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Is Keiretsu Really a Source of Competitive Advantage for Japanese Automotive Suppliers?

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ABSTRACT

Purpose

This paper attempts to examine how firms create and sustain competitive advantage in the inter-firm business relationships from a supplier's perspective. It also investigates what factors affect their competitiveness and relationship between buyers and suppliers.

Methodology

This is an exploratory study on *keiretsu* partnerships composed of four main phases: analysis of theoretical perspectives, construction of a conceptual framework, interview of a CEO, and finally, a survey questionnaire with Japanese automotive suppliers.

Findings

As a result, this paper classified these 11 companies into four supplier groups (affiliated or independent tier 1 suppliers; affiliated or independent tier 2 suppliers) and analysed their competitiveness developing the research propositions further. The benefits of affiliation under a keiretsu partnership are discussed, showing that there may be little benefit in being an affiliated tier 1 supplier. Even more critical, the results show that independent tier 2 supplier may be more competitive than affiliated tier ones.

Originality

These intriguing results reveal an urgent need of investigating Japanese automotive supply chains from the suppliers' perspectives in our future research. This paper extended the literatures on competitive advantage and business relationships at both theory and managerial practice.

Key words: Keiretsu, Competitive Advantage, Automotive Industry, Inter-firm Business Relationships.

INTRODUCTION

During the last decades, the automotive industry has experienced significant transitions such as outsourcing, globalised supply network, and technology development (e.g. ERP, advanced manufacturing systems, modular production systems) that have drastically increased the importance of business relationships. The original equipment manufacturers (OEM) and automotive suppliers are expected to conduct their businesses as global partnerships fostering win-win opportunities (Humphrey and Memedovic, 2003; Jürgens, 2003; Sturgeon *et al.*, 2009). In this context and together with the success of the Japanese OEMs, a close relationship with small number of suppliers in long-term contracts, so called the Japanese-style partnership or *keiretsu*, has been considered as an industrial standard of successful business practice (Dyer and Ouchi, 1993; Lettice *et al.*, 2010; Veloso, 2000). This success has attracted interest in both practice and theory of business relationships. For instance, several studies compared different types of automotive relationship practices argued that mutual trust, information sharing, long-term contract, small supplier base based on the *keiretsu* have been the source of competitive advantage in the Japanese OEMs (Cusumano and Takeishi, 1991; Liker and Choi, 2006; Zirpoli and Caputo, 2002; Lee, 2004).

Although these studies provided valuable implications, very few studies, if not no empirical study in the field of Operations Management, have attempted to examine the competitiveness at supplier level. Most of them examined the automotive business relationships and competitive advantages only from the OEM's perspective without a critical analysis of their consequences to the supplier base. Previous studies have neither investigate the importance of relationships for suppliers nor examined whether knowledge transfer and R&D collaboration equip suppliers with competitive advantage in the automotive business relationship. More specifically, it must be questioned that as Japanese *keiretsu* contributes competitiveness of Japanese OEMs, whether Japanese suppliers also obtain the same effects. Due to this lack of attention to supplier side, it is strongly argued that the supplier's perspective must be emphasised (Lettice *et al.*, 2010; Liker *et al.*, 1998).

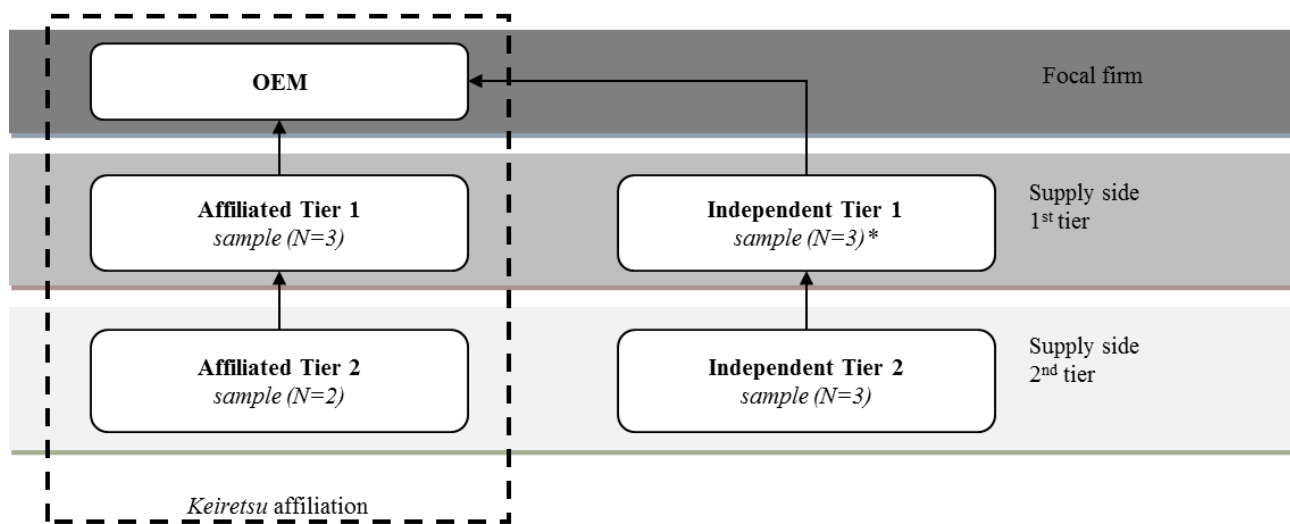
Consequently, this paper aims primarily to investigate the source of automotive suppliers' competitive advantages and current state of Japanese suppliers' competitiveness. The emphasis is narrowly focused on the automotive supplier's perspective and competitive advantages derived from the business relationships with OEMs. Next section will present the theoretical underpins in a literature review of this research.

THE JAPANESE COMPONENT INDUSTRY AND KEIRETSU PARTNERSHIPS

The key features to understand the structure of the Japanese automotive industry are supply chain tiers and *keiretsu* affiliation. Within this supply chain, firms can be classified in term of their position compared to the focal firm (Christopher, 2005). By centring the focal firm, firms who supply products/services to the focal firm are called supply-side Tier 1, followed by supply-side Tier 2 firms who supply to Tier 1 firms. When the supply chain structure becomes complex and contains many players, the supply chain tiers are also extended (e.g. Tier 3, 4...). For example, the automotive industry is often described as a hierarchical pyramid structure in which there is OEMs at the top of pyramid followed by a number of Tier1 and Tier2 suppliers (Figure 1). Since this tier indicates the position within the supply chain, it does not implicate the firm size and product responsibility.

Another feature is the *keiretsu* affiliation. As a unique feature of the Japanese automotive industry, component suppliers are often involved in the inter-firm association and control under the specific OEM. Kim and Michell (1999) and Dyer and Ouchi (1993) argue that this *keiretsu* affiliation is the main source of competitive advantage for the Japanese OEMs. Although the financial linkage has been weakened recently (e.g. Nissan's supply-base destruction), most Japanese OEMs seem to have their own *keiretsu* as strategic and organisational linkage yet (Kawai, 2007). Regardless of the differences, Kawai (2007) adds that *keiretsu* membership does not present an incentive for high profitability on its affiliated firms.

Within this context, this paper has collected questionnaires from five suppliers who identify themselves as affiliated suppliers within specific OEM's *keiretsu*. On the other hand, there is also an independent supplier who does not have financial and historical linkage with the downstream supply chain partners (i.e. OEMs and upper Tier suppliers). Although these suppliers are rarely discussed in the study of the Japanese automotive industry, this paper has received six responses from suppliers who identify themselves as independent suppliers. Thus, this paper analyses the current state of the Japanese component suppliers based on four different supplier groups by referring to these two dimensions; termed as affiliated Tier 1 supplier (3 samples), affiliated Tier 2 supplier (2 samples), independent Tier 1 supplier (3 samples), and independent Tier 2 supplier (3 samples).



*One respondent firm supplies parts to both Tier1 and OEM, but this paper it was considered only as part of the Tier1 sample

Figure 1: Classification of Sample Suppliers

THEORETICAL PERSPECTIVES ON COMPETITIVE ADVANTAGE

In order to extract the determinants of the firm's competitive advantage in the business relationship, this paper relied on the three different theoretical perspectives, namely: resource-based view, industrial organisation, and relational network. For each theoretical perspective, this paper explores the fundamental concepts of these theories, analyses their assumptions and arguments and discusses the context of competitive advantage in the business relationships by referring to the previous literatures. The basis of each perspective is summarised in Table 1. These three major theoretical lenses were chosen given their ability in allowing an investigation of supply chain

strategies in conjunction of inter-firm business relationships management from both OEM and supplier perspectives.

Resource Based View

By taking firm's internal business environment as a focus of study, Resource Based View (RBV) is concerned with the reason why some firm can outperform others and generates supernormal profits. More specifically, RBV is the theoretical perspective which focuses on a bundle of firm's internal competitive capabilities such as resource and competence and explains how they create competitive advantage (Barney, 1991; Foss, 1997; Grant, 2010). In definition, resources and competences this theory bases as a unit of analysis is described as "the productive assets owned by the firm... capabilities are what the firm can do (Grant, 2010, p.127)". Furthermore, Barney (2001) argues that resources and competences are distinguishably connected and most of the firm's business performance is resulted from their combination.

The overall argument of the RBV perspective is that firm's supernormal performance is generated by competitive capabilities which are valuable, rare, inimitable and non-substitutable. Therefore, in order to be competitive in the market, firms must create and control these competitive capabilities and then maintain and renew them continuously to sustain their competitive advantages. Thus, this paper summarises two determinants of competitive advantage from the RBV as follow;

Determinant 1: Creation of firm's competitive capabilities

Determinant 2: Maintenance and renewal of firm's competitive capabilities

Industrial Organisation

Industrial Organisation approach (after here IO) is a powerful theoretical perspective to determine the firm's competitive advantage with a focus on firm's external environment, in particular an industry as a centre of analysis and it argues that competitive advantage is devised based on the structure of industry and firm's position in the industry. As one of the most well-known IO researcher, Porter (1981, p.611) mentions that "Industry structure determined the behaviour or conduct [i.e. strategy] of firms, whose joint conduct then determined the collective performance of the firms in the marketplace [i.e. competitiveness]".

Based on this argument, Porter (1980) identified five basic competitive factors within an industry and argues that these five forces, namely potential entrants, suppliers, buyers, substitutes and industry competitors, compete each other in order to secure find a favourable position in the industry where they defend other forces to gain industry's profitability by implementing competitive pressures. More specifically, IO mentions that the competitive and collective actions of the fiver forces determines "industry profitability because they influence the prices, costs and required investment of firms in an industry – the elements of return on investment (Porter, 1985, p.5)". As a result of the review of IO, the following determinants of firm's competitive advantage are devised;

Determinant 3: Relative bargaining power in an industry

Determinant 4: Maintenance of industry profitability and positioning

Relational Network

Originally developed in the industrial marketing field, Relational Network (RN) argues that firms are not autonomic and independent but rather are embedded in a network as a collection of firms cooperating and collaborating with other firms including suppliers, buyers, competitors and other stakeholders (Hakansson and Snehota, 2006; Mentzer *et al.*, 2007). The network becomes a

source of super-normal performance and competitive advantage when it is idiosyncratic that each firm becomes unique counterparts and partners (Dyer and Singh, 1998). More specifically, in the RN, researchers argue several critical factors that enable firms to gain competitive advantage within networks. This paper discusses based on the four factors proposed by Dyer and Singh (1998).

The RN perspective argues inter-firm network as a source of competitive advantage and describes how firms gain competitiveness through networking. This paper has referred to the four critical factors for competitive network. In the discussion, it is realised that these factors are interacted and mutually dependent. Therefore, to make it simple, this paper summarises the argument of RN into two determinants;

Determinant 5: Development and investment in the network-specific assets and governance structure

Determinant 6: Robust exchange and engagement of strategic and competitive capabilities that are complementarily among the network partners

From a manufacturing networks perspective, determinants 5 and 6 take into account another important concept in the literature closely related to relational network: early supplier integration. Schiele (2010) reviewed the studies on early supplier integration from 1989 to 2004 showing that it is necessary to move from a project focus to a supplier focus when managing the important interfaces within marketing, R&D, and manufacturing. A number of studies describe the nature of early supplier integration (Clark, 1989; Birou and Fawcett, 1994; Ragatz et al, 1997; Shiele, 2010) and its benefits. Based on these previous studies, early supplier integration can be defined as *a practice that fosters the involvement of suppliers for collaborative and inter-organisational work in the early stages of product development*. According to Birou and Fawcett (1994), the main benefits of this practice can bring are: reduced development lead times with fewer costly redesigns; better communication and a subsequent reduction in duplicated efforts; substantial cost savings from higher productivity and lower maintenance; more reliable products with fewer recalls and enhanced customer satisfaction; improved financial performance.

The identification of 6 determinants enabled us to build a conceptual framework to assess supplier competitive advantage. Figure 2 shows how the determinants are linked to the three main dimensions that compose the conceptual framework, which is further explained in section 3.

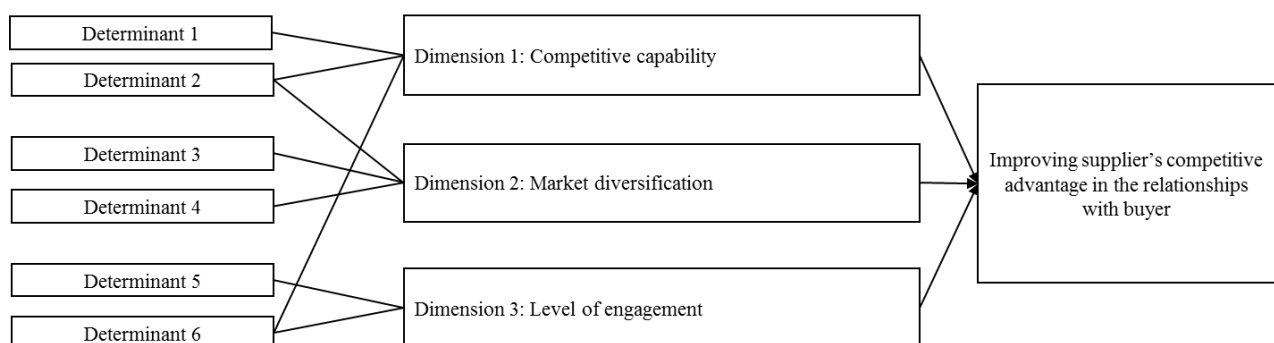


Figure 2: Conceptual Framework

Table 1: Summary of Three Theoretical Perspectives on Competitive Advantage

Theoretical Perspectives	Unit of analysis	Source of complete advantage	Method that create supplier competitive advantage	Condition in creation of competitive advantage	Supporting references related to this theoretical perspective
Resource Based View	Firm	Competitive capabilities	Creating competitive capabilities Maintaining competitive capabilities	Independent (individual firm)	Barney (1991); Foss (1997); Grant (2010); Amit and Schoemaker (1993); Dierickx and Cool (1997); Peteraf (1993); Rumelt (1984; 1997); Wernerfelf (1984); Prahalad and Hammel (2003); Penrose (1959)
Industrial Organisation	Industry	Industry structure and profitability	Bargaining industry profitability between competitors Securing competitive positioning	Competitive (industry players)	Porter (1980; 1981; 1985); Wernerfelf (1984) Barney (1986)
Relational Network	Network of firms	Inter-firm cooperation and collaboration	Strengthening network relationships Combining competitive resources	Collaborative (network partners)	Hakansson and Snehota (2006); Mentzer <i>et al.</i> (2007); Dyer and Singh (1998); Porter (1998); Frigant and Lung (2002); Lee <i>et al.</i> (1997); Cousins <i>et al.</i> (2008); Kotabe <i>et al.</i> (2003); Rugman and D’Cruz (2000); Esper (2007); Gulati <i>et al.</i> (2000)

A CONCEPTUAL FRAMEWORK FOR SUPPLIER COMPETITIVE ADVANTAGE

Throughout the review presented in the previous section, it became clear that while the three theories stand on their original assumptions and concepts, they contain elements that overlap and could be combined and better visualised in three main dimension of competitive advantage. This section synthesised them into a single framework (Figure 2), which is dedicated to analyse the level of competitiveness of suppliers.

Competitive capability

The main argument in RBV is that firms must create and maintain competitive capabilities that are valuable for buyers, rare in the market, inimitable and non-substitutable by other firms. By securing the competitiveness of their capabilities within boundary, the firm can obtain competitive position in the industry as identical what the IO suggests. As one of the strategy to create the limited supply and monopolistic business environment, firm's distinctive resources and competences are suggested. Moreover in RN, the valuable, rare, inimitable and non-substitutable capabilities are regarded as transaction- and network-specific assets. In both theories, highly specific assets are the source of discriminative inter-firm relationship. Thus, all the four theories argue the importance of competitive capabilities.

For suppliers, this creation of competitive capabilities is absolutely critical. As argued in the RBV and IO, first the ownership of these competitive capabilities allows the firm to benefit the supernormal profits when there is few or no competitor which provides similar values. Furthermore, when the distinctiveness is maintained, the limited supply in the market would result in the order concentration and buyer switching costs. Alternatively from the RN perspective, supplier's competitive capabilities encourage buyers shifting to the hierarchical and network governance structure and improve their position from supplier to partner when they are able to continuously develop the complementarily values. Therefore, this paper proposes that a competitive capability of supplier gain competitive advantage in the business relationships with buyer firms.

Market diversification

To be competitive in the relationships, suppliers should diversify their market in terms of customer-profile diversification and business internationalisation. Firstly, in order to sustain the competitive positioning, suppliers may prefer the industry structure in which few suppliers exist against large number of buyers. This is because even if the supplier's capabilities are competitive, when the buyer industry has the bargaining power as described in the IO, it is difficult for suppliers to generate supernormal profits. Although RN stresses the importance of asset specificity between supplier and buyer, some competitive capabilities such as product, services and technology that are initially developed for a specific buyer can be deployed to different buyers through modification and customisation. Since supplier provides the customised competitive advantage to specific buyers, the customer-profile diversification is different from market-exchange governance, and hence enhancing transaction efficiency and network collaboration.

Alternatively, when supplier internationalises its business, the customer profile will be further diversified. As discussed in the RN, the global competitiveness is derived from the superior advantage of the domestic supplier firms which have the world-class technologies and know-how. Since the geographical distance exists as barrier for the foreign buyers, the business internationalisation of such suppliers enable them to easily access these competitive capabilities. Furthermore, when the suppliers internationalise their business to which network partners operate, the investment is the network-specific assets and stabilising robust relationships as a global partner.

Level of engagement

The level of engagement proposition is mainly referred from the RN perspective. In the RN, firms are suggested to first form networks in order to specialise their competitive capabilities (Mentzer, 2007; Dyer and Singh, 1998). They will then be better able to use complementary capabilities heterogeneously owned by others (based on RBV), and to maintain the competitive positioning that secures profitability in the industry (based on IO). As a result, they can exercise effective governance in which highly specific assets are developed with lower risk and uncertainty. From the supplier's perspective, therefore they should have certain levels of corporate engagement with their buyers. The long-term partnerships with the buyers facilitate the investments for network-specific assets and become strong incentive to improve coordination (Liker and Choi, 2004; Lee, 2004; Choi and Wu, 2009). In addition, the depth of engagement such as knowledge-sharing routines, trust-based relationships, and co-development of complementary products can enhance the network robustness and competitiveness. Latest thinking in this area also shows that a balanced approach is necessary because too little or too much exchange of social capital can hurt supply chain performance (Villena et al, 2011).

To sum up this section, competitive capabilities, market diversification, and level of engagement are the three dimensions that compose the proposed theoretical framework. It widens the lenses by which we examine buyer-supplier relationship, allowing a better view from the suppliers' perspective. This paper has built the conceptual framework based on determinants of firm's competitive advantage from the supplier's point of view which was based on three theoretical foundations: RBV, IO, and RN. Next section will present the methodology used to achieve our findings and research propositions.

METHODOLOGY

This section explains the research design. Figure 3 illustrates the research design used in this paper.

First, the conceptual framework was built from a deductive approach. Deduction is a research process in which conclusions (or premises) are drawn from rational and logical principles (Lee and Lings, 2006). The conceptual framework was then discussed in a three-hour interview with a CEO of a Japanese automotive supplier to develop further insights and assist with the development of a survey questionnaire. Finally, the impact of *keiretsu* in the competitiveness of Japanese automotive suppliers was tested through an anonymous and confidential online survey based on variables derived from the conceptual framework.

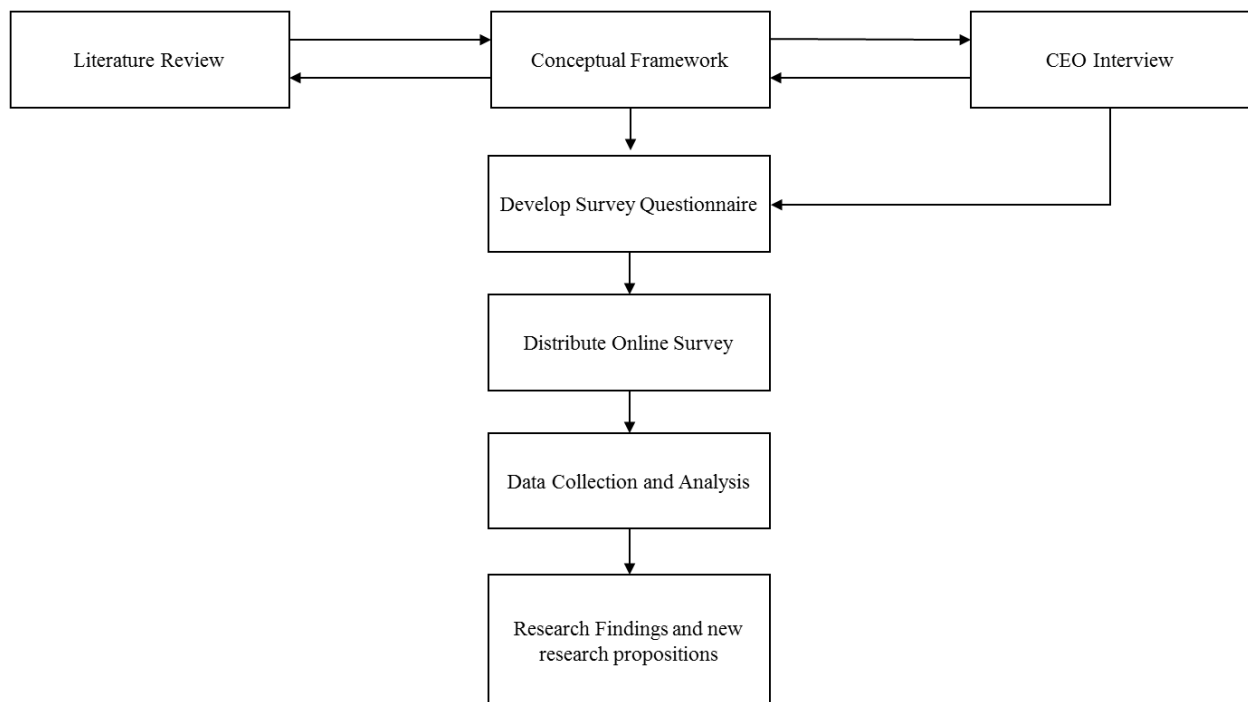


Figure 3: Research Design

While the theoretical basis of conceptual framework gave a strong foundation for the survey questionnaire, interviewing a Japanese CEO allowed the questions to be tailored to the industrial terminology. The semi-structured three-hour interview conducted with a CEO of one Japanese automotive supplier increased the internal validity of the survey questionnaire and ratified its practical relevance.

The research survey was conducted in order to add more primary data of the Japanese suppliers. The survey research is suitable to explore the measurable fact thereby suitable for comparable research (Saunders *et al.*, 2009). In this research, the survey questionnaire was aimed at exploring the inter-firm relationship issues more than drawing conclusion from statistical tests. A total of 22 measures were divided in the three main dimensions of the conceptual framework (Competitive Capability -CC; Market Diversification - MD; Level of Engagement - LE). They were measured in the survey questionnaire through a 5-point scale, in which 1 was the lowest score of agreement or importance, and 5 being the highest score.

Since the Japanese automotive suppliers were the research target, the survey questionnaire was developed firstly in English and then translated into Japanese with the confirmation by a bilingual third person to ensure the equivalence. The interview with the CEO was also used to pilot the validity, clarity, and politeness so as to avoid the misunderstanding and possible ethical conflicts involved in the research. The CEO highlighted in the interview, that despite the legitimacy of the questions in the questionnaire, Japanese companies could hesitate to respond to such issues in a face-to-face personal interview. The CEO's views are also shared by a long and robust body of literature on international management which still supports the main conclusions from Hofstede (1983) and Jaeger (1986) on the existence of significant cultural differences between countries. For instance, Merkin *et al* (2014) highlights differences in communication style between USA and Japan. For the authors, Japanese culture is largely collectivist which favours indirect

communication because it can help to maintain relational harmony when compared against the American culture. Given the sensitiveness of the topic (OEM-supplier relationship) in the Japanese culture an anonymous online survey was chosen as the best data collection method.

Thus, the questionnaire was made available to companies listed in the Japan Auto Parts Industries Association (JAPIA) and the other OEM's supplier associations. Because of the sensitiveness alongside the usual low response rate of online surveys, only 11 questionnaires could be validated for analysis. The size of the sample is in fact too small for robust statistical analysis, theory building, and generalisation. However, as a theoretical sample, it could still be considered valid and became useful for proposition building as the chosen suppliers varied considerably according to their size, sales revenue, attributes, and industrial position (Table 2). These propositions are presented in the conclusions of this paper. They were built combining the deductive approach using our theoretical framework and interpretation of the survey results.

Table 2 – Theoretical sample for survey research

	Employees	Sales in 2010 (Billion yen)	Firm attribute	Tier position
1	301 - 500	17	Affiliated	Tier 1
2	1000 <	52	Affiliated	Tier 1
3	501 - 1000	60	Affiliated	Tier 1
4	501 - 1000	25	Independent	Tier 1
5	501 - 1000	28	Independent	Tier 1
6	1000 <	373	Independent	Tier 1
7	101 - 300	10	Affiliated	Tier 2
8	101 - 300	14	Affiliated	Tier 2
9	301 - 500	13	Independent	Tier 2
10	301 - 500	20	Independent	Tier 2
11	1000 <	63	Independent	Tier 2

SURVEY RESULTS

The following profiles describe the competitive advantages of each supplier group. As stated earlier, this paper looked for performance differences in the average score of 5-point scale measures, while the demographic measures support the description. Table 3 indicates that the conceptual framework has a good internal validity. The results of all 22 measures are shown in Table 4.

Table 3 - Reliability Analysis

Scales	No. of measures	Cronbach α
Competitive Capability (CC)	5	0.79
Market Diversification (MD)	4	0.89
Level of Engagement (LE)	13	0.71

Table 4 - Comparison between Supplier Groups

ID	Measure	All (N=11)	AT1 (N=3)	AT2 (N=2)	IT1 (N=3)	IT2 (N=3)
<i>Competitive Capability Scale</i>						
CC1	R&D Expenditure	1.66	2.00	1.00	1.70	1.67
CC2	Rareness	2.45	3.33	1.00	2.67	3.00
CC3	Inimitability	2.45	3.67	1.00	2.33	2.33
CC4	Non-substitutability	2.38	3.33	1.50	2.33	2.00
CC5	Market Share	3.19	3.67	2.50	3.33	2.67
<i>Market Diversification Scale</i>						
MD1	No. of Customer	2.91	2.00	1.00	4.67	3.00
MD2	Sales Diversification	2.18	1.57	1.00	3.33	3.00
MD3	Monopoly	4.18	4.33	4.50	3.33	4.67
MD4	Global-site Proximity	3.55	4.33	1.00	4.00	4.00
<i>Level of Engagement Scale</i>						
LE1	Partnership Length	3.82	5.00	4.50	5.00	1.33
LE2	Supplier's Reliance on Buyer R&D	2.98	3.67	2.50	2.33	3.33
LE3	Buyer's Reliance on Supplier R&D	3.00	3.67	2.00	3.00	2.50
LE4	Mutual Communication	4.27	4.00	4.00	5.00	4.00
LE5	Engineer Exchange	3.09	3.50	3.00	3.50	2.50
LE6	Technology Exchange	3.55	4.00	3.00	3.67	3.50
LE7	Market Info. Exchange	3.64	3.33	3.50	4.00	3.67
LE8	Mutual Trust	4.00	3.67	4.00	4.33	4.00
LE9	Co-development	3.64	4.00	2.50	4.00	3.67
LE10	Product Specificity	4.09	4.33	3.50	4.67	3.00
LE11	R&D Responsibility	3.33	4.33	2.00	3.67	2.50
LE12	Strategy Alignment	2.64	4.00	2.00	2.50	1.66
LE13	Geographic Proximity	4.00	4.00	4.00	4.00	4.00
Total (in 110)		71.00	79.73	55.00	77.36	66.00

Affiliated Tier1 suppliers

Affiliated Tier1 supplier (AT1) is supplier who mainly supplies products to a specific OEM under the *keiretsu* affiliation. In this research, three suppliers are classified as AT1. Although the demographic data (e.g. employees and sales revenue) vary among samples, it is observed that larger size firm tends to earn higher sales revenue.

Throughout the all five measures in CC scale, AT1s report the highest scores out of four groups. They reinvest 1-5% of annual revenue to R&D activities to develop competitive capabilities. As the most important feature of competitive capability, they chose the products/services. In addition, sample suppliers regard both cost reduction and differentiation as important for their main products (score = 4.67, 4.33). In terms of product competitions, they anticipate that their main products have relatively high level of rareness inimitability and non-substitutability. In particular, the inimitability is scored nearly 4 (= agree) and therefore it is assumed that their products are technologically complex or newly introduced into the market. These high scores suggest that AT1 suppliers create and maintain a competitive advantage in the present and future. This argument is assisted by the fact of the high market share (one of them has 30-50% share).

In the MD scale, the difference is observed between affiliated and independent suppliers. In terms of customer diversification, affiliated suppliers tend to have a small customer profile and to rely highly on main customer while counterpart independent suppliers have a large customer profile with diversified sales proportion. In this research, the AT1 suppliers have business transactions with less than 10 customer OEMs and more than 50% of their annual sales in 2010 was generated from the transaction with the main customer who will obviously be the affiliating *keiretsu* OEM. Surprisingly, two of them have over 70% reliance on a specific customer. This indicates that although they are in relatively oligopolistic competitive environment containing less than 10 direct competitors, their competitive position is not strong since the customers have relative bargaining power against suppliers. In other words, the business relationship is led by OEMs. Finally, AT1 suppliers record the highest internationalisation. More than half of their foreign operations are closely located to the customer's foreign facilities. Again, together with the nature of their customer diversification, it can be analysed that AT1s invest and build foreign sites for the return of the contract continuity with the *keiretsu* OEMs who diversified businesses globally. Indeed, one sample supplier who has an exclusive OEM locates all foreign sites close to the OEM.

In most measures in LE scale, AT1 shows the strong competitive advantage. Firstly, all sample suppliers have more than 10-year long partnerships with their customer OEMs. Since typical model year of automobile is 3-7 years (Cusumano and Takeishi, 1991; Liker and Choi, 2006), it indicates that they continuously retain their contract beyond the model change period. Not only the length, but also AT1 suppliers have deepened the engagement with OEMs. Distinctively, they have a high level of strategic alignment with OEMs. Consequently, it is assumed that the suppliers are involved in the OEM's long-term plans such as global strategy and new product development, and therefore they are able to dedicate to highly specific relationships under relatively low uncertainty and risk of opportunism. Alternatively, the robustness of relationship can be described by referring to the degree of cooperation and collaboration. Although the score is not significantly high, AT1 shows relatively high confidence in mutual R&D reliance compared to other groups. This will indicate the fact that AT1 suppliers have a strong R&D ability in technologies which customer OEMs do not have and suppliers are fully responsible from the development stage (i.e. LE11 R&D Responsibility: score = 4.33). What is more, AT1 has consistent knowledge-exchange routines with OEMs. Not only developing collaboratively, they also exchange engineers and technologies frequently that enables suppliers to strengthen the engagement thereby becoming more competitive.

In sum, overall the sample AT1 suppliers recorded the highest out of four groups. This paper has revealed the competitive state of AT1 supplier that they create and accumulate their strong competitive capabilities specialised to the *keiretsu* OEMs. Moreover, they are also regarded as a long-term strategic partner in relatively equal basis with customer OEMs. Therefore, it seems that they are able to improve and sustain competitiveness under the long-term dedicated relationships. As analysed above, however, the significant dedication also can be issue for AT1 suppliers since the single customer profile might be the huge risk factor in the highly competitive and changing business environment in these days.

. *Affiliated Tier2 suppliers*

This research received two responses from Affiliated Tier2 supplier (after here AT2) who mainly supplies their products to upper-tier *keiretsu* affiliated suppliers (i.e. AT1). These two sample AT2 suppliers have similar demographic characteristics; both employ 101-300 people and hence classified as small medium enterprise in Japan and generate around 100,000 million Japanese yen in 2010 financial year.

In contrast to AT1, these AT2 suppliers reported the lowest competitiveness in all CC measures. The two suppliers reinvest less than 1% of their sales revenue into R&D activities. Although their small business scale may need to be considered, this low R&D expenditure affects significantly to the competitiveness of their products. For competitiveness of main products, AT2 suppliers consistently disagreed to all three measures (i.e. CC2 Rareness, CC3 Inimitability and CC4 Non-substitutability). What is worse, they do not recognise the importance of cost reduction and differentiation (score = 2.00, 2.50) despite they chose products/services as the most important competitive capability of firm.

Similar to the CC scale, MD scale of AT2 also indicates the low competitiveness. Firstly, the sample AT2 suppliers only have one customer Tier1-supplier with over 70% sales reliance. However, since they responded that they do not have foreign business, this indicates that the sample suppliers are completely depending on the single customer in domestic market. Moreover, they are completely dedicated to the automotive business (i.e. non-automotive business division, see Table 5. Therefore, the high score in MD3 Monopoly may have different indication from that in AT1. Certainly, it is assumed that the high monopolistic business is due to the high asset specificity in the business relationship. Even if the products are relatively common in the market, the customer's specification for quality, quantity and delivery time might make the relationship more specific. In fact, in contrast to the low competitiveness of their products in CC scale, their confidence on product specificity is relatively high in LE scale. Alternatively, it can also be assumed that the customer Tier 1 limits the competition intentionally. Since ownership of number of transactions charges the high contracting and monitoring costs, supply base rationalisation is commonly used by buyer in order to reduce transaction costs (Sheth and Sharma, 1997; Gadde and Snehota, 2000). In either assumption, since the business relationship between sample AT2 and customer Tier1-supplier is customer dominance, the current competitiveness may be not consistent.

Although the competitiveness in LE scale is quite low compared to the result of AT1, the AT2 suppliers also indicate certain competitive advantage. There are high scores in partnership length, mutual communication, trust base, and geographic proximity those are the basic feature of the Japanese-Style Partnership (Dyer and Ouchi, 1993). When it comes to see the engagement depth, however, results indicate AT2 supplier's competitive disadvantage. Cooperation and reliance for product development is not significant and there is no strong indication for the existence of knowledge-exchange routines. More specifically, AT2's score in LE11 R&D Responsibility is the lowest out of four groups. The lower the score in this measure, the more it indicates that supplier's contribution in the product development is in white-box manner in which suppliers make to print with the buyer's design and consultation rather than in black-box in which supplier designs and develops based on buyer's performance requirements (Cousins *et al.*, 2008). In this white-box, it is

difficult for AT2 to acquire competitive capabilities and to improve network specificity by differentiating from competitors.

In sum, AT2 suppliers are not competitive among CC, MD and LE scale thereby the lowest in total. From the results, it can be argued that they are treated as second-level contract partners or extended manufacturing operations which just supply ordered components. Although they may have strong business abilities in terms of quality and delivery due to the intense requirement in the automotive industry, it seems that these cannot be the benefit and rather it can deepen the captive relationship with customers.

Table 5: Business Diversification

	Electronic goods	Aerospace	Industrial goods	Information technology	Other manufacturing	Non-manufacturing	Automotive only
AT1					○		
AT1					○		
AT1					○		
IT1					○		
IT1					○		
IT1					○		
AT2							○
AT2							○
IT2	○						
IT2	○						
IT2	○		○		○		

Independent Tier1 suppliers

This paper defines Independent Tier 1 supplier (after here IT1) as a Tier 1 supplier who supplies their component products to OEMs from outside the *keiretsu*. In this research, three suppliers are classified as this IT1. Although one respondent supplies to both OEMs and Tier1, this paper regards it as only IT1. The three IT1 suppliers are considered as a large-scale enterprise due to the number of employees.

In terms of CC, the result indicates that on average IT1 is less competitive compared to AT1 who exists on the same tier. All three suppliers reinvest less than 5% of revenue in R&D. Although they highly recognise the importance of product cost reduction (= 5.00) and differentiation (= 4.33), the product competitiveness is reported lower scores in all three measures than AT1 suppliers. Since one of the IT1 suppliers has the distinctively highest sales revenue and one of the highest market shares out of all 11 sample suppliers, the huge variance has been predicted among three IT1 suppliers. However, there is no significant variance (standard deviation < 0.58) at three measures.

MD scale in IT1 made interesting observations compared to the first two affiliated supplier groups described above. Although the affiliated suppliers tend to have a dedicated relationship with their *keiretsu* customers thereby small customer profile and high sales reliance, the IT1 suppliers reported completely different approach. All IT1 suppliers have more than 11 customers while no affiliated supplier has more than 10 customers. In addition, the sales revenue generated in transactions with the main customer is kept less than 50%. These results provide different insights

in their competitive environment and internationalisation. Firstly, the relatively high degree of competition compare to affiliated suppliers indicates that they are competing with large number of competitors in order to obtain the contract with each of many customer OEMs who may have their own affiliated supplier profiles. More significantly, this fact indicates that the largest IT1 supplier described above is able to win and acquire the contracts in a number of competitions. Secondly, since more than half of their foreign sites have a geographical proximity with OEMs, it can be argued that their internationalisation is not just motivated to dedicate to a specific OEM like affiliated suppliers, but also to extend their market penetration at regions where demand for their products exists. Moreover, from these results, it can be assumed that IT1 suppliers mainly produce standardised components those can be assembled to different OEMs' products.

In LE scale, there is no gap between IT1 and AT1 except the degree of strategic alignment. All three suppliers are engaged in partnerships for more than 10 years and establish a high level of knowledge-exchange routines with OEMs. Most surprisingly, sample IT1 suppliers scored the highest in mutual communication, trust and product specificity (standard deviations < 0.58). Especially, the high product specificity rejects the above assumption discussed in MD that IT1 suppliers supply standardised components. In other words, they have a capability that responds to number of different specifications in the customer profile. In fact, they are involved in the OEM's product development from engineering while AT1 suppliers are from manufacturing (Table 6).

In sum, this paper found that IT1 suppliers have the different approach, particularly in MD scale. They focus on spreading their competitive capabilities as wide as possible with the customisation for each client. Therefore, it is assumed that customer OEMs regard these IT1 suppliers as an equal-base contract partner. This approach benefits IT1 suppliers to dominate the market share without the fierce pressure from customers that affiliated suppliers may need to accept to be affiliated. As a challenging issue, however, since they are not able to obtain technological and strategic support from OEMs, IT1 must be able to anticipate new technology and market needs by themselves and to take a risk to invest into the specific competitive capabilities.

Table 6: Stage of Supplier Involvement

	Idea generation	Concept development	Engineering	Manufacturing	Sales and marketing	After service
AT1				○		
AT1				○		
AT1				○		
IT1	○		○	○		
IT1			○	○		
IT1			○	○		
AT2				○		
AT2			○	○		
IT2		○	○	○		○
IT2	○	○				
IT2		○	○	○		

Independent Tier2 suppliers

The fourth group is Independent Tier2 supplier (after here IT2). They are the supplier who supplies their products from outside the *keiretsu* to customer Tier1 while the customer could be both AT1 and IT2 in theory. This group also contains three samples; two medium suppliers and one large supplier. Although the statistical influence is expected, the all data except demographic data confirm the non-significant variance (standard deviation < 1.00).

The result of CC scale is almost as same as the other three supplier groups and unlike the comparison between AT1 and AT2, there is no significant gap between IT1 and IT2. Compared to AT2 on the same tier, IT2 suppliers regard both cost reduction and differentiation as the important feature for their main products (4.33 and 4.67, respectively). Moreover, the measures of product competitiveness are scored higher than those of AT2 suppliers, especially IT2 suppliers have a relative confidence for product rareness.

In MD scale, the result indicates that the approach of IT2 suppliers is more similar to IT1 rather than affiliated suppliers (i.e. large customer profile and low reliance on specific customer). However, as different feature from IT1, the sample IT2 suppliers tend to have a highly monopolistic business environment. All three suppliers have less than 10 direct competitors in spite of the customer profile (two of them have less than 5 competitors). Based on these results, this paper assumes that the IT2 suppliers provide relatively standardised and niche components to their customers. Unlike AT2 suppliers, indeed the sample IT2 suppliers have multiple non-automotive business divisions and all of them have an electronic goods division (see Table 5).

In the LE scale, IT2 scored the lowest out of four in terms of partnership length and strategic alignment. Although they are the independent supplier, these results indicate that they have significant disadvantage under the huge uncertainty and risk of opportunism. What is more, according to the result of low score in LE10 and LE11, it seems that they are more likely to be the white-box supplier who manufactures simple standardised products with high support and control of the customer's R&D capability as assumed above. However, as shown in Table 6, sample IT2 suppliers are involved in quite early stage of customer's product development under partnerships compared to the other groups. All of them are involved in concept development stage and in particular one IT2 supplier starts cooperation from the idea generation stage.

This uniqueness and the other characteristics discussed above may demonstrate that IT2 suppliers are not primarily automotive component suppliers or at least they are not dedicated only in automotive business. Rather, their products and competitive capabilities can be widely adaptable and they newly start businesses in the automotive industry. Hence, the engagement level is not yet evolved and need customer's support to accumulate knowledge to suit their capabilities as automotive components.

CONCLUSIONS

Based on the above analysis, a number of interesting observations can be made. One of the advantages of this paper is that it considered different types of component suppliers with three various measurement scales by looking into the interactions among them though most of the previous studies ignore the considerable differences in supplier groups and took one or two specific measures. Hence, this section summarises the research conclusions, its limitations, and future research.

More specifically, first of all, this paper has evaluated four different theoretical perspectives related to the firm's competitive advantage within business relationships (resource based view,

industrial organisation, and relational network) so as to construct the set of the conceptual framework that describes the important factors to gain firm's competitiveness. After the thorough review of these theoretical perspectives, this paper came to three generalised research propositions (competitive capability, market diversification, and level of engagement) as the concentration of seven theoretical determinants, which are consistent with the studies of Dyer and Singh (1998) and Gulati *et al.* (2000).

Finally, this paper has tried to reveal the current competitive state of the Japanese automotive suppliers by conducting the primary survey research. By focusing on the firm's level in the specific industry (i.e. the Japanese automotive industry), the findings enabled to add the unique insight in the supplier classification (affiliated Tier 1 supplier, affiliated Tier 2 supplier, independent Tier 1 supplier and independent Tier 2 supplier) while most of the previous studies tend to see the Japanese suppliers as affiliated supplier. Moreover, the comparison analysis of these four different supplier groups resulted in implications with regard to main benefits and issues of each group. While affiliated Tier 1 suppliers have little gain compared to independent ones, affiliated Tier 2 suppliers perform even worse when compared against independent Tier 2 suppliers in the Japanese automotive sector.

Thus, it makes necessary to draw research propositions that although they will need further investigation, they are very important outcomes from this study and for a deep understanding of buyer-supplier relationship, mostly in the Japanese automotive sector due to the popularity of *keiretsu* partnerships. In fact, the Japanese automotive industry could face issues of supply disruption or fragility if the tier 2 suppliers achieve very low levels of performance. Five research propositions are suggested here:

1. The performance of suppliers needs to take into account a broader set of capabilities to guarantee the future competitive advantages of the whole supply chain
2. The performance of the whole supply chain can be in jeopardy as key links in the supply chain stop improving over time.
3. From a supplier perspective in the *keiretsu* partnerships, the real gains are limited when their performance is compared against independent suppliers
4. Being an affiliated Tier 1 supplier will provide little gain when compared to independent Tier 1 suppliers
5. Being an affiliated Tier 2 supplier may reduce the competitiveness of a firm when compared to independent Tier 2 suppliers.

Our research propositions expand on previous criticisms on *Keiretsu* partnerships. Previous studies connected *Keiretsu* with poorer financial performance (Hundley and Jacobson, 1998; Miwa and Ramseyer, 2002; Kawai, 2007) of partners. Considering *Keiretsu* a power-dependence system, Kim *et al* (2004) also raised serious implication in *Keiretsu* partnership with regard to diversification and performance, particularly, for their less powerful members. Dekker and Bennett (2010) provide a critique of both *Keiretsu* and *Chaibol* networks in respect to their ability to respond effectively to the rapid changes on the global manufacturing landscape, specially, considering the demands for higher flexibility and cost reduction.

Although this paper has found valuable outcomes as summarised above, there are research limitations thereby opportunities for further research. Firstly, we can comment on the limitations related to the research of current Japanese supplier's competitiveness. Although the total 11 sample suppliers were able to demonstrate the benefits and issues in each of four different supplier groups, it is statistically difficult to deny the low generalisability of these results. In addition, this paper relied mainly on the disclosed information from JAPIA and other Japanese OEMs in order to collect the questionnaire respondents. Consequently, the accessibility to potential participants, such as small-medium sized suppliers and independent suppliers who may not be listed in those associations, was limited. Integration of the data from these potential suppliers may give more

representative results. Hence, future study is required to increase the scale and scope of sample and to evaluate the validity.

Secondly, there are several opportunities for future study due to the scope definition of this paper. This paper classified the supplier based on firm attribute and tier position. However, it seems that the additional characteristic, for example type of component produced, may provide different perspective. As Bensaou (1999) conducted, the complexity and rarity of the component must implicate the level of competitive capability and engagement. Moreover, the fact that this paper focused on the Japanese automotive suppliers can limit the value of these results. It would be more informative if a future study includes the automotive suppliers in the other countries such as Germany and United States and looks at the similarities and differences of competitiveness when investigating the five research propositions further. Finally, the devised research propositions are only confirmed in the automotive industry. Therefore, it would be also interesting to test and examine the relevance and applicability in other industries.

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