

**THE DETERMINANTS OF INTER-FIRM TRUST IN SUPPLIER-  
AUTOMAKER RELATIONSHIPS IN THE U.S., JAPAN, AND KOREA**

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## **THE DETERMINANTS OF INTER-FIRM TRUST: EVIDENCE FROM SUPPLIER-AUTOMAKER RELATIONSHIPS IN THE U.S., JAPAN, AND KOREA**

### **ABSTRACT**

In this paper we examine the determinants of supplier trust in the buyer in 453 supplier-automaker relationships in the U.S., Japan, and Korea. We define trust and derive a model of its determinants drawing upon (1) an embeddedness (relationship-based) perspective, (2) a process-based perspective, and an (3) economic (hostage-based) perspective. Our findings indicate strong support for the process-based perspective in all countries; embeddedness (e.g., length of relationship) was only important as a determinant of trust in Japan, and the hostage-based variable (stock ownership) was not important in any country. More specifically, we found that high supplier trust emerges when (1) automakers have developed supplier-selection routines that favor incumbents and which maintain a continuing (repeated) exchange relationship with the supplier, and (2) automakers have developed assistance-giving routines to help suppliers solve problems and improve. Although there were some differences across institutional environments, notably higher trust in Japan, the findings are quite robust across the institutional environments. Indeed, in a sample of U.S. suppliers selling to both U.S. and Japanese automakers in the United States, we found that Japanese automakers were more effective than U.S. automakers at building trusting relations with U.S. suppliers. The ability of Japanese automakers to build high levels of trust with suppliers in the United States suggests that the institutional environment may be less important than firm-level practices in the production of inter-organizational trust.



A central issue in the literature on strategic alliances and interfirm cooperation is how firms create trust and control opportunism, particularly when the transactors have made investments in transaction-specific assets.<sup>1</sup> Under these conditions, trust has been described as an important antecedent to interorganizational cooperation and economic efficiency (Sako, 1991; Smith, Carroll, and Ashford, 1995). In fact, recent research suggests that trust in supplier-buyer relations may be an important source of competitive advantage because it: (1) *lowers transaction costs* and allows for greater flexibility to respond to changing market conditions (Sako, 1991; Barney & Hansen, 1995; Dyer, 1996b; Zaheer et al, forthcoming), (2) *facilitates investments in transaction/relation-specific assets* which enhance productivity (Asanuma, 1989; Lorenz, 1988; Dyer, 1996a), and (3) *leads to superior information sharing routines* which improve coordination and joint efforts to minimize inefficiencies (Aoki, 1988; Fruin, 1992; Clark & Fujimoto, 1991; Nishiguchi, 1994). Moreover, some scholars claim that national economic efficiency is highly correlated with the existence of a high trust institutional environment (North, 1990; Casson, 1991; Hill, 1995; Fukuyama, 1995). For example, Fukuyama (1995:7) argues that the economic success of a nation, "as well as its ability to compete, is conditioned by . . . the level of trust inherent in the society." The findings from these, and other, studies have increased our attention on the important role of trust in economic exchanges.

A natural response to these studies has been to exhort companies to build trust with their trading partners (Business Week, 1986, 1992) and to call for increased research on the role of trust in coordinating economic activity (Smith, Carroll, and Ashford, 1995). However, before an explicit strategy for developing trust can be developed, or considered feasible, the determinants of trust must be identified. Despite considerable academic and managerial interest in trust between trading partners, to date there has been little empirical research on the determinants of

interorganizational trust (e.g., between supplier-buyer). As Zucker (1986:59) has observed, "For a concept that is acknowledged as central, trust has received very little empirical investigation." Further, there has been little research on whether the determinants of trust differ in different institutional (i.e. country) environments.

The purpose of this paper is to examine the determinants of supplier trust in a buyer in a sample of supplier-automaker relationships in the United States, Japan, and Korea. We define trust and derive a model of its determinants drawing upon (1) a sociological/embeddedness perspective, (2) a process-based perspective, and an (3) economic (hostage-based) perspective. In doing so, we address the following key question: *What variables influence the development of supplier trust in supplier-buyer relationships and which perspective best explains the production of trust in these different countries?* Given the recent attention on the importance of trust in exchange relationships, a large sample empirical examination of the determinants of trust is, by itself, a useful undertaking. However, due to the globalization of industries and a dramatic increase in international collaborative ventures, a study of the determinants of trust in different institutional environments is, we believe, particularly useful. Such a study allows for an examination of those factors that are important determinants of trust both within, as well as across, countries.

## **THEORETICAL FRAMEWORK AND HYPOTHESES**

### **Defining Trust**

Among organizational scholars, trust has received attention as a mechanism of organizational control, and more specifically as an alternative to price, contracts, and authority (Ouchi, 1980; Bradach & Eccles, 1989; Powell, 1990). The literature on interorganizational

relations offers two general definitions of trust: confidence or predictability in one's expectations about another's behavior, and confidence in another's goodwill (Ring & Van de Ven, 1992; Zaheer et al, forthcoming). We draw on the previous literature in defining trust as *one party's confidence that the other party in the exchange relationship will not exploit its vulnerabilities* (Dore, 1983; Sako, 1991; Ring & Van de Van 1992; Sabel, 1993; Barney & Hansen, 1995). This confidence (trust) would be expected to emerge in situations where the "trustworthy" party in the exchange relationship: (1) is known to reliably make good faith efforts to behave in accordance with prior commitments, (2) makes adjustments (i.e. as market conditions change) in ways perceived as "fair" by the exchange partner, and (3) does not take excessive advantage of an exchange partner even when the opportunity is available. Thus, our definition characterizes interfirm trust as a construct based on three components: reliability, fairness, and goodwill. Our definition of trust is similar to the "goodwill trust" description given by Sako (1991) and the trust definitions offered by numerous scholars (Sabel, 1993; Ring & Van de Ven, 1992; Barney & Hansen, 1995). Thus, trust, as defined here, is not based upon contracts or third party sanctions but rather is based on non-contractual mechanisms.

Conceptually, organizations are not able to trust each other; trust has its basis in individuals. Trust can be placed by one individual in another individual or in a group of individuals, such as a partner organization. However, individuals in an organization may share an orientation toward individuals within another organization. From this perspective, "interorganizational trust describes the extent to which there is a collectively-held trust orientation by organizational members toward the partner firm" (Zaheer, McEvily & Perrone forthcoming)

In this study we consider trust (this collective orientation) by an automotive supplier in its automaker customer. This research setting was an unusually good test site because it was important to study a set of transaction relationships in which trust might be important and valuable. Many scholars have argued that risk, or having something invested, is requisite to trust. The need for trust only arises in a risky situation (Deutsch, 1958; Mayer et al, 1995). The automobile is a complex product with thousands of components that must work together as a system. Components are often tailored to specific models and as a result suppliers must make automaker-specific investments (Asanuma, 1989; Dyer, 1996a). Since these investments are not easily re-deployable, suppliers are at risk if automakers choose to behave opportunistically. Furthermore, the auto industry is characterized by a high degree of market uncertainty (Pine, 1993), which increases both the risks associated with transacting as well as the importance of information sharing (Lorenz, 1988; Aoki, 1988). Thus, a supplier's trust in the automaker is of particular importance in the auto industry due to supplier investments in customer-specific assets and market uncertainty which places suppliers in a vulnerable position.

### **The Determinants of Trust**

A firm may trust trading partners to refuse to break confidences and exploit vulnerabilities for a variety of reasons. Previous research suggests that trust in inter-organizational settings is likely to be produced through: (1) social relationships and embedded ties, or *relationship-based trust* (Dore, 1983; Granovetter, 1985; Powell, 1990; Gulati, 1995; Uzzi, 1997), (2) institutionalized processes or routines for fairly and reliably dealing with a partner organization, or *process-based trust* (Zucker, 1986; Zaheer & Venkatramen, 1995; Zaheer et al, forthcoming), or (3) an alignment of economic incentives through hostages, or



*economic hostage-based trust* (Klein, 1980; Williamson, 1983,1993). In the following section we explore each of these perspectives in greater detail and derive hypotheses.

### ***Social/Embeddedness Perspective***

According to the sociological perspective, trust emerges through social interactions between exchange partners (Light, 1972; Grannovetter, 1985; Powell, 1990; Uzzi, 1997). If a transaction is embedded within a broader reciprocal social relationship, then transactors may rely on social sanctions to protect their interests. Various types of social sanctions may control opportunism: withdrawal of love, respect, prestige, and/or (worst of all) banishment from the social community (Light, 1972; Smith, 1983; Ellickson, 1991). Thus, a firm that takes unfair advantage of a trading partner may find any of a number of sanctions imposed by other members of the social network.<sup>2</sup> Furthermore, social interactions may be useful in identifying individuals that embrace the value of being ethical or who are "hardcore trustworthy" due to internalized values, beliefs and norms (Mauss, 1967; Hill, 1990; Barney & Hansen, 1995). In summary, the social perspective (Grannovetter, 1985; Dore, 1983; Powell, 1990; Uzzi, 1997) suggests that trust will emerge due to social interactions between exchange partners. As the duration and intensity of interactions between transactors increases, we would expect bonds of attraction to develop and social sanctions to be more efficacious.

### ***Length of Relationship***

Various scholars have suggested that trust is a valuable asset which takes time to develop and can only be built slowly over time (Arrow, 1974; Sako, 1991). Related to this view is the notion that social knowledge, or knowledge gained through long term interactions, may be the basis for trust by allowing economic actors to understand and predict others' patterns of behavior

(Tolbert, 1988; Sohn, 1994). For example, Sohn (1994) found that in-depth social and cultural knowledge facilitates coordination of transactions by making a potential partners' behavior both understandable and predictable. Moreover, as social knowledge between transactors increases, information asymmetries decrease, thereby reducing behavioral uncertainty. Higher levels of trust are believed to develop when information asymmetries are low and there is less behavioral uncertainty. Further, acquiring social knowledge through long-term interactions provides insights into the moral character of trading partners, thereby allowing transactors to screen more accurately for "honest" partners (Hill, 1990; Barney & Hansen, 1995).

Finally, when transactors engage in long-term exchange relationships, they develop a history together. Most individuals are less likely to take advantage of those with whom they have had long and stable past interactions (e.g., family members, friends, etc.) because these parties can impose social sanctions on the offending individual. Through long-term interaction, a "social memory" is created and transactors can achieve "serial equity" (equity/reciprocity over a longer period of time) rather than requiring immediate or "spot equity" (Ouchi 1984). Thus, we would expect higher levels of trust to emerge in exchange relationships where the transactors have a long history of interacting.

*Hypothesis 1: The longer the duration since the first supplier-buyer transaction, the higher the supplier's trust in the buyer.*

*Intensity of Relationship (Face-to-Face Communication)*

Various studies have found that face-to-face interactions are likely to lead to the development of positive feelings of attraction (Lorenz, 1988; Argyle, 1991). Further, cooperation and trust between individuals has been found to emerge in laboratory settings when

individuals can see and talk to each other and engage in social interaction (Argyle, 1991). Face-to-face communication has been described as having a high knowledge-carrying capacity because it presents immediate feedback opportunities and makes use of both visual and audio channels of communication (Daft & Lengel, 1986). Thus, it is considered useful for developing trust because it offers more cues for interpreting a trading partner's behavior and motivations. Moreover, face-to-face contact is viewed as an effective means of developing personal ties, thereby increasing the efficacy of social sanctions. Accordingly, we would expect face-to-face communication to increase supplier-buyer trust by (1) facilitating the development of personal ties, thereby increasing the efficacy of social sanctions, and (2) providing superior information to assist transactors in detecting trading partners that are the untrustworthy "type." Thus, we would expect that as the frequency of face-to-face contact between transactors increases, so does trust.

*Hypothesis 2: The greater the face-to-face interaction between the supplier and buyer, the higher the level of supplier trust in the buyer.*

### ***Process-Based Perspective***

The process-based perspective differs from the relationship-based perspective in that the trust orientation that individuals in one firm maintain toward a trading partner is not based on personal relationships, but rather on a set of institutionalized processes and routines employed at the partner organization. These would necessarily be inter-organizational processes for interacting that suggest that individuals within the trading partner will behave in a trustworthy manner. Zaheer et al (forthcoming:32) refer to this as "an institutionalized pattern of dealings" and "speculate that the institutionalized practices and routines for dealing with a partner organization transcend the influence of the individual boundary spanner." Thus, the process-

based perspective recognizes that interorganizational trust may be built upon impersonal structures, processes, and routines which create a stable context for exchange. Individuals may come and go at the two organizations but the trust orientation will not be affected because trust is not based in individual relationships.

One may logically ask what kind of processes would likely influence supplier trust in a supplier-buyer relationship? Our interviews with automotive suppliers suggested that the buyer's processes or routines for selecting suppliers as well as the buyer's processes for responding to supplier problems (e.g., extent to which they provide assistance to assist the supplier fix problems and improve their operations) were processes that could influence the production of trust.

#### *Supplier Selection Processes and Continuity of Relationship*

The processes that buyers use to select suppliers for business on an upcoming car model are likely to influence supplier trust. In some instances, buyers may use a competitive bidding process whereby incumbents are not given any advantage in ensuing rounds, regardless of past performance. This is an arms-length competitive bidding process typically used by U.S. companies such as General Motors. In other instances, buyers may select suppliers based upon their track-record for performance and give incumbents the first opportunity to get new business. This is a selection process which favors incumbents and is often said to typify Japanese supplier-buyer relationships (though recent data suggest that U.S. firms, notably Chrysler, are increasingly using this approach; see Dyer, 1996c). Consequently, in addition to length of relationship, *continuity* in the supplier-buyer relationship may contribute to the development of interorganizational trust. It is possible for trading partners to have had a long-term relationship

(i.e. many years have passed since the initial transaction) even though the relationship may not have been continuous. For example, some U.S. suppliers reported that although they began selling parts to a particular automaker 50 years ago, there have been occasions when they have lost the component business to competitors. In other instances, the supplier continues to re-win the "contract" year after year due to selection processes that favor the incumbent.<sup>3</sup> Thus, there is a high degree of continuity in the relationship due to the nature of the buyer's supplier-selection routines.

We expect supplier trust to emerge under conditions of continuous repeated exchange (Gulati, 1995) due to buyer purchasing routines that are predictable and consistent and which do not switch (perhaps opportunistically) business to competitors (Butler, 1991; Heidi & Miner, 1992). Repeated exchange is particularly important to the development of supplier trust in situations where suppliers have invested in relation-specific assets. Under these conditions, a buyer's willingness to stay with the same supplier is likely to be interpreted by the supplier as a signal of commitment and trustworthiness. Thus, we expect supplier trust to be higher when the buyer has a history of continuous, repeated exchange with the supplier.

*Hypothesis 3: Supplier trust is higher when the buyer has a track record of continuous repeated exchange with the supplier (e.g., the supplier's history of re-winning the contract at the model change is high) .*

#### *Buyer Assistance-Giving Routines*

Zucker (1986:61) argues that "firms make investments in process-based trust by creating positive 'reputations'." She further argues that one method (process) for building a reputation for trustworthiness is the offering of gifts or assistance to exchange partners. According to the suppliers we interviewed, the buyer's processes for providing regular assistance to suppliers (in

many cases helping suppliers fix operational problems) were likely to influence the degree of trust in the buyer. The rationale behind the trust-creating value of assistance-giving routines is that an exchange partner's offer of "free" assistance serves as a signal of goodwill and commitment because it suggests that the giving party is genuinely concerned with the well being of the receiving party. Also, the assistance may be viewed as a signal that the giving party does not have opportunistic intent (is the honest "type") and feels benevolently towards the receiving party. Benevolence is the perception of a positive orientation of the trustee toward the trustor and has been hypothesized to be positively associated with trust (Larzelere & Huston, 1980; Mayer et al, 1995). When a buyer routinely offers "free assistance" to a supplier (i.e. if assistance is not fully costed), the supplier is likely to interpret such actions as a manifestation of commitment by the buyer, and may be the basis for trust (Sako, 1991).

*Hypothesis 4: The greater the assistance provided by the buyer to the supplier, the greater the supplier's trust in the buyer.*

#### ***Economic (Hostage-Based) Perspective***

Transactors may also behave in a trustworthy manner due to "credible commitments" that they have made with a trading partner (Klein, 1980; Williamson 1983). For example, trading partners may make financial or investment arrangements (stock swaps, equity participation) that are purposefully designed to align their economic fortunes. These arrangements are often referred to as credible commitments or an exchange of hostages. For example, in the case of a franchising contract "the franchisee may be required to make an initial lump sum payment to the franchiser, thereby largely shifting the potential threatened breach from the franchisee ('free riding' on a common trademark by supplying lower quality service) to the franchisor (terminating

or threatening to terminate the franchisee without cause and purchasing the franchisee investment at a discounted price). The initial lump sum is equivalent to a collateral bond forfeitable at the will of the franchiser" (Klein & Kenny, 1989:41). Other financial hostages, which diminish in value if a transactor is opportunistic, include stock swaps or equity participation in a trading partner (Pisano, 1989; Dyer & Ouchi, 1993; Bolton et al, 1994). In many instances, the stock tie acts as a symbol of the relationship, thereby encouraging individuals to develop a trust orientation towards the partner organization (Gerlach, 1992). Thus, shared equity may create conditions for informal trust to develop.<sup>4</sup> We argue, as has Pisano (1989) and Bolton et al (1994), that partial equity ownership constitutes a visible collateral bond that builds trust by aligning the incentives of each partner. The fact that the equity stake will decrease in value if a party is opportunistic provides an incentive for trading partners to behave in a more trustworthy fashion. Thus, we expect trust to emerge when the two parties incentives are effectively aligned and when credible commitments have been made.

*Hypothesis 5: The greater the buyer's ownership of supplier stock, the higher the level of supplier trust in the buyer.*

## **RESEARCH METHODS**

### **Research Setting**

We chose to study supplier-automaker relations in Japan, Korea, and the United States for a number of reasons. First, the automotive industry is a large and important industry in each country and, as previously mentioned, is an industry where trust is likely to be important. Studying supplier-buyer relationships in the same industry across different institutional environments allows for some control of extraneous variation. Second, studying supplier trust in

a cross-national setting allows us to test the extent to which our findings are robust across national settings. We chose Japan because it has been described as a high trust environment where interfirm trust is a key factor that facilitates exchange and creates competitive advantages for Japanese firms (Dore, 1983; Sako, 1991; Hill, 1995). In contrast, the United States has often been characterized as a low trust environment relative to Japan (Dore, 1983; Sako, 1991; Shane, 1994), though recently Fukuyama (1995) has questioned that view, suggesting that the U.S. is actually a high trust environment (at least compared to other economically less developed countries). Our data allow us to examine whether levels of trust are reported as the same or different, and whether the determinants of trust are the same, or different, in both the U.S. and Japan. Finally, Korea was added because Korea's culture is similar to Japan's, and yet the management practices have been influenced by U.S. firms (Dubinsky et al, 1994; Hamilton & Biggart, 1988). This is particularly true in the auto industry where long-standing partner relationships have been formed between Daewoo and General Motors (GM owned 50 percent of Daewoo until 1994) and Kia and Ford. We were interested to see whether or not interfirm trust levels were similar to Japan's (perhaps due to cultural similarities) or more similar to the U.S. (perhaps due to similar management practices). In summary, by examining supplier-buyer relationships in three countries, we can determine which factors influence supplier trust across all countries, as well as which are country-specific.

### **Sample and Data Collection**

The sample consisted of three U.S. (General Motors, Ford, Chrysler), two Japanese (Toyota, Nissan), and three Korean (Hyundai, Daewoo, Kia) automakers and a sample of their suppliers. The authors visited each company's purchasing department and asked the department



manager to select a representative sample of suppliers which included both partners (i.e. keiretsu/chaebol suppliers) and non-partner (i.e. independent) suppliers. We interviewed a total of 30 purchasing managers at the eight automakers' purchasing departments to obtain feedback on the appropriateness, completeness, and clarity of the questionnaire, and to gain a better understanding of the issues arising in automaker-supplier relations.

We also interviewed sales and engineering vice-presidents at 70 suppliers (30 U.S., 20 Japanese, 20 Korean), during which the survey was developed and pretested. Most importantly, the interviews helped us to gain a better understanding of the industry and the nature of the supplier-automaker relationship. To minimize key-informant bias and follow the general recommendation to use the most knowledgeable informant (Kumar et al, 1993), we asked the purchasing managers at each automaker to identify the supplier executive who was most responsible for managing the day-to-day relationship. This person was typically the supplier's sales vice-president, sales account manager, or in some cases, the president. The final survey was then sent to the key supplier informant identified by the automaker.

One may question whether a single informant has sufficient knowledge and ability to assess the trust orientation of individuals at multiple levels between his/her supplier organization and the automaker. Although responses from multiple informants would have been preferred (with a cost of a smaller sample), we believe that our informants were well positioned to make this assessment for the following reasons. First, key informants had been employed at their respective organizations for an average of 16 years and thus had a long history of working with the automaker. These individuals had primary responsibility for managing the day-to-day relationship with the customer and were well aware of the variety of interactions between their,

and their customer's, employees. Further, in approximately 15 of our in-person interviews with suppliers, the key informants brought 2-3 other top supplier executives to the interview (e.g., vice president of engineering, key sales representatives) who had previously filled out our questionnaire separately from the key informant. During the interview, the group of supplier executives would look at each other's answers and come to a consensus on the "group" answer (we were able to see their individual responses). The degree of similarity in their responses was remarkable; rarely did the responses vary more than one point on a seven point Likert scale. In the few cases where there was some discussion, the key informant typically brought more information to the discussion than the other members. Consequently, we believe the key informant responses to reliably represent the responses we would have received had we surveyed multiple individuals at the supplier.

Usable responses were obtained from 135 U.S. (66% response rate), 101 Japanese (68% response rate) and 217 Korean (55% response rate) suppliers. The data collection was done between 1992 and 1994. The U.S. and Japanese data were collected in 1992, reflecting data for 1991, and the Korean data were collected in 1994, reflecting data for 1993. We do not believe this will bias the results since our analysis focuses on rather stable measures (i.e. length of relationship, stock ownership, trust) which Korean suppliers indicated had not changed in any significant ways since 1992.

### **Operational Measures**

Recall that the survey was administered to the suppliers. Therefore, the measures reflect the perceptions of suppliers regarding the supplier-automaker relationship. However, during our interviews with the purchasing managers of the automakers we discovered that both the supplier

and automaker perceptions regarding the relationship were very similar in specific cases we discussed. There were no instances where the perceptions of suppliers and automakers were dramatically different. Our anecdotal findings are similar to those of Anderson and Narus (1990) who found that suppliers' and buyers' perceptions of levels of trust were quite consistent.

### *Trust*

Consistent with previous studies we operationalized trust using multiple scale items designed to measure the extent to which the supplier trusted the automaker not to behave opportunistically (Anderson & Narus, 1990; Heide & John, 1988; Zaheer & Venkatraman, 1995).

Trust (TRUST) was operationalized as the sum of the following submeasures.

1. The extent to which the supplier trusts the manufacturer to treat the supplier fairly.
2. The extent to which the automaker has a reputation for trustworthiness (following through on promises and commitments) in the general supplier community.
3. If given the chance, the extent to which the supplier perceives that the automaker will take unfair advantage of the supplier (reverse scored).

Our trust construct includes key elements of our definition of trust, including fairness, reliability, and goodwill (a willingness to forego opportunistic behavior even when the chance is available).

Each scale item was measured on a 7-point Likert scale (1=Not at all, 7=To a very great extent).

The Chronbach alpha for this construct was .84, indicating high reliability.

### *Length of the Relationship*

This measure (LENGTH) was operationalized as the number of years since the supplier first began selling products to the automaker. This measure represents the length of the relationship, rather than the intensity of the relationship, which is captured by other measures.

### *Face-to-face Communication*

This measure is operationalized as the annual "man-days" that the supplier-automaker

spent in face-to-face contact during the year the data were gathered. This measure (FACE) includes face-to-face contact between supplier sales and engineering personnel and automaker purchasing and engineering personnel. Days of contact was calculated by having the key informants identify the number of sales people that worked directly with the particular automaker. Then, s/he indicated the average number of days per week that the typical salesperson would spend having a face-to-face meeting with automaker personnel. Key informants provided the same information for engineers. Thus, the measure consists of face-to-face communication that occurs between sales and purchasing employees, as well as between engineers from the two respective organizations. The assumption behind this measure is that as the number of days of face-to-face contact increases, so does trust.

#### *Continuity of the Relationship*

Continuity of relationship (CONTINUITY) was operationalized as the percentage of time the supplier's business had been renewed when there was a model change. In the automotive industry, the model change is a natural time for buyers to re-evaluate suppliers and make a change if deemed appropriate. Suppliers who have a history of "re-winning" the business at the model change would be expected to have greater continuity in their relationship with the automakers when compared with suppliers with a low "re-win" percentage. This is reflective of the supplier-selection processes used by the buyer. Buyers that employ competitive bidding routines will likely have suppliers that experience a lower re-win percentage, and thus lower continuity in the relationship.

#### *Automaker Assistance to the Supplier*

Our interviews with suppliers and automakers prompted us to classify assistance

(ASSISTANCE) into three types: assistance with the supplier's product quality, assistance with cost cutting efforts, and assistance with inventory management. The degree of assistance offered by the automaker to the supplier was measured through three items:

1. The extent to which the automaker provides assistance to help the supplier improve product quality.
2. The extent to which the automaker provides assistance to help the supplier reduce manufacturing costs.
3. The extent to which the automaker provides assistance to help the supplier improve inventory management/delivery.

A 7-point Likert scale was used to indicate the degree to which the supplier felt that these three types of assistance were provided by the automaker on a regular basis. The total amount of assistance was the sum of the three respective sub-measures. The Chronbach alpha for the buyer assistance construct was .79.

### *Stock Ownership*

We used the percent of supplier stock owned by the automaker as our measure of an economic-based hostage. Since suppliers are typically more at risk than automakers, suppliers are the ones that require a credible commitment, which may come in the form of stock ownership by the automaker.

### **The Model**

The model that was estimated is shown in Figure 1. We estimated this model for the pooled sample as well as by country. The following linear regression model was run in order to test the hypotheses:

$$\text{Model: } \text{TRUST} = a + b_1 \text{ LENGTH} + b_2 \text{ FACE} + b_3 \text{ CONTINUITY} \\ + b_4 \text{ ASSISTANCE} + b_5 \text{ STOCK.}$$

A linear regression model was used because there was no reason to assume a non-linear relationship among the variables. The use of a linear model was later justified by an examination of the residual distribution, which was homoskedastic and indicated no problems with serial correlation.

We acknowledge that the direction of causality between trust and the independent variables LENGTH and FACE is open to debate. For example, one can argue that high trust leads to long term, continuous relationships and face-to-face contact rather than vice versa. We have offered theoretical arguments which explain why these particular independent variables may lead to high trust. However, we would expect some degree of reciprocal causality with these variables--in effect, a circle of mutual causality where the independent variables both influence, and are influenced by, trust.

## **RESULTS**

The simple descriptive statistics shown in Table 1 indicate that supplier trust is significantly higher in Japan than in Korea or the United States which both have similar levels of supplier trust. The length of the supplier-automaker relationship was highest in Japan (41.4 years), followed by the U.S. (32.6 years) and Korea (12.4 years). We would expect this result given the long history of the automobile industry in the two former countries compared to that of Korea where the industry is less than 30 years old. Our data also indicate that there is more face-to-face communication between suppliers and automakers in Japan than in the U.S. or Korea. We conjecture that face-to-face contact among Japanese automotive transactors may be facilitated by the physical proximity of suppliers and automakers in Japan.<sup>5</sup> These descriptive

data suggest that Japanese supplier-automaker relationships are characterized by embedded ties to a much greater extent than U.S. or Korean supplier-automaker relationships.

We find similar country variance in the process-based independent variables. There is much greater continuity in the supplier-automaker relationship in Japan than in the U.S. or Korea. Japanese suppliers re-win the "contract" over 91 percent of the time (with very little variance) at a model change whereas U.S. and Korean suppliers re-win the contract 71 and 77 percent of the time respectively (with much greater variance). These findings are consistent with previous studies which have suggested that Japanese automakers do not switch suppliers nearly as often as do U.S. automakers (Helper, 1991; Dyer & Ouchi, 1993). Automaker assistance to suppliers is highest in Korea and Japan, with U.S. automakers offering significantly less assistance to suppliers. The high degree of automaker assistance in the Korean sample may reflect a lack of technological capability on the part of Korean automobile suppliers, who still need large amounts of assistance from the automaker in order to meet the automakers' minimum quality standards. The degree of assistance in Japan is high, despite the strong capability of Japanese suppliers. In the U.S., the degree of assistance is still rather low, presumably because U.S. automakers and their suppliers have traditionally maintained arms-length relationships and automakers have not developed assistance-giving processes.<sup>6</sup> Finally, Japanese automakers are most likely to hold minority stock ownership positions in suppliers. Korean automakers rarely held stock in suppliers and U.S. automakers did not own any supplier stock.

Table 2 presents the pooled sample correlation matrix for the dependent and independent variables. An examination of Table 2 indicates that there are no substantial multi-collinearity problems: all of the 10 pairwise correlations between the independent variables are less than

0.33, with only one correlation being greater than 0.30.

[Insert Table 2 About Here]

The regression results for the pooled sample and for each country are presented in Table 3. The results show that our model was reasonably effective at predicting supplier trust as demonstrated by an  $R^2$  of 0.268 which was significant at the  $p < .001$  level.<sup>7</sup> Three of the five variables were found to have a significant positive effect ( $p < .001$  level) on supplier trust in the pooled sample, including one sociological/embeddedness variable (length of relationship) and both process variables (continuity of relationship, automaker assistance to the supplier). The relationship between stock ownership and trust was positive in the pooled sample but only because of high stock ownership in Japan, a high trust sub-sample. In fact, we were surprised to find that there was a negative relationship between stock ownership and trust in both Japan and Korea. Total face-to-face communication was not useful as a predictor of supplier trust.

[Insert Table 3 About Here]

In summary, from Table 3 we may conclude the following:

- (1) Length of the supplier-automaker relationship had a significant positive effect on supplier trust in the pooled sample, but the relationship only held true in Japan. Therefore, Hypothesis 1 is mildly supported.
- (2) Face-to-face communication did not have an effect on trust in the pooled sample or within any of the individual countries. Therefore, we did not find support for Hypothesis 2, which proposed a positive relationship between face-to-face contact and trust.<sup>8</sup>
- (3) Continuity in the supplier-automaker relationship (i.e., history of re-winning the contract) had a significant positive effect on supplier trust in the pooled sample and in the U.S. and Korea. Thus, Hypothesis 3 is supported.
- (4) Automaker assistance to the supplier is positively associated with supplier trust in the automaker in the pooled sample as well as Japan and Korea. This relationship did not hold in the U.S where U.S. automakers have historically not offered much assistance. Thus, Hypothesis



4 is supported. The t-values are highest for the CONTINUITY and ASSISTANCE constructs which suggests that they are the most significant and robust determinants of trust in our model.

(5) Stock ownership did not have a significant relationship with trust in the pooled sample or within any of the individual countries. Thus, we did not find support for Hypothesis 5, which predicted that stock ownership would be positively associated with supplier trust.

### **Individual Country Results**

An important reason for doing this research with samples from different countries was to examine how the determinants of trust may differ across countries. Previous research suggests that trust between trading partners will vary not only with the attributes of the transaction, but may also vary due to differences in societal culture, politics, networks, and business norms in the institutional environment in which the transactions are embedded (Granovetter, 1985; Hill, 1995). Consequently, a brief discussion of the country-specific differences in our results is warranted.

#### *Japan*

Supplier trust was universally high in Japan and there was very low variance on the trust measures as well as many of the independent variables. These findings offer empirical support for Dore's (1983) observation that "moralized trading relationships of mutual goodwill" generally pervade Japanese transaction relationships. Of the variables in our model, the most important determinant of supplier trust in Japan was assistance from the automaker to supplier. Length of relationship followed assistance as the second most important explanatory variable in the Japanese sample. Interestingly, continuity of relationship was a less important explanatory variable in Japan than in Korea or the U.S. It is worth noting, however, that the "re-win" percentage was universally very high in Japan with extremely low variance. Thus, it was not as useful at predicting supplier

trust. However, this does not necessarily mean that it was not important in developing trust, but rather that it was simply not as useful in discriminating between higher and lower levels of supplier trust. Finally, we were surprised to find that stock ownership had a negative, though not significant, effect on trust in the Japanese sample. In Japan, stock ownership has been described as an important symbol of a relationship (Gerlach, 1992). One interpretation of this finding is that stock ownership has continued for such a long time in Japan that it has lost its significance as a governance mechanism and thus doesn't affect "trust" anymore. Another interpretation is that stock ownership is simply not an important determinant of supplier trust in Japanese supplier-automaker relations. Lincoln et al (1992:4) have argued that in Japan firms "purchase shares in suppliers to increase their control over pricing and production" and that they dispatch personnel to monitor their investment. Although these practices may result in cooperative interfirm behavior, they do not necessarily result in high trust as we have defined trust in this study.

### *Korea*

We were somewhat surprised to find that trust levels in Korea were much lower than Japan. This was surprising because Korean culture is more similar to Japanese culture and because previous research suggests that Korean suppliers and automakers have an exclusive relationship with 72 percent of all suppliers supplying to only one automaker (Oh, 1995). One plausible reason for this finding is the Korean government's policy of nurturing large conglomerates (*chaebols*) and its failure to set up laws and regulations to protect small-to-medium sized businesses in their dealings with the powerful *chaebols*. As a result, many small businesses have been at a relative disadvantage in trading with the *chaebols* which have been in a position to dictate the terms of trading agreements and the relationship in general. During our interviews, Korean supplier executives confirmed that

they are in a very weak relative bargaining position and are essentially forced to be loyal to a single customer. Thus, this may explain the lower levels of supplier trust in Korea.

Like Japan, the most important determinant of trust in Korea was assistance from the automaker to the supplier. Continuity of relationship followed assistance as the second most significant explanatory variable in the Korean sample. Thus, the production of trust seemed to be process-based. Re-win rates, and trust, were generally lower in Korea than Japan, with greater variance on both variables. Length of relationship and face-to-face contact were found to be unimportant as predictors of trust in Korea. Interestingly, stock ownership had a negative (though not significant) relationship in the Korean sample. Consistent with Lincoln et al (1992), some Korean suppliers indicated that they thought the automaker used their stock ownership position to exert control over the supplier.

#### *United States*

In the United States, continuity of relationship was the only variable significantly correlated with trust. The relationship between automaker assistance and trust was positive, but not significant. One plausible explanation for this finding (offered by suppliers we interviewed) is that U.S. automakers have only recently been offering assistance to suppliers. As U.S. automakers provide increased assistance to suppliers, supplier trust may increase. Interestingly, the relationship between face-to-face contact and trust was slightly negative in the U.S. sample. Some U.S. suppliers claimed that they spent a considerable amount of their face-to-face interaction time with U.S. automakers on unproductive activities, such as negotiating contracts and assigning blame for problems. Thus, quantity of face-to-face contact may be less important to developing trust than quality of communication (Roberts & O'Reilly, 1974; Sako, 1992). U.S. suppliers also offered a possible

explanation for the lack of a relationship between length of relationship and trust. Many suppliers claimed that length of relationship did not have a bearing on trust. Indeed, some suppliers suggested that the longer they had worked with a particular automaker, the more time they had to learn that the automaker was *not* to be trusted. Increases in time and experience with a particular partner may only mean that one can better trust one's own judgements about an uncertain situation.

## DISCUSSION

As reported in Table 1, we found significant differences in levels of supplier trust by country. The differences in levels of trust across countries raises an important issue, notably, how important is the institutional environment in allowing for, or fostering, interfirm trust (cooperative/trustworthy behavior)? One view is that the institutional environment is critical for the development of trust between supplier and buyer. According to this view, trust is a by-product of norms, embedded in social networks, and rarely brought about through rational-instrumental means (Granovetter, 1985; See Sabel, 1993 for a discussion). If true, Japanese transactors should only be able to develop high levels of trust with other Japanese transactors embedded within the same social and economic network. A process-based perspective would suggest, however, that the ability to create trusting supplier relations is a function of the processes and routines employed by firms (perhaps fostered by a supportive institutional environment) that is transferable across national and cultural boundaries.

To test whether or not trusting supplier relations can be purposefully created across national boundaries, we surveyed a sample of U.S. suppliers who worked with both U.S. automakers and Japanese "transplants" in the United States.<sup>9</sup> By surveying U.S. suppliers selling the same

component to both U.S. and Japanese automakers within the United States, we are able to control for cultural and component (technical) differences that might influence interfirm trust. The sample consisted of only U.S. suppliers with at least three years experience and five percent of their total sales to Japanese automakers. This was done to exclude U.S. suppliers without significant experience working with Japanese automakers. These 20 suppliers were randomly selected from the U.S. supplier sample.<sup>10</sup> These suppliers were then interviewed and surveyed regarding their relationship with both U.S. and Japanese automakers.

Table 4 provides a summary of the sample means (for the sample of U.S. suppliers selling to both Japanese and U.S. automakers) for a number of the independent and dependent (trust) variables used in this study. The results indicate that *Japanese automakers are more effective than U.S. automakers at building trusting relations with U.S. suppliers.*<sup>11</sup> These data suggest that perhaps trust *can* be developed through rational-instrumental means.

[Insert Table 4 about here]

The question of how Japanese automakers were able to quickly develop trusting relationships with U.S. suppliers is an important one. An examination of these results in light of our hypotheses provides further insights into the determinants of supplier trust. First, U.S. suppliers' relationships with Japanese automakers were only of short duration, 6 years versus 22 years with U.S. automakers. Clearly a long term relationship is not a prerequisite for high trust. Furthermore, given the short term nature of the relationships, there was not enough history to accurately assess the "re-win" rates of U.S. suppliers with Japanese automakers. However, in five cases where suppliers were faced with a model change, suppliers reported re-winning the business in each case. Moreover, our interviews with U.S. suppliers revealed that they believed that they would re-win their business with Japanese

customers because: (1) Japanese automakers had told them that they would re-win the business if they performed well, and (2) Japanese automakers had a reputation for not switching suppliers at the model change. Thus, suppliers had the expectation of a high degree of continuity in the relationship. With regard to face-to-face contact, the sample engaged in 1475 man days of face-to-face contact with Japanese automakers versus 1657 man days with U.S. automakers. On an absolute basis there are no significant differences.<sup>12</sup> Stock ownership was not a factor in these relationships.

The one variable that seemed to be particularly critical to the Japanese automakers' ability to develop trusting relationships with U.S. suppliers was offering assistance. U.S. suppliers indicated that, compared to U.S. automakers, they received more assistance from Japanese automakers in reducing costs, increasing quality, and improving delivery. Some U.S. suppliers indicated that they received more help from the Japanese automaker than they felt they deserved given their short term relationship. They were surprised at the willingness of the Japanese automaker to send consultants, free of charge, to help them improve. As, Tom Luyster, V.P. of Planning for Summit Polymers, a supplier of plastic interior parts, stated,

I couldn't believe it but Toyota sent approximately 3-4 consultants *every day* for a period of 3-4 months as we attempted to implement Toyota Production System concepts in a new plant. They gave us a valuable gift [the Toyota Production System]. Naturally we feel indebted towards Toyota and view them as a special customer; they sincerely want to help us improve (Interview, November 19, 1996).

This type of helping behavior on the part of Japanese automakers seemed to be the catalyst for producing a trust orientation towards the automaker at the supplier.

Our interviews with U.S. suppliers revealed another important factor not explicitly captured in our model but related to the idea of continuity of relationship. U.S. suppliers indicated that one reason they did not trust U.S. automakers was because U.S. automakers were perceived as constantly

changing management, personnel, and policies. One supplier executive described the "problem" as follows:

We cannot trust U.S. automakers as much as Japanese automakers because whenever they bring in new management, we get a whole new set of procurement rules and policies. The rules of the game are constantly changing. With Japanese companies we don't seem to have the same problems because their policies and personnel are consistent and stable (Interview, September 12, 1992).

The predictable consequence of frequent changes in purchasing management and policies is that suppliers realize that implicit, and even explicit, promises made by the automaker may be broken when new management arrives.

Supplier executives indicated that the deleterious effect of personnel changes on interorganizational trust occurs not only at the management level, but at the buyer level as well. As one supplier executive put it,

It's not that I don't trust the person sitting across from me at the U.S. automaker. In fact, I may feel more comfortable with him than his Japanese counterpart at Toyota. I may trust him completely. But what I don't trust is that he will be sitting there a year from now. U.S. automakers are constantly rotating their people through purchasing (Interview, September 11, 1992).

U.S. suppliers claimed that Japanese automakers were more trustworthy than U.S. automakers due to their lifetime employment and "promotion from within" policies which foster stability in personnel and policies. To test these assertions we examined employee tenure in two Japanese and two U.S. automakers. We surveyed 100 U.S. employees and 100 Japanese employees to determine the average tenure of employment of purchasing and engineering employees. We found that employees at the Japanese automakers had been with their employer for an average of 16.2 years, while U.S. automaker employees had only been at their company for 8.8 years. Helper and Sako (1994) found similar results among 472 executives of Japanese suppliers and 671 executives at U.S.

suppliers; Japanese supplier executives had been with their companies an average of 22 years, while U.S. executives had only been with their companies for 11 years. These data suggest significantly greater employment stability at the Japanese firms, both automakers and suppliers. Greater employment stability may lead to higher levels of supplier trust due to: (1) greater confidence that inter-organizational processes will not change, and (2) personal ties that develop between executives, thereby increasing the efficacy of social sanctions to deter opportunistic behavior. This may explain why length of relationship was only found to be significant in the Japanese sample.

In summary, the ability of Japanese automakers to build high levels of trust with suppliers in the United States suggests that the institutional environment may be less important than firm-level practices in influencing trust. An examination of the specific practices employed by the most trustworthy (i.e. Japanese) automakers suggests that they are effective at building supplier trust because they have created inter-organizational routines that serve as credible signals of long term commitment to suppliers. In particular, their assistance-giving routines (which signal a commitment to an ongoing relationship) and their supplier-selection routines (which promote continuity in the relationship) provide credible assurances to suppliers that the buyer is committed to the exchange relationship. These findings suggest that supplier trust is based on *trustworthy behavior that is institutionalized within the buying firms' processes and routines*.

We should note, however, that these findings come from a sample of very large companies (suppliers of roughly \$400 million in sales, automakers with at least \$5.0 billion in sales). Some previous studies, such as Uzzi (1997) and Larson (1992) have found support for the embeddedness (relationship-based) perspective. However, these studies were of much smaller firms (the average firm in Uzzi's study had less than 50 employees) and therefore we might expect personal ties to be



much more important. We do not mean to suggest that individuals are unimportant in the creation of interorganizational trust. Indeed, suppliers are much more likely to believe that the interorganizational routines are credible signals of commitment when they have confidence in the stability of intra-organizational routines--notably the stability of personnel. But in large organizations we do not believe interfirm trust can be created by individuals acting on their own; individual actions may act as a starting mechanism for inter-organizational trust if these individuals can influence organization-wide processes and routines.

### **CONCLUSION**

Our findings indicate that supplier trust is highly correlated with stable and consistent buyer processes/routines that represent credible commitments toward long term interactions--notably assistance-giving routines and supplier-selection routines that promote relationship continuity. Thus, our findings offer support for the process-based perspective. A high degree of stability of organizational personnel at both organizations may be necessary to produce relationship-based trust (embedded ties) as evidenced by the fact that length of relationship was only a predictor of trust in Japan. We found no support that trust can be produced through economic ties/hostages.

Our findings also suggest that the institutional environment has an important influence on the development of interorganizational trust. The absolute levels of supplier trust differed by country, with Japanese supplier-buyer relations characterized by relatively high levels of trust when compared with their Korean and U.S. counterparts. However, the key role of the institutional environment may be one of influencing the development of firm-level practices which influence trust. Indeed, the set of practices employed by Japanese firms--which we found were effective at producing high levels of supplier trust--are arguably the product of a distinctive national culture and

a unique set of evolutionary and historical events (Nishiguchi, 1994). However, the ability of Japanese automakers to build high levels of trust with suppliers in the United States suggests that the institutional environment may be less important than firm-level practices in producing supplier-buyer trust. Thus, the creation of trust through rational-instrumental means appears to be possible.

Finally, we should note that buyers (i.e. automakers) incur real costs in developing high trust supplier relations. These costs come in two forms. First, buyers must expend resources in providing assistance to suppliers. In 1995, Nissan and Toyota supported large teams of more than 60 internal consultants to provide assistance to suppliers. Although Japanese automakers get a "return" on their investment in the form of more efficient suppliers, they still must incur the expense of maintaining a large staff of qualified individuals to assist suppliers. Furthermore, there is an opportunity cost associated with maintaining long term, continuous relationships with suppliers. The cost of maintaining continuity includes the opportunity cost of not taking advantage of one's suppliers and the loss of the opportunity to use lower cost suppliers if they came along. The fact that building supplier trust imposes costs on buyers suggests that trust-building behavior should be carefully considered with an analysis of both the costs and benefits.

## Endnotes

1. Investments in transaction-specific assets have been found to enhance interfirm coordination and maximize joint performance (Perry, 1989; Parkhe, 1993; Dyer, 1996a).
2. This assumes that exchange partners are part of the same social network.
3. In the language of game theory, contract renewal may serve as a signal to the supplier that the automaker is playing a long-run "cooperative equilibrium." The logic for how repeated games result in more cooperative behavior is well documented in the game theory literature (Axelrod, 1984; Fudenberg and Maskin, 1986).
4. Of course, it is also possible for stock ownership to be inversely correlated with trust. To the extent that stock ownership serves as a credible signal of long term commitment, it may promote goodwill trust; however, stock ownership may also be viewed as a substitute for goodwill trust. We assume a positive relationship between stock ownership and trust because in every case in our sample, the buyer had owned the supplier's stock for at least 10 years, thereby providing enough time for informal trust to develop.
5. In our sample, the average distance between supplier plants and automaker plants was 82 miles in Japan, 129 miles in Korea, and 477 miles in the United States.
6. Our interviews with suppliers confirmed this presumption. As one supplier executive observed, "if you have a problem, you'd better fix it yourself because [U.S. automaker] sure won't help. They just say, 'if you can't fix the problem, we'll find another supplier who can.'"
7. Although our model did a reasonably good at predicting supplier trust, clearly there must be other important variables which are not accounted for in our model. However, since the formation of a trusting relationship is such a nebulous and complex phenomenon, a formal modeling effort is bound to explain only part of the variance in trust.
8. We acknowledge a weakness in our face-to-face contact measure, which did not take into account personnel turnover. Two sets of exchange partners could engage in the same number of days of face-to-face contact, but the quality of those days of contact could be different if one set of trading partners experienced personnel turnover while the other did not. We would expect social interactions and face-to-face contact to be more effective at establishing trust when turnover is low.
9. Korean automakers were excluded because they did not have plants in the United States.
10. There was no particular reason for choosing 20 relationships other than there were not a large number of suppliers that had significant experience working with both U.S. and Japanese automakers.
11. These findings are consistent with those of a market research firm, Planning Perspectives Inc., who conducted a survey of 700 U.S. suppliers for Chrysler and Ford in 1992. This large sample survey found that U.S. suppliers had significantly higher trust in Toyota and Honda than they did in the U.S. automakers.
12. However, when we adjust for the volume of transactions (sales) between the supplier and automaker, we find that U.S. suppliers engage in 50 percent more face-to-face contact (per dollar of sales) with Japanese automakers.

**TABLE 1****Descriptive Statistics: Pooled Sample and By Country**

Variables	Pooled (n=453)	US (n=135)	Japan (n=101)	Korea (n=217)	Sig. Diff.
1. TRUST	14.11	13.63	16.37	13.35	***
2. LENGTH	21.61	32.56	41.4	12.44	***
3. FACE	2042.56	1245.01	4989.54	1413.41	***
4. CONTINUITY	0.78	0.71	0.91	0.77	***
5. ASSISTANCE	9.83	7.39	10.15	10.51	***
6. STOCK	0.04	0.00	0.11	0.03	***

Note:

1. The last column indicates whether the country means are significantly different from each other (F-test).

\*\*\* Country samples are significantly different at  $\alpha = 0.01$ .

**TABLE 2**  
**CORRELATION MATRIX**

<b>Variables</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1. TRUST	1.000					
2. LENGTH	.27	1.000				
3. FACE	.14	.19	1.000			
4. CONTINUITY	.40	.15	.05	1.000		
5. ASSISTANCE	.30	-.10	.11	.16	1.000	
6. STOCK	.01	.07	.16	.01	.03	1.000

TABLE 3

## RESULTS: POOLED SAMPLE AND BY COUNTRY

Relationship	Expected Sign	Parameter	Standard Error	T-Value	Significance
<b>H1: LENGTH →Trust</b>	+	.24	.04	5.86	***
United States:		-.02	.08	-.30	
Japan:		.25	.10	2.62	***
Korea:		-.10	.06	-1.57	
<b>H2: FACE →Trust</b>	+	.05	.04	1.29	
United States:		-.09	.08	-1.21	
Japan:		.08	.10	.79	
Korea:		-.02	.06	-.36	
<b>H3: CONTINUITY →Trust</b>	+	.32	.04	7.90	***
United States:		.53	.08	6.97	***
Japan:		.05	.10	.50	
Korea:		.21	.06	3.38	***
<b>H4: ASSISTANCE →Trust</b>	+	.27	.04	6.60	***
United States:		.04	.08	.57	
Japan:		.34	.10	3.48	***
Korea:		.35	.06	5.75	***
<b>H5: STOCK →Trust</b>	+	-.02	.04	-.49	
United States:		.04	.07	.50	
Japan:		-.02	.10	-.21	
Korea:		-.07	.06	-1.14	

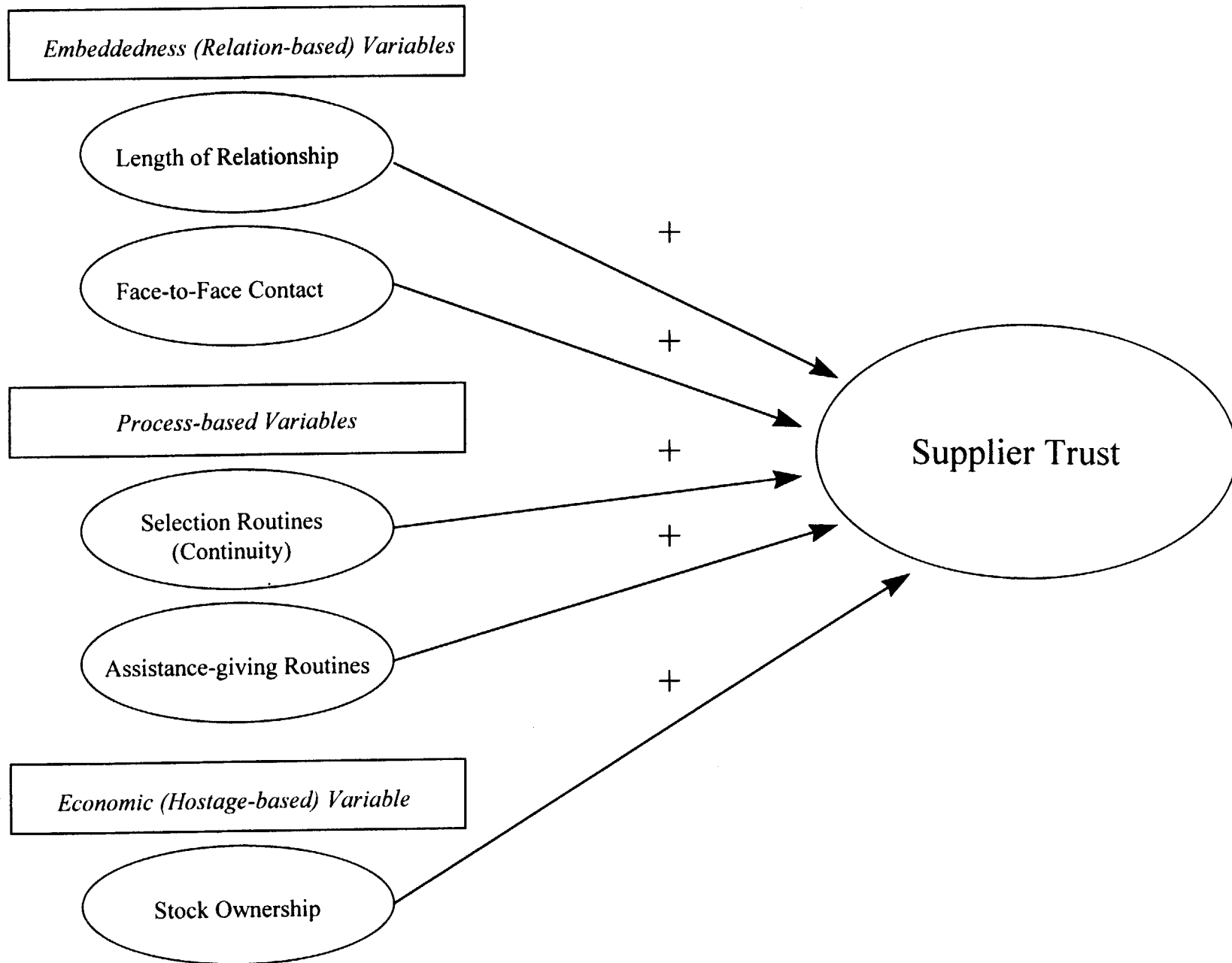
$R^2 = 0.268$ ; \*\*significant at  $\alpha = 0.05$ ; \*\*\*significant at  $\alpha = 0.01$

TABLE 4

SURVEY OF U.S. SUPPLIERS SELLING TO BOTH U.S. AND JAPANESE AUTOMAKERS

	U.S. SUPPLIER/ U.S. AUTOMAKER N=20	U.S. SUPPLIER/ JAPANESE AUTOMAKER N=20	T-VALUE
<b>TRUST</b> THE EXTENT TO WHICH THE SUPPLIER TRUSTS THE AUTOMAKER TO TREAT SUPPLIER FAIRLY†	4.1	5.7**	2.5
IF GIVEN THE CHANCE, AUTOMAKER MIGHT TRY TO TAKE UNFAIR ADVANTAGE OF SUPPLIER†	4.0	1.7**	3.3
<b>LENGTH</b> LENGTH OF RELATIONSHIP	22 YEARS	6 YEARS**	6.4
<b>CONTINUITY</b> PERCENT OF TIME THE SUPPLIER RE-WINS THE BUSINESS AT A MODEL CHANGE	.77	1.00*	
<b>FACE</b> ANNUAL MAN DAYS OF FACE-TO-FACE CONTACT	1654	1475	.19
<b>ASSISTANCE</b> EXTENT OF COST REDUCTION ASSISTANCE†	1.7	4.1**	5.5
EXTENT OF QUALITY IMPROVEMENT ASSISTANCE†	2.5	4.5**	4.2
EXTENT OF DELIVERY/INVENTORY MANAGEMENT ASSISTANCE†	1.5	2.9**	2.5
† ANSWERS ARE ON A 1-7 LIKERT SCALE: 1=NOT AT ALL; 4=TO SOME EXTENT; 7=TO A VERY GREAT EXTENT. * IN EACH OF FIVE CASES WHERE THE MODEL CHANGED, SUPPLIERS RE-WON THE BUSINESS FOR THE NEXT MODEL. ** TESTS OF GROUP DIFFERENCES ARE ONE-TAILED T-TESTS ASSUMING UNEQUAL VARIANCES; P < .01 LEVEL.			

Figure 1: Model of the Determinants of Trust in Supplier-Buyer Relationships





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