Valiability of Buyer-Supplier Relationships:Empirical Evidence from Japanese Keiretsu Systems

Shimizu, Nobumasa
Kato, Yutaka
Sakaguchi, Junya
Kawai, Takaharu

(Citation)
神戸大学経営学研究科 Discussion paper,2005・03

(Issue Date)
2005-02

(Resource Type)
technical report

(Version)
Version of Record

(URL)
https://hdl.handle.net/20.500.14094/80500060

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
KOBE UNIVERSITY
ROKKO KOBE JAPAN

2005・3

Variability of Buyer-Supplier Relationships: Empirical Evidence from Japanese Keiretsu Systems

Junya Sakaguchi
Yutaka Kato
Nobumasa Shimizu
Takaharu Kawai

Discussion Paper Series

VARIABILITY OF BUYER-SUPPLIER RELATIONSHIPS: EMPIRICAL EVIDENCE FROM JAPANESE KEIRETSU SYSTEMS

Junya Sakaguchi
Associate Professor
Kanto-Gakuen University, Japan
Address: 200 Fujiaku-cho, Ota city, Gunma 373-8515, Japan
Tel: +81-276-32-7800
E-mail: jsakaguc@kantogakuen-u.ac.jp

Yutaka Kato
Professor
Kobe University, Japan
Address: 2-1 Rokkodai, Nada, Kobe city, Hyogo 657-8501, Japan
Tel: +81-78-803-6922
E-mail: ykato@kobe-u.ac.jp

Nobumasa Shimizu
Professor
Momoyama-Gakuin University, Japan

Takaharu Kawai
Associate Professor
Momoyama-Gakuin University, Japan
Address: 1-1 Manabino, Izumi city, Osaka 594-1198, Japan
Tel.: +81-725-54-3131
Fax: +81-725-54-3202
E-mail: tkawai@andrew.ac.jp

VARIABILITY OF BUYER-SUPPLIER RELATIONSHIPS: EMPIRICAL EVIDENCE FROM JAPANESE KEIRETSU SYSTEMS

Abstracts:

Japanese buyer-supplier relationships, or Keiretsu systems, are recognized as being a major factor contributing to the competitive advantage of Japanese companies. Academics have been interested in these close relationships and some Western companies have introduced these systems. Against the reputation, Japanese buyer-supplier relationships are facing various difficulties. In particular, recent economic stagnation has added an element of seriousness to the business environment of Japanese companies.

In this paper, recent changes in buyer-supplier relationships among Japanese companies are examined using a questionnaire survey. Questionnaires were mailed to 353 manufacturing companies with stocks listed in Section One of the Tokyo Stock Exchange. The results indicate that some Japanese companies are no longer willing to sustain long-term relationships. Additionally, it was indicated that receiving benefits from inter-organizational information-sharing activities affects buyers' incentives to sustain long-term relationships with their suppliers.

Key Words:

Buyer-Supplier Relationships, Keiretsu systems, Supply Chain Management, Japanese Companies, Questionnaire Survey

VARIABILITY OF BUYER-SUPPLIER RELATIONSHIPS: EMPIRICAL EVIDENCE FROM JAPANESE KEIRETSU SYSTEMS

1. INTRODUCTION

Japanese buyer-supplier relationships, or Keiretsu systems, are considered to be a major factor contributing to the prosperity of Japanese companies (Roos et al., 1990; Clark=Fujimoto, 1991). Keiretsu systems are designed to establish close relationships between buyers and suppliers. In these systems, buyers collaborate with suppliers at the R&D and production stages, collect supplier information, and manage supplier relationships. Through these practices, Japanese companies, like Toyota and Nissan, have achieved outcomes such as significant cost reduction and/or outstanding quality improvement. As a success of Japanese companies and the practices of Japanese buyer-supplier relationships have become widespread, some Western companies have attempted to introduce close buyer-supplier relationships (Womack=Jones, 1996).

Close buyer-supplier relationships and/or Keiretsu systems have been discussed in the field of management accounting in recent times. In management accounting literature, the application of management control concepts to interfirm relationships (Otley, 1994; van der Meer-Kooistra=Vosselman, 2000) and inter-organizational cost management practices (Cooper=Yoshikawa, 1994) are regarded as an important issue.

In order to examine the application of management control concepts to interfirm relationships, the features of close buyer-supplier relationships and/or Keiretsu systems have been considered. Gietzmann (1996) described that the relationships between Japanese buyers and their first-tier European suppliers show some features of the close

relationships. European suppliers make long-term contracts with their buyers, provide cost data to their buyers, and visit to the production facilities (Gietzmann, 1996). These activities enable European suppliers to be flexible according to the buyers' demand, and to bring out relational specific investment (Gietzmann, 1996). In these settings, contracts are not complete and price is not enough to monitor. Thus, in order to monitor the qualities of their suppliers wider, close relationships with their suppliers should be maintained. Additionally, the inter-organizational context and the management control patterns of interfirm relationships are correlative (Cooper=Slagmulder, 2004; Langfield-Smith=Smith, 2003; van der Meer-Kooistra=Vosselman, 2000). Inter-organizational context according to the level of design dependence, predominant specification responsibility, and predominant design responsibility affect the expertness of cost management techniques (Cooper=Slagmulder, 2004) and contingency factor such as characteristics of the transaction, the transaction environment and the transaction parties fix the management control patterns of interfirm relationships (van der Meer-Kooistra=Vosselman, 2000).

On the other hand, inter-organizational cost management practices have been observed. In recent times, some companies are reducing the cost that is affected by the entire supply chain as well as the manufacturing cost of intra-organization (Shank=Govindarajan, 1993; Carr=Ittner, 1992; Dekker, 2003). In order to identify the inter-organizational cost, considering purchasing price alone is insufficient. The concept of total cost of ownership indicates that non-price factors related to purchasing items, such as quality, delivery, and other selection criteria, are essential to achieve cost reduction for long-term (Carr=Ittner, 1992). Moreover, analyzing entire supply chain (e.g. benchmark analysis, a strategic what-if analysis, and cost monitoring) is useful to

optimally manage supplier activities and reduce logistics cost (Dekker, 2003). For reducing inter-organizational cost, Japanese automobile supply chain developed inter-organizational cost management techniques, such as target costing systems, quality-price-functionality trade-off, and minimum cost investigation (Cooper=Yoshikawa, 1994), and Nissan and its U.K. suppliers implemented collaborative cost reduction activities at the R&D stage (Carr=Ng, 1995). Arrangement for the cost reduction activities, buyers and suppliers should share each other's information (Cooper=Slagmulder, 1999). U.K. manufacturing companies tried to achieve sharing of information, including cost information, through open book accounting (Seal et al, 1999) and Sainsbury facilitated to share cost information with its suppliers (Dekker, 2003). The type of information shared between buyers and suppliers might differ as to the conditions of their relationships (Tomkins, 2001).

Although the concept of close buyer-supplier relationships have become widespread and examined, some Japanese buyers quest for new suppliers in recent years (Kato, 2000; Nobeoka, 1998). In other words, a certain portion of the suppliers has been switched. Implementations of global sourcing and electronic purchasing (Kokuryo, 1995) in Japanese companies accelerate this tendency. This trend indicates that several features of Japanese buyer-supplier relationships and/or Keiretsu systems may converse to the features of arm's-length buyer-supplier relationships. However, little is known about the extent to which Japanese companies change their buyer-supplier relationships[1].

[1] Although Helper=Sako (1995) already pointed out the changes in Japanese buyer- supplier relationships as well as those in U.S. buyer-supplier ones, they mainly examined the type of contracts. For instance, they stated that Japanese firms tried to change their buyer-supplier relationships from a partnership mode to an arm's-length mode; however, they did not explain the manner in which Japanese companies changed their mode and to what extent they abandoned their traditional management practices.

In this paper, the modifications in the Keiretsu systems are examined mainly among Japanese companies, using questionnaire survey data. Section 2 presents the history and some characteristics of Keiretsu systems through a comprehensive literature survey. Section 3 presents sample questions from the questionnaire survey that we conducted during 2002. Section 4 discusses survey results. Section 5 concludes with directions for future research in inter-organizational management accounting.

2. LITERATURE REVIEW: KEIRETSU SYSTEM

Academics have examined the features of Japanese buyer-supplier relationships and/or Keiretsu systems. From literature survey, Nishiguchi (1994) and Fujimoto (1997) denoted that the features of buyer-supplier relationships in Japanese companies take its origin from early 20th century and have been appeared gradually. Through formal/informal interviews, Asanuma (1985a, 1985b, 1989) explained that Japanese suppliers have competed with other suppliers to get contracts of more complicated components because of the high rents. This mechanism has confirmed Japanese close buyer-supplier relationships. Based on the survey data, the differences between Japanese and U.S. supply chain practices (Cusumano=Takeishi, 1991; Helper, 1991), Japanese and U.K. supply chain management practices (Sako, 1992) were investigated. They indicated that high level of co operations, information sharing and trust are the features of Japanese buyer-supplier relationships and concluded that these relationships are closer than U.S. or U.K. relationships.

In this section, we discuss the history, information sharing and long-term contracts

which are the part of Japanese buyer-supplier relationships' characteristics[2], and recent change in Japanese buyer-supplier relationships based on relevant literature.

Configuration of Keiretsu system

Close buyer-supplier relationships emerged during the early 20th century in Japan (Nishiguchi, 1994). Excessive demand for parts of goods after World War I urged Japanese companies to utilize suppliers following the temporary increase in productions (Nishiguchi, 1994). Thereafter, suppliers were frequently utilized due to the increased demands for munitions, technical innovations in machine tools, and the prevalence of the transportation systems and communication networks (Nishiguchi, 1994). However, since suppliers were neither organized nor managed by buyers during this period, these relationships were indeed unstable (Nishiguchi, 1994).

After World War II, Japanese suppliers were rapidly organized by buyers and increased in number (Nishiguchi, 1994). The highly organized supplier groups were called Keiretsu systems. The reasons for the buyers having organized their suppliers were that the production capacities of Japanese companies were reduced due to the damage to infrastructure that occurred during the war (Wada, 1984). Additionally, the buyers could not meet the huge demand for various goods at the beginning of the 1950s themselves, and the wages of buyers' employees had been increasing beyond those of

[2] Academics pointed out many other characteristics of Japanese buyer-supplier relationships from plural viewpoint. For example, they indicated risk sharing between buyers and suppliers (Asanuma=Kikutani, 1992), multi-sourcing (Cooper=Slagmulder, 1999; Kato, 1993a), relational specific skill (Asanuma, 1989) and etc. For further discussion, see Asanuma (1985a, 1985b, 1989), Asanuma=Kikutani (1992), Cooper=Slagmulder (1999), Cusumano=Takeishi (1991), Dyer=Ouchi(1993), Helper (1991), Helper=Sako (1995), Kato (1993a, 1993b), Nishiguchi (1994) and Sako (1992, 1996).

the suppliers (Nishiguchi, 1994). By organizing the suppliers, buyers had transferred some portion of their production machinery to suppliers and offered training programs in production technologies (Wada, 1984). At the same time, supplier associations (Kyoryoku- Kai) were developed for the purpose of facilitating interactions between buyers and suppliers as well as among suppliers (Sako, 1996). For instance, Toyota sophisticated its supplier association in the automobile industry (Sako, 1996), and Matsushita increased the number of associate suppliers to five times those in the electric industry during the 1950s (Nishiguchi, 1994).

Organizing the suppliers enabled Japanese companies to generate close relationships between buyers and suppliers and to manage suppliers within the Keiretsu systems (Wada, 1984). Since 1953, Toyota has executed supplier assessments (Keiretsu shindan), which check seven categories (i.e., business, operations management, personnel management, sales and procurement, finance, accounting, and new product development) (Wada, 1984). Supplier assessments have enabled buyers to address suppliers' problems and offer technical advice to suppliers. Through supplier assessments and investigation of suppliers' production management systems to provide technical advice, the buyers had come to share various types of information with suppliers (Sako, 1996). Such close relationships and interactions had encouraged information sharing and prolonged contracts between buyers and suppliers, as described later.

Information sharing and long-term contracts

Information sharing is one of the major features of Japanese buyer-supplier

relationships (Cusumano=Takeishi, 1991; Dyer=Ouchi, 1993; Helper, 1991; Sako, 1992, 1996). Japanese companies interact and share information with their suppliers on several occasions during the R&D and production stages (Cooper=Slagmulder, 1999; Kato, 1993a). In the Keiretsu systems, buyers assist their suppliers by providing capital investment and technical advice and consulting (Sako, 1992, 1996). For instance, they send their engineers to their suppliers, send their employees to their suppliers' meetings, and so on (Cooper=Slagmulder, 1999). These activities might contribute to the continuous growth of suppliers who belong to Keiretsu systems. On the other hand, buyers demand that suppliers contribute to their competitive advantages (Sako, 1992, 1996). For instance, they request suppliers' engineers to be stationed at their plants, participate in their meetings, suggest ideas to improve their production techniques, and so on (Cooper=Slagmulder, 1999). Additionally, they compel their suppliers to disclose various kinds of information (Kato, 1993b). Japanese companies collate financial information, including process cost and product cost, and non-financial information, including quality and delivery information, from their suppliers (Cusumano=Takeishi, 1991; Kato, 1993b). Ultimately, these interactions, namely information-sharing activities might contribute to reducing production cost and improving the quality of the buyers' products because buyers lie on the downstream of the supply chain (Aoki, 1988). That is to say, the components delivered by suppliers embedded in the buyers' product, therefore the price and the quality of the components affect directly to the price or reliance of the buyers' products.

This characteristic has resulted in barriers that prevent buyers from entering into a contract with suppliers outside the Keiretsu system (Kato, 1993a). In these close relationships, although intensive interactions and information sharing might contribute

to the financial performance of both buyers and suppliers, they might need a great deal of patience since they are mutually rewarding, such as sending engineers and employees, and the effects of their cooperation take a lot of time to achieve. Therefore the buyers' motivation to contracts with new suppliers or one-shot transactions might be low. As a result, the tendency to enter into long-term contracts is observed in Japanese buyer-supplier relationships and/or Keiretsu systems (Kato, 1993a). On the other hand, suppliers might have incentives to contract with buyers for long-term since suppliers merely provide components to the market. As suppliers' components only realize their function in the buyers' products, they would depend heavily on their buyers (Asanuma, 1985a; Kato, 1993a). In the Keiretsu systems, the amount of trade would increase as the buyers' trust increases. Therefore suppliers want to win the trust of buyers through information exchange and mutual technical suggestions during the period of the contract (Kato, 1993a). Additionally, the suppliers' sales will be strongly related to their buyers' margins since their components embedded in the buyers' products (Kato, 1993a). In these situations, suppliers' loyalties to their buyers are fierce and buyers can manage their suppliers smoothly (Kato, 1993a).

Conversion of the Japanese buyer-supplier system

Although several features are described in the description of Keiretsu systems in the 80s or early 90s, Japanese buyer-supplier relationships have gradually changed (Kato, 2000; Nobeoka, 1998). One-shot contracts and price based transactions which are the features of arm's-length relationships have appeared to Japanese buyer-supplier relationships in this decade (Kato, 2000). The reasons for the transitions are increase in

the number of non-Japanese suppliers and severe economic stagnation.

Firstly, non-Japanese suppliers have recently improved their R&D and production capabilities. For example, U.S. super-suppliers provide high-functionality components and Chinese, Korean, and Taiwanese suppliers provide high-quality and low-cost parts to Japanese buyers. The technical developments achieved by non-Japanese suppliers suggest that Japanese buyers should not persist in continuing contracts with Japanese suppliers who belong to Keiretsu systems. In other word, Japanese companies can select suppliers only by price criteria if the components meet their requirements. The innovation of information technology stimulates the global sourcing. This innovation and the price based transaction that are appeared by global sourcing also offer opportunities for Japanese buyers to enter into contracts with new suppliers. This transition of buyer-supplier relationships may reduce buyers' direct material costs to a certain extent.

Additionally, since the latter part of the 1990s, Japanese companies have faced severe recession. The average stock price in Section One of the Tokyo Stock Exchange declined by approximately 58% during the 1990s (Statistics Bureau Japan, 2004). The average stock price was about 24 000 yen in 1990, approximately 20 000 yen in 1995, and 14 000 yen in January 2000 (Statistics Bureau Japan, 2004). This economic condition adds an element of seriousness to the business environment of Japanese companies. Particularly, recent Japanese companies have difficulties in maintaining Keiretsu systems, such as sending buyers' engineers and/or employees to their suppliers, for financial reasons. Sending buyers' engineers and/or employees usually add to the buyers' own labor cost, and this supply chain practice tends to impose a heavy burden on the buyers, in the current recession.

Despite some discussions on changing buyer-supplier relationships in Japanese companies, there is little evidence about the manner in and the extent to which Japanese companies change their close buyer-supplier relationships and/or Keiretsu systems. We have no knowledge about how high is the rate of Japanese companies that trying to change their close buyer-supplier relationships. Additionally, we have little evidence about the kind of information Japanese companies collect for cooperating with suppliers these days. In order to present a sound discussion, it is necessary to recognize actual Japanese buyer-supplier systems that are currently prevalent. We also examine the extent to which the buyers' performance affects the characteristics of Japanese buyer-supplier systems.

In this paper, we discuss two research questions pertaining to the conversion of Keiretsu systems. These research questions are based on the characteristics of the Keiretsu systems presented previously.

RQ1: Do the characteristics of Keiretsu systems (i.e., information sharing, activities that facilitate information-sharing, and long-term contracts) still exist in Japan?

RQ2: Do the performances of buyer and supplier activities affect the buyers' expectation of long-term contracts?

3. SAMPLES

We use questionnaire survey data to examine the current status of information sharing and long-term contracts in Keiretsu systems. For designing questions and scales, we referred Cooper=Slagmulder (1999), Cusumano=Takeishi (1991), Helper (1991), Kato

(1993a) and Sako (1992). Questionnaires were mailed to 353 Japanese manufacturers by The Management Accounting Research Group at Kobe University during 2002. The 353 companies are listed in Section One of the Tokyo Stock Exchange and also belong to the machinery, electrical/electronics, transportation equipment, or precision equipment industries. These industries were selected because they had explicitly sustained Keiretsu systems. Questionnaires were sent to the Procurement Division Manager of each company. Finally, a total of 107 companies replied to the questionnaire, representing a response rate of 30.3%[3].

4. RESULTS

In this section, we present recent descriptive statistics about the information sharing and the long-term contracts of Japanese buyer-supplier relationships reviewed in Section 2 and discuss whether Japanese buyer-supplier relationships still have these characteristics.

Information sharing and buyers' willingness to contract for long-term

-----Insert Figure 1 about here-----

As mentioned above, previous research suggests that information sharing is one of the major features of Japanese buyer-supplier relationships (Cusumano=Takeishi, 1991; Dyer=Ouchi, 1993; Helper, 1991; Sako, 1992, 1996). Figure 1 shows the extent to which buyers want to share information about each other. 12% of the buyers do not

[3] Survey responses from Machinery are 39 (36.4%), electrical/electronics are 35 (32.7%), transportation equipment are 28 (26.2%), or precision equipment industries are 5 (4.7%).

want information sharing, 66% of the buyers want to definite information sharing and 22% of the buyers are willing to share information actively[4]. In brief, a small proportion of companies is willing to share more information. This result is contrary to that documented in literature. Many Japanese buyers think their information is important resources for their competitive advantage and reluctant to disclose their information to their suppliers.

-----Insert Table 1 about here-----

Next, we examine the type of information that Japanese buyers gather. Table 1 reports the information gathered about suppliers, including (a) Asset, Liability and Capital, (b) Revenue and Expense, (c) Cash Flow, (d) Cost, (e) Capacity Utilized, (f) Quality Control, and (g) Inventory Level in Japanese manufacturing companies. The scores in the Table 1 vary widely. (a) Asset, Liability and Capital, and (f) Quality Control shows high average score and (d) Cost and (g) Inventory Level indicates the low score[5]. The evidences of Cusumano=Takeishi (1991) provides similar results. The importance of information for selecting suppliers and the feasibility of gathering information might be another reason for this result. (a) Asset, Liability and Capital information and (f) Quality Control information are requisite for entering into contracts with suppliers because buyers must guarantee their quality and provide their products to the market surely. On

[4] The results of the transportation industry which are typically recognized to have close relationships are following: 7% of the buyers do not want information sharing, 75% want to definite information sharing and 18% are willing to share information actively. This has a parallel trend to whole data.
[5] The results of Transportation industry are (a) Asset, Liability and Capital (3.79), (b) Revenue and Expense (4.11), (c) Cash Flow (3.68), (d) Cost (3.14), (e) Capacity Utilized (4.07), (f) Quality Control (4.32), and (g) Inventory Level (2.96). The transportation industry also has relatively low score for (d) Cost and (g) Inventory Level.

the other hand, (d) Cost and (g) Inventory Level information are private information for suppliers and have nothing to do with their contract. As to feasibility of gathering information, (a) Asset, Liability and Capital is the information disclosed by financial statement and (f) Quality Control information typifies the defective rate disclosed to the buyers by the suppliers, ISO9000 certification, and quality-related information compiled by buyers. On the other hand, buyers find it difficult to gather (d) Cost and (g) Inventory Level information from their suppliers because these types of information are confidential for suppliers and important to them for price negotiation and sustaining a competitive advantage (Cooper=Slugmulder, 1999; Dekker, 2003; Seal et al., 1999). Porter (1985) argues that bargaining power is one of the critical factors in determining the ability to compete. Thus, buyers cannot obtain such kind of information until the suppliers consider them to be trustworthy (Seal et al., 1999). That is, gathering important, innovative information depends on the stability of the buyers' relationship with their suppliers. The results presented in Table 1 imply that only a small proportion of Japanese companies can get important information about their suppliers. In other words, although Japanese manufacturing companies easily obtain information that does not require a stable relationship, it is difficult for them to obtain information that needs a high level of stability.

-----Insert Table 2 about here-----

Additionally, we investigate the typical information-sharing activities executed by Japanese companies. Table 2-A presents descriptive statistics of the buyers' activities that encourage information sharing at the R&D stage. It is observed that all types of

activities show low scores, particularly, for sending engineers to suppliers and attending suppliers' R&D meetings[6]. Table 2-B shows the descriptive statistics of the suppliers' activities that facilitate information sharing at the R&D stage and also indicates low average scores for sending engineers to their buyers and attending buyers' R&D meetings[7]. The reason of the low scores in information-sharing activities is that companies should execute these activities without their correspondents' pay and sending their capable employees to their correspondents results in the absence of their employees during their stay at correspondents' company. For example, Kato (1993a) suggests that sending the suppliers' engineers to buyers weakened the suppliers' new product development capabilities. Thus, these two activities increase the cost involved by a great deal (Sako, 1996) for both buyers and suppliers. Particularly, stationing their engineers at their correspondents' factory at the R&D stage results in time constraints in achieving technical improvements, and costs Japanese companies a great deal. This may result in low average scores for sending engineers to buyers or suppliers. Situations in which there is a likelihood of sending employees will occur only if both buyers and suppliers perceive their trading partner as being completely beneficial and trustworthy.

-----Insert Figure 2 about here-----

As described in section 2, Japanese buyer-supplier relationships prolonged because the effects of information-sharing activities take a lot of time to achieve. Figure 2 illustrates how Japanese companies expect a long-term contract, 25% of the buyers

[6] The results of transportation industries are following: (a) To Attend Suppliers' Meeting (2.82) (b) To Send Engineers (2.25) (c) To Instruct Cost Saving Procedure (3.57).
[7] The results of transportation industries are following: (a) To Attend Buyers' Meeting (3.50) (b) To Send Engineers (2.75) (c) To Instruct Cost Saving Procedure (3.93).

intend to search new suppliers, 62% of the buyers waver in continuing long-term relationships and 13% of the buyers are willing to sustain long-term relationships[8]. This result also shows that the number of companies that genuinely want to sustain long-term relationships is low. In other words, some companies give up continuing long-term relationships with suppliers and enter into one-shot contracts.

Based on our evidence, we have observed a tendency for the buyer-supplier relationships in Japan to switch to the arm's-length type in recent times. Japanese buyer-supplier relationships have formerly been characterized as highly information-shared and highly committed, i.e., voice relationships (Helper, 1991). Helper (1991) advocates that the transition from exit relationships to voice relationships is inevitable for competing in the global market. To build voice relationships, the buyer and supplier at first make a formal as well as informal commitment to long-term relationships (Helper, 1991). Once the buyer and supplier are highly committed, they begin exchanging information to solve problems and work together to improve their products (Helper, 1991). Nevertheless, our results show that there exists a certain number of buyers who share little information about suppliers and/or are not willing to form long-term relationships. In addition, Japanese buyers do not attach much importance to gathering information about their suppliers and not to being able to collect their suppliers' cost information, which requires their suppliers' loyalty. Helper=Sako (1995) also noted that transition from voice relationships to exit relationships will occur. In this way, some Japanese companies might shift to exit relationships because the commitment involved in long-term relationships is decreasing.

[8] The results of Transportation industry are following: 25% of the buyers intend to search new suppliers, 57% of the buyers waver in continuing long-term relationships and 18% of the buyers are willing to sustain long-term relationships. This also has a similar tendency to whole data.

One potential explanation for this transition is that information sharing and activities that facilitate information exchange are developed only if they have the merit of improving the involved party's profit growth, quality, and/or flexibility, etc. That is, there is little incentive to sustain long-term buyer-supplier relationships where the party's effort to share information does not have any bearing on their performance.

From this point, we infer that the commitment to sustain long-term relationships tends to be affected by the performance of their information exchanging activities. In the following section, we examine this issue in detail.

Performance of information-sharing activities and long-term relationships

To test the relationships between the performance of activities that encourage information sharing and buyers' expectations when maintaining long-term relationships, we divide long-term expectations into three groups and compare the correlation between the effort level required for the activities that facilitate information sharing and the degree of performance that comes from buyer-supplier relationships.

-----Insert Figure 3 about here-----

Figure 3 illustrates the conceptual framework of the buyer-supplier relationships and the economic consequences of their information-sharing activities. Samples are divided into three groups based on their response to the question about long-term relationships discussed above (i.e., Figure 2). We define these groups as stable relationships, opportunistic relationships, and volatile relationships. Stable relationships represent companies that prefer long-term relationships with suppliers (n = 14). Opportunistic

relationships represent companies that waver in their long-term relationships with suppliers (n = 64). Volatile relationships represents the companies that prefer one-shot contracts (n = 27). In our research setting, if the most number of activities that show correlations with buyers' performance are observed in the stable relations among these three groups, we assume that buyers' performance affects their motivation to sustain long-term relationships with their suppliers. Otherwise, we can presume that buyers might not perceive the association between their efforts to facilitate information sharing and their performances and/or might reconsider long-term relationships with their suppliers for other reasons. As discussed above, we surmise that Japanese buyers expect long-term relationships with their suppliers in the case where they are remunerated for the effort they put into information-sharing activities. In other word, we predict that, among the three groups, the stable relations group shows the maximum activities that have a significant correlation with buyers' performance.

-----Insert Table 3 about here-----

Table 3 presents the correlation between the level of the buyers' information-sharing activities and the buyers' performance. With regard to stable relationships, several activities are significantly correlated with the buyers' performance (i.e., 10 relations). The buyers' attendance at the suppliers' meeting relates to revenue ($r = 0.611$, $p = 0.020$), cost ($r = 0.585$, $p = 0.028$), quality ($r = 0.659$, $p = 0.010$), and flexibility ($r = 0.634$, $p = 0.015$; two-tail). Sending buyers' engineers to their suppliers correlates with revenue ($r=0.540$, $p=0.046$), cost ($r = 0.600$, $p = 0.023$), and flexibility ($r = 0.651$, $p = 0.012$; two-tail). Buyers' proposing ideas to their suppliers is related to revenue ($r = 0.696$, $p =$

0.006), cost (r = 0.611, p = 0.020), and flexibility (r = 0.653, p = 0.011; two-tail). With regard to opportunistic relationships, a few activities are significantly correlated with the buyers' performance (i.e., 3 relations). The buyers' attendance at the suppliers' meeting relates to quality (r=0.283, p=0.024), and flexibility (r=0.286, p=0.022; two-tail). Sending buyers' engineers to their suppliers correlates with flexibility (r=0.282, p=0.024; two-tail). In volatile relationships, no relations between buyers' information-sharing efforts and their performances are significantly correlated. These results suggest that in keeping with our presumption there exist buyers who prefer stable relations with their suppliers enjoy privileges due to information-sharing activities. This result also shows that several activities of suppliers are related to cost and flexibility. These activities not only reduce production and R&D costs directly but also ease production coordination with suppliers. In brief, buyers with stable relationships use information-sharing activities effectively.

-----Insert Table 4 about here-----

Table 4 reports the association between the level of the suppliers' information-sharing activities and the performance on buyers. In stable relationships, the suppliers' attendance at buyers' meetings relates to the buyers' revenue (r = 0.549, p = 0.042), sending the suppliers' engineers to the buyers is correlated with cost (r = 0.560, p = 0.037) and flexibility (r = 0.634, p = 0.015), and suppliers' proposing ideas to their buyers relates to cost (r=0.647, p=0.012) and quality (r=0.613, p=0.020; two-tail).In opportunistic relationships, the suppliers' attendance at buyers' meetings is associated with revenue (r = 0.318, p = 0.011), cost (r = 0.365, p = 0.003), quality (r = 0.368, p =

0.003), and flexibility (r = 0.453, p = 0.000; two-tail). Sending suppliers' engineers to buyers correlates significantly with revenue (r = 0.275, p = 0.028), cost (r = 0.265, p = 0.034), and flexibility (r = 0.339, p = 0.006; two-tail). Suppliers' proposing ideas to their buyers relates to revenue (r=0.289, p=0.021), quality (r=0.299, p=0.016), and flexibility (r=0.277, p=0.027; two-tail).Merely sending the suppliers' engineers to buyers relates to flexibility in volatile relationships (r=0.522, p=0.005, two-tail). The results presented in Table 4 show that, among the three types of relationships, buyers who expect opportunistic relations have received the most benefit from their suppliers' information-sharing activity; additionally, stable relations have some merit for them. Buyers can also reduce costs and enhance flexibility through information-sharing activities that are executed by suppliers. In this case, the suppliers' value engineering, value analysis, and/or setup time reductions contribute to increasing their buyers' production efficiency.

Judging from mutual information activities, information activity relates the most to the buyers' activity in stable relationships. That is, these activities favor stable relationships over opportunistic and volatile relations. Based on this, receiving benefit from information-sharing activities might give buyers the incentive to sustain long-term relationships and affirm their commitment to cooperation. On the other side, volatile relationships group seldom show relationships between information-sharing activities and their performance. For this, the fact that only a few benefits are received from information-sharing activities may contribute to a low level of incentive and commitment to long-term relationships. The level of benefit and commitment to sustain long-term for the opportunistic relationships group might position between the level for stable relationships group and for volatile relationships group.

5. CONCLUSIONS AND FUTURE RESEARCH ISSUES

Close Japanese buyer-supplier relationships or Keiretsu systems have been receiving increasing attention in the field of management accounting. Particularly, many researchers argue the manner in which Western arm's-length buyer-supplier relationships can be transformed into Japanese type close buyer-supplier relationships. In this issue, the buyers' information gathering about suppliers, information-sharing activities, and long-term relationships are characterized as keys to achieve this transformation (Carr=Ng, 1995; Mouritsen et al., 2001; Seal et al., 1999).

However, our research provides empirical evidence that buyer-supplier relationships in Japan are also currently changing. Our descriptive statistics show that some Japanese companies do not expect long-term relationships with suppliers, cost and inventory information that relates to the stability of their relationships is not extensively corrected, and costly activities like sending buyers' engineers to their suppliers and/or inviting suppliers' engineers are not common. This suggests that some Japanese companies have reconsidered or abandoned their close relationships with suppliers and have adopted the one-shot transactions. This change in buyer-supplier relationships in Japan implies that close buyer-supplier relationships are being transformed into arm's-length relationships.

This paper also shows that the extent of buyers' willingness to sustain long-term contracts with suppliers relies on the strengthen of relationships between information-sharing activities and buyers' performance. That is, survey results link efforts toward information-sharing activities with the buyers' performance in the case of companies that prefer long-term relationships with suppliers; however, the information activities conducted by companies that prefer one-shot contracts are not clearly related to buyers' performance. This empirical evidence implies that the conversion of

buyer-supplier relationships in Japan occurs due to the merit derived from their cooperative activities with the suppliers. Some Japanese firms advantageously manage their activities with suppliers and perceive the benefits from close buyer-supplier relationships and/or Keiretsu systems. These companies will continue to sustain close relationships with suppliers. However, other Japanese companies might not perceive the benefits from close buyer-supplier relationships and/or Keiretsu systems following the long depression. These companies tend to abandon Keiretsu systems. If buyers do not recognize the effect of information-sharing activities, they no longer have much incentive to sustain long-term relationships and will gradually transform their relationships with suppliers from close ones to arm's-length ones. Although a large amount of literature suggests that long-term relationships is one of the characteristics of the Japanese business style, buyer-supplier relationships may depend on the extent of recognition of the benefits from close relationships since keeping close relationships costs a large amount. Therefore, in cases when there is little merit derived from cooperating with suppliers, it is economically rational for Japanese buyers to abandon close relationships with suppliers.

In conclusion, four future research issues appear in inter-organizational management accounting:

First, the type of information and information-sharing activity should be examined carefully. This paper examines seven types of information. However, the role of information to sustain long-term relationships is an open question and may vary across different types of information. Tomkins (2001) summarized information that is exchanged by buyers and suppliers into two types (i.e., information for enhancing trust and information for managing buyer-supplier relationships). Although he explained that

information needs will change with to the stability of buyer-supplier relationships, no empirical evidence is available to support this claim. A precise investigation of these types of information is required. With regard to information-sharing activities, previous researches have focused mainly on the meeting of buyers and suppliers (Carr=Ng, 1995; Seal et al., 1999). However, meetings are not the only way to share information for buyers and there is a possibility to get information through other patterns of interactions between buyers and suppliers. Although additional information-sharing activities such as sending employees to buyers or suppliers and proposing ideas to buyers or suppliers have been examined in this paper, other kinds of information-sharing activities have to be explored.

Second, the management of information-sharing activities in inter-organizational settings is an important topic. Our empirical evidence indicates that the stability of relationships is affected by the performance of information-sharing activities. In order to manage the performance of these activities, researchers must examine the factors that strengthen of relationships between information-sharing activities and buyers' performance. For example, the effect of the properties of components, production strategy, and corporate culture should be investigated.

Third, long-term relationships are not Japan-specific practices but may depend on the recognition of the benefits from collaborations with suppliers. Although this research focuses on Japanese firms, long-term relationships will be observed in other countries. For instance, recent cases of cooperative activities by Japanese buyers and European suppliers (Carr=Ng, 1995) and the contracts between European buyers and Japanese suppliers are interesting.

Finally, the economical efficiency of the governance structure is an issue opens to

debate. The literature on buyer-supplier relationships often compares Japanese firms with European or American firms to emphasize the characteristics of Japanese buyer-supplier relationships (Cusumano=Takeishi, 1991; Dyer=Ouchi, 1993; Helper, 1991; Sako, 1992). Additionally, previous literature often suggests that close buyer-supplier relationships are better than arm's-length buyer-supplier relationships (Dyer=Ouchi, 1993). These trends are also observed in the field of management accounting (Cooper, 1996; Cooper=Slagmulder, 1999). However, Gietzmann=Larsen (1998) indicate that close buyer-supplier relationships are not always economically efficient. Our results also provide evidence for the conversion of Japanese buyer-supplier relationships and the rationality of this conversion. The economical efficiency of the governance structure depends on its inter-organizational settings. In other words, comparing Japanese companies with European ones or considering the Keiretsu systems as the best practice is not sufficient for discussing this issue; hence a deep understanding of the buyers' intentions of constructing buyer-supplier relationships is critical. Future research must carefully investigate the condition of the buyer-supplier relationships and the buyers' view of their relationships with suppliers. It is also necessary to examine the effect of the selection and the conversion of the governance structure of buyer-supplier relationships.

Previous management accounting studies have tended to overestimate the effect of the close buyer-supplier relationships. Additionally, the incentive to sustain close buyer-supplier relationships has not been considered adequately. The main positive contribution of this research has been to provide empirical evidence indicating that the benefit from buyer-supplier relationships affects the governance structure of them. The governance structure of buyer-supplier relationships is not fixed but change dynamically.

Some Japanese companies have abandoned close buyer-supplier relationships and have attempted to adopt arm's-length relationships because of the depression. The transit of the governance structure of buyer-supplier relationships requires to transform inter-organizational management control systems. Therefore, the buyers' benefit from buyer-supplier relationships is one of the keys to understanding inter-organizational management control.

[2005.2.7　693]

REFERENCES

Aoki, M. (1988), *Information, Incentives and Bargaining in the Japanese Economy*, New York, Cambridge University Press.

Asanuma, B. (1985a), The Organization of Parts Purchases in the Japanese Automotive Industry, *Japanese Economic Studies*, Summer, pp.32-53.

Asanuma, B. (1985b), The Contractual Framework for Parts Supply in the Japanese Automotive Industry, *Japanese Economic Studies*, Summer, pp.54-78.

Asanuma, B. (1989), Manufacture-Supplier Relationships in Japan and the Concept of Relation-Specific Skill, *Journal of the Japanese and International Economics*, Vol.3, No.1, pp.1-30.

Asanuma, B. and T. Kikutani (1992), Risk Absorption in Japanese Subcontracting: A Microeconometric Study of the Automobile Industry, *Journal of the Japanese and International Economies*, Vol.6, pp.1-29.

Carr, L. P. and C. D. Ittner (1992), Measuring the Cost of Ownership, *Journal of Cost Management*, Vol.6, No.3, pp.42-51.

Carr, C. and J. Ng (1995), Total Cost Control: Nissan and It's U.K. Supplier Partnerships, *Management Accounting Research*, Vol.6, No.4, pp.347-365.

Clark, K.B. and T. Fujimoto (1991), *Product Development Performance: Strategy, Organization and Management in the World Auto Industry*, Harvard Business School Press.

Cooper, R. (1996), Costing Techniques to Support Corporate Strategy: Evidence from Japan, *Management Accounting Research*, Vol.7, No.2, pp.219-246.

Cooper, R. and R. Slagmulder (1999), *Supply Chain Development for the Lean Enterprise: Interorganizational Cost Management*, Portland, Productivity.

Cooper, R. and R. Slagmulder (2004), Interorganizational Cost Management and Relational Context, *Accounting, Organizations and Society*, Vol.29, No.1, pp. 1-26.

Cooper, R. and T. Yoshikawa (1994), Inter-Organizational Cost Management Systems: The Case of the Tokyo-Yokohama-Kamakura Supplier Chain. *International Journal of Production Economics*, Vol.37, pp.51-62.

Cusumano, M. A. and A. Takeishi (1991), Suppliers Relations and Management: A Survey of Japanese, Japanese-Transplant and U.S. Auto Plants, *Strategic Management Journal*, vol.12, pp.563-588.

Dekker, H. C. (2003), Value Chain Analysis in Interfirm Relationships: A Field Study, *Management Accounting Research*, Vol.14, No.1, pp.1-23.

Dyer, J. H. and W. G. Ouchi (1993), Japanese-Style Partnerships: Giving Companies a Competitive Edge, *Sloan Management Review*, Fall, pp.51-63.

Fujimoto, T. (1997), *Seisansisutemu no Sinkaron (The Evolutionary Theory of Production System)*, Tokyo, Yuhikaku (in Japanese).

Gietzmann, M.B. (1996), Incomplete Contracts and the Make or Buy Discussion: Governance Design and Attainable Flexibility, *Accounting, Organizations and Society*, Vol.21, No.6, pp.611-626.

Gietzmann, M. B. and J. G. Larsen (1998), Motivating Subcontractors to Perform Development and Design Tasks, *Management Accounting Research*, Vol.9, No.3, pp.285-309.

Helper, S. (1991), How Much Has Really Changed between U.S. Automakers and Their Suppliers?, *Sloan Management Review*, Summer, pp.15-28.

Helper, S. and M. Sako (1995), Supplier Relations in Japan and the United States: Are They Convergence?, *Sloan Management Review*, Spring, pp.77-85.

Kato, Y. (1993a), *Genkakikaku: Senryakuteki Kosutomanejiment (Target Costing: Strategic Cost Management)*, Tokyo, Nihonkeizaisinbunsya (in Japanese).

Kato, Y. (1993b), Target Costing Support Systems: Lessons from Leading Japanese Companies, *Management Accounting Research*, Vol.4, No.1, pp.33-47.

Kato, Y. (2000), Sapuraicheinmanejiment: Soshikikankankei no Siten (Supply Chain Management: A Viewpoint of Inter-Organizational management), *Business Insight*, Autumn, pp.30-39 (in Japanese).

Kokuryo, J. (1995), *O-punnettowa-ku Keiei: Kigyousennryaku no Shintyouryuu (Open Network Strategy: The New Stream of Corporate Strategy)*, Tokyo, Nihonkeizaisya (in Japanese).

Langfield-Smith, K. and D. Smith (2003), Management Control Systems and Trust in Outsourcing Relationships, *Management Accounting Research*, Vol.14, No.3, pp.281-307.

Mouritsen, J., A. Hansen and C. Ø. Hansen (2001), Inter-Organizational Controls and Organizational Competences: Episodes around Target Cost Management/Functional Analysis and Open Book Accounting, *Management Accounting Research*, Vol.12, No.2, pp.221-244.

Nishiguchi, T. (1994), *Strategic Industrial Sourcing: The Japanese Advantage*, Oxford University Press.

Nobeoka, K. (1998), Buhinsapuraiya no Kokyakunettowa-ku Senryaku: Kokyakuhanni no Keizaisei (Customer Network Strategy of Parts Supplier: The Economical Efficiency of the Customer Scope), (in Fujimoto, T., H. Ito and Nishiguchi, T eds. (1998), *Sapuraiya Sisutemu: Atarasii Kigyoukankankei wo Tukuru (Supplier Systems: Organizing the New Interfirm Relationships*) (in Japanese).

Otley, D. (1994), Management Control in Contemporary Organizations: Towards a Wider Framework, *Management Accounting Research*, Vol.5, No.3/4, pp.289-299.

Porter, M. E. (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, New York, The Free Press.

Roos, D., J.P. Womack and D. Jones (1990), *The Machine that Changed the World*, Boston, MacMillian.

Sako, M. (1992), *Prices, Quality and Trust: Inter-Firm Relations in Britain and Japan*, Cambridge, Cambridge University Press.

Sako, M. (1996), Suppliers' Associations in the Japanese Automobile Industry: Collective Action for Technology Diffusion, *Cambridge Journal of Economics*, Vol,20, No.6, pp.651-671.

Seal, W., J. Cullen, A. Dunlop, T. Berry and M. Ahmed (1999), Enacting an European Supply Chain: A Case Study on the Role of Management Accounting, *Management Accounting Research*, Vol.10, No.3, pp.303-322.

Shank, J.K. and V. Govindarajan (1993), *Strategic Cost Management*, New York, The Free Press.

Statistics Bureau Japan (2004), *Nihon Toukei Geppou (Monthly Statistics of Japan)*, No. 518.

Tomkins, C. (2001), Interdependencies, Trust and Information in Relationships, Alliances and Networks, *Accounting, Organizations and Society*, Vol.26, No.2, pp.161-191.

van der Meer-Kooistra, J. and E. G. J. Vosselman (2000), Management Control of Interfirm Transactional Relationships: The Case of Industrial Renovation and Maintenance, *Accounting, Organizations and Society*, Vol.25, No.1, pp.51-77.

Wada, K. (1984), ‘Jun Suityokutougousosiki ’ no Keisei: Toyota no Jirei, *Academia*, No. 83 (in Japanese).

Womack, J. P. and D. Jones (1996), *Lean Thinking: Banish and Create Wealth in Your Corporation*, New York, Simon & Schuster.

Table 1

Types of Suppliers' information that are gathered by buyers

	n	Mean	Standard Deviation
(a) Asset, Liability and Capital	107	3.61	0.988
(b) Revenue and Expense	107	3.68	0.917
(c) Cash Flow	107	3.36	1.032
(d) Cost	107	2.87	0.891
(e) Capacity Used	107	3.95	0.719
(f) Quality Control	107	4.21	0.615
(g) Inventory Level	107	3.01	0.852

Table 2
Information-sharing Activities

Table 2-A: Buyers' activities that encourage information sharing

	n	Mean	Standard Deviation
(a) To Attend Suppliers' Meetings	106	2.59	1.185
(b) To Send Engineers	106	2.09	1.038
(c) To Instruct Cost Saving Procedures	106	3.48	0.928

Table 2-B: Suppliers' activities that facilitate information sharing

	n	Mean	Standard Deviation
(a) Attending Buyers' Meetings	106	3.20	1.199
(b) Sending Engineers	106	2.34	1.120
(c) Providing Cost Saving Ideas	106	3.53	0.819

Table 3

Pearson's correlation of buyers support and buyers' performance (R&D Stage)

Stable Relationships (n = 14)

	Attending Meeting	Sending Engineers	Proposing Ideas
Revenue	0.611*	0.540*	0.696**
Cost	0.585*	0.600*	0.611*
Quality	0.659*	0.479	0.385
Flexibility	0.634*	0.651*	0.653*

Opportunistic Relationships (n = 64)

	Attending Meetings	Sending Engineers	Proposing Ideas
Revenue	0.189	0.062	0.216
Cost	0.219	0.196	0.138
Quality	0.283*	0.163	0.173
Flexibility	0.286*	0.282*	0.155

Volatile Relationship (n = 28)

	Attending Meetings	Sending Engineers	Proposing Ideas
Revenue	-0.012	-0.044	-0.102
Cost	0.153	-0.127	-0.017
Quality	0.245	0.240	-0.095
Flexibility	0.275	0.291	-0.015

* = Statistically significant at 5% level

** = Statistically significant at 1% level

Table 4

Pearson's correlation of suppliers' support and buyers' performance (R&D Stage)

Stable Relationships (n = 14)

	Attending Meetings	Sending Engineers	Proposing Ideas
Revenue	0.549*	0.531	0.517
Cost	0.439	0.560*	0.647*
Quality	0.466	0.470	0.613*
Flexibility	0.497	0.634*	0.526

Opportunistic Relationships (n = 64)

	Attending Meetings	Sending Engineers	Proposing Ideas
Revenue	0.318*	0.275*	0.289*
Cost	0.365**	0.265*	0.190
Quality	0.368**	0.223	0.299*
Flexibility	0.453**	0.339**	0.277*

Volatile Relationships (n = 28)

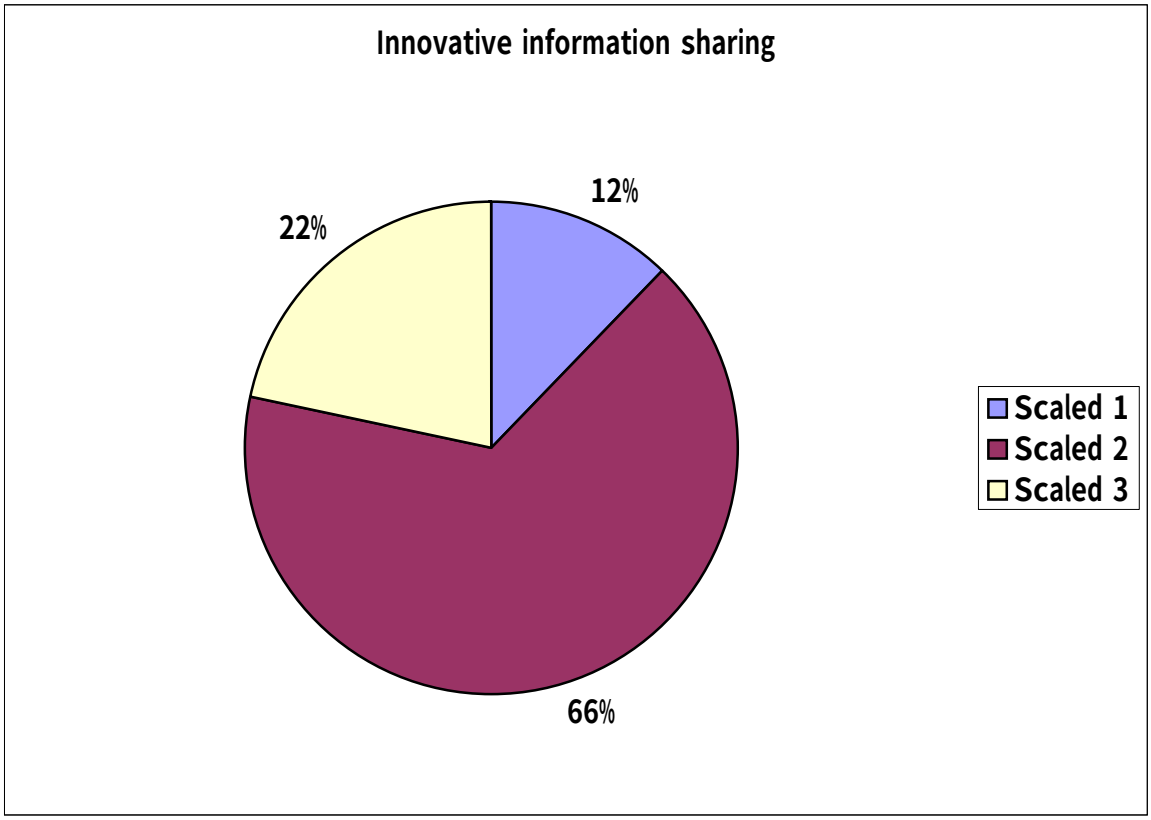
	Attending Meetings	Sending Engineers	Proposing Ideas
Revenue	0.244	0.319	-0.094
Cost	0.120	0.237	0.017
Quality	0.129	0.367	0.032
Flexibility	0.345	0.522**	0.150

* = Statistically significant at 5% level

** = Statistically significant at 1% level

Figure 1[9]

Proportion of responses to a question on innovative information sharing



Statement: We develop innovative ways to ensure competitive advantage (e.g., product development, production, quality management logistics, etc.). We must share this innovative information with suppliers.

[9] The following are the responses for the statement provided by researchers

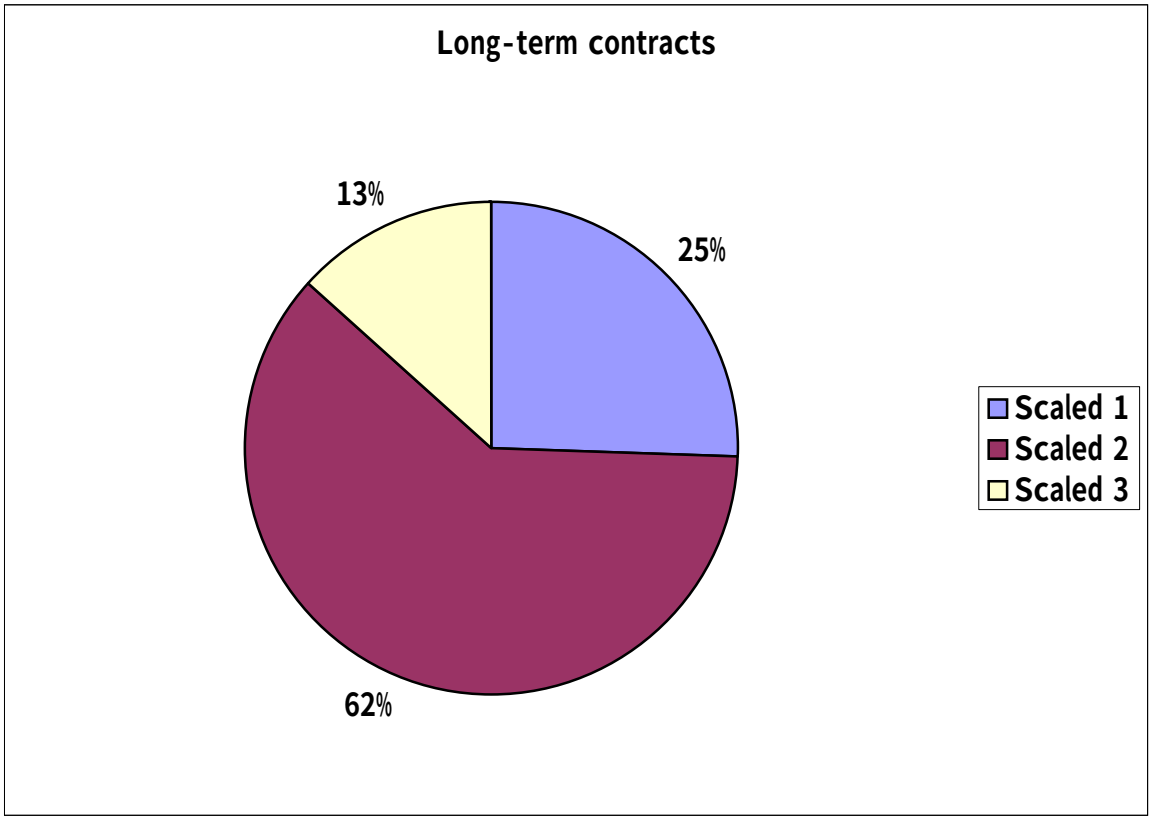
Scaled 1: No. Our innovative information is one of our most important resources. Therefore, we must use innovative information to facilitate our competitive advantage and sustain our bargaining power (n = 13).

Scaled 2: Mostly. However, we must select information to be shared with suppliers to sustain our bargaining power (n = 71).

Scaled 3: Absolutely. We must share our innovative information with suppliers to facilitate the competitive advantage of the entire supply chain (n = 23).

Figure 2[10]

Proportion of replies to a question on long-term contracts



Statement: We have had long-term relationships with suppliers. Thus, we will continue long-term relationships with current suppliers in the future.

[10] The following are the comments of the statement provided by researchers

Scaled 1: No. We may enter into contracts with suppliers who are beneficial to us without considering their past contract profile (n = 27).

Scaled 2: Mostly. However, it tends to be difficult to sustain long-term relationships with current suppliers (n = 66).

Scaled 3: Absolutely. We will basically sustain win-win long-term relationships with current suppliers (n = 14).

Figure 3

Conceptual framework of the relationship between the effect of information-sharing activities and the types of relationships