

When NOT to Learn: Misguided Teaching in the DCX-MMC Strategic Alliance (Part I)

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Special Introductory Note: At the time of the writing of this paper, MMC was dealing with its third major corporate scandal in fifteen years. The first two scandals happened in 2000 and 2004 and involved systematic cover-ups of quality issues of MMC vehicles that should have been recalled but were not. The second scandal immediately preceded the effective end of the DCX-MMC alliance, forced the company to undertake a series of major reform initiatives. Yet, in April 2016 MMC admitted again to decades of falsifying results of government-mandated fuel economy measurement tests in Japan.

While it certainly does not excuse lying to the government and overstating by a reported 5-10% the listed fuel economy of some of its vehicles sold in Japan, it is important to note that the government-mandated tests themselves are rather misleading from the point of view of the consumer. In Japan, the listed fuel economy of all vehicles has generally been greatly inflated over what an actual user will experience in real-world driving conditions.¹ The data in this paper's Appendix show the fuel economy discrepancies between the posted and actual performance of MMC vehicles does not seem to have been markedly different from that of other Japanese automakers.²

Nevertheless, many have called the most recent MMC scandal an existential crisis. To use a baseball analogy, this third major scandal feels like a third strike. In response to the current crisis, in May 2016, MMC accepted an offer of 237.4 billion yen from Nissan Motors in exchange for giving up a controlling equity stake of 33.4%.³ The equity tie-up between Nissan and MMC builds upon increasingly close

¹ This discrepancy between posted and actual fuel economy seems to have generally been much smaller for vehicles made by overseas automakers. It would seem that only the Japanese automakers have taken the extraordinary test-taking special efforts (in Japanese, *juken benkyo*) that are required to secure such "good (=misleading)" test results. In an apparent response to the wide discrepancies, the Japanese government revised its testing mode (changing it from the 10-15 mode to the JC08-mode) from April 2011. However, since the test is still done using stationary rollers and not real-world driving, the new method would still seem to be subject to being "gamed" by extreme test preparation.

² Definitive conclusions cannot be drawn from the relatively small data sample shown.

³ Interestingly, the Japanese business press has reported that the most recent scandal was exposed following a disclosure by Nissan, which sells Nissan-branded kei micro cars that were engineered and assembled by MMC, for which Nissan was unable to replicate MMC's fraudulent test results.

cooperation between the two companies, most notably the formation of NMKV, a joint venture that serves the kei (micro) car market in Japan.

Pending completion of the Nissan-MMC alliance and a stable resolution to the current crisis, Part I of the present paper is limited to presenting the DCX-MMC case. Detailed discussion of the case and its implications for theory and practice will be left to Part II, which will be published in a subsequent issue of this journal.

1. Introduction

Learning from a partner is a common goal for a strategic alliance⁴ (Inkpen, 2002). The term learning alliance was coined to describe alliances where both sides of an alliance seek to learn each other's complementary organizational capabilities (Kale et al., 2000). In the mid- to late-1990s, a massive wave of consolidation swept through the world auto industry, including numerous learning alliances. Ten years later, the majority of these alliances and mergers had been dissolved (Heller and Fujimoto, 2007).

Daimler Benz AG, led by Jürgen Shrempp, did particularly poorly during this period of auto industry reorganization. The company's 1998 merger/takeover of Chrysler has been ranked among the worst mergers of all time.⁵ Almost immediately after the new company, Daimler Chrysler (DCX), was formed the automaker quickly sought to increase its presence in Asia. In 2000, DCX acquired a 10% equity stake in Hyundai Motors and, after withdrawing from deep negotiations with Nissan Motors (Ghosn, 2002), formed a strategic alliance with Mitsubishi Motors Corporation (MMC). The DCX-MMC alliance lasted only five years and has likewise been labeled a case study in failure (Begley and Donnelly, 2011).

An explanation commonly heard in the industry of why the DCX-MMC alliance failed is bad cultural management by the Germans exacerbated a dysfunctional Japanese organization. The academic literature tends to fault the lack of a coherent strategy to integrate MMC into the DCX Group (Paul, 2008; Begley and Donnelly, 2011; see also, Pritchett et al., 1996 and Howell, 1970). This paper re-examines the alliance and challenges these standard explanations of its failure. The analysis in this paper finds that top management at DCX seems to have initially misunderstood the capability weaknesses at MMC. As a result, much of the "quick fix" that DCX tried to apply, or teach, to MMC was largely not needed, and the real problems at MMC were insufficiently addressed.

The paper generalizes lessons from the case for alliance management, particularly with regards to learning in an alliance. Although learning is often stated to be an alliance goal, there are times when *not learning* may be as important or possibly even more important than learning. Under such a perspective, the failed alliance learning in the DCX-MMC case can actually be evaluated highly. Had MMC better learned what DCX was trying to teach, both MMC and DCX may have ended up in an even worse state. In short, a company should not learn a partner's comparative weaknesses, even if a partner insists.

This paper contributes to understanding of inter-firm learning by analyzing a failure case. It presents a cautionary tale on the negative side of learning and how misguided teaching can easily happen when

⁴ The term alliance is used to indicate a cooperative inter-firm relationship that goes beyond a pure arms-length contract (Heller, 2003). The reason the relationship between DCX and MMC is described as an alliance rather than a merger is addressed at the end of the Methodology Section of this paper.

⁵ "The 9 Worst M&A Deals In History" by Laura Brodbeck, November 11, 2015; accessed July 2, 2016. <http://www.benzinga.com/general/education/15/11/5973552/the-9-worst-m-a-deals-in-history>

alliance partners do not understand themselves and each other sufficiently. In particular, firms need to take care not to overestimate their own capability strengths vis-à-vis a partner, as such incorrect evaluation can be a source of misguided teaching

The remainder of Part I of the present paper is organized as follows. Section 2 provides a literature review of the learning alliance and introduces a learning/teaching framework that will be used to analyze the DCX-MMC case. Section 3 presents the case, after which comes the list of references. Part II of the paper, which will be published in a subsequent issue of this journal, will discuss the DCX-MMC case in Section 4 and conclude the paper in Section 5.

2. Literature Review and Research Methodology⁶

The research setting of this paper is the field of inter-organizational relations (Yoshida, 1991; Yamakura, 1993; Ring and Van de Ven, 1994; see also, Adams, 1980). The focus of the paper is on the two-firm case of inter-organizational relations, making the principal target of analysis that of a dyad relationship. The research examines inter-partner learning, that is, the flow of knowledge, especially organizational capabilities (Dosi et al., 2000), between two firms that are engaged in cooperative relations. Such relationships have been called *learning alliances*⁷ (Khanna et al. 1998; Makri, 1999; Inkpen, 2002) and are frequently entered into by firms that occupy similar positions on a value chain, in other words, horizontally related firms⁸, making them rivals or potential rivals.

Figure 1 illustrates the typical view of learning alliances in the extant literature based on Hamel (1991) and Khanna et al. (1998). In T_0 , two firms with complementary organizational capability strengths/weaknesses decide to enter into a learning alliance, where they seek to learn their respective capability strengths from each other. The alliance relationship begins in T_1 . Here each firm will tend to seek to be the first to reach T_2 , learning from its partner as much and as quickly as possible.⁹ Following Smith (1982), learning is defined here as acquiring existing knowledge, in particular knowledge that makes up organizational capabilities, which are likely to be socially complex (cf., Barney, 1986a), can be expected to involve high levels of tacit knowledge (Tsoukas, 2003; Kogut and Zander, 1992; Nelson and Winter,

⁶ This section draws closely on the unpublished work, Heller (2006), and the Japanese-language book chapter, Heller (2007).

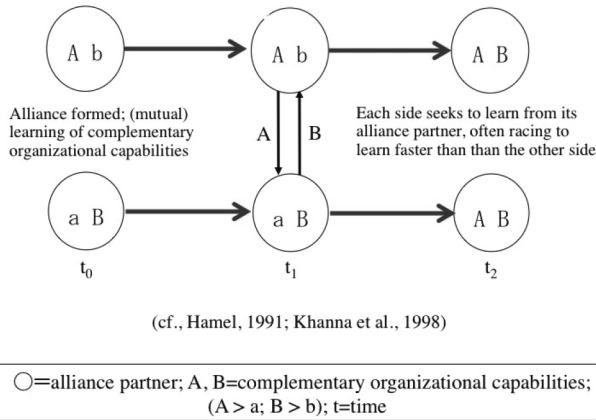
⁷ Much early work that focused on inter-partner learning in alliances does not employ the term *learning alliance* (e.g., Hamel, 1991; Inkpen and Crossan, 1995; Lane and Lubatkin, 1998; Inkpen and Dinur, 1998). However, beginning with Levison and Asahi (1995), the term gained widespread acceptance from the late 1990s (e.g., Khanna, et al., 1998; Makri, 1999).

⁸ A horizontal alliance (e.g., cooperation by two assemblers or by two suppliers) contrasts with a vertical alliance which refers to cooperation by firms that occupy different upstream or downstream positions in the value chain (e.g., cooperation by an assembler and a supplier). A vertical alliance may also offer many opportunities for inter-partner learning (e.g., see Sako, 1999; Dyer and Nobeoka, 2000; Takeishi, 2001, 2002; among others), but such alliances (also referred to as "partnering") are commonly considered separately from horizontal alliances and have not generally been the focus of research on learning alliances, per say, as research on learning alliances has tended to concentrate on horizontal alliances.

⁹ Reaching T_2 first would allow a partner firm to renegotiate the terms of the alliance or break off the agreement altogether. Assuming the alliance is not terminated and both firms reach T_2 , they may mutually decide to end the alliance since their learning objectives have been accomplished. Or, they may decide to remain together to pursue other alliance objectives, such as economies of scale or scope (Doz and Hamel, 1998) or create new knowledge together (Nonaka, 1991).

1982; Polanyi, 1967), contain causally ambiguous relationships (Rumelt, 1984) and be path dependent (Dierickx and Cool, 1989; Teece et al., 1997), making them difficult to imitate and transfer (Barney 1986b; Kogut and Zander, 1992).¹⁰

Figure 1: Learning Alliances



Source: Heller (2006), p. 3.

The concepts of intent, transparency, and receptivity introduced by Hamel (1991) have been widely used to explain inter-partner learning. Essentially, this view argues that, in order to learn from a partner firm, a firm needs to have the desire (intent), necessary access (transparency), and ability (receptivity¹¹) to learn. Lane and Lubatkin (1998) followed Hamel in analyzing inter-partner learning specifically as a dyad relationship. They reinterpreted the Cohen and Levinthal (1990) general concept of absorptive capacity¹² into the relation-specific concept of relative absorptive capacity, which holds that alliance partners that possess common knowledge bases (including basic skills, shared language, ways of thinking, etc.), organizational structures, and dominant logics, will be more readily able to learn from each other.¹³

Introducing a teaching perspective

Heller (2002) argues that in cases where partners actively support each other's learning goals it is useful

¹⁰ This description of organizational capabilities draws on Heller and Fujimoto (2004).

¹¹ Hamel (1991) uses the term *receptivity* to refer specifically to the ability of the learning organization to diffuse learning throughout itself. In Huber's (1991) language, it corresponds to the *breath, elaborateness, and thoroughness* of learning.

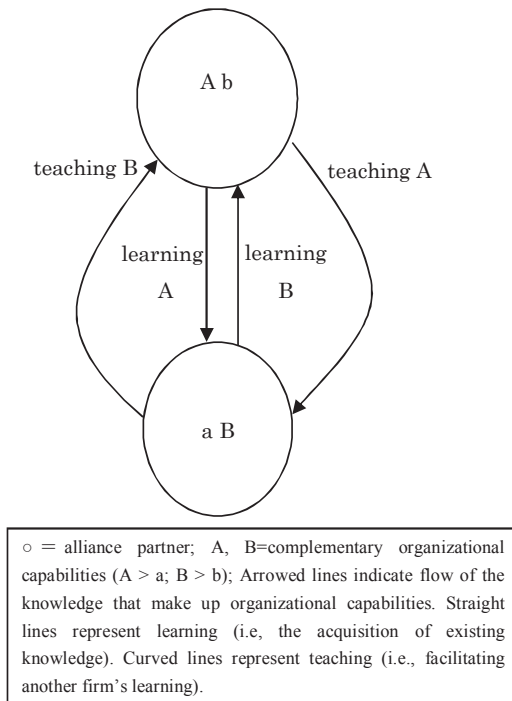
¹² Cohen and Levinthal (1990) define absorptive capacity as a firm's ability "to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (p. 128) and hold that this capacity is a key component of a firm's innovative capabilities. For a literature review of the absorptive capacity construct, see Van Den Bosch et al. (2003).

¹³ The measure for absorptive capacity used by Cohen and Levinthal (1990) is R&D spending. However, in Lane and Lubatkin (1998), relative absorptive capacity is measured by similarity of the partners' basic knowledge, degree of management formalization, degree of research centralization, compensation practices, and level of participation in research communities. They found that this relative absorptive capacity concept explained inter-partner learning better than the absorptive capacity concept.

to incorporate a teaching perspective into the analysis of inter-partner learning. Following Zhao et al. (2004) and Schulze et al. (2014), the present paper holds that better representation of the capability acquisition process by considering the other side of the learning transaction, namely, the capability source, as a teacher can improve understanding of the learning process.

Teaching is defined based on Knowles (1981), that is, facilitating another's learning. A framework of inter-partner learning that incorporates capability teaching is depicted in Figure 2, which shows a two-firm alliance, where the firms possess complementary capability endowments. One firm is comparatively stronger in organizational capability A (e.g., strategic management). The other firm is comparatively stronger in organizational capability B (e.g., operations management). Each firm teaches its comparatively stronger capability to the other.

Figure 2: Introducing a Teaching Perspective into Learning Alliances



Source: Modified from Heller (2002), p. 21

What are the incentives for a firm to teach its relative capability strength to an alliance partner? The first direct benefit of teaching an alliance partner is that it may contribute to a partner's learning. As mentioned above, a partner's learning may indeed be considered a benefit for the teaching firm if we assume that the alliance partners are engaged in ongoing cooperative endeavors (e.g., joint new product development, etc.). In an organizational setting, teaching may help a partner's learning by making tacit knowledge explicit, which reduces complexity and ambiguity, as causal relationships become visible. This help suggests a mechanism by which the organizational replication construct (Kogut, 1988) may

function in the case of an ongoing concern.

The second benefit of teaching an alliance partner is that it may directly contribute to the teaching firm's own learning. In order to effectively teach an alliance partner the teaching side needs to understand the learning side. In understanding the learning side, the teacher can gain insights into what specifically are the sources of its alliance partner's capability strengths. This knowledge can then be used to aid the teacher's own learning of capabilities from the learner. As such, this benefit may be considered a form of "learning-by-teaching".¹⁴

The third direct benefit of teaching an alliance partner is that doing so can drive the internal capability building of the teaching firm. If a firm expects that its teaching will aid a partner's learning, then engaging in teaching will be expected to result in a partner catching up. The presence of a partner that is catching up could push the further development of the capability being taught by the teaching side provided the teaching firm wants to stay ahead of the learning firm.

The third benefit of teaching is generated in the following way. In order to teach an organizational capability to a partner, the content of the organizational capability needs to be analyzed and understood by the teaching firm, which will likely require the capability to be made more explicit. The process of doing this analysis and efforts to make the capability more explicit can contribute to the teaching firm gaining a deeper understanding of the capability itself.¹⁵

As the capability is taught to an alliance partner, greater understanding of the capability may be produced due to the different organizational context from that of the teaching firm. Trying to teach a capability so that it will function in a very different context can be expected to trigger the higher-order learning that can result from inter-organizational relations, as theorized in Yoshida (1991). For example, such a partner may ask unexpected and insightful question and thereby stimulate the further development of a capability.

The development of new knowledge caused by the teaching firm's preparation to teach and the act of teaching an organizational capability may thus push the further development of this capability in the teaching firm. In essence, this can be viewed as a way of a firm gaining a better understanding of itself, which could include a visualization of any latent problems. As such, this third benefit can be understood as reducing the causal ambiguity of organizational capabilities pointed out by Rumelt (1984). It may also be related to the benefit of remembering-by-teaching suggested by Kogut and Zander (1992).

Need to correctly evaluate one's own capabilities

For partner firms to benefit from teaching in a learning alliance, the firms need to be learning organizations (Senge, 1990; Tsang, 1997), which includes but is not limited to having the motivation (Hamel, 1991) and ability to learn valuable capabilities from a partner firm (Lane and Lubatkin, 1998). A

¹⁴ It should be clarified that this second benefit to teaching is not simply what may be considered a commonly occurring indirect reciprocal effect of a firm engaging in useful teaching of an alliance partner. That is, Firm Y's earnest teaching to Firm Z may encourage Firm Z to reciprocate by engaging in its own teaching to Y. Such an occurrence could be called a "returning the favor" (*ongaeshi*) effect. While this indirect benefit of teaching may exist in many cases, it should not be understood to be what is meant above by the second benefit of teaching, which is viewed here as a direct effect of teaching.

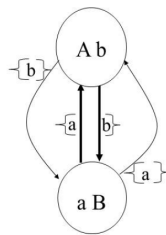
¹⁵ Drawing on the work of Quinn et al. (1996a, 1996b), Inkpen (1998) suggests such a benefit to teaching exists in the intra-firm setting.

negative bias toward external knowledge, such as the Not-Invented-Here (NIH) syndrome (Katz and Allen, 1982), will inhibit a firm's ability to value correctly a partner's organizational capability strengths.

NIH is also one means by which a firm may overestimate its own capability strengths. In addition, a firm may also have difficulty teaching its capability strengths to a partner. Without accurate evaluation and appropriate teaching, firms in a learning alliance may engage in misguided teaching and learning where relatively weaker capabilities are exchanged. Figure 3 gives a graphical depiction of this highly undesirable state.

Figure 3: Need for correct evaluation of relative capability strengths

Alliance firms must mutually evaluate correctly their respective relative capability endowments.



Otherwise, the mistaken learning and teaching shown in the figure is liable to occur.

○ = alliance firm; A, B = complementary organizational capabilities (A > a; B > b); straight black solid arrows indicate learning

The dynamic nature of capabilities can make them difficult to measure (Dosi et al., 2000), which can impede correct evaluation. Also, if an alliance has one side which is viewed as the leader of the alliance (e.g., the side that has an ownership position in its partner), there are subtle psychological issues and power considerations involved which can complicate objective evaluations of one's own capabilities vis-à-vis those of an alliance partner.

Open access to information between partners will likely facilitate each firm's evaluation of the other. Nevertheless, the capability to perform reasonably accurate evaluations must also be present. Such a capability may be considered an aspect of the relative absorptive capacity of partners (Lane and Lubatkin, 1998; see also, Cohen and Levinthal, 1990, Inkpen and Crosson, 1995).

Research Question and Methodology

At the beginning of this paper, the failed equity alliance between DaimlerChrysler (DCX) and Mitsubishi Motors (MMC) was introduced. The literature review on learning alliances and teaching framework presented here provide a means for analyzing this case and potentially uncovering reasons why the alliance failed. The following two research questions are proposed.

- (1) Was the DCX-MMC a learning alliance?**
- (2) If so, did teaching occur in the DCX-MMC alliance – how and why did this teaching occur?**

The case study is considered an appropriate research methodology for investigating the research

questions of this paper. Yin (1994) describes the case study as the preferred method of inquiry when “how” or “why” questions are being asked, the investigator has little control over events, and when studying complex contemporary phenomenon within their real-life context (i.e., where the boundary between phenomenon and context are not clear). Yin (1994) details how the case study can be used as a rigorous explanatory research tool, which is distinct from the use of case studies for purposes such as teaching and description. One key tool used in case-study research is that of triangularization from multiple sources of evidence.

Primary sources used in this paper are press releases by the concerned companies. A variety of secondary sources, such as newspaper and business press articles, were also used. In addition, the author visited and conducted interviews with managers at MMC during the period covered in this paper’s case study (Mizushima, January 2004; Nedcar in the Netherlands, January 2005) and DCX within a year of the dissolution of the alliance (Stuttgart in March 2006). At each of these company visits, the author verified as much as possible the content of the secondary sources used in this paper.

The two research questions are operationalized as follows. For the first research question, each partner’s intent, transparency, and receptivity (Hamel, 1991) toward the knowledge of the other will be examined. For the second research question, the basis of any teaching uncovered in the cases will be analyzed. In particular, whether or not the teaching was done based on the two companies correct evaluation of each other’s strengths and weaknesses.

Given the difficulty in obtaining access to publishable private comments in a failure case, analysis will be done based on the many public statements by the companies and their representatives that surrounded this high-profile case. English and Japanese statements are analyzed directly, but German statements were only examined to the extent that they were available in English-language publications. Since all relevant points may not be made public, analysis based on public statements may be limited.

3. Case Study: The DCX-MMC Alliance

This section begins by introducing Mitsubishi Motors Corporation (MMC). We then turn to Daimler-Benz and Chrysler, the two companies that merged in 1998 to form DaimlerChrysler (DCX). Next, an overview is given of the history of the cooperative ties between DCX and MMC that existed in the years prior to the alliance. The section then presents the alliance between the two companies that lasted from 2000 to 2005.

Daimler-Benz was founded in 1926 with the merger of the companies founded by Karl Benz and Gottlieb Daimler, two individuals who played key roles in the development of the gasoline engine. The 1886 Benz Patent Motorcar is generally regarded as the first gasoline-powered automobile. With sustained success in building the Mercedes-Benz brand, Daimler has long been considered to be *the* leading automobile manufacturer in the world. While Mercedes-Benz is best known for its luxury vehicles, the brand’s strong position in the auto market is not limited to passenger cars. Mercedes (and its U.S. brand, Freightliner) is also the leading manufacturer of heavy-duty trucks.¹⁶

¹⁶ Daimler’s truck division was called the “undisputed top dog” of the industry in “Moving on Without Chrysler: Daimler’s \$27.5 Billion Lesson” by Michael Kröger, Spiegel ONLINE, May 15, 2007. (www.spiegel.de/international/business/moving-on-without-chrysler-daimler-s-27-5-billion-lesson-a-482971.html)

Chrysler Corporation was founded in 1925, by Walter P. Chrysler who had successfully built the Buick brand under General Motors until 1920. Three engineers hired by Chrysler, F.M. Zeder, O.R. Skelton, and C. Breer, created the Chrysler Six, which many consider the first modern automobile. As the third automaker in the Big Three, Chrysler has played an oversized role in the development of the automobile in the U.S. The company created the minivan segment in the 1980s and is highly regarded for its prescient 1987 acquisition of American Motors Corporation, including the Jeep brand from Renault (Heller et al., 2006). Between 1971 and 1993, Chrysler had an equity alliance with Mitsubishi, which is described in more detail below.

DaimlerChrysler Corporation (DCX¹⁷) was created in the midst of a wave of consolidation in the auto industry (Heller et al., 2006), Daimler-Benz and Chrysler merged in a \$37 billion “shotgun wedding”¹⁸ style deal. The merger was notable for its size¹⁹ and the speed at which the deal was consummated after the start of discussions (Vlasic and Stertz, 2000). The creation of DCX was greeted favorably by the stock market, even though the scale of each company was well beyond the level needed for minimum-efficient scale (Fujimoto and Heller, 2004).

For Daimler-Benz, which had been led by the ambitious Jürgen Schrempp since 1994, the merger was a method to expand quickly into the mass market, much as BMW had done when it acquired Rover, including its Mini brand, in 1994. Mercedes made its first push into the lower-end of the premium market in 1997 with the launch of the sub-compact, A Class, which was not particularly well received by car critics and the market.²⁰

In 1998, Daimler-Benz attracted much attention by launching the SMART car, the initial concept of which came from the CEO of Swatch, Nicolas Hayek. This micro-sized, two seater, iconic car effectively created a new market segment. The first SMART also impacted the auto industry with its innovative modular design and production methods that featured suppliers sharing a manufacturing facility with Daimler-Benz, the vehicle assembler.

For Chrysler, the 1997 Forbes Company of the Year, the merger represented an opportunity for corporate leaders, Bob Lutz and Bob Eaton, to take a rather domestic U.S. company and quickly make it truly international. Perhaps Chrysler’s management viewed DCX as a way to revive the “Global Motors” dream of former company president and Eaton’s former boss, Lee Iacocca.²¹

Though it had been promoted as a “merger of equals”, even from the beginning it was widely viewed as a takeover of Chrysler by Daimler (Vlasic and Stertz, 2000), and nearly immediately there began an exodus of key Chrysler executives from the merged company.²² The merger was followed by rapid

¹⁷ DaimlerChrysler’s stock market symbol, DCX, is used as an acronym here.

¹⁸ The 1998 Annual Report of DaimlerChrysler says the merger was “completed in record time”. See also, the April 1, 2001 article in *WardsAuto*’s “Shotgun Wedding”, by Alisa Priddle and Katherine Zachary.

¹⁹ The New York Times described the merger as “the biggest industrial takeover ever and the largest acquisition of a U.S. company by a foreign buyer.” (“Daimler-Benz Takes Over Chrysler as VW Acquires Rolls-Royce: Fast Lane for German Firms” by John Schmid, May 8, 1998.

²⁰ See, for example, a January 2005 car review by the U.K.-based Automobile Association (www.theaa.com/allaboutcars/cartestreports/2005010.html).

²¹ “Iacocca’s New Global Motors” by James Mateja, *Chicago Tribune*, April 21, 1985.

²² The company began in 1998 with two chairmen (Eaton and Schrempp) and seven of seventeen members of the management board of DaimlerChrysler came from Chrysler. However, within two years, the following people who

declines in financial performance of the Chrysler unit of the company, which precipitated increasing intervention from the German side, most notably dispatching in 2000 Dieter Zetsch to be CEO and President of the Chrysler Group (cf., Gomes et al., 2010).

Mitsubishi Motors Corporation (MMC) was founded in 1970 when the automobile division of Mitsubishi Heavy Industries was spun off to form a separate company.²³ The first Mitsubishi vehicle, the Model A, was built in 1917, making it one of the earlier Japanese motor vehicles. In 1950 under the post-war GHQ-led policy, Mitsubishi Heavy Industries was broken up into three companies, all of which continued to engage independently in motor vehicle production (in Mizushima, Nagoya-Okazaki, and Kawasaki, respectively), until the companies remerged in 1964.

Despite its being smaller than the Big Three Japanese automakers (Toyota, Nissan, and Honda), only MMC produced a full line-up of vehicles, from micro (*kei*) cars to heavy-duty trucks, within a single company. MMC's truck brand, Fuso, has long had a solid market share in Japan. Fuso has also been quite strong in various countries in Southeast Asia. However, this meant that MMC was disproportionately exposed to the negative effects of the Asian financial crisis in the late 1990s.

In addition to highly efficient development organization, MMC's high engineering skill was well recognized in the industry, for example, its Pajero SUVs took the top three positions in the Paris-Dhakar rally in 1992, and its Evolution series of sports cars developed a devoted following both at home in Japan and abroad. Orihashi (2007) and Orihashi et al. (2011) discuss the high product development efficiency at MMC. Orihashi (2000, 2008), Fujimoto and Orihashi (2002), and Orihashi and Fujimoto (2003) discuss the strong manufacturing capability at MMC. Interestingly, technical support from MMC also contributed to the first domestically developed South Korean car, the Hyundai Pony, in 1975.

After MMC was spun off from Mitsubishi Heavy Industries, it entered into an equity alliance with Chrysler, where the later acquired a 15% ownership stake of the former in 1971. The alliance provided MMC with access to a large sales channel in the U.S. and Australia. At the same time, the alliance effectively limited MMC's own international expansion to Southeast Asia and Taiwan, until Chrysler sold its equity stake in MMC in 1993.

The long history of cooperation between MMC and Chrysler, included many forms of cooperation, such as MMC supplying vehicles to be sold under the Chrysler brand in the U.S., production of Mitsubishi-branded vehicles at Chrysler's Australian plant²⁴, and the establishment in 1985 of a U.S. greenfield joint-venture plant.²⁵ Daimler-Benz and Mitsubishi had a history of cooperation dating to 1988 when they made a basic agreement for MMC to distribute Mercedes-Benz' commercial vehicles in Japan.

had been the corporate leaders of Chrysler left the merged company: Bob Lutz (vice-chairman, 1998), Dennis Pawley (manufacturing, 1998), Bob Eaton (chairman and CEO, 1999), Thomas Stallkamp (purchasing, 1999), Francois Castaing (engineering, 2000), Thomas Gale (design, 2000), and James Holden (marketing, 2000). By 2001, only two of the thirteen board members at DaimlerChrysler were from the former Chrysler.

²³ The roots of Mitsubishi Group, the largest corporate *keiretsu* group in Japan, date back 1870 when, shortly after the Meiji Restoration, Yataro Iwasaki founded the company that would grow into the Mitsubishi Zaibatsu. At the keiretsu's core is Mitsubishi Heavy Industries, Mitsubishi Tokyo UFJ Bank, and the general trading company, Mitsubishi Corporation. In addition to the many companies that feature the Mitsubishi name, the following companies are also part of the keiretsu: Kirin Holdings, Tokio Marine Holdings, NYK Line, Asahi Glass, and Nikon.

²⁴ MMC and the general trading company, Mitsubishi Corporation, fully purchased this Australian plant from Chrysler in 1979-1980.

²⁵ MMC acquired Chrysler's stake in this U.S. plant in 1991.

The agreement was slow to develop, however, with the first imports beginning only in 1994. Slow sales in the post-bubble Japanese economy led the companies to terminate the agreement in 1996.

The **DCX-MMC Alliance** was announced on 27 March 2000 to form the 3rd largest auto group in the world, based on its production volume of 6.5 million cars in 1999. For DCX, the alliance was viewed as a means to rapidly increase its presence in Asian markets. Though the alliance was limited to passenger cars, it also served the purpose of blocking the ambitions of DCX's rival in the commercial vehicle segment, AB Volvo (Volvo Trucks), which was seeking to strengthen its ties with the MMC's truck and bus business. MMC sought a capital infusion to stabilize its financial position and grow its business after three consecutive years of net losses, largely attributable to falling sales in Southeast Asia due to the financial crisis of the late 1990s. Both sides saw opportunities for joint small car and engine development.

According to a letter of intent signed by the two companies, DCX would acquire 34% of MMC for 450 yen/share making the total investment 2.25 billion yen (\$2.1 billion USD), with commercial vehicles excluded from the agreement to accommodate MMC's existing agreement with AB Volvo.²⁶ The DCX ownership stake would not be increased for ten years without approval from the MMC board. A minority stake allowed MMC to maintain some of its independence and yet firmly become a member of the DCX Group, without the need for MMC's heavy debts of 1.75 trillion yen (approximately \$14 billion USD) to be included on DCX's balance sheet.²⁷

The month after the agreement was reached a major scandal unfolded at MMC.²⁸ It was revealed that for over twenty years, MMC had been hiding customer complaints from the relevant government agency and covering up defects in its cars and trucks to avoid having to issue recalls. Slower sales and costs related to the 26 belated recalls that were issued during this scandal caused MMC to post an operating loss of 73.9 billion yen on sales of 3.28 trillion yen in the calendar year 2000.²⁹

Based on the agreement reached by the two companies in March, DCX and MMC signed a contract for the 34% equity acquisition on 28 July 2000. However, in response to greater than expected negative effects from the MMC's recall cover-up scandal, on September 8 the alliance contract was revised to lower the purchase price by 10% (405 yen/share, 2.20 billion yen), reduce from ten to three years the period of time DCX would not increase its ownership stake without agreement from the MMC board (DCX was given the right to an unlimited increase of its equity stake after three years), and increase from three to four the number of directors (one of who would become COO) dispatched from DCX to MMC.

²⁶ According to the Financial Times (February 8, 2001—"Volvo May Scrap Planned JV With Mitsubishi Motors"), in October 1999, just half a year prior to the announcement of the DCX-MMC alliance, AB Volvo acquired a 5% stake in MMC for 29 billion yen. This investment followed a joint-venture plant (Nedcar) established by MMC and Volvo in 1995 in the Netherlands to produce co-developed passenger cars sold under both brands. The 1999 investment in MMC was accompanied by an announcement that AB Volvo would acquire in July 2000 up to a 19.9% stake in a newly created commercial vehicle subsidiary for 3.2 billion Swedish krona (approximately \$330 million). However, this increased investment by Volvo never occurred after the DCX-MMC alliance was established in 2000.

²⁷ Even with a minority stake, U.S. regulators require that an affiliated company be consolidated on a parent company's balance sheet if the parent company dispatches the chief executive of the affiliate.

²⁸ Though unrelated to the recall cover-up scandal, MMC had previously had its name tainted by scandal when it paid a record \$34 million USD as part of a sexual harassment settlement at its U.S. plant in June 1998.

²⁹ At a press conference on 1 February 2001, the president of MMC, Takashi Sonobe, said that a one-time pension charge and yen appreciation were also causes of the large financial loss in 2000.

On October 18, it was announced who would be the four directors appointed to the board of directors at MMC: Rolf Eckrodt as COO, two vice presidents (Steven A. Torok from the Chrysler organization with co-responsibilities for overseas operations and Ulrich W. Walker from the Daimler organization with co-responsibilities for product planning and marketing), and one external director, Manfred Bischoff (a director at DaimlerChrysler responsible for strategic partnerships and alliances in Asia). In parallel with renegotiating the alliance agreement and obtaining the relevant regulatory approvals, Katsuhiro Kawazoe, the president of MMC, led the company through an extensive overhaul of its organization to respond to the recall cover-up scandal. This effort was continued under Takashi Sonobe, who took over as MMC's president on 1 November 2000 following Kawazoe's resignation to take responsibility for the scandal.

Eckrodt began working at MMC in January 2001, after ending his term as president of DCX's railroad-business company, Adtranz, the sale of which to Bombardier, Inc. was announced in August 2000.³⁰ Of the twenty managers who accompanied Eckrodt from DCX to join the MMC organization, some were assigned to examine MMC's quality problems.³¹ A senior executive officer, Alexander Paufle, also came and took the position as Head of Finance and Tax. Following his appointment as COO at a January extraordinary meeting of MMC's board of directors, Eckrodt emphasized at his inaugural press conference the forward-looking approach he would take to addressing MMC's revitalization.

On 26 February 2001, Sonobe and Eckrodt announced the outlines of a three-year "Turnaround Plan". At the press conference Sonobe said that MMC's quality issues may have been due to the company not having sufficient resources to support its lineup of vehicles, adding, "We want to make full use of DaimlerChrysler's expertise in quality control."³² Resource sharing with DCX, particularly in the development of common vehicle platforms and engines, was also emphasized. In addition, building on the work done in 2000, Sonobe pointed to continued reforms in corporate culture as a key area to be addressed.

A detailed turnaround plan was presented on March 28, which included improving earnings at the company, restoring customer confidence, introduction of a performance-incentive system for employee evaluations, reducing the size of its board of directors, and streamlining the company's hierarchy to increase the speed of decision-making and clarity of responsibility. The engineering division and marketing strategy division were merged as a means to increase customer focus in product development. In conjunction with this shift, a well-established auto designer, Olivier Boulay was brought in from DaimlerChrysler Japan to become the head of design at MMC with a direct reporting line to the COO. Although not specifically part of the Turnaround Plan, in June 2001, AB Volvo sold its equity stake in MMC to DCX, taking DCX's ownership share to 37%.³³

Under the restructuring plan, in 2001 MMC closed the vehicle production line at its Oe factory near Nagoya and by the end of 2002 sold off some component manufacturing facilities at the plant. In 2002, the company's automatic and CVT transmission division merged with the Nissan-affiliated transmission

³⁰ According to the sale agreement, Bombardier, Inc. was to buy DaimlerChrysler Rail Systems GmbH (Adtranz) for US \$725 million.

³¹ "Mitsubishi Recalls 1.4 Million Cars In U.S., Japan, as Defects Continue" by Todd Zaun with Scott Miller, Wall Street Journal, February 16, 2001.

³² "Mitsubishi Recalls 1.4 Million Cars In U.S., Japan, as Defects Continue" by Todd Zaun with Scott Miller, Wall Street Journal, February 16, 2001.

³³ AB Volvo's initial 5% equity stake in MMC had since been diluted to 3.3% due to the capital investment in MMC by DCX.

supplier, JATCO. The restructuring plan also called for a 15% reduction in part costs and a 14% reduction in the size of the workforce at MMC and its affiliated companies (nearly 10,000 people).

Following the recall cover-up scandal, a cornerstone of the plan was the improvement of the quality system at MMC, in particular the implementation of DCX's Quality Check Gate System. This quality management system featured 15 "check gates" that cover the entire productive system, from the product planning stage to volume production. Eckrodt started his career at Daimler-Benz in quality assurance and passenger car production, and the quality-gate system introduced inside MMC plants would seem to have been strongly influenced by Eckrodt's high expertise in this area. In February 2000, Eckrodt stated plainly, "To solve that (quality problem)... is relative easy; we'll just copy the DaimlerChrysler system of quality gates. That's a proven system."³⁴

On the operational side, MMC and DCX shared a vehicle platform (called the Z-car platform), which was used for the Mitsubishi Colt (launched in 2002) and the SMART forfour (launched in 2004). Chrysler engineers also participated in the project, but it was not used for Chrysler vehicles.³⁵ The Colt was assembled in Japan and then in Netherlands, where the SMART was also assembled, with its engines manufactured at a new DCX-owned plant that was opened 2003 in K lleda, Germany. In 2002, DCX, MMC, and Hyundai Motor (which was 10% owned by DCX from 2000-2004) established the Global Engine Manufacturing Alliance, a joint venture that produced a shared small-car gasoline engine (the Chrysler World engine, Mitsubishi 4B1 engine, and the Hyundai Theta engine) in plants in the U.S., Japan, and South Korea.

For first year of the Turnaround Plan, the 2001-2002 fiscal year, MMC's sales were flat at 3.20 trillion yen but the company achieved a consolidated operating profit of 40.2 billion yen (1.3% of sales), which followed an operating loss in the previous year. Following these continued positive results, in March 2002, Eckrodt was promoted to become president of MMC. Shortly afterward, it was announced that Eiji Iwakuni, initially of Honda and since 1998 the head of Ford Japan, would become the senior vice president of marketing at MMC. Some in the press expressed surprise that no more suitable internal candidate could be found for the position.³⁶ However, the appointment of an outsider allowed DCX to maintain control of half of the board of directors, while increasing the number of Japanese nationals on the board to five.

Helped by a weaker yen, sales in the 2002-2003 fiscal year rose to 3.45 trillion yen and consolidated operating profit increased to 92.8 billion yen (a 2.7% operating profit ratio). These results led MMC to declare that it had essentially met the three-year goals of the Turnaround Plan one year early.

The good performance was soon to end. A stronger yen was only partially to blame for the very poor financial results of fiscal year 2003-2004. Sales of non-commercial vehicles fell to 2.52 trillion yen (-8% vis-à-vis the previous year's non-commercial vehicle business), with operating profit at -96.9 billion yen (-3.8%). MMC's net loss for the year was 215 billion yen (approximately \$2 billion USD).

A major cause of the poor performance in 2003 can be traced to the "triple zero"³⁷ marketing

³⁴ "Mitsubishi Motors to Cut Output In Japan by 20% and Other Costs" by Todd Zaun, Wall Street Journal, February 27, 2001.

³⁵ Source: Transcript of Eckrodt's COO inaugural press conference in January 2001.

³⁶ See Response.jp article of 28 May 2002: response.jp/article/2002/05/28/17200.html.

³⁷ Triple zero stood for zero down payment, and for the first year, zero interest and zero payments.

campaign launched in the U.S. at the end of 2001. Though not all buyers qualified for the campaign, showroom visits and overall sales grew rapidly. Over time the number of defaults also spiked upwards. In addition, the increase in repossessed cars depressed the used car value of Mitsubishi vehicles, which pushed down the transaction price of new vehicles. As a result, in 2003 Mitsubishi lost \$454 million USD in the U.S.³⁸

At the same time these major financial losses were occurring at MMC, it was reported in the press in November 2003 that after visiting the Mizushima plant in Japan, an executive vice-president in charge of production at DCX, Hans-Heinrich Weingarten, said that there was potentially much to learn from MMC's high productivity and flexibility.³⁹ This view that DCX had much to learn from MMC's production system stood in contrast to comments by Eckrodt at his COO inauguration, where he said, "(we at MMC need) to make our production processes more flexible in response to the changes in the market."⁴⁰

As a countermeasure to the financial difficulties brought about by the previous year's large losses, in February 2004, it was reported in the press that DCX and the three core companies of the Mitsubishi Group had put together the outlines of a 200 billion yen capital infusion into MMC. This decision followed the January 2003 spin off of Mitsubishi Fuso Truck and Bus Corporation (MFTBC) as a separate company with equity owned by DCX (43%), MMC (42%) and other Mitsubishi group companies (15%). In March, MMC sold 22% of MFTBC to DCX for approximately 500 million yen.

In the same month, March 2004, there was a major scandal where Mitsubishi Fuso admitted to another recall cover-up in its truck business. This second scandal originated from police investigations into fatal road accidents involving Mitsubishi Fuso trucks in Japan, including the January 2001 death of a young mother and injuries to her two young children when they were struck by a tire that had separated from a MMC truck due to what was later revealed to be structurally defective design. MMC and five of its former executives were ultimately found legally guilty of gross negligence.

On April 22 the Board of Management and Supervisory Board of DCX decided not to participate in MMC's planned capital increase. Following this unexpected decision, Eckrodt abruptly resigned from MMC on 26 April 2004. DCX's board decision has been explained in part as a response to German shareholder concerns about Mercedes, which had been overtaken by BMW, in terms of total production volume, and Toyota's Lexus brand, in terms of sales volume in the U.S. (Begley and Donnoley, 2011).

The ensuing capital increase of the Mitsubishi Group companies eroded DCX's ownership stake to 19.7% (as of December 2004). In March 2005, MMC ceded its remaining 20% ownership position in MFTBC to DCX in consideration to the financial damages incurred due to cover-ups of quality issues and recalls at MFTBC when it was a division of MMC. In November 2005, DCX ended its equity alliance with MMC by selling its last remaining position, a 12.4% stake, to Goldman Sachs Group. The tenure at DCX of Schrempp, the original architect of the alliance with MMC, also ended in 2005.

Since the alliance with DCX ended, MMC with the support of the Mitsubishi Group has undergone extensive restructuring (Orihashi, 2008) and has emerged as an industry leader in the electric and plug-in

³⁸ A difficult year for MMC was made even harder when Takashi Sonobe, who had stepped down as president of MMC just a year earlier, died at the age of 62 in October 2003.

³⁹ "M-B can learn from Japan: German carmaker studies Mitsubishi production methods" by Lindsay Chappell, *Automotive News*, November 17, 2003.

⁴⁰ Source: Transcript of Eckrodt's COO inaugural press conference in January 2001.

hybrid (2009 i-Miev and 2013 Outlander PHEV) vehicle segments. Osamu Masuko was dispatched from Mitsubishi Corporation to become the president of MMC, a position he held from 2006 to 2014, and again from July 2016 due to the latest crisis at MMC. As for DCX, the German and American companies de-merged in 2007. Daimler has retained its position as the industry's leader in commercial vehicles and as a leading luxury vehicle brand. Chrysler has regained its footing as a unit of Fiat, the Italian automaker.

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APPENDIX

Brand	Model	<A> actual (km/l)	 listed (km/l)	B-A (km/l)	A/B	Source	AVERAG E A/B
Honda	CR-V	9.7	11.0	1.3	88%	[1]	69%
Honda	Accord	10.5	12.0	1.5	88%	[1]	
Honda	Odyssey	8.7	12.2	3.5	71%	[1]	
Honda	Fit	13.6	24.0	10.4	57%	[1]	
Honda	Stepwgn	7.2	13.2	6.0	55%	[1]	
Honda	Civic	15.3	28.5	13.2	54%	[1]	
Mazda	Roadster	10.0	13.0	3.0	77%	[1]	68%
Mazda	Axela	12.8	16.8	4.0	76%	[1]	
Mazda	RX-8	6.9	9.4	2.5	73%	[1]	
Mazda	MPV	8.7	12.2	3.5	71%	[1]	
Mazda	Atenza	8.7	12.6	3.9	69%	[1]	
Mazda	Premacy	8.4	14.0	5.6	60%	[1]	
Mazda	Demio	9.9	19.2	9.3	52%	[1]	
Mitsubishi	Lancer	8.2	9.9	1.7	83%	[1]	78%
Mitsubishi	Outrunner	8.4	11.6	3.2	72%	[1]	
Nissan	Fairlady Z	7.7	9.5	1.8	81%	[1]	66%
Nissan	Teana	8.6	11.2	2.6	77%	[1]	
Nissan	X-Trail	9.2	13.0	3.8	71%	[1]	
Nissan	Serena	7.8	13.0	5.2	60%	[1]	
Nissan	Lafesta	7.8	13.8	6.0	57%	[1]	
Nissan	Cube	9.2	18.0	8.8	51%	[1]	
Subaru	Impreza	11.1	15.0	3.9	74%	[1]	71%
Subaru	Forester	9.2	13.0	3.8	71%	[1]	
Subaru	Legacy	8.2	11.6	3.4	71%	[1]	
Subaru	WRX	6.9	10.2	3.3	68%	[1]	
Suzuki	Escudo	9.6	11.6	2.0	83%	[1]	73%
Suzuki	Swift	10.6	17.0	6.4	62%	[1]	
Toyota	Alphard	8.0	9.4	1.4	85%	[1]	70%
Toyota	Camry	8.8	11.0	2.2	80%	[1]	
Toyota	RAV4	9.6	12.6	3.0	76%	[1]	
Toyota	Belta	14.5	19.6	5.1	74%	[1]	
Toyota	Estima	8.4	12.4	4.0	68%	[1]	
Toyota	Prius	21.2	33.0	11.8	64%	[1]	
Toyota	Voxy	8.5	14.2	5.7	60%	[1]	
Toyota	Vitz	12.3	24.5	12.2	50%	[1]	
Audi	A3 Sportback	8.7	12.6	3.9	69%	[1]	
Benz	A Class	11.5	12.2	0.7	94%	[1]	
BMW	3 Series	9.0	9.3	0.3	97%	[1]	
Peugeot	407	8.1	9.0	0.9	90%	[1]	
Peugeot	307	8.3	10.2	1.9	81%	[1]	
Renault	Megané	10.1	10.8	0.7	94%	[1]	
Volvo	S40	9.0	9.5	0.5	95%	[1]	
VW	Golf	11.3	12.8	1.5	88%	[1]	
VW	Golf GT TSI	11.4	14.0	2.6	81%	[2]	
Kei-Mercedes-Benz	SMART coupe	18.0	19.2	1.2	94%	[2]	65%
Kei-Daihatsu	Move (CVT)	16.7	23.0	6.3	73%	[2]	
Kei-Daihatsu	Esse	15.6	22.0	6.4	71%	[2]	
Kei-Daihatsu	Tanto Custom	12.2	17.6	5.4	69%	[2]	
Kei-Daihatsu	Sonica	14.3	23.0	8.7	62%	[2]	
Kei-Daihatsu	Mira	16.6	27.0	10.4	61%	[2]	
Kei-Daihatsu	Move Custom	12.6	21.5	8.9	59%	[2]	
Kei-Daihatsu	Move (4AT)	11.5	19.4	7.9	59%	[1]	
Kei-Honda	Vamos Hobio	11.7	14.8	3.1	79%	[2]	
Kei-Honda	Zest	14.7	18.6	3.9	79%	[2]	
Kei-Honda	Zest Sports	13.8	17.6	3.8	78%	[2]	
Kei-Honda	Life (winter test)	15.3	20.0	4.7	77%	[2]	
Kei-Honda	Life (turbo)	14.0	18.8	4.8	74%	[2]	
Kei-Honda	Life (summer test)	12.1	20.0	7.9	61%	[1]	
Kei-Mitsubishi	i (turbo)	14.1	18.6	4.5	76%	[2]	73%
Kei-Mitsubishi	i	14.1	19.2	5.1	73%	[2]	
Kei-Mitsubishi	eK Wagon	13.3	19.0	5.7	70%	[2]	
Kei-Nissan	Moco	15.0	18.8	3.8	80%	[2]	80%
Kei-Subaru	Stelia Custom	14.7	18.8	4.1	78%	[2]	
Kei-Subaru	Stelia	17.2	22.5	5.3	76%	[2]	72%
Kei-Subaru	R2	14.8	19.4	4.6	76%	[2]	
Kei-Subaru	R1	13.8	24.0	10.2	58%	[1]	
Kei-Suzuki	Cervo	17.2	21.0	3.8	82%	[2]	
Kei-Suzuki	Every	12.1	15.0	2.9	81%	[2]	74%
Kei-Suzuki	Cervo (turbo)	15.2	19.8	4.6	77%	[2]	
Kei-Suzuki	Alto	16.4	21.5	5.1	76%	[2]	
Kei-Suzuki	Wagon R (CVT)	16.4	22.5	6.1	73%	[2]	
Kei-Suzuki	Wagon R	13.4	20.0	6.6	67%	[1]	
Kei-Suzuki	Copen	9.7	15.2	5.5	64%	[1]	

BRAND (# vehicles)	AVERAG E A/B
Mitsubishi (5)	75%
Other-Japanese (58)	70%
Other-Overseas (10)	88%

(Sources)

[1] Miki (2006), p. 235

[2] Miki (2007), p. 212

* Kei is a type of micro car
sold only in Japan.