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Small Block of Supplier Shares Improve Trust Performance in Supply Chain Relationship

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1. Introduction

By advent and development of globalization concept in economy, companies and firms around the world have entered a new era of competitive market. Sustaining in this new competitive market demands a paradigm shift in dealing with business processes within and among organizations and companies. The severe competition in new markets is driven by advances and improvements in industrial technology, increased globalization, achievements in information availability, and creative business designs (Metzner, 2004). Companies are constantly striving to redesign their processes for dealing with their suppliers and customers, to dictate their differentiator values and gain higher market share. In the late 1980s a Japanese word penetrated into business world, called Keiretsu (Miyashita & Russel, 1994). Keiretsu is recognized by networks of inter-connected firms which hold stable shares of each other and developed around a main bank (McGuire & Dow, 2009). Japanese organizations are characterized by two important forms of linkages: horizontal keiretsu and vertical keiretsu. A horizontal keiretsu is consisted of very large companies which work under close relations with a main bank and linked with each other through reciprocal shareholding, trading, and etc. These companies usually work in different segments and differ in their field of business. Mitsubishi Group of companies is a famous example of a horizontal keiretsu. A vertical or pyramid keiretsu consists of a very large company (usually a manufacturer) such as Toyota and hundreds of small companies subordinate to it. These subordinate companies usually serve as a supplier for main manufacturer.

Because of achievements that leading companies like Toyota, Honda, Nissan, Hitachi, Sony, and etc attain through vertical relationship with their suppliers and subordinates within their vertical keiretsu, other global companies outside Japan like GM, Xerox, Boeing, Motorola, Volkswagen, Porsche, DuPont, Swisscom, and etc, have tried to implement same concept in their business networks (Miyashita & Russel, 1994) (Guth, Nikiforakis, & Norman, 2007) (McMillan, 1994).

The effectiveness of the Japanese keiretsu characterized by informal but strict cooperation and inter-connected members, changes the business climate, these changes made many companies outside Japan embarked new types of inter-organizational relationships based on both economical (shareholding) and social (trust) criteria (Handfield & Bechtel, 2002).

Investing in a supplier through acquiring a small block of its share (5-10%) by the manufacturer can be considered as a as a favourable devotion to their relationship (Guth, Nikiforakis, & Norman, 2007). It has also that a firm's trust in their supply chain partner is highly associated with bilateral specific asset investments, like shareholding, in supply chain partnership mentioned (Suh & Kwon, 2006).

Many manufacturers consider buying of their suppliers' share as a financial tool to improve flow of information and materials between both parties. The factor that has been largely overlooked is the effect of shareholding on trust performance between suppliers and manufacturers (Emberson & Storey, 2006). The trust makes companies strive to exceed the minimal requirement of a relationship. It is matter of concern to know whether shareholding has any effect on informal inter-organizational factors like trust and whether shareholding can improve trust performance between firms.

It is of paramount importance for managers to consider ways in which to improve their firm's inter-organizational supply chain relationships. Supply chain performance is based on a high level of trust among supply chain partners. The shareholding between manufacturers and suppliers is one of new approach to improve supply chain performance and also inter-organizational supply chain relationship.

The objectives of this chapter are to evaluate and analyse level of trust between manufacturer and supplier as well as to evaluate the effect of holding small block of supplier's shares by manufacturer on trust between them. Finally the authors will provide a propose framework to improve supplier-manufacturer relationships.

2. Background study

Cooper et al,(1997) suggest a conceptual framework of supply chain management. This framework involves three interrelated element: supply chain structure, business processes, management components (Figure 1).

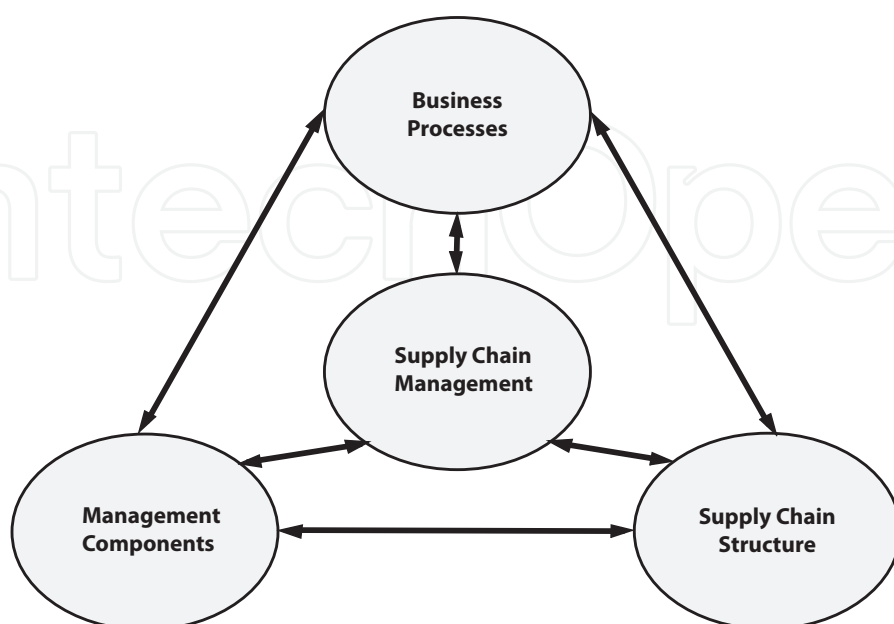


Fig. 1. Elements in framework of supply chain management (Cooper et al, 1997)

Vertical Keiretsu

Keiretsu are established and commonly recognised networks of Japanese firms. Japanese industrial organization has long been characterized by two important form of inter-corporate linkages. Historically, horizontal keiretsu dominated the industrial landscape of Japan. Complementing this horizontal keiretsu is vertical keiretsu usually organized around a major industrial firm and its buyers and suppliers. Vertical keiretsu appear during 1950s as solution for Japanese companies in dealing with scarce financing sources for expansion of their production (Edwards & Samimi, 1997). In contrast to the symmetrical shareholding in horizontal keiretsu, shareholding in vertical keiretsu is not reciprocal and suppliers hold small (if any) in their core manufacturer. The core manufacturer usually invests holds share in first tier, concurrently encourages them to buy shares in second tier suppliers (McGuire & Dow, 2009). This pyramidal nature of shareholding links all companies in the group in a way in which the core company even might be unaware of number of its affiliates (Miyashita & Russel, 1994), (Figure 2).

Participating in these kinds of affiliates usually have breakthrough for both the whole group and the individual members. The individual members are provided with a stable target and market for their products and even might be provided with technical, financial, and managerial supports from the core company. On the other hand, the core company prefer to hold greater ownership in more dedicated affiliates and suppliers. These mutual benefits induce both parties to work toward long-term relationship by offering lower costs and higher quality (McGuire & Dow, 2009). Cross-shareholding also could facilitate flow of information among group members and stability of their relationships which could result in a mutual moralized trading relationship in which both sides consider it as an obligation and try to support it (McMillan, 1994).

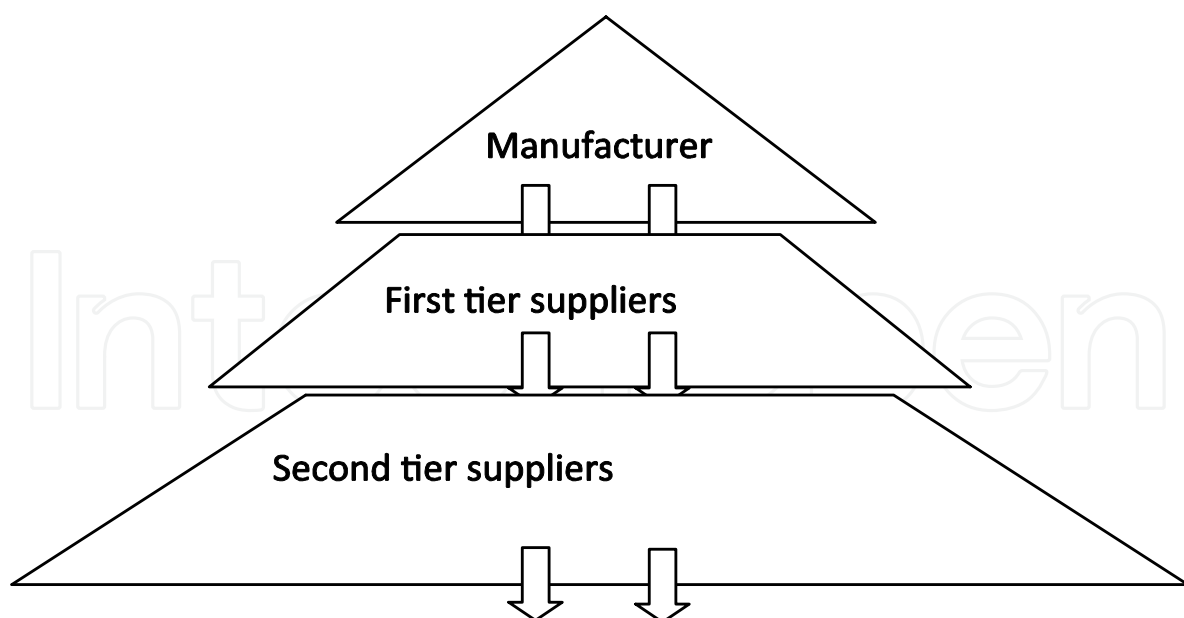


Fig. 2. Pyramidal structure of vertical keiretsu with unknown numbers of tiers

Its mentioned (McMillan, 1994), what make this system keep working, is not repeated transactions but rather it is culture. The mutual relations formed between firms create personal relationships between managers and individuals of both parties. These personal

relationships create mutual commitments and bonds of trust between the individuals and relatively between firms. These mutual obligations vary with size of the companies and amount of shareholdings. Tight relationships empowered by Japan's culture in maintaining lifetime employment have caused companies in the keiretsu be group-oriented and work for benefits of the whole group and even sacrifice their own advantages. With the Japanese tradition of loyalty within a hierarchy, with a lifetime employment system, opportunism is a lesser danger because if you treated someone badly by taking advantage of him for immediate profit, it won't be forgotten (Miyashita & Russel, 1994). Trust is an inseparable factor in this system.

In a vertical keiretsu, companies show their commitment to their counterparts by holding shares at a level that doesn't give them direct decision power. Closer scrutiny reveals, this partial ownership helps companies within group to improve their managerial and production processes. Through many supportive advices, companies received in numerous consulting sessions with their affiliates smooth the flow of information in the group. The core company easily gives demand information to its affiliated suppliers and information smoothly flow the group, based on a trust that has been created among them. by providing a forum for discussion, the keiretsu can help solve the coordination problem of achieving an efficient equilibrium. And by providing a mechanism for keeping track of any opportunistic behaviour by either subcontractors or procuring firms, the keiretsu provides a disincentive to such behaviour. Opportunism may be a lesser danger in Japan because of the explicit encouragement, and actual prevalence in the Japanese economy of what one might call moralized trading relationships of mutual goodwill. The stability of the relation is the key. Both sides recognize an obligation to try to maintain it (McMillan, 1994).

3. Methodology

The role of shareholding on trust performance components (capability, commitment, consistency, willingness to invest, willingness to examine assumptions, and willingness to risk) were investigated. Based on the influential components of trust performance, six hypotheses were defined. Samples were gathered using questionnaires. The questionnaire were involved two part; the first part was related to general information of responding companies and the second part was involved 29 questions regarding different factors of trust performance. Linear regression and ANOVA were used to analyze the data in order to investigate whether or not the collected data support the hypotheses.

The questionnaire was developed to evaluate trust between supplier and manufacturer based on two assumptions, prior acquiring the supplier's share and after acquiring supplier's share by manufacturer. Based on Hacker and Willard (2002), trust assessment is categorized into two main groups. However, these two main criteria are not measured directly. Rather than, these main criteria are broken down into six sub-criteria. They are explained in the below. For each value contrasting descriptions are considered to stimulate the respondent's thinking about trust. A seven point interval scale is used (from 1 to 7) in which "1" shows the description on the left depicts the relationship more properly and "7" indicates the description on the right side is paired with relationship. If neither shows a perfect match, the respondent can use other scale between two extremes to express what he/she think. The sub-criteria for "Trustworthiness" including:

- Capability

- Commitment
- Consistency
- Willingness to invest
- Willingness to examine assumptions
- Willingness to risk

Data were collected via survey from manufacturers of Middle East country. A survey methodology is chosen because it is the most efficient of collecting large number of respondents.

The survey was designed to be conducted in one stage. Respondents are requested to focus on a key-input supplier. When the manufacturer has more than one supply chain partner, the respondent is asked to consider the one that has the most impact on their business (Suh & Kwon, 2006). The survey was filled by respondents in interview like sessions. The respondents were requested to respond to the same questions in the stage one but by assumption that they have acquired a minority block (5 to 10%) of the supplier's shares. The respondents were told that this amount of shares practical are considered as non-voting shares and give no decision power to acquirer firm (Guth *et al.* 2007). In addition, respondents were asked to respond to question about the size of their company, their working sector and products.

3.1 Measures

Six items is used to calculated trust performance: capability (6 questions), commitment (4 questions), consistency (4 questions), willingness to invest (5 questions), willingness to examine assumptions (4 questions), willingness to risk (6 questions). Firstly, the total score for each item were entered in cumulative score column by adding the relative score for each question. Then the cumulative scores were divided by number of questions in that in that item to obtain an average for each component that matched our 1-7 scale, the resulting scores were entered in fraction column in Appendix B. Finally, by adding all the fraction score for all items and dividing it by the number of items (6 items) trust were calculated for each case. The measures for trust performance calculation were adapted from (Hacker & Willard, 2002).

3.2 Testing hypothesis

There are two aspects to consistency. The first aspect has to do with the match between words and deeds. In short, do they "walk the talk". The second aspect has to do with consistency over time, "Do they walk the talk every time". This is especially important in relationships in which the company may not have explicitly stated its intentions. In other words, suppliers may not have heard my talk. They have only my actions as evidence of my consistencies and will watch to see that my behaviour is steady over time.

H1. There is a positive relationship between the perceived level of consistency and trust

Commitment is a two-forked proposition. Commitment must be present in two different arenas. First, commitment toward each other as companies within the relationship must exist. Believing that another company has your best interests at heart and prepared to back you up in difficult times is one aspect of commitment. But also important in building trust is

the shared commitment to a cause or goal. Understanding that common objectives and common values sets exist deepen the relationship. Because you “know how the other company thinks” and their thinking is in line with yours, you can trust their decisions.

H2. There is a positive relationship between the perceived level of commitment and trust

The third component of trust deals with another’s ability to produce results or to meet our performance expectations. In other word “does the supplier have the skills to get the job done, does this supplier have the experience to perform well”. Choosing suppliers based on their consistency or commitment alone may set up for the disappointment if the capability of those suppliers cannot be trusted.

H3. There is a positive relationship between the perceived level of capability and trust

Building trust requires effort and focus. By clarifying with whom and to what degree you intend to build trust you can increase the speed and likelihood for strong and purposeful relationships. As our interdependence with suppliers increases, however, the optimal level for trust increases proportionally. When two or more supplier’s fates are linked, when doing a job requires more than just your own effort, there is a need to develop a trusting relationship in order to efficiently and effectively achieve your common goal.

H4. There is a positive relationship between the perceived level of willingness to invest and trust

Our assumptions about how the world operates form the foundation of our individual beliefs and values. And our beliefs and value are what allow us to make choices and prioritize our decisions. In any given situation, our experiences and our biases help us determine whether to move forward with trust or withdraw in distrust.

H5. There is a positive relationship between the perceived level of willingness to examine assumptions and trust

The most important component in our trust calculation is risk. It’s what we measure our investment against, and it’s what colors our assumptions and predisposition to trust. Without risk, no trust is gained.

H6. There is a positive relationship between the perceived level of willingness to risk and trust

3.3 Data analysis by using P-values

The p-value or calculated probability is the estimated probability of rejecting the null hypothesis (H_0) of this study question when that hypothesis is true. The term significance level is used to refer to a pre-chosen probability and the term “P value” is used to indicate a probability that you calculate after a given study. The alternative hypothesis (H_1) is the opposite of null hypothesis.

If your P-value is less than the chosen significance level then it is possible to reject the null hypothesis i.e. accept that our sample gives reasonable evidence to support the alternative hypothesis.

The choice of significance level at which you reject H_0 is arbitrary. Conventionally the 5% (less than 1 in 20 chance of being wrong), 1% and 0.1% ($P < 0.005$, 0.01 and 0.001) level have been used. These numbers can give a false sense of security. What we can do is try to

optimise all stage of our research to minimise source of uncertainty. When presenting P-values, it is helpful to use the asterisk rating system as well as quoting the P value:

P<0.05

P<0.01

P<0.001

Most authors refer to significant as P<0.05 and statistically significant at P<0.01 and statistically highly significant as P<0.001.

4. Results and discussion

Linear regression analyses were conducted for study. Table 1; summarize the results of the regression analysis.

Dependent variable	Adjusted R ²	Independent variable	F-value	P-value
Trust	0.076	Consistency	4.853	0.032
	0.1296	Commitment	7.99	0.0069
	0.140	Capability	8.62	0.0052
	-0.0189	Willingness to invest	0.1560	0.6947
	-0.0189	Willingness to examine assumptions	0.1297	0.7204
	0.0624	Willingness to risk	4.1274	0.0480

All of the coefficients estimates are highly significant at $p < 0.001$; statistically significant at $p < 0.01$; and significant at $p < 0.05$

Table 1. Summary of regression results

In the first regression analysis trust was the dependent variable, and independent variable was consistency. Consistency (H1, $p < 0.05$) affects the perception of the trust between the manufacturer and its supplier.

The second regression analysis was run with trust as the dependent variable and commitment as the independent variable. The result revealed that commitment (H2, $p < 0.01$) is a good predictor of perceived trust between supply chain partners.

In the third regression trust was dependent variable and capability was independent variable. Like commitment, capability (H3, $p < 0.01$) was also a good predictor of trust between partners.

The fourth regression was conducted in which trust was as dependent variable and willingness to invest was independent variable. The result revealed, willingness to invest (H4, $p > 0.05$) does not influence trust performance between manufacturer and supplier.

In the fifth regression we got the same result as the fourth regression. In this stage, trust was the dependent variable and willingness to examine assumption was the independent variable. The result disclosed that willingness to examine assumptions (H5, $p>0.05$) has no influence on the trust performance.

The last regression was carried out by the trust as the dependent variable and willingness to risk as the independent variable. The result showed that willingness to risk (H6, $p<0.05$) is good predictor of perceived trust between supply chain partners. However, willingness to risk does not seem to be very significant predictor of trust. Table 2 summarize the results of the analysis.

Hypotheses	Results
H1. There is a positive relationship between the perceived level of consistency and trust	Supported
H2. There is a positive relationship between the perceived level of commitment and trust	Supported
H3. There is a positive relationship between the perceived level of capability and trust	Supported
H4. There is a positive relationship between the perceived level of willingness to invest and trust	Not supported
H5. There is a positive relationship between the perceived level of willingness to examine assumptions and trust	Not supported
H6. There is a positive relationship between the perceived level of willingness to risk and trust	Supported

Table 2. Summary of hypothesis testing

Four out of the six hypotheses were fully supported. Based on this study, the perceived level of factors like commitment, capability, consistency and also willingness to risk towards supplier could improve as the result of shareholding by manufacturer. On the other hand analysis showed us the shareholding has no influence on the perceived level of willingness to examine assumptions and willingness to invest and also on the relative level of trust between manufacturer and its supplier.

The analysis was also conducted for comparison between the current perceived levels of trust by manufacturer, the perceived levels of needed trust that manufacturer thought should exist and the calculated trust. The calculated trust is a factor which obtained from adding the given rate to all the trust performance variable (consistency, commitment, capability, willingness to examine different assumptions, willingness to risk) and then dividing the cumulative rate by number of categories for each variable (29 items). The product is the calculated trust of the perceived level of trust acquired from shareholding by manufacturer. The simultaneous comparison of all three resulted trust (existing trust, calculated trust, needed trust) is demonstrated in Figure 3. The mean for each these factors also are presented in Table 3.

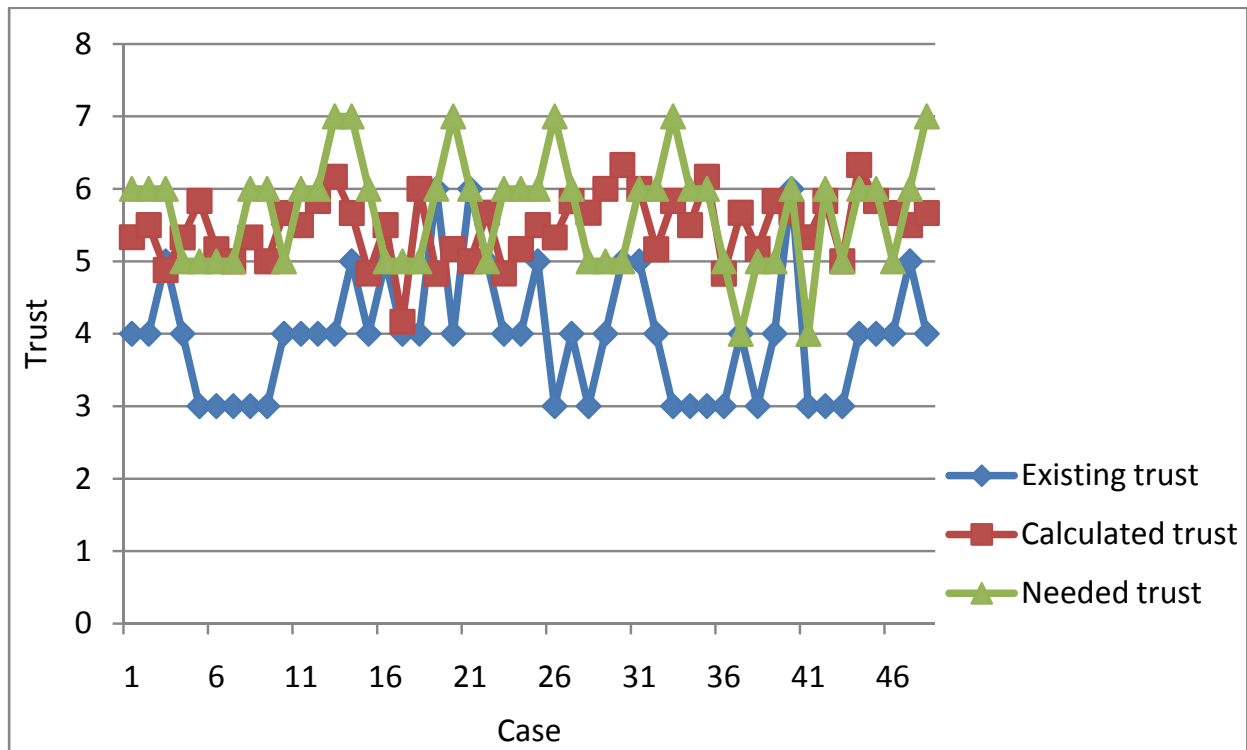


Fig. 3. Comparison of resulted levels of trust

	Existing trust	Calculated trust	Needed trust
Mean	3.979	5.480	6.222

Table 3. Mean amounts for results

Since there is a growing recognition that modern competition is between supply chains rather than between firms (Ketchen & Guinipero, 2004), it is of paramount importance for managers to consider ways in which to improve their firm’s inter-organizational supply chain relationships. Supply chain performance is based on a high level of trust among supply chain partners (Kwon & Suh, 2004). Trust simulates a relational bond between suppliers and customers which facilitates the establishment of productive collaborations. Therefore managers look for way in which they can increase the level of trust in their supply chain partners.

This study was based on this perception that manufacturer and supplier can improve their inter-organizational relationship by using shareholding concept. Studies (McMillan, 1994) have shown companies show their commitment to their counterparts by holding shares at a level that doesn’t give them direct decision power. Closer scrutiny reveals, this partial ownership helps companies within group to improve their managerial and production processes and trust performance between them. Through many supportive advices, companies received in numerous consulting sessions with their affiliates smooth the flow of information in the group and improve the perceived level of trust. The core company easily gives demand information to its affiliated suppliers and information smoothly flow the group, based on a trust that has been created among them. by providing a forum for discussion, the shareholding can help solve the coordination problem of achieving an

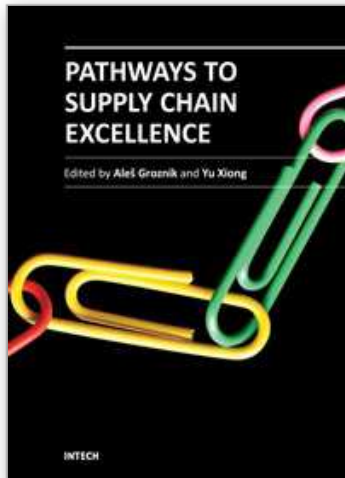
efficient equilibrium. Opportunism may be a lesser danger in these companies because of the explicit encouragement, and actual prevalence in the both firms environment of what one might call moralized trading relationships of mutual goodwill. The stability of the relation is the key. Both sides recognize an obligation to try to maintain it (McMillan, 1994).

5. Conclusion

This study shows that holding small block of key-player supplier by the manufacturer can significantly improve the perception that manufacturer has about its supplier's consistency, commitment, capability, willingness to risk. But on the other hand, this study shows shareholding has no influence on the perception of willingness to examine assumptions and also willingness to invest. One factor that might be influential in current case and shouldn't be undermined is the organizational culture of Iranian manager. As Yeganeh (Yeganeh & Su, 2007) said, masculinity and uncertainty avoidance are two main characteristics of Iran managerial culture and it make managers always have other alternatives in his mind and also make Iranian managers unwilling to make invest in their suppliers. These two factors might be in congruent with our results in this study. This study shows that shareholding might not to lead to higher level of trust resulted from higher level of perceived willingness to examine assumptions and also willingness to invest.

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Over the last decade, supply chain management has advanced from the warehouse and logistics to strategic management. Integrating theory and practices of supply chain management, this book incorporates hands-on literature on selected topics of Value Creation, Supply Chain Management Optimization and Mass-Customization. These topics represent key building blocks in management decisions and highlight the increasing importance of the supply chains supporting the global economy. The coverage focuses on how to build a competitive supply chain using viable management strategies, operational models, and information technology. It includes a core presentation on supply chain management, collaborative planning, advanced planning and budgeting system, risk management and new initiatives such as incorporating anthropometry into design of products.

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