germany China India | France Italy Mexico |
| | Low | Sweden New Zealand Netherlands | Japan Indonesia Russia Algeria |
| | | High | Low |
| | | Community Standards | |

Source: See UNESCO, 1998.

(6) For similar arguments see Gulati (1995); Mayer, Davis, and Schoorman (1995); and Noteboom, Berger and Noorderhaven (1997).

**Figure 1b. Baseline expectations of trustworthiness:
Hypothetical Industry/Profession effects**

| | | | |
|-----------------------------------|------|--|--|
| Variability in Performance | High | Trendy restaurants Investment banking Orthopedic surgeon Architectural firm | Pizza parlors Law Offices User car lots Cosmetic surgeon Hollywood agents |
| | Low | Michelin 3-star restaurant Public accountants Medical equipment supplier International courier services | Fast food restaurants Airport hotels Post office Social Security Administration |
| | | High | Low |
| Community Standards | | | |

**Figure 1c. Baseline expectations of trustworthiness:
Hypothetical Corporate Effects - Autos and electronics**

| | | | |
|-----------------------------------|------|---|---|
| Variability in Performance | High | Jaguar Alfa Romeo <i>Motorola</i> <i>Sony</i> | General Motors Ford Fiat <i>Philips</i> <i>JVC</i> |
| | Low | Mercedes Benz Lexus BMW <i>Hewlett-Packard</i> <i>Bose</i> | SEAT Yugo Hyundai <i>Private Label Electronics</i> |
| | | High | Low |
| Community Standards | | | |

Note: For one approach at such rankings see *Fortune*, October 26, 1998.

We believe further that the negotiating process leading to the creation of a strategic alliance will either cement or distort the initial assessments of trustworthiness derived from such generic sources. Prejudices and tolerances present in ego's initial judgement of alter will be confirmed or questioned by this experience, thus modifying the so-called starting conditions. Doz (1996), for example, defines these initial conditions as including a number of critical elements of a collaborative relationship — task definition, partners' routines, interface structures, and expectations regarding behavior, performance and motives.

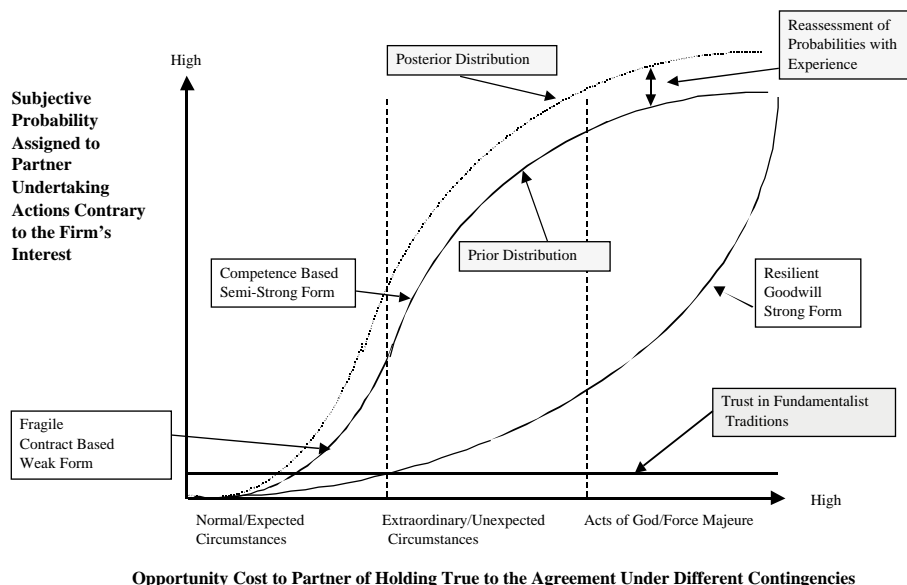
There are sound reasons for differentiating the nature of collaborative efforts among business firms (Kanter, 1994; Powell, 1996). Powell describes four generic types: networks of place, R&D networks, business groups (e.g., keiretsu, chaebol), and those that he describes as strategic alliances and collaborative manufacturing arrangements. They all “illustrate different pathways to cooperation” (Powell, 1996:62). Thus, we may expect that the weight accorded to the different components constituting initial conditions will vary significantly *between* these types of collaborative arrangements, and perhaps to a lesser degree *within* them. We also expect that the parties’ interactions over time will differentially affect the constituent components of relational quality. Whether these changes are the result of the parties’ measuring each other’s performance against specific expectations formed during initial conditions, or whether they are due to a more generic change in the overall degree of trust developed between the parties, is a more complex issue that we do not explore in this paper.

Partner Interaction

Meyerson, Weick and Kramer (1996) argue that trust plays a critical role in managing issues of vulnerability, uncertainty, risk and expectations that surface in economic exchanges. Managers make decisions regarding these four issues in the course of defining the initial conditions of their exchange relationship. But all these issues will be subjected to review as the collaboration process evolves.

We approach the problem in Bayesian terms. Figure 2 illustrates one conception of the meaning of trust: the belief that the other party will subordinate their own interests to the interests of the alliance, within most expected environmental contexts. The y-axis in the diagram represents the probability the focal firm assigns to the fidelity of the partner’s actions in the face of incentives to cheat or act opportunistically. The potential payoffs to the partner associated with deviation from the committed path are illustrated along the x-axis, which describes the degree to which different states of nature diverge from forecasted contingencies. Within “expected” tolerances, and even beyond these, a sense of trustworthiness implies an expectation of fair behavior even when circumstances would call for opportunism. Only under severe conditions, or *force majeure*, might the aggrieved party tolerate selfish behavior from its partner, but then only if appropriately warned of the impending action and if convinced that the conditions made any other action impossible.

Figure 2. Hypothetical Bayesian distributions of various forms of trust



An interesting debate on the degree to which a partner's obligation under a "gentlemen's agreement" might allow room for interpretation under exceptional circumstances can be traced to the English philosophers of the 17th and 18th centuries. Locke noted in his *Essay Concerning Human Understanding* (1692) that there were three answers to the question as to "why should a man keep his word." The first two were rooted in the command of the law, whether of divine or human provenance, whereas the third answer, harking back to the old Greek philosophers, would be: "Because it was dishonest, below the dignity of man, and opposite to virtue, the highest perfection of human nature, to do otherwise." In this discussion, Locke introduces us to two central issues in our interpretation of the qualities of trust. One is the motivation for keeping one's word where the competing hypotheses are fidelity for fear of retribution and punishment (from either a stern God or the Leviathan) versus a sense of moral obligation bound by conscience. The second issue deals with the rationale for any deviation from one's moral commitment. Both God's law and the State recognize the concept of *force majeure*, even though fundamentalist interpretations of the law would limit considerably any scope for relativism (7). Traditionalists, among them David Hume in his notorious debate with Thomas Reid, argued for the absolute quality of a man's word, regardless of circumstance or consequence, a view represented by the flat line in Figure 2 (8). In any event, under either conception of trust, the interaction between the partners begins with some prior assessment of their fidelity and reliability under most contingencies.

Powell (1996:63) argues that "trust is neither chosen nor embedded but is instead learned and reinforced, hence a product of ongoing interaction and discussion." These learning processes constitute an important element of partner interaction; the second element in our construct of relational quality. We believe that the sort of processes that facilitate this learning approximate informal processes described by Ring and Rands (1989) and Ring and Van de Ven (1994): sense-making, understanding and committing. Following Doz (1996), we argue that ego will focus on five aspects of collaboration: environmental conditions, task definition and performance, creation and management of collaborative processes, partners' skills, and the changing nature of the goals and motives of alter. The nature and the extent of alter meeting ego's expectations about its performance in relation to these aspects will affect the degree of trust that exists between the partners over the course of the collaboration's evolution. A willingness to adjust expectations in the face of changing conditions is likely to be an important factor in how trustworthy each views the other as being.

Thus, returning to Figure 2, the experience of the partners in dealing with adversity or changed conditions (both external or internal to the venture) will allow ego to modify its probability distribution on alter acting contrary to ego's expectations. Furthermore, as demonstrated in Ariño and de la Torre (1998), these interactions will also affect the quality of the relationship between the partners. They will either become more tolerant of small deviations from plan as their relationship improves, or will increase their suspicions of duplicity and undertake unilateral actions that may worsen the relationship even further. Our sense here is of a constantly evolving relationship where tests of loyalty and fidelity occur periodically and with different severity and transparency. The partners constantly adjust to this new state of affairs, either by resolving conflicts and consolidating their relationship, or by withholding resources unilaterally and dooming the alliance to failure in the long run.

(7) An example of an extreme interpretation of one's obligation to a covenant of obeisance would be God's command to Abraham to sacrifice his son Izaak, requiring a breach of trust in one of the most sacred human relationships, that of a father with his child. Abraham does not invoke *force majeure* as a rationale for not obeying God, and is prepared to commit this act of allegiance regardless of the consequences until such time as he is relieved of the obligation.

(8) We are indebted to Ahmet Aykaç and Charles Wisemann at Theseus Institute for introducing us to this debate and some of the concepts elaborated here.

External Events

Regardless of the trials to which the relationship is exposed as part of its normal evolution, there may occur a number of unrelated external events which, nonetheless, have an impact on the partners' perceptions of each other's trustworthiness. These are likely to be of three types:

- 1) *Systemic*, such as environmental changes that affect all parties simultaneously and equally, e.g., the Asian crisis in 1997-98 and its impact on a Korean partner's ability to maintain its word or posture in a specific relationship.
- 2) *Corporate*, wherein one of the partners is involved in matters that affect its reputation for fair dealing in other circumstances or with other partners. Examples may include an anti-trust suit for non-compliance (Microsoft), a discriminatory legal action (Texaco or Mitsubishi Motors), patent violations (3M and Kodak), environmental issues (the Exxon Valdez), product safety or liability (Ford Pinto or Perrier), etc.
- 3) *Individual*, where one or more individuals who are directly involved in the partner-interface are involved in matters that affect either their own or their firm's reputation for fair dealing in circumstances foreign to the relationship. Examples could include a personal conflict of interest claim, a nasty divorce, an allegation of insider trading, etc.

It should be pointed out that all of these categories may also have positive impacts. For example, Jim Burke's prompt action as head of Johnson & Johnson following the Tylenol contamination problem elevated his own and his firm's reputation for integrity under adversity. Similarly, winning a prestigious award, such as a Baldrige Quality Award, might serve as a positive signal to actual or potential partners.

Burt and Knez (1995) describe a phenomenon related to reliance on trust in networks as "third-party gossip." This involves information about one partner that comes to the other's attention. They argue that third party gossip amplifies both the positive and the negative in a relationship, and provide evidence that different sources of third party gossip will have differential effects on the trustworthiness associated with the focus of the gossip.

Methods

We begin with a description of our sample, and then define the measures employed and present our results. Given the exploratory nature of this research project, we relied on data available to us from a study previously conducted by one of the authors (Ariño, 1995).

Sample

The sample for this study was drawn from Spanish firms that appeared in Funk and Scott's *Countries Index - Europe* (1986-1992) as having announced their engagement in venturing activities, beginning with Spain's accession to the European Community (1986) and concluding with the establishment of the Single European Market (1992). This is a period that can be expected, *a priori*, to include high venturing activity, especially if we take

into account that the international exposure of Spanish firms was low at that time. Target industries included those with a higher number of collaborative ventures (see Table 1).

Table 1. Industry groups and response rate for sample

| Industry Group | Questionnaires mailed | % of total mailed | No. of responses | % of responses |
|------------------------------------|------------------------------|--------------------------|-------------------------|-----------------------|
| Energy (Petroleum and Electricity) | 19 | 10.1 | 6 | 6.6 |
| Chemicals | 15 | 7.9 | 14 | 15.4 |
| Machinery Except Electrical | 7 | 3.7 | 5 | 5.5 |
| Electronic Equipment | 7 | 3.7 | 4 | 4.4 |
| Transportation Equipment | 5 | 2.6 | 4 | 4.4 |
| Transportation | 8 | 4.2 | 6 | 6.6 |
| Communications | 2 | 1.1 | 0 | 0.0 |
| Financial Services | 95 | 50.3 | 37 | 40.6 |
| Other Services | 31 | 16.4 | 15 | 16.5 |
| TOTAL | 189 | 100.0 | 91 | 100.0 |

The target informant in each firm was the person most directly related to the alliance. Of the 189 mailed questionnaires, 91 (48%) were returned. We attribute this rather high response rate to the care taken in identifying the target respondent and in the follow-up process (Dillman, 1978). More than 63% of the informants had personally participated in the negotiation of their firm's alliance, and on average they had been involved with the alliance for 4.9 years (9).

Measures

Our operationalized measures were initially constructed by each of two authors independently reviewing instrument items and identifying those that each thought reflected relevant aspects of relational quality. After these two had resolved differences of opinion, the third author reviewed the proposed constructs and suggested further changes.

(9) See Ariño (1995) for more detail in terms of sampling methods, a description of the questionnaire and other methodological information. For the purpose of this study, 20 of the returned questionnaires were incomplete. In four cases, we received answers from both sides of the alliance. To insure independent data points we dropped out one of the parties, selecting it randomly by the flip of a coin. This left a final sample of 67 questionnaires for this study. A full description of the questionnaire items is available from the author.

Independent variable

As discussed before, relational quality is both an input to and an output of the collaboration process. A high level of relational quality implies that ego is satisfied with its relationship with alter (and vice versa). Ego (and alter) perceives that it is getting what it wanted individually — its private goals — in terms of efficiency, effectiveness and adaptiveness, and also what both wanted collectively — their common goals — and that alter's behavior is consistent with ego's expectations (and vice versa). Therefore, as a measure of relational quality we use a five-point scale measuring the informants' assessment of the extent to which their firm is satisfied with the overall performance of the alliance. This traditional measure of overall performance satisfaction captures the fact that the alliance outcome also includes ego's assessment of the relationship based on alter's behavior (Ariño and de la Torre, 1998).

Dependent variables

Initial Conditions. Ego will be willing to engage in a relationship with alter (assuming, of course, that the business and economic logic of the proposed venture stands up to scrutiny) to the extent that initial conditions make it reasonable for ego to expect that alter will execute its commitments under the proposed arrangement (Ring and Van de Ven, 1994). For example, alter should do so to the extent that interest-aligning mechanisms exist. Taking a mutual hostage position by investing in assets that are highly specific to the venture (Williamson, 1985; Parkhe, 1993) may serve as such a mechanism. Alternatively, alter may live up to its commitments in fulfillment of a social expectation to do so (Gouldner, 1959; Ouchi, 1980). The consequences to one's reputation of not fulfilling these expectations may be greater in a domestic context than in an international one (Gerlach, 1992). Thus, there may be differences in the risk profile for non-compliance between a firm transacting with a domestic partner and one venturing with a foreign partner. Furthermore, knowledge about alter's likely behavior is bound to be better when ego has had prior relationships with alter than if not. In consideration of these factors, we employ the following measures of initial conditions:

- 1) "Differential Asset-Specificity" is the difference between the firm's and the partner's asset specificity. The firm's asset specificity is a two-item scale measuring the informants' assessment of their firm's level of investment in assets specific to the venture ($\alpha=0.75$). Similarly, the partner's asset specificity is a two-item scale measuring the informants' assessment of their partner's level of investment in assets specific to the venture ($\alpha=0.70$).
- 2) "European Partner" is a dummy variable that equals 1 if the partner was a firm from a country in the EU other than Spain, and 0 otherwise.
- 3) "Other Country Partner" is a dummy variable that equals 1 if the partner was a firm from a country outside the EU, and 0 otherwise. In this way, the ventures in which the partner is another Spanish company act as a reference for the behavior of these two variables.
- 4) "Prior Relationships" is a dummy variable that equals 1 if the firm had prior relationships with the partner, and 0 otherwise.

Partner Interaction. As the venture unfolds, ego and alter interact and gain experience with each other, observing the opposite's behavior under varying circumstances.

Based on these experiences and observations, ego evaluates whether alter's behavior is consistent with ego's expectations, and compares it to ego's own behavior. Cumulatively, these experiences refine ego's assessments of alter's "fidelity" (as defined in Figure 2), and determine the level of relational quality in their exchanges. Our measures of partner interaction include:

- 5) "Differential Relational Investment" is the difference between the focal firm's and the partner's adjustment effort or mutual orientation (Madhok & Tallman, 1998). The focal firm's adjustment effort is a two-item scale measuring the informants' assessment of their firm's effort to adjust to the partner's style ($\alpha=0.80$). The partner's adjustment effort is a two-item scale measuring the informants' assessment of their partner's effort in adapting to their style ($\alpha=0.76$).
- 6) "Information Exchange" is a three-item scale measuring the informants' assessment of the degree to which their firm discloses information that may facilitate the activities of the alliance's management team ($\alpha=0.69$).
- 7) "Differential Cooperative Behavior" is the difference between the focal firm's and the partner's level of cooperative behavior. The firm's level of cooperative behavior is an 11-item scale measuring the informants' assessment of the extent to which their firm adapts its behavior to the partner's needs ($\alpha=0.74$). The partner's level of cooperative behavior is an 11-item scale measuring the informants' assessment of the extent to which their partner adapts its behavior to the needs of their firm ($\alpha=0.85$).

External Events. Information regarding alter's behavior in other contexts may influence ego's expectations about the consistency of this behavior with ego's expectations from alter. Within the constraints of the data available to us, and in the absence of direct information on what companies have heard about their partners from third parties, we used as a proxy the influence that the partner's behavior today may have on its possibilities to form other ventures in the future. This acts as a shadow of the future on today's behavior.

- 8) "Third Party Gossip" is a scale measuring the informants' assessment of the importance reputation—that is, the way in which their partner manages the relationship—may have on the partner's possibilities of setting up future alliances (10).

Control Variables. The quality of a relationship may be affected by changes exogenous to the alliance that alter the context in which it is embedded, particularly in so far as they impact either the efficiency or the effectiveness of the relationship as a means to achieve the parties' intent. These may include changes in the environment, as well as changes in the strategy of either party (Ariño and de la Torre, 1998), which may also affect the ability of the parties to adapt, another important measure of success in alliances (Doz, 1996). Thus, we need to control for them.

- 9) "Environmental Change" is a dummy variable that equals 1 if there were changes in environmental context that substantially affected the alliance, and 0 otherwise.

(10) This measure is not ideal for testing the nature of third-party gossip or its sources. However, the exploratory nature of this research and the constraints imposed by the available data set suggested this compromise. Our discussion of implications takes this into consideration.

- 10) “Strategic Change” is a dummy variable that equals 1 if there were changes in the strategy of the focal firm or its partner that substantially affected the venture, and 0 otherwise.

Results

Table 2 shows the means, standard deviations and correlation matrix of the independent variables. Table 3 contains the results of the regression analyses exploring our four models of relational quality. These include a model with only initial conditions, one testing for partner interaction, another including the influence of external events, and a fourth model integrating all variables.

Table 2. Correlation of independent variables

| | Means | S.D. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------|-------|------|-------|-------|-------|-------|-------|------|-------|-------|------|----|
| 1. Asset Specif. | 0.43 | 1.27 | 1 | | | | | | | | | |
| 2. Euro. Partner | 0.48 | 0.50 | -0.04 | 1 | | | | | | | | |
| 3. Other Partner | 0.21 | 0.41 | -0.03 | -0.49 | 1 | | | | | | | |
| 4. Prior Relation | 0.36 | 0.48 | -0.19 | -0.15 | 0.08 | 1 | | | | | | |
| 5. Diff. Relat. Inv. | 0.18 | 0.59 | 0.10 | -0.11 | 0.25 | -0.02 | 1 | | | | | |
| 6. Info. exchange | 3.58 | 0.79 | 0.10 | 0.05 | -0.01 | -0.04 | 0.01 | 1 | | | | |
| 7. Diff. Coop Beh. | 0.31 | 0.45 | 0.25 | -0.07 | 0.17 | -0.09 | -0.01 | 0.11 | 1 | | | |
| 8. 3rd. Party Gossip | 3.08 | 0.91 | -0.11 | -0.08 | 0.00 | 0.15 | 0.09 | 0.08 | -0.35 | 1 | | |
| 9. Environ. Change | 0.21 | 0.41 | 0.26 | -0.05 | 0.01 | -0.08 | 0.00 | 0.18 | 0.04 | -0.16 | 1 | |
| 10. Strat. Change | 0.27 | 0.45 | -0.02 | 0.03 | 0.02 | -0.31 | 0.02 | 0.11 | 0.09 | -0.16 | 0.35 | 1 |

Table 3. Regression results on relational quality

| VARIABLES | INITIAL CONDITIONS MODEL | PARTNER INTERACTION MODEL | EXTERNAL EVENTS MODEL | INTEGRATED MODEL |
|------------------------------------|--------------------------------|---------------------------------|-----------------------------|---------------------|
| INITIAL CONDITIONS | | | | |
| Differential asset specificity | .10 | | | .19 ** |
| European partner | -.08 | | | -.10 |
| Other country partner | .28 | | | .55 ** |
| Prior relationships | .40 | | | .33 * |
| PARTNER INTERACTION | | | | |
| Differential relational investment | | -.09 | | -.26 * |
| Information exchange | | .68 **** | | .65 **** |
| Differential cooperative behavior | | -.85 **** | | -.92 **** |
| EXTERNAL EVENTS | | | | |
| Third party gossip | | | .38 *** | .18 * |
| CONTROLS | | | | |
| Environmental changes | .52 | .43 * | .75 ** | .29 |
| Strategic changes | -.62 ** | -.78 *** | -.70 ** | -.54 ** |
| R ² | .182 | .483 | .236 | .618 |
| Adjusted R ² | .101 | 0.44 | .199 | .55 |
| F | 2.23 * | 11.38 **** | 6.47 **** | 9.06 **** |

n = 67

Significance levels:

* = p < .10

** = p < .05

*** = p < .01

**** = p < .001

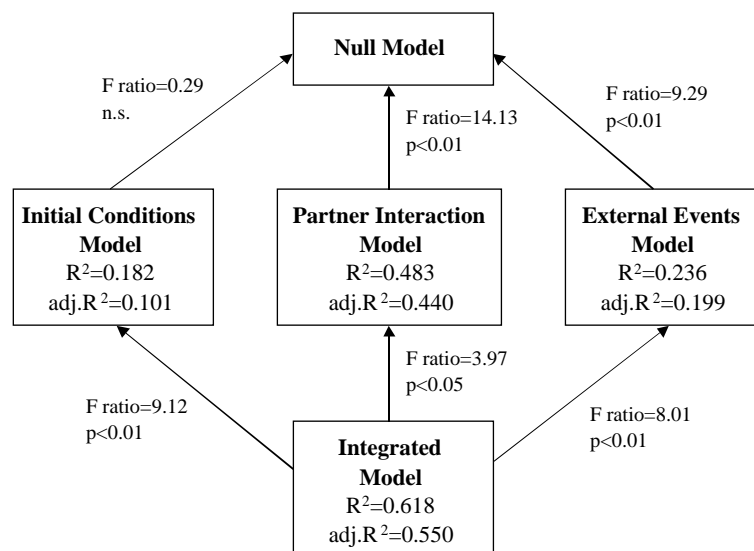
The least-squares estimation for a model including initial conditions only was marginally significant, and none of the initial conditions variables' coefficients were significant. The partner interaction model, however, was highly significant. Information exchange has a positive and significant influence on relationship quality; the influence of differential cooperative behavior is also significant, but negative. Differential relational investment has no significant influence on relationship quality. This model explains a substantial amount of the variation in relational quality (adjusted $R^2 = .44$). Finally, a model based on external events is highly significant, as is the coefficient for the third party gossip variable, which exerts a positive influence on relational quality. As for the influence of the control variables, both environmental and strategic changes appear to be significant in most cases. The environmental change coefficient is positive, whereas that for strategic changes is negative.

The integrated model of relational quality is also highly significant. In contrast to the Initial Conditions Model, differential asset specificity, other country partner, and prior relationships assume statistical significance (their signs remain positive), while European partner remains insignificant (and negative). All of the partner interaction variables are significant: information exchange is positive; the other two negative. The influence of third party gossip remains significant and positive. As for the control variables, environmental changes is not significant, while strategic changes remains significant and negative. It is worth noting that the adjusted R^2 of this model is substantial (0.55). However, it is about 25 percent smaller than the sum of the adjusted R^2 values of the three partial models. This indicates that the variables are not totally independent, a point that we now explore in more detail.

Variance decomposition

To decompose the relational quality variance we started with the integrated model and used F-tests to see if there were significant differences in the amount of explained variance if we included one group of variables at a time. The analysis, illustrated in Figure 3, starts at the bottom with the integrated model and then reports the significance of the F-test between the integrated model and the three partial models, and then between these and the null model with only the control variables in it.

Figure 3. Tests of differences among models



The combined effect of initial conditions, partner interaction, and third party gossip is significant and explains an important amount of the observed variance in relational quality in our sample. While partner interaction and external events have a significant influence on relational quality by themselves, the contribution of initial conditions is not significant in explaining the observed variance in relational quality. Partner interaction factors explain more than twice as much variance as the external event factor, and the proportion is even higher when compared to the initial conditions factors. Table 4 provides the incremental contributions to R² for each of the partial models. The models are not totally independent. Additional analysis not reported here shows that most interdependence comes from the association between partner interactions and external events, whereas the interdependence between these two sets of factors and initial conditions is rather low.

Table 4. Relational quality variance decomposition
(In percent)

| | |
|---------------------|-------|
| Initial conditions | 18.2 |
| Partner interaction | 48.3 |
| Third party gossip | 23.6 |
| Multicollinearity | -28.3 |
| Adjustment | -6.8 |
| Error | 45.0 |
| Total | 100.0 |

Discussion

The data from our sample of Spanish alliances support our contention that the role of trust in economic exchanges can be appropriately thought of as a dynamic force, one that appears to be composed of three distinct elements, each subject to different influences and rates of formation and/or decay. Consistent with assertions made by McKnight, Cummings and Chervany (1998), the results of our analysis of the integrated model of relational quality suggest that a certain level of reliance on trust exists as a result of characteristics inherent in the parties' history and demographics. This "inherited" level of trust is then affected by the processes the parties employ to negotiate their agreement. The outcome is a level of trust that exists between the parties as they commence implementation of the alliance, what we call "relational quality at initial conditions."

Our approach to defining initial conditions included items that measured institutional as well as process and personal bases of trust (Zucker, 1986). For example, the country of origin of an alliance may pre-dispose ego to trust alter more (or less) as it contemplates a cooperative relationship with alter (11). The potential for opportunistic behaviors asserted by transaction cost economists as being inherent in asset specificity also appears to affect ego's judgment about alter's behavior. What ego thinks about the probability of alter acting opportunistically is likely to be a function of institutional factors such as the

(11) Evidence of national differences in predisposition towards trust can be found in UNESCO's *World Culture Report* (1998), pp. 279-80.

efficacy of contract regimes (Lane and Bachmann, 1996) or other institutional guarantors (Commons, 1924) such as warranties, bonds, courts, mediators, etc. (Shapiro, 1987). Similarly, positive behavioral outcomes of any prior relationships are likely to predispose ego to view alter as being trustworthy. Arrow (1973:24) asserts that “there is an element of trust in every transaction.” Although he does not discuss the emergence of trust in temporal terms, the extant conceptual literature and recent empirical findings (e.g., Larson, 1992) provide support for the assertion that all inter-organizational collaborations begin with an initial reservoir of trust. We believe that this reservoir is nourished by streams from institutional, process, and personal sources (Zucker, 1986). These sources of trust are found in the conditions confronted by ego and alter before they begin formal processes involving negotiation and commitment (Ring and Van de Ven, 1994). They will affect the way they deal with each other as they begin negotiations.

At this point in its dynamic evolution, we describe the trust that exists between ego and alter as fragile (Ring, 1993). Ring (1996b:152) defines fragile trust as risk-based, where “this risk is assumed to be a consequence of the threat of opportunistic behavior..” Furthermore, “fragile trust is a type that permits economic actors to deal with each other, but in guarded ways.” The level of trust that exists at this point is a given. Neither ego nor alter is in a position to control the other’s perceptions; they are consequences of the kinds of inherited conditions described above.

The parties can begin to exercise control over each other’s perceptions of them in the course of sense-making and understanding that occurs during the negotiation and transaction processes surrounding their deal making (Ring and Rands, 1989). Assessing the meaning of each other’s conduct in terms of trust in these informal processes is not straightforward. For example, ego may take a very hard line towards the formal processes, pushing the firm’s interests at every turn. Alter has to decide whether this means that ego is not as trustworthy as might have been indicated by prior experiences, ego’s reputation, and/or ego’s demographics (nationality, strategic group, etc.). Alternatively, ego could be very accommodating towards alter’s requests during these processes. Does this mean that alter will be able to rely on ego’s trustworthiness once an agreement has been reached?. Or, should alter seek to control ego’s behavior by demanding agreement to a variety of endogenous safeguards that serve to hedge its bet on ego’s trustworthiness during the initial stages of their relationship? Although re-negotiation is always possible, it may come too late to effectively control opportunistic behaviors by either party.

If either ego or alter is inclined to use negotiation and transaction processes to enhance perceptions of its trustworthiness, the level of trust that existed at the start of negotiations will be a critical determinant. Low initial levels of trust are more difficult to overcome, whereas high levels give the parties an incentive to build on them in the course of reaching a deal. Collectively, this is likely to enhance the probability that the parties will place greater reliance on trust than on other, more formal, control measures in the initial stages of executive processes. Based on the foregoing discussion, and the data in Table 3, we offer the following propositions:

Proposition 1a: All negotiations in inter-organizational alliances begin with some initial level of fragile trust between the parties.

Proposition 1b: Initial levels of fragile trust will be greatest when perceptions of the trustworthiness of ego and alter have been positively conditioned by institutional, process, and personal sources of trust.

Proposition 1c: Initial levels of fragile trust will be greater when perceptions of trustworthiness of ego and alter have been positively conditioned only by personal and process sources of trust than when they are positively conditioned only by institutional and process sources of trust.

Proposition 1d: Initial levels of fragile trust will be least when perceptions of trustworthiness of ego and alter have been positively conditioned only by institutional sources of trust.

Proposition 1e: All negotiations in inter-organizational alliances affect the initial level of fragile trust that exists between the parties.

Proposition 1f: The greater the match between expectations and behavior of the parties during negotiation processes in inter-organizational alliances, the higher the level of fragile trust that exists as an initial condition of the relationship.

The reservoir of fragile-based trust that is derived from the initial condition surrounding their relationship will be immediately affected by the nature of interactions between the parties as they begin to implement their agreement (Gray, 1989; Zajac & Olsen, 1993; Browning et. al., 1995; Ring, 1997a; Ariño and de la Torre, 1998). None of these studies, however, provides direct insight into whether, or to what extent, these processes of trust-building enhance a pre-existing level of trust between the parties. In fact, most seem to incorporate the impact of prior relationships, reputation effects, etc., into the very early stages of the interactive processes outlined in their respective models. In the model offered by McKnight et al. (1998), on the other hand, it is not even clear when “initial formation” begins or ends in process terms.

Our data also indicate that the contribution of partner interactions plays the key role in assessments of the relational quality of an inter-organizational alliance. The willingness of the parties to exchange information, as indicated in Table 3, has a strong influence on partner interactions. Equally strong, but in negative terms, is the influence of differential cooperative behavior. These results are entirely consistent with the literature on trust that suggests that the willingness of the parties to share information with each other helps to build trust (Larson, 1992; Thomas and Trevino, 1993; Kanter, 1994). The influence of differential cooperative behavior is also consistent with arguments made by economists employing tit-for-tat games to explain cooperative behavior. The results on differential relational investment are consistent with arguments offered by Macneil (1974), Heide and John (1992), and Madhok and Tallman (1998), among others, that levels of trust in inter-organizational alliances are enhanced when the partners recognize that they need to engage in processes of mutual adjustment if their collaborative efforts are to continue to evolve. At times, however, reliance on trust may be positively influenced by the unilateral actions of ego or alter (Gulati, Khanna and Nohria, 1994). Failure to respond to these kinds of unilateral commitments, or a failure by alter to meet ego’s expectations about the need for mutual adjustment will have a negative impact on relational quality to that point in time.

The results of the effect that the measures of partner interaction have on our integrated model of relational quality leads us to offer the following propositions:

Proposition 2a: The nature of partner interactions during implementation phases of an inter-organizational alliance will be the most significant factor in determining the level of fragile trust experienced by ego and alter in their dealings with each other.

Proposition 2b: The levels of fragile trust that are developed during initial conditions will be adversely affected by a failure of the parties to seek to adapt to each other's needs and styles during the course of implementing the alliance.

Proposition 2c: The levels of fragile trust that are developed during initial conditions will be positively affected by the willingness of ego and alter to disclose information that enhances the efforts of the alliance's management team.

The results of the data analysis outlined in Table 3 also indicate that external events to an existing relationship can affect the partners' perceptions of each other's trustworthiness. In a global business environment in which the actions of a firm or its employees are subjected to scrutiny from a widening variety of stakeholders, the effects of "third-party" gossip on a business relationship become even more important. The behaviors of both parties are subject to constant monitoring by others with whom they also have relations, business or otherwise. A breach of trust by either in the course of dealings with third parties may well be brought to the other's attention through reports from business associates, the press, or government agencies. Third party gossip contributes in statistically significant ways to the relational quality of an alliance, both on its own and in our integrated model. Based on these results, we offer the following proposition:

Proposition 3: Levels of fragile trust between ego and alter will be affected in significant ways by their behavior in relationships not directly tied to their alliance.

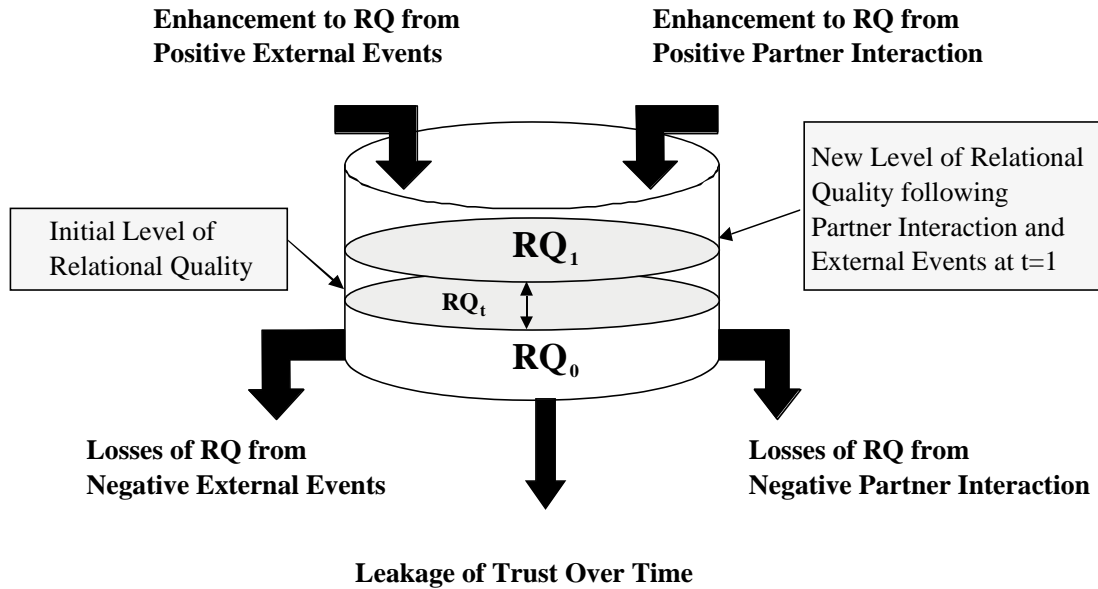
In addition, both theory and empirical results suggest that more generalized changes in the external environment might also affect relational quality. As the data in Table 3 indicate, however, this does not appear to be the case for the integrated model. Such changes, however, appear to have some impact on relational quality in the models in which we explored the separate contributions of partner interaction and external events. What does seem clear, however, is the fact that strategic changes by one or both of the parties will have a significant impact on the relational quality of their exchange. Not surprisingly, the impact is greatest in the case of partner interactions. Strategic changes by one or both of the parties are likely to have a very direct impact on the goals for the alliance (Harrigan, 1986). Thus, these changes may be appropriately viewed with suspicion until a clearer picture of the motives behind the change emerges.

Assuming that the parties' strategic objectives do not change in significant ways, then the relational quality (RQ) that characterizes the relationship will be a function of the level of trust engendered by the initial condition (IC) as it is cumulatively affected by partner interactions (PI) and external events (XE). In contrast to the level of fragile trust that emerged from initial conditions, the relational quality of the exchange at subsequent stages may have significantly improved or weakened this level of fragile trust. Whether this new level of trust approaches a quality that Ring (1993, 1996b) describes as resilient is likely to be a function of partner interactions producing results that exceed their expectations, provided external events do not intervene in negative ways. This leads us to our final proposition:

Proposition 4: An inter-organizational alliance characterized by a high degree of relational quality may result in the transformation of fragile into resilient trust, ceteris paribus.

A summary of our discussion of these exploratory data is outlined more formally in the Appendix and in Figure 4.

Figure 4. A dynamic model of relational quality in inter-organizational alliances: A reservoir of trust



Implications

The extant literature on trust tends to explore its dimensions from a static perspective. Does trust exist? Is ego trustworthy? Does trust substitute for other control mechanisms? These are frequently explored issues. Less well understood are answers to questions such as does trust build more rapidly than distrust (Burt & Knez, 1995). Can one form of trust become another, more resilient form of trust over time? Thus, our objective in this paper has been to determine whether it is possible to offer a framework by which a more dynamic view of trust in economic exchange might be explored. Theory, case studies, and our survey data all provide support for such a framework and for the propositions we have derived from the data. Quite obviously much work remains, an issue to which we now turn.

We provide support for Doz's (1996) contention that initial conditions are important in establishing a basic level of trust between parties in an economic exchange. Our analysis did not explore the impact of different initial conditions (e.g., how well the parties knew each other, how many successful or unsuccessful transactions they had conducted with each other in the past). Nonetheless, the results suggest that managers need to consider how their conduct in one exchange will impact the perceptions of potential partners about their trustworthiness. Conduct in any one relationship is something over which firms can exercise a great deal of control. Knowing that their behavior casts a long shadow into the future also means that the parties must work to project appropriate perceptions to third parties about the meaning of their behavior.

Our findings on the contributions of initial conditions to relational quality also mean that economic actors may be able to rely more heavily on trust in the conduct of their negotiations. Ring (1997b) offers support for the proposition that the parties can use these negotiation processes to build on existing levels of trust, be more open with each other, share

information of a proprietary nature, etc. Thus, preservation of reputations that produce higher levels of initial trust may serve as substitutes for more formal alternative control measures during negotiations, such as confidentiality and non-disclosure agreements, and result in more equitable and efficient agreements. In contrast, bad-faith bargaining by a party in one instance can impact its ability to enter into future negotiations with high levels of initial trust.

The results of our analysis suggest that the kind of trust that is associated with these initial conditions is likely to be complex and multi-dimensional. This should act as a spur to researchers to provide a more fine grained picture of these evolutionary pathways (Doz, Olk, and Ring, 1998). The work of Lane and her colleagues is consistent with our findings, and provides a basis for further investigations of how factors such as contract regimes or culture will affect the initial perceptions that parties have regarding each other's trustworthiness.

We have described the kind of trust that flows from initial conditions as fragile. Some of the elements contributing to this kind of trust might be the same as those involved in what Sako describes as contract-based trust. Or they might closely resemble deterrence-based trust as described by Rousseau et. al. (1998). Superimposing our framework on theirs provides an even more dynamic view of the way trust evolves over time.

The results of our exploration of the role that partner interaction has in explaining variance in relational quality provide a solid foundation for further work on how trust might substitute for more formal controls during the life of an alliance. The ability to build high levels of trust during initial conditions opens up the opportunity to draw from that reservoir during the course of implementation. The inherent degree of risk in an exchange will condition the degrees of freedom open to managers relying on trust (Das and Teng, 1998) as their relationship evolves. Our measures of trust in partner interaction indicate that continued open sharing of information will build higher levels of trust. Learning to cooperate and "matching" a partner's investments appears to produce positive results, and these findings are consistent with the extant literature (Gulati, et. al, 1994; Madhok and Tallman, 1998). Finally, our findings add support to the need to conduct much more research into the question of how parties actually use trust as a substitute for more formal organizational controls as well as for safeguards in their contracts.

The data on the impact that external events have on levels of trust imply that managers cannot view exchanges in isolation. Moreover, if they wish to guard against opportunistic behavior, they need to "monitor" not only their partner but also what other stakeholders are saying, i.e. they need to pay attention to third party gossip. Our research did not permit us to explore differences in the sources of third party gossip as Burt and Knez (1995) have done. Managers are in a position to control sources of third party gossip on which they might rely for sense-making processes, and this appears to be important to their perceptions of the continued trustworthiness of their partners.

To conclude, we believe that our framework clearly demonstrates that the role of trust, or better yet, relational quality in inter-organizational alliances is dynamic. Left as an error term in explaining outcomes in economic exchange, trust hides a multitude of potential explanations of variance in those outcomes. We have sought to reveal some of the ways in which trust may affect outcomes, and serve as a substitute for other forms of control of opportunistic behavior. We believe that our framework also points to ways in which the kinds of trust that are associated with relational quality might serve as substitutes for controls embedded in governance mechanisms in general, independently of their relationship to opportunistic behavior. □

Appendix

Trust formation and decay in dyadic alliances

In the context of our discussion, we have put forward some initial assumptions about what constitutes the different elements of relational quality, and how each might be subject to growth or decay as part of the learning process both parties experience in the course of their relationship.

We define,

RQ = Relational Quality as the reservoir of trust or goodwill the parties hold toward each other regarding their expectations of mutual forbearance in future interactions

RQ_0 = f (Initial Conditions), where these include:
 1) previous experience with one another
 2) partners' demographics
 3) partners' reputation for fair dealing
 4) confidence built throughout negotiation process

$RQ_1 = RQ_0 + \acute{O}PI (0 \Rightarrow 1) + XE (0 \Rightarrow 1)$, where

$\acute{O}PI (0 \Rightarrow 1)$ = Sum of the experiences from Partner Interaction in the time period from $t=0$ to $t=1$; and

$XE (0 \Rightarrow 1)$ = External Events impacting on Relational Quality in the time period from $t=0$ to $t=1$.

Then,

$$RQ = f(IC + \acute{O}PI + XE)$$

Furthermore, the impact of partner interaction on the relationship quality will be mediated by a number of factors, among which we anticipate the following:

- Number of interactions between the parties and frequency of these interactions;
- Gravity of the interactions, i.e., their potential impact on value outcomes;
- Absolute difference between partner's actual and expected behavior;
- Nature of partner's deviation (i.e., sins of commission or omission);
- Intentionality or motivations attributed by one partner to the other;
- Advance warnings and face validity of explanations provided by the partner; and
- Memory, or leakage over time.

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