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The *Keiretsu* Fable – Where Does The Truth Lie?¹

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Abstract

The success of the Japanese automobile industry has mystified Western scholars for many decades. In the early post-war years, the industry did not receive any blessings from the Bank of Japan. Even MITI was a little pessimistic about the industry's future. The inclusion of the automobile components industry as part of MITI's "pick-the-winner" industrial policy appeared almost as an afterthought. Yet against all odds the industry flourished to become one of Japan's best known success stories. Western scholars and business strategists alike are naturally keen to deconstruct this mystery, while Japanese scholars were no less enthusiastic in documenting and offering an explanation. Many explored the *keiretsu* structure (networking or supplier relationship) as a possible source of the industry's competitive advantage. Something has gone amiss however, in this parallel effort, and gaps and misperceptions developed. This paper explores some of the myths surrounding this industry. In the process, it reevaluates MITI's policy and raised another research question of whether some of Toyota's domestic competitors might have misinterpreted the nature of Toyota's *keiretsu*.

Introduction

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The success of the Japanese automobile industry is puzzling and full of contradictions.

To begin with, the immediate post-war economic environment was not conducive to the development of an automobile industry. The Pacific war had left Japan in a state of economic ruin and disrepair. Much of the industrial infrastructure which Japan had built since the Meiji Restoration was destroyed. Flath (2000, p. 91) estimated that approximately 34% of Japan's industrial machinery stock was decimated as a result of the war. The capital that did withstand the war was either unusable due to old age, or it was dedicated to the manufacture of weapons and could not be used for consumer goods. This would include important industries related to the automobile industry such as steel mills, machinery works, and power supply. There was also major disruption to crucial raw material supplies which Japan previously imported from neighbouring countries such as Russia, China and Korea, as these countries progressively reduced their exports to Japan. In terms of the actual automotive technology, Japan was light years behind its counterparts in America and Europe.

Edwards and Samimi (1997, p.495) point out Japan had a relative abundance in labour resource with a population of 89 million in 1950. Unemployment, particularly in the urban areas was a serious problem. In contrast, funds for investment purposes were scarce, and aggregate savings were low due to extensive unemployment. Japan's resource endowment at the time would suggest that the country's natural comparative advantage lied in labour intensive industries such as textile, footwear and garments, in which Japan had already developed much expertise. The automobile industry is a capital intensive industry, and Japan's resource endowment at the time would mean that the country was not well-suited to developing such an industry.

Mr. Ichimada, Governor of Bank of Japan (BOJ) in the 1950s, with his famous speech entitled 'The futile passenger car industry', explained that 'nurturing an automobile industry in Japan is a waste of time, irrespective of the good intention (of promoting export). In this day and age of international division of labour, we should let America take that role (of car manufacturing) 64% of cars are imported; there is a big gap between locally produced cars and imported cars. Foreign cars have far better performance, style and price'. (Reported in the Nihon Keizai Shimbun Newspaper April 13th, 1950)

No doubt, Mr. Ichimada must have been firmly grounded in Ricardo's theory of comparative advantage and Hecksher Ohlin's factor endowments theory. The Ministry of International Trade and Industry (MITI), however, had a different perspective. According to a survey conducted by

the Ministry of Transport, the average age of passenger cars in 1950 was 13 years and 5 months. In other words, an average person was driving a car bought and made in Japan in 1937. Should MITI decide not to support the existing car industry, the replacement of such a dilapidated capital stock for a population of nearly 90 million would translate into a substantial import bill. In addition, there was a contingent of foreigners residing in Japan, such as the U.S. army, their families and diplomatic personnel who imported 29,577 cars (which was 5.9 times the domestic production capacity) in just two years between 1950 and 1951. The potential size of an import substitution market and the savings of a scarce resource (foreign reserves) thus tipped the scale in favour of advocates within MITI, which espoused protectionism and the nurturing of an automobile industry.

MITI formulated nine economic stabilization principles in May 1949. It shifted its traditional focus on the domestic economy to one of international trade. MITI became responsible and famous for an industrial policy with an export-orientation.

MITI's industrial policy in relation to the automobile industry will be discussed in greater details in a subsequent section. At first sight MITI's policy, as far as the automobile industry is concerned, has been regarded as highly successful. As Matsui (1986, p.116 - 117) notes, the parts supply industry was predominantly comprised of under-capitalised small-medium scale companies just after the war. Yet some of these so-called *shitauke* (subcontracting) companies, which were poorly equipped with backward management and outdated production technology, undertook breadth-taking developments and their production level rose to an unprecedented level of technological sophistication in a very short period of time. Their capitalization increased dramatically, 48 of them were listed on the Second Board in 1972, and 33 of them were listed on the First Board of the Tokyo, Nagoya and Osaka Stock Exchange by 1980.

For many decades afterwards, the whole industry was perceived to be a legendary success as it became one of Japan's best export performers.

Organisation of this paper

The aim of this paper is to explore some of the plausible reasons why the current body of literature is inadequate in explaining the many paradoxes found in the Japanese automobile industry today.

The paper begins by outlining the historical and economic development of the industry and its structure (or *keiretsu* in Japanese). It then investigates how a MITI Industrial Policy might have

shaped the formation and perception of *keiretsu* as reflected in academic literature. The *keiretsu* puzzle is presented to highlight the need for a new paradigm.

The same government policy also provides a natural experiment to test one central assumption of the existing paradigm: that *keiretsu*, and the Toyota *keiretsu* in particular, are exclusive. The paper concludes with comments and observations based on the analysis of the government policy in question and the findings of the natural experiment. In the process it also presents a new interpretation of the famous Japanese Industrial Policy, and raises a further research question of whether Toyota's *keiretsu* was imperfectly imitable.

Historical and economic development of the industry

The machinery industry started in Japan as an intermediate inputs industry. It was required for the building of railways, ocean tankers and other military weapons. They were initially imported and manufacturing began in the form of reverse engineering. Although the industry expanded rapidly during the war, being fueled by demand from the military, it never had the opportunity to fully develop as an independent industry. With the defeat of the military, the industry almost collapsed. It recovered slowly but the progress was hampered by the industry's low productivity, low wages, small scale operations and the lack of financial resources for investment, let alone replacement of old equipment.

The automobile industry was (in 1956) and still is directly comprised of the chassis makers, parts manufacturers, and body makers. In a broader context, batteries, textiles and other related industries can also be included. The automobile industry is a general assembly industry because it involves the manufacturing of several thousand items. The parts supply industry is dominated by a large number of small-medium enterprises (SME's). The assemblers purchase about 40 – 50% from parts manufacturers and together with materials cost of 20 – 25%, the outsourcing ratio comes to around 70%. (Daiyamondosha 1959, p.292)

In 1956, the total value produced by the parts industry amounted to 59 billion yen. 80% of these companies were engaged in small lot manual processes, and their capitalization was under 50 million yen. These companies lacked the requisite technological base and they formed a bottle neck in the auto assemblers' effort to achieve scale economy. (Fujiki 2002, p.64)

In those early days just after the war, the chassis makers concentrated, as they still do now, on producing parts with important functions, such as the chassis, engine blocks, and other processes

with high value-added components. They were often referred to as ‘assemblers’ (*kumitate meekaa*) for they regarded assembling and coordinating the large number of requisite parts as another important activity. They subcontracted the less important components to the parts suppliers who were drawn from the machinery industry. In contrast, in America and Europe, the assemblers subcontracted only specialized items, the rest they manufactured in-house. (Daiyamondosha 1959, p.295) The internal vs. external production ratio is therefore a reversed ratio for the Japanese practice vis a vis the U.S. / European practice.

The Economic White Paper (1959, cited in Daiyamondosha 1959, p. 295) notes the development of a dual structure as the general machinery cum auto components supplying industry expanded. Competition based on technological innovations led to the formation of two groups of companies operating on different scales.

At the top end, there was a capital intensive group comprised of large companies with substantial capitalisation. These companies had achieved economies of scale by concentrating on the manufacturing of limited but specialized product lines. They manufactured specialized parts requiring specific technology and dedicated equipment which the chassis makers did not own.

At the lower end was a large group of SME’s which possessed only simple technology in terms of design and value added. They supplied in small lots labour intensive products which required customization. Outsourcing these parts to the SME’s was a cheaper alternative to in-house production for the assemblers.

Industry / *keiretsu* structure

The automobile parts industry is commonly perceived to have a vertical structure, with the assembler taking control at the apex of a pyramid. Immediately below the assembler is a group of first-tier suppliers, who in turn subcontract out their production to second-tier suppliers. As the industry expanded, participants in the industry may even fall into the categories of fourth and fifth-tier suppliers. Over time, as some first-tier companies grew big, their status have been promoted to “relationship” or “related” companies, and rank equal as the assembler. The industry engages a large number of subcontractors.

MITI’s view and how its policy shaped the formation and perception of *keiretsu*

According to industry statistics in 1954, factories employing more than 4 people produced a total

value of one trillion yen. This sector employed 974,000 people which were 20% of the labour force. It produced 20% of valued added in the entire manufacturing industry. Its exports were valued at 24,700,000 yen which was 12.3% of total exports. It was therefore an important industry in Japan's economy.

In MITI's view, this industry could contribute to the Japanese economy in two areas and it recommended that the industry be "nurtured".

The first contribution was that as an intermediate industry providing many hundreds and thousands of parts which fed into a final assembly industry; it had an important impact on the productivity of the downstream industries. The car parts industry was considered to be a critical industry for the automobile industry, for its pricing policy and technological levels could affect the chassis makers directly, in terms of the quality, the performance and the costs of the final products. The development of a highly structured and balanced automobile industry was predicated on the parts industry being able to increase its supply capacity, upgrade its technological ability and improve its management capability.

The second contribution, to quote from MITI (1956², p. 48 – 49) 'will be foreign reserves from exports. We can expect exports to the less developed countries in Southeast Asia to grow, giving us more foreign reserves. Our machinery exports constitute only 1 – 2% of world machinery exports, but we may be able to double and even triple this amount if an appropriate policy is found.'

The BOJ would have been highly critical of the second perceived contribution. Apparently, even MITI itself thought it was an unrealistic goal at the time and surprised itself later when the automobile industry did churn out an annual production of 500,000 to 600,000 vehicles, and machinery did become an important export industry. (Odaka 1996, p.351)

Notwithstanding, MITI's inclusion of the second goal was an indication that the Ministry was cognizant of the conundrum facing their task. Without a domestic automobile industry, Japan's scarce foreign reserves would be further depleted when later, existing aged stock would require replacement through importing. Writing off the existing industry would only be a procrastination strategy, yet building up the existing industry would result in an immediate depletion of the scarce

² The author *Tsuushousangyou Juukougyouka* [MITI Heavy Industry Division (1956) will be abbreviated as MITI 1956 throughout this paper.

foreign reserves. The machinery providing intermediate inputs for the automobile industry was old and unusable. State-of-the-Art machinery would need to be imported so the assemblers could become internationally competitive.

MITI also made the following observation:

‘We now have a dilemma. The parent companies could internalize the (upstream) parts production, but in the process, each would merely be duplicating dilapidated capital equipment inefficiently operated hitherto. Alternatively, the parts suppliers could stay (outside the assemblers’ vertical integration) in a low wage trap, unable to free themselves from the vicious circle of low technology, dependence on their parent companies, and become expendable as a buffer against economic fluctuation.’ (MITI 1956, p. 55 – 56)

MITI therefore faced the following daunting tasks:

1. A paradoxical twin aim of encouraging assemblers to nurture the SME’s under their own *keiretsu* so the latter can attain scale economy and be independent³;
2. Achieve the above two aims without exacerbating the foreign reserves shortage problem;
3. An ultimate twin goal of promoting the machinery (parts) industry as an export industry; and
4. Promoting the automobile industry for export, as the now internationally competitive parts industry underpin its downstream industry with quality components.

As we shall see later, MITI was able to achieve all of the above goals, but with an unexpected twist. More importantly, MITI’s policy measures implemented through the Machinery Industry Promotion Act (*kishinho*) had a profound influence in shaping the perception of the *keiretsu*.

How the *keiretsu* was perceived in academic literature

What is *keiretsu*?

³ This presented a dilemma from the assemblers’ perspective. They were to invest their time and energy in cultivating a *keiretsu* relationship only to have their members become independent later. This would not have made economic sense under normal circumstances.

Keiretsu is a Japanese style of business relationship. It is a pervasive concept permeating the entire Japanese economy. Although recent English literature tends to focus on *keiretsu* found in the automobile industry and the finance industry, there are *keiretsu* in practically every Japanese industry, ranging from electronics to cement, from tourism to construction.

There are two types of *keiretsu* according to the English classification. Horizontal *keiretsu* cuts across industries, but they all have a main bank focus. Member firms belong to a wide range of industries which may encompass manufacturing, wholesale, construction, telecommunication, and shipping, etc. Member firms have substantial cross-shareholdings in each other, and they cluster around a main bank, which often belongs to an ex - *Zaibatsu* group, such as Mitsubishi, Sumitomo and Mitsui.

Vertical *keiretsu* is generally industry-based. In the automobile industry, for example, the lead firm or the assembler is the focus of the group. Firms such as Toyota and Nissan design motor vehicles. They then outsource most of their parts requirement to their *keiretsu* members for final assembly. The structure is perceived to be highly hierarchical, hence the name vertical *keiretsu*.

The Japanese definition, in contrast, is less precise. For example, Fujiki (2002, p. 45) explains ‘The *keiretsu* concept is difficult to define. Very often it indicates that firms engaged in commercial transactions are bound in a financial relationship. Other terms such as subsidiaries, relationship companies (*kankei gaisha*) and related companies (*kanren gaisha*) are often used. A subsidiary, prior to the 1998 definition, was one where the parent company held a controlling interest of over 50%. Relationship companies and related companies are cases where the parent company held more than 20% of controlling interest. They are part of a *keiretsu* and when one wants to stress the parent-subsidary aspect of the relationship; we refer to them as horizontal *keiretsu*.’

In around the late 1980s and early 1990s, the *keiretsu* concept has been extended to include inter-firm relationships and governance structure. This seemed to have coincided with the publication of the work of three MIT professors. (Womack, Jones and Roos 1990)

The Japanese automobile industry was a formidable force in the 1980s. Many attributed this success to two major factors: the Toyota Production System and the *keiretsu*.

The Toyota Production System (TPS)

TPS, alternatively named the Toyota Method, was brought to world attention by Womack, Jones and Roos in their book 'The Machine that Changed the World' (1990). The triumvirate raised US\$5 million in 1984 in order to launch a 5-year study on the automobile industry. They were aware that Japanese automobile manufacturers were rapidly gaining market shares globally; thinking surely they must have developed a system more superior to the American production system. Yet the auto industries in North America and Europe chose to turn a blind eye on how this system worked. Instead they resorted to political pressure on their own governments and other competitive impediments to raise protective trade barriers. Concerned that this would merely delay the ultimately inevitable, the three professors from MIT embarked on an extensive study on the best practice in the automobile industry around the globe. Six years later the trio published their research findings and the idea of a 'lean machine' took the global automobile industry like a storm. Although the book aimed at presenting an international picture of where the automobile industry was heading, it was predominantly noted for its case study on how the Toyota Production System worked. The Toyota Method, and its related operational concepts of JIT, zero defects, the *kanban* system and *kaizen* became part of an English vocabulary. They appeared in just about every management textbook for students and practitioner managers.

Contrary to common beliefs both in the West and in Japan, the essential features of TPS, such as Just-in-Time delivery (JIT) and zero defects were not a Toyota invention. It was Nissan which first coined these concepts, and Nissan won the Deming Prize in 1960, five years before Toyota did.

Toyota had a different term for its own production system; it was initially called 'the supermarket system' (Matsui 1973, p. 42, and Yamazaki 2003, p. 43). The ultimate goals (Nemoto⁴ 1997, p. 3) were to eliminate wastefulness in order to raise productivity. There are seven types of wastefulness identified by Toyota. They are: over-production, unnecessary transport, overstocking (inventory cost), overstocking of parts, unnecessary complication, unnecessary tool change, and time spent on rectification of errors and defects. The implementation process involves twelve choices of action, which can be summarized as either JIT or automation procedure. Toyota's solutions are purely technical, operational and logistical. The underlying and indispensable structure supporting these waste minimization processes are the constant commitment to improvement (*kaizen*) made by all the section and division heads and team leaders through QC (quality control) circle activities within Toyota. The famous trio from MIT had

⁴ Professor Nemoto was the Chief Engineer in charged of Toyota's Total Quality Control (TQC) Program in the 1960s.

correctly captured the essence of the Toyota Method, by labeling it a 'lean' production system. However, they have misinterpreted the means by which Toyota perfected this system minimizing waste. TPS does not involve external participation. Nemoto (1997, p. 1), notes "The "lean production system" described by the three MIT professors extend beyond a simple production system of a final assembling process. It entails entire value streams encompassing product design, parts suppliers, manufacturing and sales." What Nemoto has listed as external participation outside the TPS system are some of the characteristics of a *keiretsu*, which became the focus of intense research in the 1990s.

History of *keiretsu* and literature review

Around the time Womack, Jones and Roos published their ground breaking work, a body of literature centering on the *keiretsu* began to emerge in English. Japanese scholars have been following the development of the *keiretsu* for some time before that. Interestingly, there was no mention of *keiretsu* at all in the trade journals, not until around 1960, after the First Provisional Act of Machinery Industry Promotion (*Kishinho*) has been fully implemented.

Keiretsu has many dimensions. The focus and perception as reflected in academic literature, trade journals and the media changed over time. There seems to be two turning points, one occurred around the beginning of the 1980s and the other in the 2000s. Prior to the early 1980s, *keiretsu* (parts suppliers) were perceived to be subordinate, dependent, closed, exclusive, and exploitative, as the members were small scale operators with backward technology, and they required "nurturing" by the majors.

Take Matsui for example (1973 • 2, p.41 – 42):

'The factors that shaped the relationship between the assemblers and the parts subcontractors were present at the inception of the industry. The general machinery industry was underdeveloped, and the parts suppliers did not have the requisite technology to support car manufacturing. Poor productivity was a major impediment for the development of our automobile industry.

This technology gap persisted after the Second World War. It became particularly pronounced during the Korean War, as the assemblers invested heavily in their own equipment in response to

the APA orders from the U.S. army.

The parts suppliers, with their backward technology and low productivity were unable to keep up with the assemblers' quest to attain economies of scale in their production. Consequently, the majors selected promising companies to be incorporated into their exclusive *keiretsu*. They nurtured their *keiretsu* member firms by providing training and equipment upgrade in order to raise their productivity.'

Amagai (1982, p. 161)

'Our machinery, parts and components industry has been nurtured by the chassis makers (assemblers). The relationship between the assembler and the parts makers is a subordinate relationship with no clear-cut division of work or specialization. It is a vertical division of labour.'

Fujiki (2002, p. 62 – 64) gave the following recount of the early years of its formation in the automobile industry.

'Many SME's joined a car assembler's *keiretsu* around this time (i.e. 1950s). The Dodge Line deflationary policy landed Japan in a deep recession. The APA boom resulting from the Korean War has ended. Big assemblers were confronted with a twin task of having had to keep cost down but at the same time raising the quality of the products they were selling. To meet these two challenges head-on, they needed to sort out those SME's with superior performance for inclusion into their own *keiretsu*. Newspaper headlines in those days were often dominated by sensational *keiretsu* reports such as 'big corporations controlling SMEs' finance', '*zaibatsu* revival', etc.'

In the 1970s, some Japanese literature analysed *keiretsu* according to their scale of operation, using criteria such as capitalization and number of employees. These companies were then divided into big, middle and small scale businesses. Matsui (1973 • 2, p. 40) was the first to note the phenomenon of customer diversification (*motokata fukusuuka*), which was found not only among the big companies with market power, but also the middle rank companies within the Toyota and Nissan *keiretsu*. Interestingly, he did not interpret this as a sign of suppliers leaving the *keiretsu* network, nor suppliers becoming independent. He dismissed the phenomenon of *motokata fukusuuka* as a way for the assemblers to lighten their responsibilities. He explains 'the companies belonging to this middle level supply car parts to both Toyota and Nissan, but they

always make sure that only one of them is their main customer. This shows that many components manufacturers are subject to their parent company's control.'

In the 1980s, as Japan claimed the world title of being the number one car manufacturing nation, *keiretsu* was still perceived to be exclusive, but this time for strategic reasons. The contribution from English literature seemed to play an important and influential role. The appraisals of *keiretsu* were definitely more positive.

For example, Ouchi (1981, p. 19) was the first to comment 'the relationship between the major auto firm and its satellite suppliers is one of total cooperation'. Monteverde and Teece (1982, p.212) concludes 'the (vertical integration) structure of (GM and Ford) appears to be designed to take advantage of the coordinating properties of hierarchies as well as the ability of internal organization to reduce the exposure of the automakers to opportunism from suppliers – a hazard which is apparently absent in the less integrated Japanese industry'. Williamson (1985, p. 120) notes an 'unusual relationship' exists between Toyota and its subcontractors as they share a 'common destiny'. Miwa (1989, p. 171) admonishes, 'we must not use such keywords as "exploitation, economic buffer, and subservience" to describe the relationship between the assembler and its subcontractors. The traditional view of *keiretsu* as an instrument of control cannot offer a good explanation.'

Asanuma (1984-1989) documents the long-term relationship and relationship-specific skills developed between a lead assembler and its parts suppliers. Unfortunately, he did not specify which the lead assembler in his study was. He analysed the relationship between the auto-assembler and its suppliers using concrete examples of how work was subcontracted at the design stage. He criticized the populist view of looking at the Japanese automobile industry. 'The perspective that insisted on an industrial structure unique to Japan, together with a subordinate paradigm, only shed light on the dark and unscientific aspects of the inter-firm relationship in this industry' (Asanuma 1984 a p. 137 -8). Instead he stressed the risk-sharing aspect of the relationship. He also pointed out that the relationship was predicated on future repeat orders, with room for negotiation over unit prices.

The 1990s saw a decade of *keiretsu* research focusing on transaction cost economics and game theory. Interestingly, the positive characteristics of *keiretsu* were justified and glorified, just as some of the industry's major firms and their supportive *keiretsu* became saddled with bad debt. Dominant perception characterizing *keiretsu* were: trust, cooperation, close relationship, common interest objective and long-term commitment. (Womack, Jones & Roos 1990, ch. 6; Smitka 1991,

ch. 1; Asanuma 1992, p. 106; Fruin 1992, ch. 8; McMillan 1992, p. 166; Kay 1993, p. 83 - 84; Dyer 1994, p. 176;)

The 21st century saw the evaluation of *keiretsu* coming full circle to where it began in the early post-war period. By now, three major firms had been taken over by foreign concern: Mazda by Ford in 1996, Nissan by Renault in 1999, and Mitsubishi by Daimler-Chrysler in 2000. *Keiretsu* bashing has become the latest game. The once exalted Japanese style management is heard no more. In its place, we see the popular media readily embracing and eagerly digesting Western style management concepts all spelt out in katakana⁵: supply chain management, open network, business models. These Western concepts are new, progressive and scientific, and unlike *keiretsu*, which is exclusive, closed, controlling and subservient. ‘*Keiretsu* has run its full course, it has lost its strengths, all the weaknesses are surfacing - will it soon turn into a fossil stone?’ (Fujiki 2002, p. 41) *Keiretsu* as a closed system is an impediment to profit (Fujiki 2002, p.38 - 40). In fact, *keiretsu* as a system of substance never existed – it was only a fable, a figment of imagination in the mind. (Miwa and Ramseyer 2002, p 170)

The *keiretsu* puzzle

Keiretsu is certainly puzzling. Consider the following:

- Just as the euphoric assessment of *keiretsu* reached its zenith in the mid - 1990s, *keiretsu* started to crumble. In one decade, *keiretsu* was the magic and the secrets behind Japan’s success, yet in the next decade, it was written off as a closed system, exclusive, exploitative, and a buffer against business cycles.
- Just as Carlos Ghosn became famous for “turning Nissan around” by disposing its shareholdings of its *keiretsu* members, Toyota is strengthening its own *keiretsu* (Table 1).
- The number one auto maker (Toyota) in Japan has a strong and unified *keiretsu*. On the other hand, the only maker that proclaims it does not have a *keiretsu* – Honda, came through the rank and file as a late starter in 1963 to become number two in the 2000s. The rest had a *keiretsu*, but many of them ended in financial distress. (Box 1)

⁵ Katakana is a Japanese script used to denote “loan words” or concepts with a foreign origin. Concepts spelt out in katakana are often considered to be more scientific and progressive.

To be successful in the automobile industry in Japan, there seems to be room for only one *keiretsu*, or no *keiretsu* at all. How can this paradox be resolved?

Table 1 Toyota Increasing shareholdings in its *keiretsu* member firms

| | 9/ 1995 (%) | 3/ 1997 (%) | 3/ 2000 (%) |
|-------------------------------|-------------|-------------|-------------|
| Denso | 22.9 | 23.0 | 25.0 |
| Toyoda Jidou Shokki Seisakujo | 23.1 | 23.1 | 24.7 |
| Aishin Seiki | 22.2 | 22.5 | 24.5 |
| Toyota Shatai | 44.1 | 45.2 | 47.1 |
| Toyoda Kouki | 21.1 | 22.7 | 25.0 |

Source: *Nihon Keizai Shimbun* April 15th, 1999; *Nikkei Sangyou Shimbun* August 31st, 1998; Ohkurasho (2000) *Yuuka shouken Houkokusho* March

Box 1: Winner and Losers

The winner

The best-known success story in Japan is Toyota. It is the most studied automobile assembler in Japan, if not in the world. Toyota recently announced its net profit; it was a staggering one trillion yen. That is roughly US\$10 billion, or A\$14 billion. Toyota alone will be able to cancel Australia's quarterly current account deficit with its after-tax profit.

Toyota and many of its related companies in the same *keiretsu* are debt-free. They do not own the bank a single cent – or yen to be more exact. Yes, the Group does have a *keiretsu*. It is called Kyouhoukai, with three geographically based divisions. Kyouhoukai was founded in 1939.

The losers

The losers are defined in terms of financial performance and foreign ownership. There are three in the late 1990s: Mazda, Nissan and Mitsubishi in the order of when they were being taken over by foreign concerns.

Mazda is a middle size auto assembler in Japan. Its operating profit hovered below 2% in the late 1980s and has turned negative since

1993. Debt became a persistent enemy and the company finally succumbed in 1997 to a takeover bid by Ford, which raised its stake to 33.4% with a \$481 million rescue package.

Nissan's debt had climbed to \$22 billion by the time Renault came to the rescue in 1999 with a cash injection of \$5.4 billion which translated into a 36.8% stake in the company. Nissan had long been the arch rival of Toyota, running neck and neck with Japan's number 1 car maker, trailing behind only slightly in terms of domestic market share until 1974. Its domestic market share peaked at 34% in 1972, but declined to below 19% in 1999. In an eight year period between 1991 and 1999, the company had managed to stay profitable for just one year.

Mitsubishi currently runs a global financial loss of \$14 billion. It recently announced that it will close down one of its two plants in Adelaide amongst others. Daimler-Chrysler, which has a 37% stake in Mitsubishi, refused to invest further funds to bail out the cash strapped *ex-zaibatsu* automaker.

The dark horse

Honda has frequently stressed that it does not have a *keiretsu*. When MITI took the view in 1961 that domestic competition within the automobile industry had become excessive, and flagged the idea of merging all existing assemblers into three oligopolies, Honda was the one that protested the loudest. Honda began as a motorbike manufacturer and it has been noted for its overseas success more than its domestic achievement. Honda overtook Nissan in 1999 and became Japan's second largest auto manufacturer.

The *keiretsu* fable – where does the truth lie?

It seems the confusion has stemmed from a number of sources. The Japanese mindset with regards to *keiretsu*, as can be deduced from the literature review above, was very much fixated on the exclusiveness dimension. The western perspective, on the other hand, was biased towards the strategic angle, using transaction costs and game theory to explain the industry's competitive advantage. English literature has also presumed an exclusive relationship exists. There are clearly winners and losers in the automobile industry as the 21st century unfolds. Yet existing literature tends to over-generalise the characteristics and features of different *keiretsu*. Most analysis on *keiretsu* treats the Toyota and the Nissan *keiretsu* as the same. More often than not, *keiretsu* has been examined as a general phenomenon, with no identification of names at all. Readers generally infer it is a Toyota *keiretsu*, as in the case of Asanuma's analysis, since Toyota is the most successful.

I identified the perceived 'exclusiveness' of the Toyota *keiretsu* as one of the keys to solving the *keiretsu* puzzle in a previous paper. (Anderson 2003, p. 6) In 1956, the Japanese government passed the Provisional Machinery Promotion Act (*kishinho*). Edwards and Samimi (1997) posit

that features of the *kishinho* fostered a common interest objective for both the assemblers and their *keiretsu* supplier members to cooperate in a long-term relationship. I decided that this act provides a natural experiment to test if the Toyota *keiretsu* has become more exclusive after the enactment.

Kishinho

The Provisional Act of Machinery Industry Promotion (*Kishinho*) was enacted in 1956, immediately preceding Japan's spectacular growth era. This legislation was intended originally for duration of 5 years only. However, it has since been extended twice, thus spanning a total of 15 years. The First *Kishinho* covered the period from June 1956 to March 1961, the Second *Kishinho* covered the period from April 1961 to June 1966 and the Third *Kishinho* covered the period from July 1966 to March 1971.

The *kishinho* as an industrial policy was anchored on a low interest rate policy. It was therefore classified as a monetary policy, and as such, legislative approval was not required. The *kishinho* was passed with unprecedented speed. It took only 6 months. The legislation was proposed by Cabinet, and it was passed by the Diet (Japanese Parliament) with no complication. The spirit of the Act was to promote SME's. The Socialist Party in opposition requested that target companies be small, so companies capitalized over 100 million yen were excluded from the Act. (Odaka 1996, p.340 – 342)

Instruments used to promote the machinery industry

The aim of the Act was to strengthen the basic machinery industry through specialization. The following measures were to be used to achieve this end (MITI 1956, p. 58 – 59):

1. Rationalisation of the machinery industry
 - ✧ Low interest finance for companies with small capitalization
 - ✧ Imported machinery to be subject to quota, tariff restriction and foreign reserves allocation. MITI approval required.
 - ✧ Establishment of cartels
 - ✧ Provision of administrative guidance on division of work, specialization and optimal scale of operation
2. Modernisation of capital equipment
 - ✧ Funds to be provided by the Fiscal Investment and Loans Program (FILP) for writing off equipment, and for investment in state-of-the-art capital facilities in basic machinery

that can produce common components and in transport machinery which make use of domestic technology.

- ✧ The Japan Development Bank (JDB) to give priority to the above industries by providing low interest finance over an extended period of time and relaxing collateral requirements
- 3. Export promotion
Overseas service centres, study tours and developing new markets in less developed countries
- 4. Improvement in production technology
- 5. Raw materials policy to provide a cheap and stable supply

With the benefits of hindsight, it is apparent the first two clauses under ‘Rationalisation of the Machinery Industry’ created incentives for the car assemblers to cooperate with first-tier suppliers at one level and the second-tier suppliers to become *keiretsu* members in a long-term relationship at another level. Foreign reserves allocation was the motivating factor for the assemblers, whereas low interest financing and other favourable tax treatment prompted the parts suppliers to cooperate in a *keiretsu*.

Incentives for the assemblers to “nurture” their own *keiretsu*

As the MITI report points out in an earlier section, the assemblers had the choice of internalizing activities that have been hitherto subcontracted to parts manufacturers prior to 1956. However, in so doing, the assemblers would need to purchase new equipment from abroad, as the machinery industry technology lagged behind its overseas counterparts. This would aggravate the foreign reserves deficit problem, which was the BOJ’s criticism of MITI’s stance. Hence, the *kishinho* prohibited the import of machinery without MITI approval.

MITI’s first goal was to help subcontracting firms to achieve economies of scale without resorting to the import of foreign capital equipment and technology, which would lead to an outflow of the already scarce foreign reserves. This regulation provided a strong incentive for assemblers to “nurture” the larger and more capable companies among the myriads of components manufacturers.

Edwards and Samimi (1997 p. 497-499) reason that for most manufacturers, access to the nation’s scarce resources – foreign exchange and funds for investment – was tied to participation in foreign technology transfer. MITI required local content to be at 90% level within five years.

Firms had the choice to make components themselves, but they realized ‘that internalization was an inefficient way of accessing the highly valued, scarce resources allocated on a priority basis by government at a substantial discount – investible funds and foreign exchange. An alternative way was for the major firms to focus more on assembly activities but to encourage SME’s to join with them and become specialized suppliers of different components and parts.’

Box 2: Denso – A case study of how the MITI policy (*kishinho*) impacted on an automobile components supplier

A total of 117 companies (with some duplication) were granted special low interest loans by MITI and JDB between 1956 and 1966. Some of these companies had received multiple rounds of FILP finance. I will use Denso as one case study to illustrate the effect of *kishinho*.

Date of establishment: Spring, 1949

Authorised Capital: 15 million yen

Product lines: electrical components

Denso was a recipient of FILP grants administered by the JDB on multiple occasions. The only two years that Denso missed out on the First and Second Rounds combined were 1956 and 1959. (Yamazaki 2003, p.30 and p. 66)

The following table provides a snapshot of Denso’s achievement in a ten year period while the First and the Second *kishinho* were in force:

| <i>Kishinho</i> Rounds | Year | Sales (in million yen) | No. of Employees |
|------------------------|------|------------------------|------------------|
| First Round | 1956 | 3,364 | 1,745 |
| | 1957 | 4,680 | 2,422 |
| | 1958 | 4,757 | 2,389 |
| | 1959 | 6,779 | 2,823 |
| | 1960 | 11,039 | 3,875 |
| Second Round | 1961 | 14,066 | 4,968 |
| | 1962 | 15,104 | 5,260 |
| | 1963 | 19,761 | 5,569 |
| | 1964 | 25,429 | 6,697 |
| | 1965 | 27,919 | 7,182 |

Source: Nippon Densou Kabushiki Kaisha Shashi Henshuu Iinkai (ed.) (1984) p. 41 & 58.

The company’s sales started from a low base of just below 100,000 yen in 1951. The post-war growth was impressive, for sales doubled in a matter of four years to under 200,000 yen in 1955. However, the quantum leap occurred a year later, after the *kishinho* took effect. It sky rocketed to 3,364 million yen! As the above table illustrates, sales almost quadrupled at the end of the First Round, then almost doubled by the end of the Second Round. The number of employees doubled during the First Round, then almost doubled again at the end of the Second Round of the *kishinho*.

There were other explanatory variables involved, but the company did acknowledge that the beneficiary effects of *kishinho* played an important part.

Incentives for parts manufacturers to join a *keiretsu* after the second *kishinho*:

The outcome in Box 2 must have caught MITI by surprise. MITI decided The Third *Kishinho* should specifically target the very small craft-based workshops. The massive components industry made up of SMEs prior to 1956 has now taken on a dual structure: a selected handful of first and second *kishinho* beneficiaries constituted the first-tier, and the vast majority of SME's were left behind as a second-tier group.

Odaka (1996, p. 345) observes, 'Many companies were able to obtain multiple grants in the first and second funding approval rounds.... These companies became the elite group right from the beginning.' 'Those companies that missed out on FILP finance was unable to invest in new equipment, and those that managed to, did so with a pronounced delay.'

MITI has successfully solved the first problem in the "dilemma" it had identified. However the second concern remained unresolved. Consequently the third round of *kishinho* targeted the much smaller SME's, and JDB was no longer the administrator of the funds as the the SME Finance Corporation was deemed more appropriate for evaluating the much smaller scale SME's.

'Although the low interest finance provided by *kishinho* was relatively small, about 1.4% of total investment on average for the whole industry between 1965 and 1970, the halo effect (*yobimizu*) of being approved by MITI meant that those companies could obtain finance from city banks with relative ease. It was estimated private finance constituted up to ten times the amount of funds provided through FILP.' (Odaka 1996, p 348.)

Ironically, instead of solving the second problem in MITI's dilemma, this halo effect created by the *kishinho* finance policy might have aggravated the very concern that MITI had for the lower tier components makers who were in danger of being locked into a dependent and subservient relationship, trapped by low wages and low productivity. Adding a further twist, these companies volunteered to join a *keiretsu* (Fujiki 2002, p. 62), lured by earlier successes of other companies, the availability of finance from (initially) public and private sources, and the promise of 'an exclusive' market for their products.

Testing whether the Toyota *keiretsu* became more exclusive with the *kishinho* enactment

Three rounds of finance were approved by MITI. The first round amounted to 4.3 billion yen, the second round 2.3 billion yen. Both rounds were administered by JDB. The third round was administered by the SME Finance Corporation (*chuushou kougyou kinyuu koukou*) and the target companies were second-tier smaller scale companies.

The incentive analysis in the previous section leads to a possible hypothesis. *Keiretsu* should become more exclusive at both the first-tier and the second-tier levels for the duration of the *kishinho*.

The companies, which were granted FILP finance, were checked for which and how many *keiretsu* associations (*kyouryokukai*) they belonged to. Exclusivity by definition is when a company belonged to only one *keiretsu* association. Exclusiveness could either be induced, or voluntary. At the first-tier level, assemblers would have reasons to ensure their “investment” (in terms of “nurturing” and time spent on training suppliers) stay within the *keiretsu*. They may want to encourage or even control member firms so they remain loyal (or exclusive). At the second-tier level, the motive for maintaining exclusivity would come from the opposite direction. The companies at the lower tier were small and they possessed little proprietary knowledge. They would volunteer exclusivity partially by default for they were not big enough to supply to more than one company.

Findings

The First Round

In this round, MITI targeted companies with the potential to reap economies of scale and it favoured independent companies which had a wide customer base (more than three).

Of the 50 companies which were successful in obtaining *kishinho* finance between 1956 and 1961, 10 companies (20%) belonged to an ‘exclusive’ *keiretsu*, none of them being Toyota. (Appendix 1)

The Second Round

Of the 67 companies that were granted JDB finance between 1961 and 1966, 15 companies (22%) belonged to only one *keiretsu*. Nissan's *keiretsu* was the most exclusive, and Toyota's *keiretsu* was the least exclusive. (Appendix 2)

The Third Round

The SME Finance Corporation administered this program between 1966 and 1971 for small-medium companies which did not qualify for JDB funding. Of the 88 companies which were successful in obtaining SME finance, 35 companies (40%) were exclusive, belonging to only one *keiretsu*. The Toyota *keiretsu* ranked 3rd in exclusiveness, behind Nissan and Mitsubishi. (Appendix 3)

Conclusions

According to Yamazaki (2003, p. 17), 'There are two opposing schools of thoughts when evaluating MITI's industrial policy. In Yamaguchi's interpretation (1979), in the 1950s, government – corporate relationship was used to "nurture" the components industry. MITI's aim was to fortify the management structure of big assemblers such as Toyota and Nissan. The "nurturing" policy proposed by the government and MITI was predicated on a vertical relationship, with the assemblers controlling the subservient components subcontractors. MITI's nurturing policy was to encourage the latter to support and complement the former within their *keiretsu*. Amagai (1982) takes a contrary view. In his opinion, MITI's intention was to liberate the subcontractors from their subordinate role in relation to the assemblers. They were encouraged to upgrade their technology and to become independent.'

The analysis and findings of this paper present a third and synthesized view. Both Yamaguchi and Amagai are correct, but each has examined and focused on a different tier and perhaps even possibly a different *keiretsu*.⁶ MITI had unintentionally created a dual structure in the automobile industry in its quest to solve a paradoxical problem. The more competent companies (take Denso for example) capitalized on the opportunities provided by the *kishinho*: they invested heavily in state-of-the-art equipment approved by MITI, raised their productivity and technological level through technology transfer and collaboration with foreign firms, and achieved economies of

⁶ It seems Yamaguchi's observation might have been based on the second-tier, and perhaps a non-Toyota *keiretsu* whereas Amagai might have been looking at the first-tier.

scale by diversifying their customer base, the end result of which was management independence. On the other hand, the smaller companies were left behind, not by MITI design, but through their own volition. The halo effect created by FILP funding approval, and the bank guarantee provided by the parent assembler within a *keiretsu* were the financial incentives for these so called “weak” companies to firstly join a *keiretsu* and secondly to stay in it as an exclusive supplier to their lead assembler.

In other words, not one, but two groups were involved in their pursuit of a common interest objective. Existing literature seems to shift its focus from the second group (prior to the 1980s), to the first group (in the 1980s and 1990s), and then write off the *keiretsu* altogether as Carlos Ghosn “turned Nissan around” by axing its *keiretsu* (in the 2000s).

For the first group, cooperation took place between the assembler and a selected group of companies. In this instance, it was the assembler who took the initiative. On a conceptual level, the assemblers would find it in their interest to selectively “nurture” the more able companies from amongst the myriads of SME’s, and have them buy state-of-the-art equipment on their behalf. The alternative – internalization – would have incurred a higher opportunity cost, since only components manufacturers were entitled to low interest FILP finance. Moreover, the MITI stance on imported technology would require the assemblers to obtain MITI approval for foreign reserves to be allocated. This created an incentive for Japanese machinery manufacturers to seek foreign collaboration and technology transfer. It may be more difficult for an assembler to find a foreign partner ready and willing to impart unreservedly their technology and proprietary knowledge, for fear their Japanese collaborator should one day become their own competitor.⁷

For the second group, cooperation took place between the small machinery manufacturers and the assembler. The incentive which motivated the small subcontractors to join a *keiretsu* was not the low interest FILP finance per se, but the ease with which other sources of finance could be secured and the promise of a single buyer who they could exclusively rely on. The incentive for the assemblers to incorporate these small companies into their *keiretsu*, as per MITI assessment, would be the lower cost structure that these companies offered. Moreover, the assemblers were not permitted to import equipment for internalizing the activities performed by these small scale

⁷ During an interview with MITI officials responsible for the automobile section of the *kishinbo*, one official – Mr. Kawabara – commented that back in 1954, Austin was gentleman-like and as a result Nissan benefited from this whole hearted goodwill technology transfer. However, Hino and Isuzu had been less fortunate as their foreign partners were more interested in exporting their knockdown technology to Japan than showing them the technology involved. (Jidousha Kougyou Shinkoukai 1979, p. 186)

operators, providing an additional incentive for the assemblers to subcontract.

Thus the *kishinbo* had created a distorted perception of *keiretsu*. When viewed using a Japanese hierarchical paradigm, the first group of companies could have been perceived to be promoted to first-tier, and the second group demoted to second-tier. Whereas in point of fact, the first group of companies, irrespective of which *keiretsu* they chose to belong to initially, have multiple customers in order to achieve a scale economy and the relationship was not exclusive. This was MITI's intention. The general perception though, was that both the first-tier and the second-tier groups were exclusive.

Contrary to common perception, Toyota was the least exclusive at the first-tier level. This lends support to my findings presented in an earlier paper, (Anderson 2003, p. 23) which demonstrates that Denso, despite its perceived exclusive ties to Toyota, sold more than half of its products to companies other than Toyota

At the second-tier level, the conclusion is not as clear cut. The fact that Nissan and Mitsubishi had more exclusive *keiretsu* at this level could simply mean that they have to source their supply from a bigger number of small scale companies, thus incurring a higher coordination cost than Toyota. Further research in this area is warranted

Toyota's *keiretsu* has been perceived to be exclusive (*haitateki*) until very recently (see for example Ooba 2001, p. 305). The next research issue is: if the general perception was distorted by its focus on exclusivity, could some of Toyota's domestic competitors have also been misled?

In short, to answer the question posed as the title of this paper, *keiretsu* is not a fable, and somewhere in between the two extremes of common perception is where the truth lies.

Appendix 1: Recipients of the First Round of FILP Finance (approved by MITI but financially administered by JDB)

The ten companies that belonged to only one assembler were:

| Assembler | <i>Keiretsu</i> Company | Total |
|------------------|--|--------------|
| Isuzu | Diesel Machinery (3 times) Press Industries (3 times) Tokyo Parts Industries (1 time) Tokyo Radiators (1 time) Touyou Clocks (2 times) | 5 |
| Hino | Sawafuji Denki (2 times) Takebu Tekkoujo (2 times) Sankyou Radiators (1 time) | 3 |
| Nissan | Hanshin Henatsuki Seisakujo (3 times) | 1 |
| Mitsubishi | Imasen Denki Seisakujo (1 time) | 1 |

Source: Yamazaki 2003, p.30 – 31 and Nihon Jidousha Kaigisho (1968-69) p.268-348.

Appendix 2: Recipients of the Second Round of FILP Finance (approved and administered by JDB)

| Assembler | Keiretsu Company | Total |
|------------------|--|--------------|
| Nissan | Kantou Seiki (5 times) Atsugi Jidousha Buhin (5 times) Fuji Kikou (1 time) Oniodorukawa (5 times) Jidousha Denki Kougyou (5 times) Kiipaa (3 times) | 6 |
| Hino | Takebu Tekkoujo (2 times) Sankyou Radiators (2 times) Yuusoouki Kougyou (1 time) | 3 |
| Mitsubishi | Imasen Denki (4 times) Mikuni Kougyou (1 time) | 2 |
| Fuji Juukou | Nairusu Buhin (5 times) Ibaragi Fuji Sangyou (3 times) | 2 |
| Toyota | Horie Kinzoku Kougyou (1 time) | 1 |
| Isuzu | Diesel Machinery (3 times) | 1 |

Source: Yamazaki (2003) p. 65 – 67 and Nihon Jidousha Kaigisho (1968-69) p.268-348.

Appendix 3: Recipients of the Third Round of FILP Finance (approved and administered by SME Finance Corporation)

| Assembler | Keiretsu Companies | Total |
|------------------|---|--------------|
| Nissan | Ooi Seisakujo (2 times) Ishino Gasuketto (2 times) Hanshin Henatsu Seisaku (5 times) Nihon Purasuto (1 time) Nagada Kougyou (2 times) Jidousha Denki Kougyou (1 time) Mitsuue Seisaku (2 times) Mitsuike Kougyou (1 time) Katou Hatsujou (6 times) Keiaisha (2 times) Yokohama Kikou (1 time) Sugimoto Kinzoku (2 times) Gotou Seisakujo (1 time) | 13 |
| Mitsubishi | Nihon Rokaki (2 times) Senkyoku Seisakujo (1 time) Sakura Kougyou (4 times) Marugo Gomu (2 times) Juei Kougyou (2 times) Okayama Mekki Kougyou (1 time) Mizushima Puresu (1 time) Chiyoda Kougyou (1 time) Kuno Sangyou (1 time) | 9 |
| Toyota | Kojima Puresu (1 time) Toyoda Tekkou (1 time) Kyouzan Denki (1 time) Horie Kinzoku (1 time) Nihon Gasuketto (4 times) Asahi Tekkou (1 time) | 6 |
| Isuzu | Kouritsu Sangyou (2 times) Amao Seisakujo (1 time) Nisshin Kougyou (1 time) | 3 |
| Fuji Juukou | Tomikuni Gomu (1 time) Nairusu Buhin (2 times) | 2 |
| Suzuki | Kyouei Seisakujo (1 time) | 1 |
| Hino | Horikiri Bane Seisakujo (3 times) | 1 |

Source: Yamazaki (2003) p. 69 – 71 and Nihon Jidousha Kaigisho (1968-69) p.268-348.

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