

# The Japanese and Chinese models of industrial organisation : fighting for supremacy in the Vietnamese motorcycle industry

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**The Japanese and Chinese Models of Industrial Organisation: Fighting for Supremacy in the Vietnamese Motorcycle Industry**

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**Abstract**

This paper explores the consequences of the emerging rivalry between Japanese and Chinese manufacturers. It focuses specifically on industrial organisation, one of the key factors that underlie the competitiveness of manufacturing industries. The question to be asked is what happens when distinctive models of industrial organisation, coming from Japan and China, clash in a developing country. An in-depth longitudinal analysis of the Vietnamese motorcycle industry adopting a modified version of the global value chain governance theory shows that a decade-long industrial transformation resulted in organisational diversity. The implications of the analysis for the literature on industrial organisation are discussed.

**Keywords:** industrial organisation, Vietnam, China, Japan, motorcycle industry

**JEL classification:** L10, L22, L62

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# **The Japanese and Chinese Models of Industrial Organisation: Fighting for Supremacy in the Vietnamese Motorcycle Industry<sup>1</sup>**

**Mai Fujita**

## **1. Introduction**

In the 1980s, the Japanese manufacturing industry was at the forefront of research on economic development and competitiveness. In an attempt to determine the sources of Japanese competitive advantage, researchers examined how the distinctive models of intra- and inter-firm organisation – characterised by lean production and trust-based supplier relations – contributed to the sustainment of superior product development and manufacturing performance (Smitka 1991; Clark and Fujimoto 1990, 1991; Nishiguchi 1994; Dyer 1996; Fujimoto 1999; Lecler 2004). It is now acknowledged worldwide that the hierarchical, captive model of inter-firm organisation consisting of a powerful lead firm and closely aligned suppliers helped Japanese manufacturing firms to achieve superior product development and productivity performance; thus, establishing leading positions on major world markets, where consumers valued high quality, product differentiation, and fast product innovation.

The influence of the Japanese model was not restricted to the domestic market. As Japanese firms expanded abroad via FDI, the original model was transferred and adapted to different country contexts. As Japanese and local firms engaged in rounds of organisational competition and adaptation in the host country environment, various hybrid forms of industrial organisation emerged, which resulted in increased organisational diversity (Cusumano and Takeishi 1991; Sako 1992; Helper and Sako 1995; Guiheux and Lecler 2000; Ernst 2002; Sturgeon 2007). The Japanese model was also adopted independently in both developed and developing countries by local producers seeking to improve the productivity of their operations (Kaplinsky 1995; Posthuma 1995a, 1995b; Harriss 1995; Humphrey et al. 1998).

Two decades later, the global industrial landscape has changed. As the growth centres

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of the world's leading manufacturers have shifted to developing countries, Japanese manufacturers face major challenges from Chinese firms, which have attained overwhelming cost advantages by means of a distinctive form of industrial organisation. The existence of a uniquely Chinese model of industrial organisation has not been recognised widely. In a separate paper (Fujita 2013a), based on the literature and my own analysis, I sought to establish the key features of the Chinese model of industrial organisation, which I found to be characterised by intense price-based competition between a large number of lead firms and suppliers engaged in arm's-length transactions. Such an organisational model has enabled Chinese firms to attain remarkable levels of price-based competitiveness that challenge the Japanese industry leaders.

This paper investigates the new patterns of rivalry emerging out of the rise of the Chinese model of industrial organisation. It does so by examining what happens when the two models of industrial organisation, coming from Japan and China respectively, clash in a third Asian developing country that seeks to establish its competitive industry. Which model is more adaptable to local conditions? Is one superior to the other? Do they exist side by side? Does competition open up space for a distinctively different model of industrial organisation? How do firm responses vary over time? These are the questions that this paper seeks to address.

Indeed, the aforementioned questions are at the forefront of research on economic development and competitiveness. There has long been a discussion on the relevance of models of industrial organisation for the pace and patterns of economic development. This line of research asks: how important have models of industrial organisation been in their countries of origin; how relevant are they for other countries; can they be transferred; and, if so, what adjustments need to be made? These and similar questions were raised by a group of researchers in a special issue of *World Development* in 1995.<sup>2</sup> The overall conclusion reached was that research on industrial organisation needs to extend beyond models to analyse the trajectories of diffusion and adaptation (Humphrey 1995).

However, although the importance of analysing trajectories of organisational change is widely recognised, this has rarely been done systematically. One of the major obstacles in this regard has been the lack of a conceptual device for systematically explaining the

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complex processes of organisational transformation, which are shaped by a myriad of factors – technological, strategic, institutional, and social. Nevertheless, recent theoretical development in the field of global value chain (GVC) governance perhaps offers a way forward (Gereffi et al. 2005).

The present paper utilises an adapted version of Gereffi et al.'s (2005) framework of GVC governance developed by Fujita (2013a) to describe and explain the short- and medium-term dynamics of organisational adaptation arising from the clash of Japanese and Chinese models. In so doing, it seeks to highlight the challenges and tensions that firms might face in the process of organisational transformation, and how such problems could be overcome.

In examining the clash of the Japanese and Chinese models in a third country context, the paper takes the context of Vietnam and examines the case of its motorcycle industry. The rationale for focussing on this sector is because the motorcycle industry is the one in which a direct clash between the two models is most prominent, and Vietnam was the first locality outside China in which they clashed head-on and fought for supremacy. It is now well known that the massive imports of low-priced Chinese motorcycles into Vietnam in the early 2000s had a huge impact on the Japanese industry leaders (Cohen 2002). What is less well known is that there were repeated rounds of organisational adaptation triggered by the emergence of Vietnamese motorcycle assemblers inheriting the Chinese organisational model. The ensuing competitive adaptation of both Japanese and Chinese organisational models generated enormous industrial dynamism, eventually leading this latecomer developing country to emerge in a decade as one of the world's major motorcycle producers.<sup>3</sup>

This paper examines how the Japanese and Chinese models were transformed through competitive adaptation in Vietnam over a period of a decade. Specifically, it addresses the following main research question:

*How has the clash between Japanese and Chinese organisational models affected the organisational transformation of the Vietnamese motorcycle industry?*

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<sup>3</sup> Production of motorcycles in Vietnam began in 1996 (General Statistics Office 1999). In 2006, domestic production and sales recorded 2.1 and 2.4 million units, respectively, making the country the world's fourth largest producer of and market for motorcycles after only China, India and Indonesia (General Statistics Office 2009; Honda Motor Co., Ltd. 2008).

This research question is explored through an examination of the Vietnamese motorcycle industry over the decade following the late 1990s. The focus is on two sets of value chains representative of the Japanese and Chinese models of industrial organisation respectively. Drawing on data collected at different periods from interviews and surveys of lead firms and suppliers, this study engages in an in-depth, longitudinal analysis of how the two sets of value chains were transformed as the respective lead firms competed for supremacy in the Vietnamese market.

The remainder of the paper is structured as follows. Section 2 reviews the existing literature, identifies research gaps, and elaborates questions and corresponding hypotheses derived from previous research. Section 3 presents the conceptual framework. Section 4 discusses the research methodology and operationalises the key concepts. Sections 5 and 6 comprise the empirical core of the paper, presenting analyses of the dynamic transformation of the Japanese and Chinese models of industrial organisation respectively in the Vietnamese motorcycle industry. Section 7 summarises the findings of the paper and discusses its contribution to the literature on organisational models and trajectories.

## **2. Literature Review**

The purpose of this section is to review the existing literature of direct relevance to the research question explored in this paper. This covers three main strands of literature: the literature on models and trajectories of industrial organisation in general; the literature on Japanese and Chinese models of industrial organisation in particular; and the emergent literature on the Vietnamese motorcycle industry. Based on gaps identified in the course of this review, the section concludes by refining the research question and presenting resultant hypotheses.

### **2.1 Industrial Organisation: From Models to Trajectories**

The 1980s and 1990s saw a flourish of research on industrial organisation. Spurred by the varieties of patterns by which industries were organised – from large and vertically integrated business corporations to clusters of small, networked firms, or hierarchical networks consisting of a dominant lead firm and layers of smaller suppliers, researchers looked into the origins of different patterns and their implications for economic competitiveness (Chandler 1977; Dore 1983; Smitka 1991; Womack et al. 1990; Clark and Fujimoto 1991; Sako 1992; Nishiguchi 1994; Piore and Sabel 1984;

Langlois and Robertson 1995; Sturgeon 2002). Those patterns recognised as particularly successful were codified into *models* of industrial organisation (Humphrey 1995).

Research did not stop at codifying established practices into models but went on to analyse how such models were applied in practice. While a model essentially defines the key elements of successful experiences, “the experiences upon which the model is constructed continue to change” (Humphrey 1995: 151). Moreover, when models are transferred, the contexts in which they operate often differ markedly from those upon which the experiences were based.

The existing body of research has looked into how models evolved over time in the country of origin in response to changes in external economic conditions, technological change, or competitive pressure (Lecler 1999, 2004; Lamming 2000; McCormick 2004; Sturgeon 2007), and how models transferred to different contexts have gone through processes of hybridisation, adaptation, or localisation (Cusumano and Takeishi 1991; Helper and Sako 1995; Guiheux and Lecler 2000). Very often the result was “neither a copy of the original model nor a replica of existing local patterns, but something different” (Westney 1999: 387). The varieties of country and industry experiences analysed in the literature clearly demonstrate the importance of going beyond models to analyse the trajectories of diffusion and adaptation (Humphrey 1995). However, although the importance of analysing trajectories is widely acknowledged, this has rarely been done systematically.

First, few previous studies have illuminated the actual *processes* by which organisations change. What they have done is either to compare the status of an organisation at a given point in time in a given setting – often after successful transformation has been completed – with the defining features of the original model; or to compare prevailing practices among different groups of companies, for example, firms of different nationalities located in a certain country or firms of the same nationality but located in different countries (Cusumano and Takeishi 1991; Sako 1992; Helper and Sako 1995).

As a result, the actual processes of organisational diffusion and adaptation, which is where insights relevant for firms and policy makers originate (Humphrey 1995), remain largely underexplored. With what timing and in what sequence do key features of the model change? What tensions and challenges do organisations face in the



process, and how do they overcome them? Very little of the existing literature examines these issues.

Second, there have been limited attempts to systematically explain *why* organisations evolve in the way they do. On the basis of the existing literature, there seems to be a broad consensus that the driver of organisational change typically comes from a lack of fit between the elements of organisation and the environment (Westney 1999). The problem with such a line of argument is that there has been no incisive debate on what precisely is meant by the 'environment'.

Existing empirical research mainly refers to the following three dimensions of the environment: (1) local market conditions, for example, producer competition and consumer preferences (Helper 1991; Lecler 1999, 2004; Humphery 2000; Sturgeon and Van Biesebroeck 2010); (2) competence levels and the existence or absence of a local component supply base (Sadler 1994); and (3) institutional factors such as legal and regulatory environments, capital markets, employment systems, culture, and social and moral norms (Dore 1983; Sako 1992).

However, given the lack of a systematic attempt to deconstruct the concept of the environment into a series of concrete, operational variables, we still do not know which factors are most important, how they interact with each other, or how they shape the processes of organisational change. Unless these questions are tackled, research can hardly be expected to pin down the fundamental factors that trigger (or impede) the transformation of industrial organisation. Thus, the mechanisms by which variables interact in shaping the processes of organisational transformation remain underexplored.

The above two research gaps seem to stem at least in part from the lack of an appropriate theoretical framework for categorising the various forms of inter-firm organisation or explaining the circumstances under which they emerge in terms of a series of concrete, operational variables. Recent theoretical development in the field of GVC governance has made important contributions in this regard. This paper adopts the revised version of the GVC governance framework for conducting systematic analysis of trajectories of organisational change.

## **2.2 Japanese and Chinese Models of Industrial Organisation in the Motorcycle Industry**

In studying industrial organisation, particularly illuminating are the industries in which contrasting models of industrial organisation coexist because interactions between different models often create new dynamics of organisational transformation.<sup>4</sup> With the long dominance of the Japanese model and the rise of a new organisational model emerging from China, the motorcycle manufacturing sector became an example of such industries (Fujita 2013a).

The Japanese model of industrial organisation was developed out of the need to effectively achieve incremental product and process improvements in a proprietary product. Since motorcycles had an integral product architecture, lead firms took the lead in fine-tuning component designs and providing a quality guarantee to their consumers for the product system as a whole (Otahara 2009a, 2009b). Accordingly, they adopted a combination of centralised control and generous assistance in governing long-term relations with a fixed group of suppliers, which were expected to endeavour to achieve performance targets set by the lead firms, often by ceding autonomy (Fujita 2013a).

As Japanese manufacturers started to set up overseas production bases from the 1960s onwards, the organisational model established in Japan was replicated abroad. Lead firms sought to develop long-term relations with local suppliers. Where the local component supply base was lacking, this entailed provision of technical assistance to the suppliers.<sup>5</sup>

Compared to the long-established prominence of the Japanese model, the rise of its Chinese counterpart is a recent phenomenon. This model emerged in the early 1990s, driven by a large number of indigenous motorcycle manufacturers producing low-priced imitations of Japanese models. Contingent on de facto standardisation of a few dozen popular Japanese models, large numbers of assemblers and suppliers, both of whom were equipped with limited levels of technological competence, engaged in arm's-length transactions. With its strength lying in low costs and flexibility, the

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<sup>4</sup> This seems to explain why the car industry, in which contrasting models of industrial organisation have emerged in the US and Japan, has been studied so widely.

<sup>5</sup> This occurred not only in developing countries such as Thailand (Higashi 2006) and Indonesia (Thee 1997; Sato 2011) but also in developed countries such as Italy (Horiuchi 1998).

arm's-length organisational model enabled Chinese motorcycle manufacturers to capture the lion's share of the huge yet volatile domestic market where consumers put priority on low prices and intellectual property rights are only weakly protected.

The above summary of the existing literature suggests that we now know that the Japanese model of industrial organisation rose to prominence in the 1980s, and that it was transferred to both developed and developing countries – with manufacturers taking the lead in nurturing the pool of competent component suppliers demanded by this model. We also know that a second discrete model emerged in China. However, we know less about what is emerging out of the rivalry between the two models. Which model is superior? Which is more adaptable to third-country conditions; especially in the developing world, where the bulk of global motorcycle sales are concentrated (Fujita 2007)?

Such an overarching enquiry can be deconstructed into a series of more specific questions. In terms of the Japanese model, the key question is whether it can meet the Chinese challenge. Whilst the Japanese model has exhibited extraordinary strength in catering to sophisticated customers in the developed world, can it be adapted to compete with the Chinese model in developing country markets? With regard to the Chinese model, there has thus far been no attempt to study whether it can be successfully transferred. What changes are required if it is to work in different contexts? This paper attempts to answer these questions.

### **2.3 The Dynamics of Organisational Adaptation: The Vietnamese Motorcycle Industry**

The Vietnamese motorcycle industry provides an excellent case through which to address the research gaps identified above. Vietnam was the first locality – after China itself – in which the Japanese and Chinese models clashed head-on. Because Vietnam is a new context for both models, neither has an advantage over the other; both must adapt to local Vietnamese conditions and fight for supremacy in this emerging market.

On the basis of the existing research on the Vietnamese motorcycle industry (Fujita 2005, 2006, 2007, 2008, 2011, 2012; Intarakumnerd and Fujita 2008, 2009; Pham Truong Hoang and Shusa 2006; Pham Truong Hoang 2007; Nguyen Duc Tiep 2006, 2007; The Motorbike Joint Working Group 2007), its development process can be broadly divided into three stages.

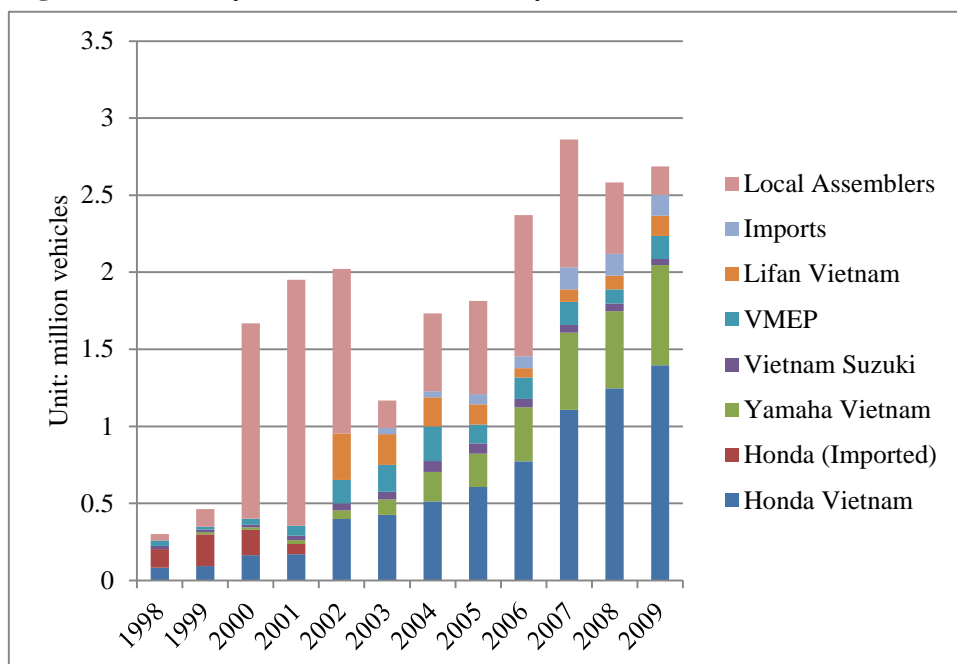
In Stage I (mid-1990s to the end of the decade), three Japanese motorcycle manufacturers were the key players. Following the Vietnamese government's decision to launch an import substitution policy to promote the domestic production of motorcycles, Honda, Yamaha, Suzuki and Taiwan's Sanyang established local factories (Fujita 2006). As their sophisticated products were priced substantially higher than what ordinary Vietnamese consumers could afford, motorcycle sales as a whole stagnated, but Japanese-brand motorcycles still accounted for the bulk of the market (Figure 1). This small, protected market hardly attracted any scholarly attention at this stage.

It was during Stage II (2000–2004) that the Vietnamese motorcycle industry attracted wide interest from businesses, researchers, and policymakers in Vietnam and abroad. In the early 2000s, massive volumes of low-priced imitations of Japanese-brand motorcycles were imported from China – a phenomenon often dubbed the ‘China shock’ (Fujita 2007). Since the Vietnamese government had prohibited the import of assembled vehicles, Chinese imports arrived in the form of knockdown component kits that were assembled by more than 50 local firms (hereafter referred to as ‘local assemblers’). With prices as low as a third to a quarter of foreign-brand models, these imitations quickly penetrated the medium- and low-income consumer markets that had hitherto been unexploited by Japanese firms. The market expanded four-fold in the late 1990s, and local assemblers of Chinese motorcycles commanded roughly 80% of these extended sales (Figure 1).

The China shock provoked a series of reactions from incumbent producers and policymakers. As Vietnam became a symbol of an expanded Chinese threat that had already become apparent in China, Japanese companies initiated company-wide efforts to regain market shares. This culminated in the launching of a new, low-priced model by Honda Vietnam (HVN) in 2002. The new model, named Wave Alpha and priced at approximately one-third of its previous models, quickly gained popularity as the low-quality of Chinese motorcycles had by now become apparent to Vietnamese consumers (The Motorbike Joint Working Group 2007).

The Vietnamese government responded by enacting a series of policy changes to restore order and promote the sound development of the industry. However, the uncoordinated, sudden, and often arbitrary ways in which policy changes were enacted – frequently running contrary to previously announced plans and/or discriminating against foreign motorcycle manufacturers (Fujita 2011) – created serious side effects.

**Figure 1. Motorcycle Sales in Vietnam by Manufacturers**



Notes:

- (1) VMEP (Vietnam Manufacturing and Export Processing Co., Ltd.) is a 100% invested subsidiary of Taiwan’s Sanyang Motors, and Lifan Vietnam is a joint venture between China’s Lifan Group and a Vietnamese SOE.
- (2) Data on “Honda (Imported)” was available from the Motorbike Joint Working Group (2007) up to 2005 but the figures were zero from 2002 onwards. Data on “Imports” was provided by General Statistics Office (various years).

Source: Prepared by the author on the basis of the Motorbike Joint Working Group (2007), Industrial Research Institute (2011) and General Statistical Office (various years).

First, restrictions on the importation and registration of motorcycles were introduced. In September 2002, the Vietnamese government suddenly announced that imports of motorcycle components for the year should be limited to 1.5 million units (Cohen 2002). This was followed by restrictions on motorcycle registration<sup>6</sup> and limits on investments in expansion of production capacity by foreign motorcycle manufacturers<sup>7</sup> from 2003. Whilst these measures were intended to prevent the uncontrolled proliferation of motorcycles on Vietnam’s streets, the consequence was stagnation of the overall market growth, with annual sales of motorcycles declining from over 2 million in 2002 to less than 1.5 million in 2003–4 (Figure 1).

<sup>6</sup> Circular 02/2003/TT-BCA by the Ministry of Public Security dated 13 January 2003 limited motorcycle registration to one vehicle per person. Decision 98/2003/QD-UB by the Hanoi People’s Committee dated 14 August 2003 prohibited new motorcycle registration in four central districts of Hanoi.

<sup>7</sup> Prime Minister’s Decision 147/2002/QD-TTg dated 25 October 2002.

Second, in an attempt to encourage the development of local assemblers into fully fledged motorcycle manufacturers, the government stepped up the enforcement of local content rules, which hitherto had been circumvented by local assemblers,<sup>8</sup> and instituted standards for motorcycle manufacturers, with the requirement that a minimum of 20% of local content had to be achieved by in-house manufacturing of key components.<sup>9</sup>

Notably, some of the aforementioned policies were implemented in ways that explicitly favoured local assemblers. When the government suddenly introduced quantitative restrictions on component imports in September 2002, local assemblers received favourable allocation of import quotas, whilst insufficient quota allocation to HVN and Yamaha Vietnam (YVN) even drove these companies to temporarily suspend their production.<sup>10</sup> From 2003 onwards, as noted above, the government restricted foreign motorcycle manufacturers from investing in the expansion of production capacity beyond the original proposals granted by the Vietnamese authorities upon the issue of FDI licences. This turned out to be damaging to foreign motorcycle manufacturers because the rapid expansion of the market in the 2000s had not been envisaged in the 1990s. HVN, in particular, suffered because this policy hampered the company's ambitions to use the Wave Alpha to regain lost market shares.

A new phase of industrial development (Stage III; 2005–2008) began as the end of the policy turbulence brought about rapid, FDI-driven growth. Diminishing academic interest in the industry notwithstanding, this was in fact the time in which the most dynamic development occurred (Fujita 2011). In 2005, the Vietnamese government abandoned restrictions on motorcycle registration<sup>11</sup> together with the policy that had prevented foreign motorcycle manufacturers from investing in additional production capacity.<sup>12</sup> As a result, domestic motorcycle sales climbed to 2.8 million units in 2007, far exceeding figures during the China shock (Figure 1).

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<sup>8</sup> The local content rules were originally announced at the end of 1998 for implementation from the beginning of 1999 (Decision of the Ministry of Finance 1994/1998/QD-TTg dated 25 December 1998). Its full implementation was delayed until the beginning of 2001 due to opposition from local assemblers (Ishida 2001).

<sup>9</sup> Prime Minister's Decision No.38/2002/QD-TTg dated 14 March 2002.

<sup>10</sup> Of the total of 1.5 million motorcycle component imports permitted for the whole year, local assemblers were allocated 900,000 units whilst foreign motorcycle manufacturers only received 600,000 (Cohen 2002).

<sup>11</sup> Circular No. 17/2005/TT-BCA of the Ministry of Public Security dated 21 November 2005 rescinded legislation limiting motorcycle registration to one vehicle per person and only in the locality for which each held household registration.

<sup>12</sup> Official document No. 1854/VPCP-HTQT issued by the Government Office on 11 April 2005.

Japanese firms chose to satisfy the growing market in Vietnam via FDI for local production, following their conventional approach to the localisation of production in countries with large demands for their products.<sup>13</sup> Accordingly, they actively invested in expansion of production capacity, capturing an increasing share of this fast-growing market. In the meantime, local assemblers lost their market share but still held roughly one-third of the sales as of 2006 (Figure 1); surviving by catering to low-income consumers in the rural areas where Japanese-brand models had still not penetrated.

Of the three stages of development, the existing literature on industrial organisation focuses almost exclusively on Stage II, the period immediately following the China shock. Previous studies have emphasised the major changes that both HVN and local assemblers implemented to their sourcing practices immediately after the initial clash. Pham Truong Hoang (2007), Mishima (2007), and Otahara (2009a) all argue that HVN responded to the China shock by significantly diversifying its component sources to include non-Japanese suppliers in Vietnam and even local suppliers in China. Pham Truong Hoang (2007) also analyses the manner in which local assemblers responded to policies requiring local sourcing and investment in in-house manufacturing of components. On the basis of case studies of four assemblers, he argues that they shifted away from arm's-length supply systems towards those based on long-term, trust-based relations with suppliers.<sup>14</sup>

Nevertheless, the above discussion on the stages of Vietnamese motorcycle industrial development suggests that analysing the short-term impact of the China shock may not be sufficient for an understanding of the dynamics of the competitive adaptation of the two models. First, the existing literature acknowledges that the reactions of HVN and local Vietnamese assemblers were devised as emergency measures to cope with the immediate competitive threat (to HVN) and policy requirements (for local assemblers). It remains to be seen whether these adaptations prove to be sustainable in the longer term.

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<sup>13</sup> From its early years, “to explore the world market, to produce where the demand is” has been at the core of Honda’s mission (<http://www.honda.co.jp/50years-history/009.html>, accessed 2 October 2011).

<sup>14</sup> The four case studies nevertheless indicate varieties of ways in which local assemblers responded to market and policy challenges: maintaining arm's-length linkages, vertically integrating component manufacturing, and spurring cooperative relationships with suppliers (Pham Truong Hoang 2007). However, the author does not discuss which of these patterns is dominant, a shortcoming that is probably due to a failure to provide the reasons as to why the four assemblers were selected in the first place. In any case, this research did not include the two assemblers that the present study refers to as A1 and A3 – firms it found to be increasingly dominant in Stage III.

Second, the period immediately following the China shock was one of policy turbulence. Such a distorted and arbitrary legislative environment hardly enabled firms to implement long-term, sustainable adaptations to their sourcing practices. Given that the period of turmoil was immediately followed by a more stable phase (Stage III), it is essential that an analysis of industrial organisation in the Vietnamese motorcycle industry should be extended to cover this period. However, no previous studies have done this.

The temporal aspect of observation also raises the question of what factors cause industrial organisation to evolve. Virtually all of the previous studies cited above assume, explicitly or implicitly, organisational patterns are determined by that lead firms depending on the characteristics of the products they produce – whether design architecture, prices, or quality levels. Accordingly, their focus has been exclusively on the lead firms, whilst suppliers – the other key actor in the value chains – have been left out of the analyses.

In Japanese chains, it was the need for radical cost reduction that compelled HVN's adjustment to sourcing practices (Mishima 2007; Otahara 2009a). In respect of local assemblers, the need to raise product quality and policy requirements eventually led some assemblers to invest in in-house production of components and/or to adopt long-term, trust-based relations with their suppliers (Pham Truong Hoang 2007).

Owing to its almost exclusive focus on product characteristics, research has hitherto overlooked the very essence of industrial organisation, that is, power relations between firms, which in turn are determined by the nature and levels of capabilities possessed by the respective parties (Sturgeon 2008; Palpacuer 2000; Humphrey and Schmitz 2008). A lead firm has the capacity to enforce particular types and levels of requirement on suppliers. However, such capacity has its limits because some suppliers may acquire power as they accumulate new competencies that are difficult to replace or explore new customers (Schmitz 2004; Sturgeon 2008). The relative power relations of lead firms and suppliers are central to research on the dynamics of industrial organisation but no previous studies have analysed them.

## **2.4 Research Questions and Hypotheses**

In view of the research gaps identified above, this paper will examine the evolutionary dynamics of the Japanese and Chinese models of industrial organisation in the



Vietnamese motorcycle industry. It addresses the following overarching research question:

*How has the competition between Japanese and Chinese organisational models affected the organisational transformation of the Vietnamese motorcycle industry?*

For the purpose of analysis, this question is divided into two sub-questions.

Sub-question 1: *How did the Japanese and Chinese organisational models evolve in Vietnam?*

The literature suggests that the two models converged within a few years of their direct clash, as Japanese motorcycle manufacturers expanded their component sources to include non-conventional sources for the purpose of spurring competition between suppliers, and local assemblers developed long-term, trust-based relations with their suppliers.

Hypothesis: *The two models converged within a few years of their initial clash in Vietnam.*

The second sub-question is concerned with explaining the organisational transformation that eventually occurred.

Sub-question 2: *What factors drove the organisational transformation of the Vietnamese motorcycle industry?*

Existing empirical research emphasises that *the nature of the products*, which the lead firms adjust in order to cope with competitive pressure, is the key variable in explaining the dynamics of an organisational model.

Hypothesis: *Organisational transformation is explained primarily by product characteristics determined by the lead firm.*

### **3. Conceptual Framework and Operationalisation of Key Concepts**

This section develops a theoretical framework for describing and explaining different forms of industrial organisation, which is based on a revised version of Gereffi et al.'s

(2005) theory of global value chain (GVC) governance developed by Fujita (2013a). The section begins by introducing the concept of value chain governance, followed by a consideration of five dominant governance types. It then discusses the two key variables that determine value chain governance and presents a revised framework that uses these two variables to explain the emergence of the five aforementioned types of value chain governance. The section concludes with operationalisation of the key concepts.

### **3.1 Industrial Organisation: Meaning and Type**

An industry comprises (groups of) firms engaged in one or more value-adding function that is required to bring products to market – typically referred to as a value chain (Sturgeon 2001). The literature on industrial organisation has evolved around the broad question of how the upstream to downstream functions surrounding a product are aligned to different (groups of) firms, and how relations between these firms are coordinated. Starting with the literature on large integrated corporations (Chandler 1977) and transaction cost economics (Williamson 1979), through to theories on network forms of organisation (Powell 1990) and the GVC approach (Gereffi et al. 2001; Schmitz 2004; Gereffi et al. 2005; Sturgeon 2008), the resultant large body of work has demonstrated the range of market and non-market mechanisms through which inter-firm relations are coordinated. These mechanisms – referred to by the GVC approach as types of value chain *governance* – are important because they influence competitive performance of industries and development prospects for local firms participating in value chains (Sturgeon 2002; Schmitz 2004).

While there are myriad patterns of value chain governance, Gereffi et al. (2005) classified value chain governance into five dominant types, which were mapped onto a spectrum running from low to high levels of explicit coordination (Figure 2). At one end of the spectrum is the arm's-length market in which transactions are mediated by market forces. At the other end of the spectrum there is a hierarchy in which coordination takes the form of an internal command structure within a vertically integrated corporation. In between these two extremes, there are intermediate or network forms of organisation that are neither based on markets nor a hierarchy (Powell 1990; Jones et al. 1997). In ascending order of explicit transactional governance, these are:

- Modular chains, in which product standardisation reduces the frequency and

intensity of interaction, as well as the level of mutual dependence between a lead firm and its suppliers

- Relational chains, which are characterised by complex and intense interaction between mutually dependent parties
- Captive chains, in which a powerful lead firm makes extensive intervention and exercises control over smaller and dependent suppliers

**Figure 2.** Types of Value Chain Governance

Type	Description
Market	Arm's-length transactions mediated by market forces
Modular	Product standardisation enables firms to exchange complex information without intense interaction or mutual dependence
Relational	Intense two-way interaction and mutual dependence
Captive	Lead firms make extensive intervention and exercise control over dependent suppliers
Hierarchy	Vertically-integrated organisation

Source: The author, based on Gereffi et al. (2005).

### 3.2 Determinants of Value Chain Governance

Why do different forms of governance such as those discussed above exist? And under what circumstances do particular governance forms emerge? The strength of Gereffi et al.'s (2005) formulation of GVC governance theory is that it provides a systematic device for answering these questions. Specifically, they seek to explain the dynamics of value chain governance in terms of three variables: (1) the complexity of information exchanged in a transaction; (2) the degree to which such information can be codified; and (3) the supplier's capability level relative to the requirements of a transaction.

This study follows the overall structure of this framework, but makes the following adaptations. First, for the sake of simplicity, the first two variables are grouped into one broader category: the nature of product and process parameters exchanged in transactions.

Second, whereas Gereffi et al. (2005) concentrate on the *codifiability* of parameters, this study focuses on the degree to which these parameters are *standardised*, a related yet distinct concept. This is because degrees of product and process standardisation

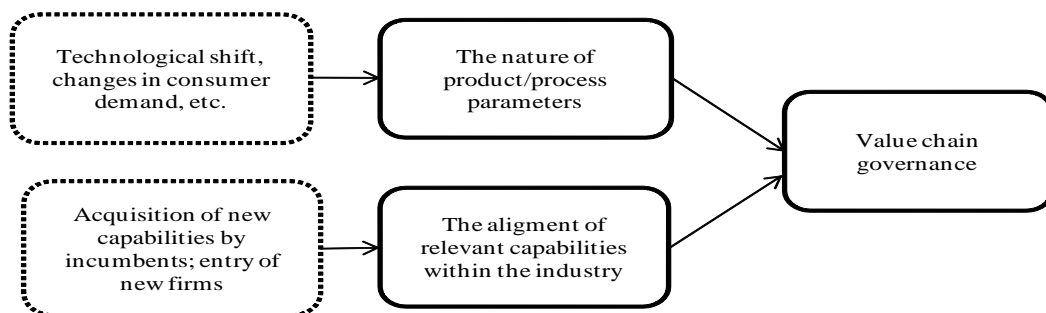
constitute one of the essential factors that differentiate the Japanese and Chinese models of industrial organisation in the motorcycle industry.<sup>15</sup>

Third, the present study's framework incorporates lead firm capability in addition to supplier capability. Because the primary focus of Gereffi et al. (2005) is on the *global* value chains that are coordinated by major transnational corporations (TNCs), they implicitly assume that lead firms possess the sophisticated capability necessary to coordinate value chains. On the contrary, the present study does not take lead firm capability as a given in view of the fact that it addresses the organisational model emerging in a developing country context. Rather, it acknowledges that a lead firm may be constrained by a shortage of capability in its attempt to establish certain types of chain governance.

Fourth, rather than narrowly focussing on *relative* levels of capability, that is, whether or not supplier capability meets the level required by lead firms, the present study highlights the various *types* of capability that different governance mechanism models impose on both lead firms and suppliers.

The basic structure of this adapted framework is shown in Figure 3, in which value chain governance is determined by two variables: the nature of product and process parameters communicated in transactions; and the alignment of relevant capabilities within the industry. The following subsections examine the two variables individually.

**Figure 3.** Value Chain Governance: An Explanatory Framework



Source: The author, adapted from Gereffi et al. (2005) and Langlois and Robertson (1995).

<sup>15</sup> This adaptation becomes critical in formulating the conditions under which captive chains emerge. Whereas Gereffi et al. (2005) focus on the *codifiability* of parameters in the form of lead firm instructions, the *non-standard* nature of product and process parameters turned out to be critical in explaining why Japanese motorcycle manufacturers had instituted explicit governance mechanisms in coordinating transactions with their suppliers.

### **3.2.1 The Nature of Product and Process Parameters**

The nature of product and process parameters determines the need for transactional governance. It is not the case that every transaction requires explicit coordination; the extent to which transactional governance is required depends primarily on the type of product being traded (in this case, motorcycle components). The specific focus will be on levels of complexity and degree of standardisation, both of which are influenced by factors such as technological innovation and changes in consumer demand.

In respect of simple products, which also tend to be standardised, there is limited need for instituting explicit transactional governance: if components are simple and standardised, product/process parameters can be specified and communicated with ease. Supplier performance is easily observable in the form of delivered outputs and thus detailed monitoring mechanisms are not required. Moreover, as standard products do not require transaction-specific investment, there is no need to implement safeguards against the risks of opportunism (Williamson 1979). Standard products can also be produced by a range of suppliers, sold to a variety of lead firms, or produced for stock and supplied as necessary (Gereffi et al. 2005).

The need for coordination increases as products become complex and differentiated, that is, as they start to take on new demands beyond price level (Schmitz 2006; Humphrey and Schmitz 2008). Examples include differentiated components that are more difficult to design and/or manufacture; higher quality levels; tighter delivery requirements in terms of either frequency or punctuality; and additional functional requirements (e.g. suppliers take on design responsibilities in addition to manufacturing). Implementing new requirements such as these often constitutes an additional burden with regard to the communication of product and/or process parameters between the lead firm and its suppliers. It also necessitates additional mechanisms to ensure that parameters are adhered to, for example, detailed monitoring (Schmitz 2006).

The need for explicit governance also depends on the extent to which parameters are standardised. On the one hand, non-standard parameters require explicit coordination because they incur additional coordination costs and transaction-specific investment in physical and/or human resources (Williamson 1979). This is particularly the case for products with integral design architecture. Because such products are characterised by complex mapping from functional elements to physical components and tightly

coupled interfaces among interacting physical components, they call for fine-tuning between the whole product and its component parts if overall product performance is to be maximised (Ulrich 1995; Baldwin and Clark 2000). Designing these products requires the coordination of detailed design tasks (Ulrich 1995), and their manufacture necessitates transaction-specific investment, both of which call for explicit governance mechanisms to be in place.

On the other hand, even when the product is complex, industry-wide product and/or process standards may reduce the need for explicit governance (Gereffi et al. 2005). In industries that produce products with modular architecture, standards make it possible to communicate product and/or process parameters without intense interaction, which releases firms from being locked into particular trading relationships (Langlois and Robertson 1992, 1995).

### **3.2.2 The Alignment of Relevant Capabilities**

The need for transactional governance, however, does not mean that such mechanisms can necessarily be implemented in practice. This is where the second variable of the alignment of relevant capabilities within the industry comes into play. Governance means that a given firm enforces parameters over other firms, a dynamic that demands the ability to wield power (Schmitz 2006; Sturgeon 2008). The relative power relations between a lead firm and its suppliers, in turn, are determined primarily by the types and levels of capability enjoyed by the respective parties (Sturgeon 2008; Schmitz 2006; Palpacuer 2000).

A lead firm's capacity to impose parameters on its suppliers usually stems from their core competencies in strategic value chain functions (Palpacuer 2000; Schmitz 2006). In capital-intensive sectors such as the automotive industry, such strategic functions typically include product development, marketing, and manufacturing of core components. These functions often constitute the key sources of competitive advantage enjoyed by the lead firm because they require knowledge- and experienced-based assets that are difficult for others to imitate, and because they provide economies of scale for the firms that control these functions (Palpacuer 2000: 378).

A lead firm's control over strategic value chain functions matters because it tends to create two types of dependence on the part of the suppliers. First, lead firm control over strategic functions leaves suppliers with non-core functions (Palpacuer 2000),

rendering them *functionally* dependent on the lead firm in marketing their products. Second, because dominance in respect of product, marketing, and/or branding often enables lead firms to gain a high degree of control over the market (Gereffi 1999; Kaplinsky and Morris 2000), they often overwhelm suppliers with huge purchasing power (Sturgeon 2008), rendering them *financially* dependent.

The size of orders takes on particular importance in industries in which product and process parameters are non-standard. Because non-standard products often impose the additional cost of product-specific investment in physical and human resources, a lead firm will face difficulty enforcing non-standard parameters on its suppliers unless orders are large enough to make production economically viable.<sup>16</sup>

However, it is necessary to analyse lead firm competency in relative terms. Because power is relational, suppliers may also acquire it by building core competencies, that is, technical or service capabilities that are difficult to replace and become indispensable to the lead firm (Schmitz 2006; Sturgeon 2008; Palpacuer 2000). Suppliers can also gain the generic capability to assume responsibility for a bundle of functions, such as product design, process development, purchasing, and production, which enables them to serve a diverse pool of customers and switch customers if necessary (Sturgeon 2008). In contrast, where suppliers only possess capabilities that are easily substituted and/or are embedded in relations with specific customers, the lead firm retains the capacity to choose and replace suppliers, thus keeping supplier power under control (ibid.).

### 3.3 The Revised Framework

Table 1 shows how the five governance types mentioned in Section 2.1 can be explained in terms of different combinations of the two variables outlined in the previous subsection. When product and process parameters are simple and standardised, *market-based chains* emerge. This type of chain makes limited capability demand of lead firm and suppliers alike, the minimum requirements being that they possess routine assembly capability and routine component manufacturing capability respectively.

When industry-wide standards of compatibility enable complex parameters to be

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<sup>16</sup> Sturgeon et al. (2008) corroborate this point in arguing that the concentrated structure of the car manufacturing industry helps each firm to impose its own idiosyncratic standards on suppliers.

exchanged without explicit coordination, *modular chains* emerge whereby suppliers acquire generic manufacturing capacity and related service capabilities that enable them to serve multiple lead firms simultaneously. On the other hand, while the minimum requirement of the lead firm is routine assembly capability using mutually compatible components sourced from suppliers, modular chains enable it to focus on creation, penetration and defence of markets for its end products (Sturgeon 2002).

As product and process parameters become complex and non-standard, three types of chain governance may emerge depending on the alignment of relevant capabilities. The first case is one in which the lead firm and its suppliers are equipped with complementary competencies that cannot easily be sourced elsewhere. Such a situation gives rise to a *relational chain* whereby the lead firm and its suppliers are engaged in intense two-way interaction; the two parties are mutually dependent and the power relation is symmetrical (Gereffi et al. 2005).

**Table 1.** Types of Chain Governance and their Determinants

	Product/ Process Parameters	Lead Firm Capability	Supplier Capability
Market	Simple	No specific requirements beyond routine manufacturing/assembly capabilities	
Modular	Complex/ Standard	A minimum of routine assembly capability suffices. Lead firms usually focus on creation, penetration and maintenance of markets for end products.	Generic manufacturing and related service capabilities.
Relational	Complex/ Non-standard	Lead firms and suppliers possess complementary competencies that are hard to substitute.	
Captive		Capacity to exercise dominance over suppliers, which usually stems from control over strategic chain functions.	A minimum of the basic ability to engage in a narrow range of simple tasks is required. Suppliers develop capabilities in accordance with the lead firm's interventions.
Hierarchical		Capacity to conduct the value-adding functions in question.	Supplier capability is withheld.

Source: Adapted from Gereffi et al. (2005), Sturgeon (2002), Langlois and Robertson (1995), Sturgeon et al. (2008), Schmitz (2006), Sturgeon (2008), and Palpacuer (2000).

The second case is characterised by substantial asymmetry in capability levels between



a large, competent lead firm and smaller, less competent suppliers. Competence and power asymmetry lead to a *captive chain* whereby the lead firm engages in extensive intervention, such as active monitoring and technical assistance; while suppliers develop their capabilities – typically, in a narrow range of tasks – under the lead firm’s guidance (Schmitz 2004, 2006).

The last case is one in which limited available external capability makes outsourcing unfeasible, meaning that the lead firm is compelled to conduct the required function(s) in-house, that is, to create a *hierarchy*. A hierarchy may also result from cases of substantial asymmetry in competence levels (i.e. the second case discussed above) but where the lead firm is either unwilling or unable to engage in extensive intervention.

### **3.4 Operationalisation of Key Concepts**

For the purpose of empirical analysis, indicators have been developed for the key concepts (Table 2). Given the lack of quantifiable indicators for key variables, the analysis of trajectories focuses primarily on the *direction* of change in the status of the key variables over time, for example, an increase or decrease in the degree of complexity of product parameters.

The indicators of supplier capability require further explanation. Drawing on the technological capability (TC) literature (Lall 1992; Bell and Pavitt 1995), this study focuses on the *type and level of capability* possessed by suppliers. With regard to type, reflecting the capability requirements that the Japanese and Chinese organisational models impose on suppliers, the key distinction is between *new product introduction* (product development and design) and *production*. The latter is further divided into the equipment-related and production management dimensions (Sato and Fujita 2009). In terms of level, the focus will be on whether suppliers starting at routine operation for the domestic market (*operational level*) can progress to the level at which they are able to maintain stable and continuous operations that fulfil the requirements of foreign customers (*assimilative level*), and further to level at which suppliers are able to make minor yet original improvement to the existing products or production activities (*adaptive level*) (ibid.).

**Table 2.** Operationalisation of Concepts

## (a) Determinants of Governance Types

Key Concepts		Indicators
Nature of Product/ Process Parameters	Level of Complexity	General product characteristics (e.g. price levels) The way in which the lead firm specifies product/process requirements to suppliers
	Level of Standardisation	General product features (e.g., whether product designs are proprietary or standardised) The way in which the lead firms specifies product/process requirements to suppliers
Structure of Relevant Capabilities within the Industry	Lead Firm Capability	Whether or not the lead firm engages in key functions, e.g. product development, marketing, and production of core components The scale of orders placed to suppliers The capacity to switch suppliers
	Supplier Capability	Changes in the number of suppliers, and types and levels of capability possessed (For new suppliers) Suppliers' experience prior to entry into respective value chains

## (b) Governance Types

	Pattern of Dependence	Coordinating Mechanism
Types of Data Required	<u>Lead firm</u> : availability of alternative sources of components <u>Suppliers</u> : number of customers; percentage of sales to respective lead firms; size of orders	Mechanisms used to communicate product/process parameters and ensure that they are met
Markets	Neither side is dependent on the other	Limited communication of information beyond price levels
Modular		Communication of complex parameters without intense interaction enabled by industry-wide standards
Relational	Mutual interdependence	Intense two-way exchange of information
Captive	Small suppliers dependent on a large lead firm	Lead firm takes the lead in sharing of long- and short-term targets; performance monitoring; regular sharing of information on products and processes; provision of technical/financial assistance
Hierarchy	Vertically integrated corporation	Firm's internal command

Source: The author, with reference to Palpacuer (2000), Schmitz (2006), Sturgeon (2008), Kaplinsky and Morris (2000), and Sako (1992).

## **4. Methodology**

This section explains the methodology adopted in the empirical research project, that is, the retrospective case study method, criteria for selection of cases, and methods of data collection and analysis.

### **4.1 Research Design: Retrospective Case Study**

In order to analyse the decade-long dynamics of change in industrial organisation, this paper adopts the retrospective case study method (de Vaus 2001; Glick et al. 1995; Tuma and Hannan 1984). In the present context, this method involves tracing the processes of organisational transformation by observing the sequence of historical events occurring in specific sets of value chains with several intervals. Table 3 provides a summary of the overall case study design. In an attempt to illuminate how and why the Japanese and Chinese models of industrial organisation were transformed in the Vietnamese context over time, this study analyses two sets of value chains representative of the Japanese and Chinese models in Vietnam respectively. Each of them are analysed by means of an embedded case study design, which combines the analysis of the overall context with that of embedded subunits (Yin 2003). In accordance with the conceptual framework presented in the previous section, the focus is on the lead firm(s) and its/their main first-tier suppliers.

The transplanted Japanese model is represented by value chains independently developed and governed by HVN for the following reasons. First, HVN remained the single most important motorcycle manufacturer in the Vietnamese motorcycle industry throughout the period of investigation (Figure 1). Second, among Japanese motorcycle manufacturers in Vietnam, HVN was the hardest hit by the China shock but also reacted with the most fundamental adjustments. By contrast, YVN's consistent focus on the high-end market limited direct Chinese competition (Fujita 2005); and Vietnam Suzuki (VNS)'s market shares were too small for the China shock to have an observable impact (Figure 1).

**Table 3. Case Study Design**

	Japanese Model	Chinese Model
Cases	HVN chains	Vietnamese–Chinese chains as a whole
Case Study Design	<p>Embedded case study design</p> <p><u>Analysis of context:</u> Analysis of HVN value chains as a whole</p> <p><u>Analysis of embedded subunits:</u> HVN as the lead firm, and major Japanese (<i>keiretsu</i> and non-<i>keiretsu</i>) and Vietnamese suppliers</p>	<p>Embedded case study design</p> <p><u>Analysis of context:</u> Analysis of the local motorcycle assembly industry as a whole</p> <p><u>Analysis of embedded subunits:</u> (Stage II) Four major lead firms (Assemblers A1, A2, A4, and A5) and their Vietnamese, Taiwanese, and Korean suppliers (Stage III) Five major lead firms (Assemblers A1, A3, A4, A5, A6) and their Vietnamese, Chinese, Taiwanese and Korean suppliers</p>
Data Sources	<p><u>Context:</u> interviews with Honda’s various units in Vietnam, Thailand and Japan; published and unpublished statistics; company website</p> <p><u>Embedded cases:</u> interviews, factory visits, company websites, reports, newspapers</p>	<p><u>Context:</u> published and unpublished Vietnamese government statistics; reports; newspapers</p> <p><u>Embedded cases:</u> interviews, factory visits, questionnaire surveys, company websites</p>

Source: The author.

The case study of HVN’s value chain combined investigation of the overall context and that of embedded subunits including HVN as the lead firm, and major Japanese and Vietnamese suppliers. A total of 11 Japanese and 10 Vietnamese suppliers were purposefully selected as embedded subunits on the basis of the following criteria. First, cases were limited to suppliers of components that usually had model-specific designs, which, therefore, required close coordination between lead firms and suppliers. These included suppliers of metal and plastic components, dies, and moulds. Second, for the purpose of highlighting structural changes within the chains, cases were selected based on the requisite level of diversity: *keiretsu* and non-*keiretsu* suppliers among Japanese suppliers; state-owned and private companies among Vietnamese suppliers; and suppliers that had joined HVN value chains at various stages of industrial development. Third, an attempt was made to ensure that a sufficiently large number of cases were covered. The study ultimately selected 10 out of a total of 18 Vietnamese suppliers and 11 out of a total of 26 Japanese suppliers operating in HVN's value chain as of 2007.<sup>17</sup>

The Chinese model is represented by Vietnamese–Chinese chains developed by local Vietnamese motorcycle assemblers.<sup>18</sup> Unlike the analysis of the Japanese model, the

<sup>17</sup> These include Vietnamese suppliers V1-9 and V13 and Japanese suppliers J1-11.

<sup>18</sup> Lifan Vietnam, the only Chinese-invested motorcycle manufacturer, was not selected on account of its small market shares and its focus on engine production rather than motorcycle assembly (The Motorbike Joint Working Group 2007: 27).

focus is not limited to those value chains developed by specific lead firm(s) because their small size, repeated entry into and exit from the market, and the emergence of a *shared supply base* serving the local motorcycle assembly industry at large (see Section 6.2) calls for coverage of Vietnamese–Chinese chains as a whole.<sup>19</sup>

Analysis of the Chinese model also combines that of context and embedded subunits. The former relies on analysis of the local motorcycle assembly industry as a whole. In respect of the latter, six local assemblers were selected from lists of those operating as of 2000 and 2006 respectively<sup>20</sup> according to the following criteria. The first one was the *critical case* criterion, in which priority was given to assemblers that were sufficiently large in terms of the scale of production.

Second, selection was based on two types of replication logic in case study research: literal replication (predicting similar results across cases) and theoretical replication (predicting contrasting results but for predictable reasons) (Yin 2003). Since assemblers' product strategies and performance started to diverge at a late stage of industrial development, cases were selected to include assemblers adopting different product strategies and sourcing practices. On the basis of the author's previous research (Fujita 2006), the key distinction was between one group of assemblers that concentrated on the production of low-priced imitations of Japanese-brand motorcycles, and another group that prioritised quality improvement, and the development of own designs and brand names often at the expense of higher prices.

Third, cases were selected so as to make use of data obtained from the author's previous fieldwork, and accessibility to assemblers for additional rounds of fieldwork. Since data from previous fieldwork only included information on three assemblers (A1, A4 and A5), attempts were made to incorporate additional embedded case assemblers that were known to have played major roles in stages II and III. Assembler A2, which in 2000 had had the largest turnover of 51 local assemblers,<sup>21</sup> and assemblers A3 and A6, which were found to be expanding sales in Stage III, were added as embedded

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<sup>19</sup> The distinction between Japanese and Vietnamese–Chinese chains is similar to the contrast drawn by Sturgeon and Lee (2005: 35) in reference to supplier networks in the automotive sector whereby Toyota's supplier network competes with that of General Motors' and the electronics industry, in which strategic outsourcing by groups of lead firms has led to the rise of a shared supply network. A striking feature of the present case is that contrasting supplier networks have emerged within a single industry.

<sup>20</sup> The 2000 list was provided by the Vietnamese Ministry of Industry, and the 2006 list was provided by the General Statistics Office.

<sup>21</sup> Based on the list of local assemblers provided by the Vietnamese Ministry of Industry.

cases.

As a result of the selection process, the author ended up with six assemblers (A1-6) as embedded subunits. Assemblers A1, A2 and A3 belonged to one category of assemblers concentrating on the production of low-priced imitations of Japanese-brand motorcycles. Assemblers A5 and A6 were typical examples of the other category of assemblers prioritising the development of own designs and brand names and quality improvement. Assembler A4 fell somewhere in between the two categories.

Suppliers were also analysed as embedded subunits in the Vietnamese–Chinese chain. Data were obtained for a total of 24 suppliers of different nationalities (5 Chinese, 7 Taiwanese, 1 Korean, and 11 Vietnamese).<sup>22</sup> Attempts were made to ensure that cases included suppliers playing key roles in value chains developed by both of the aforementioned emergent groups of assemblers.

#### **4.2 Data Collection and Analysis**

In an attempt to analyse the trajectories of organisational transformation over the decade from the late 1990s, this study combined three main sources of data. The first dataset derived from the author's previous fieldwork conducted in 2001, 2002, 2003, 2004 and 2005. Since the industry in question had undergone dramatic transformation involving many entries and exits, high staff turnover, and the frequent personnel changes typically observed in foreign affiliate, the present study would not have been possible without data from these previous rounds of fieldwork. Although they were driven by different research questions, they provided a great deal of information on lead firm production strategies and sourcing practices, lead firm–supplier relations, and the development of suppliers' capabilities.

Data obtained in previous rounds of fieldwork were compiled in the form of interview recordings, transcriptions, and notes (mainly from Vietnamese companies); interview notes (mainly from Japanese, Taiwanese, Korean, and Chinese companies); questionnaire surveys; notes taken during factory visits; company brochures and presentation materials; and other materials provided by firms. The present study therefore commenced with the interpretation and coding of existing materials in accordance with the operationalised indicators presented in Section 3.

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<sup>22</sup> These include Chinese suppliers C1-5, Taiwanese suppliers T1-7, Korean supplier K1 and Vietnamese suppliers V13-23.

Second, additional rounds of fieldwork were conducted specifically for the present study in order to collect data on new developments after 2005 and, wherever possible, to obtain retrospective data on earlier years. The basic strategy was to follow up with lead firms and suppliers approached in previous fieldwork, but attempts were also made to incorporate those that had not been included in the earlier studies but had come to play important roles in Stage III.<sup>23</sup> Additional interviews with HVN and local assemblers, as well as their key suppliers, were also conducted between 2007 and 2009.

The fieldwork study of local assemblers requires further explanation. A major challenge was the difficulty in accessing assemblers for additional rounds of fieldwork (A3, A4, and A6 agreed to be interviewed whilst A1 and A5 refused). The challenges were addressed by the following measures. One was to conduct questionnaire surveys of local assemblers in collaboration with the Vietnam Institute of Economics, Vietnam Academy of Social Science in 2007, to which A1, A3, A4, A5 and A6 agreed. Another was to access a former employee. Since access could be made to the former procurement manager (2002–4) of assembler A2, a series of interviews was conducted to obtain information on the company in the early 2000s.

In order to complement limited amount and quality of data on local assemblers, the author also interviewed Taiwanese, Korean, Chinese and Vietnamese suppliers that had worked closely with these local assemblers over the years. The former transpired to be easier to access and became precious sources of information on Vietnamese–Chinese chains. Towards the last stage of the fieldwork, the author presented the main lines of argument on Vietnamese–Chinese chains to these suppliers and other industry experts and asked for their feedback. This exercise helped to confirm the validity of arguments and indicate where adjustment was necessary.

The third source of data was that on local supplier capability which was collected for a different part of this research project focussing on trajectories of supplier capability formation.<sup>24</sup> Of the 21 suppliers covered in the fieldwork on local suppliers, data for 18 of them were revealed to be suitable for the present study.<sup>25</sup> In-depth interviews were

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<sup>23</sup> Examples include local assemblers A3 and A6, and suppliers J10, J11, C1, V7, V9, and V16. Information on newly-emerging companies was obtained from newspapers and interviews with firms and industry experts.

<sup>24</sup> See Paper III in Fujita (2013b).

<sup>25</sup> The remaining three were second-tier suppliers to Japanese motorcycle manufacturers, which were beyond the scope of this study.

conducted with these 18 suppliers to identify the types and levels of capability acquired by such firms in Japanese and Vietnamese–Chinese chains at different stages of industrial development.

The full list of firms interviewed and surveyed is included in Appendix. In addition to interviews and questionnaire surveys, this study also made use of the following additional data sources: published and unpublished statistics, Vietnamese and Japanese newspapers, reports and research papers on the industry, and presentations and lectures given by representatives of firms analysed as embedded cases.

All the fieldwork materials were coded and tabulated using the indicators presented in Section 3. The following sections will present the results of the analysis as a synthesis of insights obtained from various levels of analysis. While individual firm-level case reports had been prepared in the course of the analysis, the details of the individual cases will be included only where necessary.

## **5. The Emergence and Transformation of the Japanese Model in Vietnam**

Sections 5 and 6 present the empirical analyses of the transformation of Japanese and Chinese organisational models respectively in Vietnam. Each is structured in chronological order, with subsections running from earlier to later stages of industrial development. Each subsection begins by discussing the features of the two determinants of industrial organisation – namely, the nature of the product and the alignment of relevant capabilities – in the respective value chain at each stage of industrial development. It then goes on to analyse the form of industrial organisation that emerged under the prevailing conditions.

Section 5 focuses specifically on how Honda, the leading global motorcycle manufacturer, transferred its conventional organisational model to Vietnam, and how it was transformed in the short- and the medium-term after its clash with the Chinese model. The discussion proceeds in the following order:

- Stage I: the industry's start-up phase, designed to observe the status of the transferred Japanese model before its clash with the emergent Chinese model
- Stage II: the period of the China shock and its repercussions, designed to observe



the immediate response of actors in Japanese chains to the direct clash with the Chinese model

- Stage III: the period of FDI-led development, designed to observe the medium-term impact of the clash with the Chinese model and the situation after unstable policy conditions impeding organisational adjustments were cleared

## **5.1 Stage I: A ‘Foster Parent’ Variant Emerges**

The empirical analysis of the Japanese model begins with the assessment of Honda’s relations with its suppliers in the early years of its operation in Vietnam when the market was small and the local component supply base was underdeveloped. The following subsections examine how the company attempted to cope with the initial challenges and assess the key features of the emerging form of industrial organisation.

### **5.1.1 The Need for Explicit Coordination: Non-standard Designs and High Quality**

Upon launching local production in Vietnam, Honda basically sought to replicate the conventional product strategy it had perfected in Japan and earlier overseas investment locations: launching its own sophisticated models developed at home and manufacturing them locally to high quality standards. In the 1990s, HVN launched two models in Vietnam, both of which carried proprietary (and thus non-standard) designs developed at the company’s R&D headquarters in Japan.<sup>26</sup> One was adapted from an existing model produced in Thailand, and the other was developed exclusively for the Vietnamese market, carrying components customised to this particular model. The company also instituted its own component quality standards to be applied at its production bases in Asia.<sup>27</sup>

Not only were product/process parameters idiosyncratic, they were also complex. HVN’s emphasis at this stage was clearly not on price competitiveness, the two models launched in the 1990s being priced as high as US\$2,000.<sup>28</sup> This reflected not only high quality levels but also a lack of scale economies, dependence on imported components,

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<sup>26</sup> This discussion of models launched in the 1990s is based on an interview with HVN #2.

<sup>27</sup> *Nikkei Sangyo Shimbun (Nikkei Business Daily) Newspaper*, 25 May 1999.

<sup>28</sup> The prices were US\$1,990 and US\$2,044 respectively (Nguyen Duc Hien 2004: 234).

and monopoly rents.<sup>29</sup> Unsurprisingly, sales stagnated as price levels were far above the reach of ordinary citizens; while the limited number of consumers who could afford the high prices opted for Honda-brand motorcycles imported from Thailand that were priced at broadly similar levels (Nguyen Tran Que and Hoa Huu Lan 1998). However, this did not lead HVN to adjust its product strategy at this stage.

HVN's emphasis on the non-price dimensions of competitiveness was confirmed by its suppliers. Detailed drawings provided by the company specified detailed product and process parameters (interviews with V1 #2, #4; V2 #1; V3 #1). As will be discussed in more detail below, none of the suppliers interviewed by the author were asked to reduce their prices at this stage.

Apparently, Honda made limited effort to adapt its product strategy to the demands of Vietnamese consumers. After all, Vietnam was still a small, emerging market and the only major competitors were Honda-brand motorcycles imported from Thailand. Stagnating sales notwithstanding, the company was not compelled to seriously reconsider its product strategy.

### **5.1.2 Misaligned Capability/Power Structure**

As one of the world's leading manufacturers of motorcycles since the 1960s, Honda enjoyed product and branding leadership that had remained unchallenged for decades. The company also controlled virtually all key value chain functions, including product development, designs of all components other than a limited number of core items, marketing, and branding (Fujita 2013a). As of the late 1990s, the company's operations in Vietnam focussed on production, while product development and design were undertaken in Japan.

Yet, even such product, technological and marketing leadership transpired to be insufficient for HVN to gain control over the Vietnamese market. As stated above, since its products were out of the reach of ordinary Vietnamese consumers, motorcycle sales stagnated in the 1990s (Figure 1). The fact that it was the single largest motorcycle manufacturer in Vietnam notwithstanding, HVN's production in the 1990s remained small (Figure 4); indeed, far lower than 300,000 units per year – the level

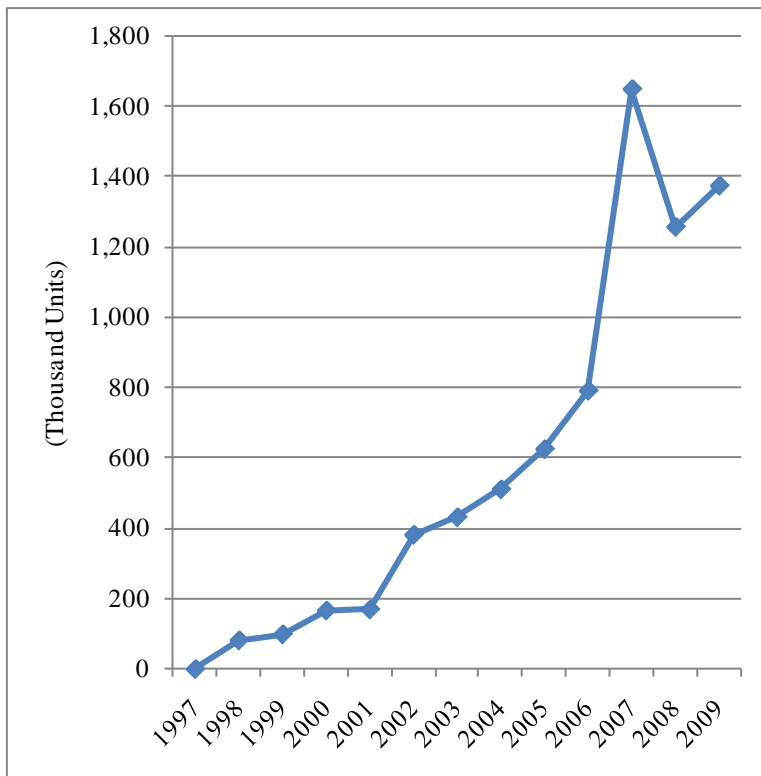
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<sup>29</sup> A Vietnamese government inspection in 1998 found that HVN had earned profits of US\$18,154,000 – or US\$221 per vehicle sold (calculation by the author) – in the company's second full year of operation (Ha Huy Thanh et al. 2003: 332).

generally recognised by Japanese manufacturers of motorcycle components as the minimum scale needed for efficient production (Mishima 2007).

The Vietnamese government demanded that foreign motorcycle manufacturers expand local sourcing of components.<sup>30</sup> To meet this requirement, Honda adopted its conventional approach of sourcing from the following two types of suppliers (interview with HVN #1), both of which transpired to be in short supply in Vietnam. First, Japanese suppliers – especially members of the Honda Group (*keiretsu*) – were preferred because of their proven record of manufacturing competence in serving Honda in Japan and abroad. However, despite indications that Honda explicitly or implicitly asked *keiretsu* suppliers to establish production bases in Vietnam notwithstanding (interviews with J6 #1; J7 #1), few of them did so because the country was still regarded as risky investment location (JETRO 1996; Ichikawa 2001) and the anticipated size of orders was too small.

**Figure 4.** HVN’s Annual Motorcycle Production



Source: Honda Motor Co., Ltd. (various years).

<sup>30</sup> Circular of the State Committee for Cooperation and Investment 1536/UB-VP dated 11 August 1994.

Second, Honda also sought to mobilise relatively large, well-established local companies. However, given the underdeveloped status of Vietnam’s mechanical industries at this stage,<sup>31</sup> only four such firms were initially admitted into HVN’s value chain (Table 4). Even though they were relatively large and well-established by Vietnamese standards, none of them had previous experience of manufacturing machinery components or serving foreign customers. This is evident from Table 5, which shows production capabilities possessed by Vietnamese suppliers in Japanese chains including three of the four suppliers that were admitted into HVN’s chains in the 1990s (V1, V2 and V3).

Consequently, HVN’s value chain remained underdeveloped. As of 1998, the local content ratio was only approximately 44% (Table 4), which included components that HVN manufactured in-house, the majority of parts being necessarily imported, mainly from Japan. In 1998, HVN’s supply networks in Vietnam only consisted of 16 first-tier suppliers: 12 Japanese companies, 5 of which belonged to the Honda Group,<sup>32</sup> and 4 local firms.

**Table 4.** HVN’s Local Sourcing

	1998	2001	2004	2007
Local Content Ratio	44%	52%	83%	90%
Total Number of Suppliers in Vietnam	16	20	43	58
Japanese Suppliers	12	15	18	26
of which members of Honda Group	5	6	6	11
Taiwanese and Korean Suppliers	0	0	12	14
Vietnamese Suppliers	4	5	13	18
of which members of VEAM	0	0	1	3

Note: VEAM (Vietnam Engine and Agricultural Machinery Corporation) is a state-owned business group that contributes 30% capital to HVN.

Source: The author’s interviews with HVN (#1, #2, #3). Suppliers belonging to the Honda Group and VEAM were respectively enumerated by the author on the basis of Toyo Keizai Inc. (2009) and VEAM’s website (<http://www.veam.com.vn/?act=thanhvien>, accessed 1 August 2012).

<sup>31</sup> This is evident from remarks made by experts who visited local Vietnamese companies engaged in processing metal, plastic and rubber products in 1995. Having visited nine major local companies, they remarked, “Visiting...local companies for the first time, we were surprised to find that their levels were far [lower] than the component manufacturers we have known and have instructed [in other Asian countries] in the past. We have come to think that instructing these companies will require a great deal of patience and new ideas” (JETRO 1996: 1).

<sup>32</sup> Suppliers J2, J6 and J10 even enjoyed direct capital investment from Honda’s Thai affiliate.

**Table 5.** Production-related Capabilities Acquired by Vietnamese Suppliers in Japanese Chains

	Before Stage I	Stage I	Stage II	Stage III
V1	Production of household plastic items	Operational	(n/a)	Adaptive
V2	Production of bicycle components	Operational	Operational - assimilative	Assimilative-adaptive
V3	Production of household metal items	Operational	Operational	Assimilative
V5	Production of household plastic items		Operational	Operational-assimilative
V6	Production of wire harnesses for export to Japan		Assimilative	Adaptive
V7	Production of machinery components for SOEs		Operational	Assimilative
V8	(not yet established)			Assimilative
V9	Production of machinery components for SOEs			Operational
V13	Production of machinery components for SOEs		Operational	Assimilative

Notes:

- (1) n/a = data not available.
- (2) For the period prior to entry into a Japanese chain (the unshaded area), main lines of business are shown.
- (3) For the period after entry into a Japanese chain (the shaded area), the level of equipment-related and production management capabilities acquired by each supplier is shown. In case levels of the two types of capabilities differed, the lowest and highest levels.

Source: The author's interviews with suppliers (Fujita 2013b).

In short, Honda's global leadership in product, technology and branding notwithstanding, the company had yet to establish sufficient market power to exert control over the albeit limited number of suppliers that possessed low levels of manufacturing competence.

### 5.1.3 The Lead Firm as a Generous Provider of Assistance

Limited lead firm control over the market combined with Vietnam's dearth of component suppliers to constrain HVN in its attempts to exercise dominance. The result was a 'foster parent' variant of the captive model, whereby the lead firm relied primarily on the assurance of long-term orders, and the provision of technical and financial assistance to induce the suppliers' commitment to meet its requirements.

The key features of the emerging organisational model are evident from the pattern of lead firm-supplier dependence. On the one hand, the need to increase local contents in accordance with government requirements, combined with the difficulty of finding alternative domestic sources of components, meant that HVN was dependent to a great

extent on its incumbent suppliers. Given non-standard product parameters and demand below the minimum level required for efficient production, orders were commissioned straight to a fixed group of suppliers.

On the other hand, supplier dependence on HVN varied (Table 6). Even with modest orders, Japanese suppliers were largely dependent on HVN as they had no other major customers. This was particularly the case with regard to members of Honda Group, who invested in Vietnam specifically with the aim of doing business with Honda.<sup>33</sup> By contrast, local Vietnamese suppliers typically maintained the output of their traditional products. This was the practice of all of four Vietnamese suppliers interviewed by the author that entered the HVN value chain in the 1990s; while business with HVN accounted for a relatively minor proportion of their sales (Table 6).

As stated above, in order to induce suppliers' commitment to achieve its targets, HVN played the role of a 'foster parent' – a generous provider of assistance. The company's extensive use of assistance at this stage is evident from the author's interviews with suppliers. For members of the Honda Group, patronage took the form of financial support. This was a means by which HVN could reward its suppliers for taking the risk of investing in the equipment and/or training required specifically for serving Honda; given that the company was unable to provide suppliers with what they most wanted: large and stable orders. Two of the four Honda Group suppliers interviewed (J2 and J3) pointed out that HVN had applied preferential prices for the first few years so that they could gain a quick return on their investments. As a result, supplier J3 recorded a profit as early as the second year of operation (interview #1), and supplier J2 completely eliminated its losses by the early 2000s (interview #2).

For local Vietnamese suppliers, patronage took the form of technical assistance. Without the provision of such help over an extended period, it was virtually impossible for local Vietnamese companies to meet HVN's requirements. All of the four Vietnamese companies selected by HVN as first-tier suppliers upon the launch of its local production were interviewed by the author at different times. They had all received technical assistance, typically in the form of repeated visits of experts to their factories over a few years to provide advice and suggestions (interviews with suppliers V1 #1; V2 #1, #2; V3 #1, #2; V4 #1).

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<sup>33</sup> Three of the four Honda Group suppliers interviewed by the author explicitly mentioned that they invested in Vietnam with the aim of serving Honda (interviews with J2 #1, #2; J6 #1; J7 #1). No information was available on the remaining supplier (J3).

**Table 6. Suppliers' Dependence on HVN****(a) Japanese Suppliers**

Name	Honda Group	Start of Transactions	Components	Ranking by Turnover		Dependence on HVN and Changes in the Volume/Content of Orders		
				2002	2006	Stage I	Stage II	Stage III
J1	*	1997	Steel/aluminium components	2nd	(reorganised into J10)	100% dependent on HVN.	100% dependent on HVN. Orders for increased variety of components and types of processing required.	(Reorganised into supplier J10 in 2005.)
J2	*	1997	Silencers	3rd	3th	100% dependent on HVN.	100% dependent on HVN and its suppliers. Orders for increased variety of components.	100% dependent on HVN and its suppliers. Further increase in variety of components.
J3	*	1997	Brake system	7th	7th	Highly dependent on HVN.	Highly dependent on HVN but started exporting components to Japan.	Dependent on HVN for 52% of sales while exports increased to 23%. Increased orders for sophisticated components from HVN.
J4		1997	Dies and moulds	(not included)	(bankrupt in 2004)	(n/a)	Highly dependent on HVN but traded with VNS, YVN and manufacturers of consumer electronic products.	(Bankrupt in 2004.)
J5		1997	Plastic components	(not included)	(not included)	(n/a)	Dependent on HVN for 40% of sales but traded with YVN and consumer electronics manufacturers.	Dependence on HVN decreased to 20%. Increased production of electronic components.
J6	*	1998	Shock absorbers	4th	1st	Almost completely dependent on HVN	Highly dependent on HVN but also supplied limited quantities to YVN and VNS. Lost orders for certain types of components upon the launch of the Wave Alpha but recovered them within a few years.	Dependent on Honda for 95% of sales (including HVN for 85% and exports for 10%). Orders for increased variety of components.
J7	*	1998	Electronic components	5th	2nd	(n/a)	Dependent on HVN for 65% of sales.	(n/a)
J8		1998	Plastic components	(not included)	(not included)	Many customers in other industries	Many customers in electronics and other industries.	(n/a)

**Table 6. Continued**

Name	Honda Group	Start of Transactions	Components	Ranking by turnover		Dependence on HVN		
				2002	2006	Stage I	Stage II	Stage III
J9		2001	Aluminium components	(not included)	(not included)	(n/a)	(n/a)	90% of sales in 2006 from motorcycle components, including supply to HVN and YVN. Volume and variety of orders from HVN reduced by 2008.
J10	*	2004	Steel/aluminium components	(not yet established)	4th	(not yet established)	100% dependent on HVN and its suppliers.	100% dependent on HVN and its suppliers.
J11	*	2005	Transmission	(not yet established)	35th	(not yet established)	(not yet established)	100% dependent on HVN and its suppliers.

**(b) Vietnamese Suppliers**

Name	VEAM Member	Start of Transactions	Components	Ranking by Turnover		Dependence on HVN and Changes in the Volume/Content of Orders		
				2002	2006	Stages I to II		Stage III
V1		1997	Plastic components and moulds	(not included)	(not included)	Dependence on HVN increased from 16% in 2001 to 41% in 2002.		Dependent on HVN for 40% of sales in 2008. Orders for high-precision components and moulds since 2006. Orders from buyers in other industries also increased.
V2		1997	Metal components	(not included)	13th	Dependence on motorcycle components increased from 22% in 1998 to 85% in 2003 (mostly HVN).		Dependent on motorcycle components for 87% of sales in 2008. Increased volume and variety of orders from HVN and its suppliers.
V3		1997	Metal components	12th	(not included)	Dependent on motorcycle components for 60% of sales in 2001 (mostly HVN).		Dependent on HVN for 50–60% of sales. Volume of orders increased but concentrated on components requiring relatively simple processing.
V4		1997	Metal stamped components	(not included)	(not included)	Dependence on HVN increased from 30–40% in the 1990s to 70% in 2002. Volume and variety of orders increased.		Dependence on HVN reduced to 40–45% in 2008. Volume and variety of orders not increased while supplier expanded transactions in other products.



**Table 6. Continued**

Name	VEAM Member	Start of Transactions	Components	Ranking by Turnover		Dependence on HVN and Changes in the Volume/Content of Orders	
				2002	2002	Stages I to II	Stage III
V5		2000	Plastic components	(not included)	(not included)	Dependent on motorcycle components for less than 10% of sales in 2002 (mostly HVN).	Dependence on HVN increased to 40% in 2007. Orders falling by 2008 and concentrated on components requiring relatively simple processing.
V6		2001	Wire harnesses	(not included)	(not included)	(n/a)	Dependent on HVN for 40% of sales in 2008. Volume and content of orders unchanged.
V7	*	2001	Metal engine components	(not included)	(not included)	Dependent on HVN for 42% of sales in 2002.	Dependent on HVN for 60% of sales in 2008. Orders increased, including processing for high-precision engine components.
V8		2004	Dies and moulds	(not included)	(not included)	(not yet established)	Dependent on HVN for virtually 100% of sales in 2008.
V9	*	2005	Metal engine components	(not included)	(not included)	(not yet started transactions with HVN)	Dependent on HVN for one-third of sales in 2008. Orders increased, including processing for high-precision engine components.
V13	*	2004	Metal components	(not included)	45th	(not yet started transactions with HVN)	Dependent on HVN for 80% of sales in 2008. Orders increased in volume and variety.

Notes:

- (1) 'Ranking by Turnover' indicates placement of respective suppliers among all registered motorcycle component suppliers included in lists provided by the General Statistics Office.
- (2) 'Not included' indicates that the supplier was omitted from the list, which typically occurred when suppliers were registered under other industries because their main product lines were not motorcycle components.

Source: The author's interviews.

For its part, HVN made relatively limited use of its ability to impose demanding requirements on its suppliers – a key feature of the captive model. While HVN's quality stipulations constituted a challenge to most local suppliers, they were given ample time to study procedures and strive to reach the requisite standards (interview with V2 #1). The small volume of orders also meant that delivery requirements were loose, a factor that is evident from the author's interview with supplier J3, one of the Honda Group suppliers.

In those days [the 1990s], when we could not make the delivery deadline specified by HVN, our local staff even requested them to adjust their production timetable. Now [at the time of the interview i.e. 2004] it is difficult to imagine that such a practice was going on. (J3 #1)

In summary, HVN's differentiated, proprietary products called for explicit governance mechanisms. Even though HVN remained the sole coordinator of its value chain, the limited volume of orders and an underdeveloped local component supply base constrained it in the establishment of its dominance in terms of imposing challenging targets on its suppliers. The outcome was that HVN adopted the role of a 'foster parent' in attempting to nurture the capabilities of its suppliers. Moreover, in the absence of major competitors, HVN was not compelled to reconsider its strategies at this stage.

## **5.2 Stage II: Partial Transformation of the 'Foster Parent' Variant**

This subsection considers Honda's short-term response to the new challenges posed by the China shock. Faced with the need to spur price-based competitiveness, HVN sought to adjust its organisational model but such an attempt only produced limited progress at this stage. The following examines the factors that drove HVN's organisational adjustment as well as those that impeded it, and discusses the form of industrial organisation that emerged out of the adjustment.

### **5.2.1 Impetus for Transformation: Radical Price Reduction**

The impetus for organisational change came from a radical shift in emphasis of HVN's product strategy from non-price to price-based competitiveness. When the Vietnamese market began to be flooded with massive numbers of low-priced imitation motorcycles, for the first time, Honda realised the huge unexploited demand at the bottom end of

low-income markets like Vietnam. This led Honda to initiate a company-wide effort to develop a low-priced model in an attempt to prevent the entry of Chinese motorcycles into Southeast Asia, where the Japanese company had held market leadership for decades (Higashi 2006; Sato 2011). In collaboration with the R&D headquarters and mother factory in Japan and production base in Thailand, Honda's regional R&D base in Thailand developed a low-priced model with exceptional acceleration (Ohara et al. 2003; Ohara 2006b). Priced at approximately one-third of HVN's existing models,<sup>34</sup> the Wave Alpha was launched in Vietnam in January 2002.

The launch of this low-priced model had significant impact on parameters imposed on suppliers. On the one hand, the complexity of parameters was reduced. Price reduction targets demanded by HVN upon the launch of the Wave Alpha on four of the Honda Group suppliers of core components interviewed by the author ranged between 40% and 50% (Table 7), which was far beyond the targets achieved by routine incremental improvements in productivity.

**Table 7.** Responses of Honda Group Suppliers to the Launch of the Wave Alpha

Name	Price Reduction Margin Requested by HVN	Supplier's Response to HVN's Requests	Results
J2	40%	Priority was to avoid loss of orders. The supplier decided to accept HVN's targets before actually coming up with ways of meeting them.	The supplier won orders for all existing types of component.
J3	50%	Priority was to avoid loss of orders, even if the supplier initially incurred losses.	The supplier won orders for all existing types of component. It later came up with ways to achieve cost reduction.
J6	(n/a)	The supplier made internal attempts at cost reduction and suggestions for specification changes to HVN.	The supplier only won orders for 3 of 16 existing types of component.
J7	40%	The supplier provided quotations in accordance with the extent of cost reduction it could achieve.	The supplier lost orders for one of two existing types of component but won orders for other components as it was able to meet HVN's target price.

Source: The author's interviews (J2 #1; J3 #1; J6 #1; J7 #1).

In the meantime, in order to achieve such a radical cost reduction, Honda reduced its

<sup>34</sup> Upon its initial launch, the price of the Wave Alpha (US\$719) was 36% of the official price of HVN's most popular model, the Super Dream, in 2000 (US\$1,990) (Nguyen Duc Hien 2004: 234). This was followed by the launch of a low-priced model in Thailand in June 2002, the Wave 100.

product specifications to the levels considered necessary for the Vietnamese market. For example, the maximum driving speed applied in defining product and process parameters for the Wave Alpha was set at 80 kilometres per hour. Even though this was much lower than standard levels applied to Honda's other overseas markets, it was considered sufficient for use in the Vietnamese context where traffic congestion prevented motorcycle use at higher speeds (Amano and Shintaku 2010: 799).

On the other hand, the non-standard nature of parameters was maintained. With the aim of reducing product development costs, Honda made extensive use of component designs utilised in its existing models (Ohara et al. 2003) rather than renewing the whole vehicle system – the conventional Japanese approach to product development (Fujita 2013a). However, the Wave Alpha was still non-standard in the sense that component designs were customised to Honda.

In summary, HVN's priority shifted from quality to price reduction. The company's product and process parameters were still non-standard but less complex than in the previous stage, and thus could be communicated between the lead firm and its suppliers with relative ease.

### **5.2.2 Lead Firm Attempts at Realigning Capabilities**

The shift in HVN's production strategy was accompanied by corresponding changes to the structure of the company's value chain. In order to reduce component procurement costs, HVN sought to substantially expand sources in Vietnam and abroad (interview #2). Apart from the need to exploit new sources of lower-priced components, expanding local sourcing became a priority, as this enabled HVN to save on import tariffs and to conform to the local content stipulations implemented by the Vietnamese government in the early 2000s. Increasing the number of suppliers – especially those with high levels of price-based competitiveness – was also expected to put competitive pressure on incumbent suppliers.<sup>35</sup>

Since one could hardly expect Japanese FDI in component manufacturing to increase immediately (Ichikawa 2001), HVN inevitably had to depend on non-conventional

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<sup>35</sup> This effect is clearly illustrated in an interview with Japanese *keiretsu* supplier J2 #1 in 2002. Noting that Honda was engaged in an extensive search for new suppliers, the general director commented that the price-based competitiveness of local suppliers would pose a real threat to Japanese companies.

component sources in expanding local supply. The remarkable increase in HVN's local content ratio from 52% in 2001 to 83% in 2004 (Table 4) was achieved primarily by incorporating non-Japanese suppliers into the company's value chain. As Honda engaged in an extensive search for suppliers in Vietnam by mobilising experts from Japan,<sup>36</sup> numerous Taiwanese, Korean and Vietnamese suppliers were admitted into the company's value chain (Table 4). Another noteworthy development was that HVN sought to import components for the first time from China. Upon the launch of the Wave Alpha, HVN sourced 27 types of component from local Chinese companies servicing Honda's joint venture motorcycle manufacturer in China (interview #2).

While the above developments might look impressive, the key question is the extent to which such adjustments changed the alignment of relevant capabilities and power relations between lead firm and suppliers. Apparently, HVN hoped to achieve two aims simultaneously: to enhance its purchasing power, and to spur price-based competition between suppliers. Both conditions had to be met if HVN were to exploit market forces whilst maintaining its non-standard product and process parameters. However, this strategy only achieved partial success at this stage because the company was prevented from realigning the necessary structure of capabilities to achieve these aims.

On the one hand, by reducing prices, HVN sought to rapidly expand its sales volume, which would not only enable the lead firm and its suppliers to realise economies of scale but also allow HVN to exercise purchasing power over its suppliers. Indeed, this seemed a likely scenario in 2002.<sup>37</sup> However, HVN's ambitions were blocked by a series of restrictions introduced by the Vietnamese government from 2002 onwards on motorcycle registration and the capacity expansion of foreign invested motorcycle manufacturers (as discussed in Section 2.3). The resultant slow growth of the market as well as HVN's inability to invest in expansion of production capacity meant that the company's annual production increased modestly. In fact, it had only reached some 400,000 units by 2004 – above the 300,000-unit minimum level required for economically viable non-capital-intensive production but barely sufficient for the lead firm to exercise purchasing power over suppliers.

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<sup>36</sup> The search for potential suppliers conducted in the years 2001–2 was the most extensive in HVN's history to date, covering as many as 80 companies (interview with HVN #4).

<sup>37</sup> A few Japanese suppliers noted that in 2002 they had been requested by HVN to prepare for rapid capacity expansion (interviews with J2 #1; #2; J4 #1), which clearly demonstrates HVN's ambitions before quantitative restrictions on imports of components were imposed (Section 2.3). Also, when HVN's annual production exceeded one million units in 2007, the company's administrative manager noted, "We could finally achieve what we had endeavoured to achieve for a long time" (interview HVN #3).

On the other hand, HVN's attempt to increase the number of suppliers was aimed at breaking its dependence on incumbent suppliers and spurring competition between them as well as new ones. Again, this strategy was thwarted by the limited manufacturing capabilities of newly admitted suppliers together with the aforementioned small purchase volume. While some Taiwanese suppliers had good track records of supplying components to Honda in Taiwan (interview with HVN #2), only one of the four Vietnamese suppliers interviewed by the author and admitted to HVN's value chain in Stage II had ever served foreign customers (Table 5).

The shortage of supplier capability had to be dealt with by lead firm intervention in the form of technical assistance. However, as will be discussed below, quality problems recorded by several suppliers – those in China in particular – were so serious that HVN was eventually compelled to stop placing orders with them (interview #2) – the sort of decision Honda makes only in truly exceptional circumstances (interview #3). By 2004, only a few types of components – as opposed to 27 upon the initial launch of the Wave Alpha – were imported from China (interview with HVN #2).

In the meantime, the radical price reduction targets announced by HVN upon launching of the Wave Alpha compelled the incumbent suppliers – including those belonging to Honda Group – to take urgent measures to reduce production costs. All such suppliers interviewed by the author, both Japanese and Vietnamese, eventually achieved HVN's price reduction targets with their own cost reduction efforts.<sup>38</sup> For instance, supplier J6 won contracts for only three out of the sixteen types of components upon the initial launching of the Wave Alpha, but because of significant productivity improvements, company won back contracts for all of the remaining thirteen types of components by 2004 (interview #1).

In short, HVN's attempt at realigning capability within its chain with the aim of achieving substantial cost reduction was only partially successful at this stage; first, because government policy impeded HVN in expanding production; and second, because supplier capabilities took time to develop.

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<sup>38</sup> Examples of measures taken by interviewed suppliers to achieve targets include the localisation of imported components and materials; productivity improvement in plant operations; and downward adjustments to product and/or process specifications (subject to Honda's approval) (interviews with J2 #1; J3 #1; J6 #1).

### 5.2.3 The Constant Struggle to Introduce Market Forces

As a result of the partial realignment of capabilities, the emerging pattern of transactional governance was shaped by a tension between the need to achieve radical price reduction – which called for increased use of market forces – and absence of the capability alignment required for the effective functioning of market forces.

HVN's attempts at making use of market forces may be clearly observed in the company's ordering procedure upon the launch of the Wave Alpha, orders being no longer commissioned straight to a fixed group of suppliers but based on competition determined by price. Prior to the launch of the new model, HVN announced radical price reduction targets and asked for quotations from an increased number of suppliers (interviews with J2 #1; J3 #1; J7 #1). Table 7 summarises the responses of four incumbent suppliers, all of which had direct capital relations with Honda. They were thus compelled to meet a price reduction target ranging between 40% and 50% or risk losing orders. In this regard, in 2004, the general director of supplier J6 recalled: “[Upon launching of the Wave Alpha,] we received pressure [from Honda that they] would switch to Taiwanese, Korean, or Chinese suppliers if we could not achieve the target prices” (interview #1). In August 2002, the general manager of supplier J2 indeed admitted that the decision was whether to accept the cost reduction target presented by Honda or to lose orders (interview #1).

However, responses varied. Suppliers J2 and J3 strove to meet targets on the understanding that they would be obliged to sacrifice profits or even incur losses during initial years. On the other hand, suppliers J6 and J7 gave up supplying some of the components for which they were asked by HVN to provide quotations. The fact that even supplier J6, with which Honda had direct capital and personnel relations, won orders for only 3 out of the 16 types of component that the company had previously supplied to HVN illustrates the lead firm's determination to trade with the cheapest available source *regardless of nationality or keiretsu ties*.<sup>39</sup> This marked an important shift away from Honda's conventional sourcing practices. Indeed, suppliers were expected to *independently* come up with measures to meet the stringent targets imposed on them, financial support previously granted to such suppliers having been

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<sup>39</sup> An important point to note is that most of the components adopted in the Wave Alpha carried designs previously developed for Honda's pre-existing models (Ohara et al. 2003). The fact that suppliers had not participated in component design processes is likely to have been a key consideration behind the sourcing approach adopted for this particular model.

terminated by this stage.

Although the above changes in HVN's ordering practices might look impressive, the new alignment of lead firm and supplier capabilities prevented the sustained operation of price-based competition, a situation that eventually led to the revival of previous patterns of dependence. First, HVN's limited purchase volume meant that dual sourcing was not feasible: to the extent that non-standard component designs were maintained, parts could be simultaneously sourced from more than one supplier only when the size of production was sufficiently large to allow each of the suppliers to exploit economies of scale. HVN regarded this threshold to be the annual production of one million units (interviews #3, #4), an output level that, as discussed above, had not been reached by the end of Stage II.

Second, as noted in Section 5.2.2, the limited manufacturing capability of newly admitted suppliers posed a serious constraint to HVN's attempts to use them to spur competition between suppliers. This, combined with the efforts of incumbent suppliers to meet HVN targets, resulted in the revival of the traditional mutual dependence between the lead firm and its old suppliers.

Third, limited supplier capabilities also forced HVN to continue to act as a 'foster parent' or provider of technical assistance. New entrants were offered technical assistance in the form of periodic monitoring and joint problem-solving exercises (interviews with V5 #1; V7#1); although the time frame of assistance was found to be generally shorter than it had been in respect of suppliers entering HVN value chain in the 1990s, the former – as discussed above – extending for between one and two years, while the latter was approximately six months (interviews with V5 #1; V7#1).

The above findings show that the magnitude of short-term adjustment was not as substantial as the existing literature suggests after all. While HVN's response to the China shock did include a number of radical changes to conventional sourcing practices, they were largely emergency measures intended to deal with immediate needs. Within a few years, it became apparent that the existing capability structure constrained the sustained functioning of market forces, the result being the revival of traditional patterns of dependence and persistence of lead firm assistance.



### **5.3 Stage III: Transformation into an ‘Institutionalised Competition’ Variant**

As the industry entered the phase of rapid FDI-led development, fundamental changes took place in HVN’s value chain. The company’s attempts to introduce market forces into transactional governance, which had only partially succeeded in the previous stage, culminated in what the present study refers to as an ‘institutionalised competition’ variant of the captive model. This variant of the captive organisation systematically combines the advantages of long-term, close relations with a fixed group of suppliers and the benefits of market forces with the aim of extracting constant performance improvement out of suppliers. The following subsections describe and explain the transformation of HVN’s value chain during this most dynamic stage; analysis that no previous study has explicitly attempted.

#### **5.3.1 Shifting Market Demand: The Increasing Complexity of Parameters**

The third stage of industrial development was characterised by increasing sophistication of consumer demand. As a result of rising levels of income and serious quality problems experienced with Chinese motorcycles in the early 2000s, urban Vietnamese consumers began to aspire to a better quality of motorcycle, while demand for low-priced imitations was limited to low-income consumers in rural areas (The Motorbike Joint Working Group 2007).

In response to the changing market landscape, Honda implemented a number of important adjustments to its product strategy. First, the complexity of product parameters increased. Reflecting the growing market, the number of new models launched by HVN increased substantially by Stage III (Table 8). In order to respond to the increasing sophistication of consumers, HVN launched a greater number of models that adopted new component technologies, higher precision levels, and/or renewed external styling (interview with HVN #4). These changes were reflected in price levels: HVN models launched between 2006 and 2008 were priced between US\$932 and US\$1,564 – higher than the increased price of the Wave Alpha (US\$807) in 2007.<sup>40</sup>

Second, process parameters also grew more complex. HVN’s emphasis shifted from the one-off radical price reduction in the previous stage to incremental yet continuous improvement in *overall QCD levels*. Of these three criteria, the highest priority was attached to quality levels. Asked about the company’s focus in 2007, HVN’s manager

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<sup>40</sup> Prices quoted in various issues of *Oto-Xe May (Automobiles and Motorcycles)*.

remarked:

[Of QCD], quality is the most important. Since Vietnamese consumers demand very high levels of quality, we need to keep on paying close attention to [our] quality levels... We emphasise quality at source. That is, we ask suppliers to guarantee quality levels within their production processes. (HVN #3)

**Table 8.** New Models Registered by Year

	2001	2002	2003	2004	2005	2006	2007	2008	Total
HVN	2	1	5	6	9	17	27	35	102
Local Assembler A1	28	11	4	28	105	112	191	66	545
Local Assembler A2	19	15	0	10	8	8	15	0	75
Local Assembler A3	10	1	5	25	43	56	112	8	260
Local Assembler A4	8	6	4	8	23	16	9	9	83
Local Assembler A5	19	9	4	7	8	21	15	3	86
Local Assembler A6	0	1	2	5	10	12	10	1	41

Source: The author, from data obtained from the Vietnam Register (<http://www.vr.org.vn>), accessed 6 January 2009.

It is worth emphasising that HVN began to demand that suppliers ensure *quality at source*. This was in sharp contrast to the company's standards in Stage II, when it tolerated defects in components imported from China so long as price advantages outweighed the cost of inspecting 100% of the parts (interview with HVN #2). However, such preoccupation with quality does not mean that price was no longer important. Unlike the one-off cost reduction in the early 2000s, suppliers were now requested to achieve incremental cost reductions of 5% every year (interview with HVN #5). With a growing volume of orders (see below), delivery deadlines also became increasingly tight, most Japanese and some Vietnamese suppliers being required to implement 'just in time' delivery several times a day.<sup>41</sup>

In terms of degree of standardisation, the non-standard nature of product parameters was maintained. However, since approximately 2004, the company's regional R&D base in Thailand started to make extensive use of common component designs for internal parts across models to be launched in Thailand, Indonesia and Vietnam (interview with Honda R&D Southeast Asia #1). Whilst this marked a significant move away from the Honda's conventional approach to the renewal of most component

<sup>41</sup> The frequency of deliveries in 2007–2008 ranged between 5–8 times a day (interviews with suppliers J2 #2; J3 #3; J6 #2; J10 #1; V1 #3).

designs when launching new models, the fresh approach enabled the company to develop large varieties of models at low cost, while realising economies of scale in manufacturing (ibid.).

In short, HVN's product and process parameters became increasingly complex, extending to non-price dimensions and demanding in terms of requisite levels. While component designs continued to be specific to Honda, the use of common parts across models laid the foundations for the realisation of economies of scale in manufacturing and lead firm purchasing power over suppliers.

### **5.3.2 Full Realignment of the Capability Structure**

Whilst shifting demand certainly influenced the direction and degree of organisational transformation, even more important was the driver for change coming from within the value chain: the shifting alignment of capabilities. This occurred partly as a result of HVN's active attempt to create the necessary conditions for transforming its 'foster parent' model of industrial organisation, and partly as a result of incidental changes in Vietnamese government policy that were beyond the company's control.

On the one hand, the policy changes discussed above led to significant expansion of the market as a whole, as well as HVN's market shares in particular. As the government abandoned a series of legislation that had repressed the overall market growth, sales of motorcycles increased rapidly, even exceeding levels during the China shock (Figure 1). Japanese lead firms expanded their shares as they were released from constraints on expansion of production capacity. HVN's annual production in particular exceeded one million units by 2007 (Figure 4). This was an important landmark because such purchase volume not only exceeded the minimum efficient scale even for components requiring capital-intensive production processes, but also called for the dual sourcing of each type of component (interviews with HVN #3, #4). Accordingly, HVN started to exercise huge purchasing power over its suppliers.

On the other hand, the number of suppliers in Vietnam as well as their overall capability levels increased remarkably. First, as a consequence of the rapid market expansion, FDI from component suppliers with established records of serving Japanese motorcycle manufacturers increased, including Honda Group suppliers that had previously been hesitant to invest in Vietnam. Of the total of 38 investment licences granted to Japanese motorcycle component manufacturers between 1992 and 2007, as

many as 20 projects were licensed between 2004 and 2007.<sup>42</sup>

Second, as a result of HVN's attempts to mobilise and nurture local suppliers from the late 1990s, the capability levels of Vietnamese firms improved substantially. This is clear from the author's in-depth case studies of HVN's first-tier Vietnamese suppliers (Table 5). By Stage III, most of the suppliers had reached the assimilative level whilst some even progressed to the adaptive level for one or more dimension of their production activities. Such improvement in the production-related capabilities of local suppliers is corroborated by the assessment of HVN managers. In 2009, the company's procurement manager remarked that, with a number of exceptions, local Vietnamese suppliers were generally able to meet its requirements without the hands-on technical assistance (interview #5).

As a result of the increased number of suppliers in Vietnam and their improved capability levels, HVN's local content ratio and number of suppliers increased rapidly, with the former reaching 90% and the latter reaching 58 by 2007 (Table 4). However, even more significant were the structural changes within the value chain. Having obtained the ability to switch suppliers, HVN reorganised its value chain, adopting differentiated approaches to the following three different groups of suppliers – with emphasis on what HVN manager referred to as “group suppliers” (interview #5).

The first group consisted of Honda group (*keiretsu*) suppliers. Among the embedded cases, J2, J3, J6, J7, J10 and J11 belonged to this category. Having proprietary component design and/or manufacturing competencies that Honda relied upon, their parent companies in Japan had developed a long-term association with the former mediated by capital and personnel relations.

The second group was Honda's joint venture partner, Vietnam Engine and Agricultural Machinery (VEAM) Corporation, a state-owned business group consisting of more than 20 member companies, traditionally specialising in the production of diesel engines and agricultural machinery. Among the embedded cases, suppliers V7, V9, V13, and V14 belonged to this business group. Although VEAM members did not possess complementary competencies, HVN started to attach growing priority to them as an integral part of its extended corporate group (interview #5). Apart from direct capital ties, high levels of manufacturing competence relative to other local suppliers, a

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<sup>42</sup> Calculated by the author using data provided by the Ministry of Planning and Investment of Vietnam, which is available in tabulated form in Fujita (2008).

sense of trust that had been built through long-term relations as a joint venture partner, and the executive with a good understanding of Japanese management practices and willing to expand business with Japanese companies also account for HVN's preference to outsource key components to VEAM members (interview with HVN #5).

The third group consisted of suppliers of non-core components, of all nationalities. These suppliers were expected to provide external manufacturing capacity. Suppliers J4, J5, J8, J9, V1–6 and V8 fell under this category.

Suppliers belonging to the first two groups received increasing priority in Stage III. They not only accounted for nearly half of suppliers newly admitted into HVN's value chain between 2004 and 2007 (Table 4) but also began to receive a mounting proportion of HVN's expanded orders. Indeed, Honda Group suppliers received increasing orders not only for core- but also non-core components that had previously been subcontracted to Group 3 suppliers.<sup>43</sup> In localising the production of high-precision engine components, HVN designated two VEAM suppliers (V7 and V9) to undertake the initial processing of these components (interviews with HVN #4, #5).

In addition to the shifting alignment of supplier capability, progress in Vietnamese trade liberalisation provided HVN with potential access to overseas sources of suppliers, although they remained an unused option at this stage. As part of the country's bid to become a member of the World Trade Organisation (WTO), Vietnam had dismantled local content rules by the end of 2003, and, in accordance with the tariff reduction schedule under the Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA), Vietnam reduced its tariffs on most motorcycle components imported from ASEAN-6 countries from 50% in 2005 to 5% in 2006.<sup>44</sup>

Although the high levels of HVN's local content ratio after 2006 are an illustration of

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<sup>43</sup> In addition to Table 6, the following case provides a clear illustration. After J10 – 100% owned by Honda – was established in 2005 to manufacture a large variety of components, supplier J9 – a Japanese non-*keiretsu* provider of non-core components – was requested to supply sub-components to J10 instead of directly to HVN as the company had done previously. Supplier J9 lost further orders for sub-components after 2007 as supplier J10 started to manufacture them in-house (interview with J9 #1).

<sup>44</sup> ASEAN-6 includes Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand. While motorcycle components had long been excluded from Vietnam's tariff reduction schedule for AFTA, the Vietnamese government announced a schedule for these items for the first time at the end of 2004 (Government Decree 213/2004/ND-CP dated 27 December 2004).

the company's preference to source the bulk of its motorcycle parts locally, the company now had the option of importing components at competitive prices from Thailand and Indonesia – the two countries with the most advanced automotive component supply bases in Southeast Asia.<sup>45</sup> Moreover, with the expectation that trade liberalisation under the ASEAN–China Free Trade Area would progress in the not-too-distant future, Honda was eager to make a second attempt at sourcing components from China. Its procurement manager emphasised that limited manufacturing capabilities possessed by suppliers in China – the main reason for the failure of the first trial upon the launch of the Wave Alpha – had improved to a considerable extent by 2008 (interview with HVN #4).

To sum up, the distribution of lead firm and supplier capabilities changed substantially as a result of both HVN's active attempts to realign capabilities within the industry and incidental policy changes. With its huge purchasing power and accumulating supplier capability, HVN gained the capacity to reorganise its suppliers in accordance with its requirements.

### **5.3.3 An 'Institutionalised Competition' Variant Emerges**

The shifting capability alignment enabled HVN to implement organisational adjustments to meet changing product and process requirements. The result was a form of organisation referred to as an 'institutionalised competition' variant of the captive chain. Key changes in transactional governance were three-fold.

First, the level of supplier dependence on HVN increased substantially regardless of the type of supplier. The large volume of orders meant that suppliers were increasingly dependent on HVN for their sales. By Stage III, this was the case not only with Honda Group suppliers but also local Vietnamese suppliers. Local suppliers like V2, V3, V7, V8, and V13 depended on HVN and its related companies for between 50% and 100% of their sales (Table 6).

Second, HVN's provision of technical assistance diminished and was substituted with less generous forms of lead firm engagement with suppliers: collaborative initiatives

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<sup>45</sup> Thailand has established itself as the hub of the Southeast Asian automotive industry (Lecler 2002; Higashi 2006). With the largest motorcycle market in Southeast Asia and a longer history of industrialisation, Indonesia is also more advanced than Vietnam in terms of the development of the component industry (Sato 2011).

for achieving incremental productivity improvement, referred to as value analysis (VA) and value engineering (VE);<sup>46</sup> systematic monitoring of supplier performance; and joint problem-solving exercises in the cases of troubles (interviews with HVN #4, #5). All three of the aforementioned groups of suppliers were subject to stringent QCD performance targets, which were incrementally upgraded every year (ibid.). Since most suppliers were more or less capable of reaching such targets, technical assistance beyond systematic monitoring and troubleshooting was offered only selectively with regard to strategically important targets. Group 2 suppliers became strategic targets as they were subcontracted high-precision engine components calling for sophisticated production-related capabilities (ibid.).

Third, HVN's made use of what this study refers to as 'institutionalised competition' among a pool of carefully selected suppliers.<sup>47</sup> This form of competition is distinguished from market competition in arm's-length organisation in that (1) the scope of competition is limited to those suppliers that pass a careful selection process, the lead firm essentially maintaining long-term relations with each of them; and (2) selection of suppliers is not based principally on price but rather on comprehensive ratings of QCD performance, the assessment of VA and VE proposals submitted by suppliers, and the lead firm's policy on the allocation of business shares<sup>48</sup> (Sako 1992; Asanuma 1989).

In practice, the implications of institutionalised competition varied according to type of supplier. Those of non-core components (Group 3) faced increasingly intense competition, and since alternative sources could be found for them, HVN retained the capacity to actually switch suppliers. Moreover, even after a contract was awarded, HVN sought to maintain supplier diligence by adjusting its order volume dependent on QCD performance (interview #5). Supplier V2 remarked that the company had to think carefully in submitting quotations to HVN as it had approximately ten competitors all bidding to supply the lead firm (interview #2). Among suppliers of plastic components,

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<sup>46</sup> VA and VE refer to activities designed to obtain the best value of a component by analysing its function and cost. In Japanese manufacturing industries, these techniques have been widely applied by lead firms and suppliers as joint problem-solving exercises aimed at mutual gain (Asanuma 1989; Sako 1992; Nishiguchi and Brookfield 1997).

<sup>47</sup> "Institutionalised competition" is a term coined by Sako (1992); Richardson (1993) alludes to "parallel sourcing"; while Fujimoto (1999) refers to patterns of supplier competition in the domain of product development in the Japanese automobile industry as "development competition". Similar practices are also discussed by Asanuma (1989).

<sup>48</sup> Asanuma (1989) does not discuss what lead firm "policy" specifically means, but HVN's emerging priorities in terms of Honda Group and VEAM suppliers are typical examples.

V1 was in receipt of increasing orders for high-precision parts and moulds, while V5 still focussed on relatively simple components and faced diminishing orders (interviews with V1 #2, #4; V5 #2).

By contrast, the substantive degree of competition faced by suppliers in first two groups was apparently weaker. To the extent that HVN opted to expand local sourcing, it had to depend on these suppliers as there were no domestic alternatives equipped with similar levels of capability to supply core components to the required standards. Moreover, with regard to Honda Group suppliers, the fact that the manufacturer had long depended on the component design capabilities of parent companies in Japan or affiliates in Thailand certainly remained a key consideration in HVN's sourcing decisions. As of 2008–09, Honda Group members and VEAM suppliers continued to receive orders from HVN for 100% of the components they specialised in (interviews with HVN #4, #5; J2 #2; J3 #2; J6 #2; J10 #1; J11 #1).

However, there were indications that even these suppliers were beginning to experience growing competition. By Stage III, HVN had started to solicit quotations even for core components from multiple sources – typically suppliers in China – with the aim of applying pressure to the candidates (interview #3). Indeed, all Honda Group suppliers interviewed by the author between 2007 and 2009 expressed concern about growing competition with overseas suppliers, including subsidiaries of their parent companies located in other Southeast Asian countries. For example the general director of supplier J3 noted that the company was stepping up its efforts to reduce costs in the face of competition not coming only from Thailand and Indonesia but also from China in the longer term (interview #2). And the general director of J2 remarked: “So far HVN has only asked for quotations from us, but they tell us that they will buy from whichever source offers the lowest price; we face intense price-based competition” (interview #2).

In short, the shifting capability alignment enabled HVN to fully adjust its value chain to meet changing product requirements. The result was an ‘institutionalised competition’ variant of the captive organisational model, which not only combined the benefits of long-term, collaborative relations with suppliers and the advantage of market forces, but also incorporated adaptations to meet market, industrial and policy conditions prevailing in Vietnam. The preferential sourcing approach in respect of the VEAM Corporation and the soliciting of quotations from companies located abroad are examples of such modifications.



## 5.4 Summary and Discussion

The in-depth empirical analysis in this section shed light on the dynamic transformation of HVN's value chain over a decade from the late 1990s. In terms of the first sub-question, it was argued that the seemingly radical organisational shift immediately after the China shock emphasised in the existing literature transpired to be short-lived, while a more dynamic and longer-lasting organisational transformation occurred in the medium term. By this time, HVN's value chain had been transformed from a 'foster parent' variant of the captive model into an 'institutionalised competition' variant – a hybrid organisational form that systematically combined the conventional advantages of long-term relations with suppliers and the benefits of market forces. In the end, Honda managed to weather challenges emanating from China by modifying its organisational model rather than transforming it into something different.

With regard to the second sub-question, the empirical analysis demonstrated that the nature of the product was not sufficient to explain the trajectory of organisational transformation. While HVN was quick to adjust its product strategy, the functioning of the market forces it had intended to introduce was constrained by the existing alignment of lead firm and supplier capabilities. HVN's production volume was critical in removing this obstacle. By lowering prices, it sought to increase its scale of production but this happened only after the Vietnamese government reversed its restrictive policy towards foreign motorcycle manufacturers.

When HVN's production was finally permitted to expand, it started to exert huge purchasing power over its suppliers. As an increasing number of foreign firms were attracted to the growing market, supplier capabilities also started to accumulate. An important point to note is that even though some suppliers could not be substituted *domestically*, the capabilities they possessed were not indispensable to HVN in the sense that there were *regional* alternatives. This explains why the accumulation of supplier capabilities did not result in a shift to a relational chain. Rather, it was the combination of HVN's huge purchasing power and growing supplier capabilities – but not complementary competencies – that allowed HVN to exploit institutionalised competition to extract constant improvement in manufacturing performance out of its suppliers.

On the whole, the analysis in this section has demonstrated that the Japanese organisational model in its original form was not readily adaptable to the emerging

Vietnamese market. Although HVN was quick to adjust its product strategy in response to the China shock, and actively sought to realign the capability structure in order to create conditions conducive to the effective functioning of the market forces it intended to introduce, these attempts failed to produce immediate results. This is because the government introduced policies that explicitly discriminated against foreign motorcycle manufacturers, and supplier capabilities took time to be nurtured or realigned. It was eventual incidental policy change as well as medium-term progress in accumulation of supplier capabilities that laid the foundations for the dynamic transformation of the Japanese model in Stage III, a shift that enabled HVN to establish itself as an increasingly dominant actor in the Vietnamese market.

## **6. The Emergence and Transformation of the Vietnamese–Chinese Chain in Vietnam**

This section turns the focus to the Chinese organisational model. Rather than being *transplanted* by a major TNC – as had been the case with the Japanese model – the Chinese model emerged spontaneously in Vietnam in the early 2000s, as Chinese exporters of motorcycle components, Vietnamese assemblers of imported components, and component suppliers of different nationalities independently reacted to growing business opportunities. Local Vietnamese motorcycle assemblers emerged as lead firms that initially assembled imported Chinese components, but gradually expanded local sourcing as the government stepped up its enforcement of local content rules.

In an attempt to examine the dynamic trajectories of organisational transformation, the analysis now focuses on the second and third stages of Vietnamese motorcycle industrial development:

- Stage II (2000–2004), when the Chinese model emerged in Vietnam
- Stage III (2005–2008), when the model was transformed as lead firms and suppliers reacted to challenges posed by Japanese motorcycle manufacturers

### **6.1 Stage II: The Emergence of Market-based Chains**

The empirical analysis begins by examining the features of the Chinese model as it emerged in the early 2000s. Taking account of the dispersed structure of this sector of the industry at this stage, the emphasis is on sector-level analysis, which is

complemented by analysis of embedded cases of several relatively large assemblers.

### **6.1.1 Minimal Coordination Requirements: Low Quality and De facto Standardisation**

The types of motorcycles produced by local Vietnamese assemblers were strikingly different from the Japanese-brand vehicles that had prevailed in the domestic market, the product and process parameters of the former being highly standardised and simple.

First, the high level of standardisation requires elaboration. The existing literature on Vietnamese motorcycle assemblers points out that *modularisation* allowed arm's-length networks to prevail in this sector (Pham Truong Hoang 2007; Nguyen Duc Tiep 2006; The Motorbike Working Group 2007). However, the present study found otherwise. Rather than transforming motorcycles from integral to modular design architecture, Chinese manufacturers used several popular Japanese models as de facto standards for duplicative imitation of the external configuration (Ohara 2001; Ge and Fujimoto 2004) – the phenomenon that this paper refers to as the de facto standardisation of Japanese models. As argued in Fujita (2013a), standardisation of this sort is at best partial because full compatibility of components can only be guaranteed insofar as they are manufactured in precise accordance with the original Japanese base model drawings. This was not the case in China, where uncoordinated duplicative imitation gave rise to components that were not strictly compatible.

The present study found that a similar situation prevailed in Vietnam in the early 2000s. In this period, de facto standardisation centred on an even smaller number of Honda's popular models than in China. The author's interviews of motorcycle retailers in Hanoi and Ho Chi Minh City in August 2002 found that the overwhelming majority of products imitated two of Honda's most popular models, Dream and Wave, most of them featuring C100 or C110 engines with Chinese brands.<sup>49</sup> Embedded cases of assemblers also confirmed de facto standardisation of a limited number of Japanese models. As of the early 2000s, all three assemblers for which detailed data were available (A1, A2 and A4) produced imitations of Dream and/or Wave (interviews and/or factory visits at A1 #1; A2 #1; A4 #3).

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<sup>49</sup> The most ubiquitous imitation brands (e.g. 'Hongda') and/or popular Chinese brands such as Loncin, Lifan and Zongshen were displayed on engine covers (the author's field visits, and interviews with motorcycle retailers in Ho Chi Minh City and Hanoi in August 2002).

As had been the case in China, de facto standardisation of Japanese models in Vietnam failed to ensure component compatibility because duplicative imitation took place not on the basis of a single, detailed drawing but was invariably the result of uncoordinated, repeated duplication of products available on the market, many of which themselves carried minor modifications to original designs (Pham Truong Hoang 2007), with varying yet generally low levels of precision (interviews and/or factory visits at V15 #1, #2; V18 #1; V19 #1).

The second feature is simple product and/or process parameters. This was confirmed by the lack of lead firm requirement beyond price level. The two embedded assemblers for which detailed interview data are available (A2 and A4) only specified the names of base models or provided samples for replication at best, and neither provided detailed drawings or specifications in terms of precision levels, materials, or production processes (interviews with A2 #1; A4 #3). These findings are corroborated by the author's interviews with suppliers, as they were not offered the sorts of detailed lead-firm specifications discussed in the previous section. Suppliers of engine parts explicitly stated that they adopted a single preconfigured design for all their customers (interviews with V17 #1; V19 #2; T6 #1), while suppliers of other components were typically provided with samples for replication (V15 #2; V23 #1; T7 #2).

Rather, the focus of assemblers was overwhelmingly on cost. From 2000 to 2001, the prices of their products ranged between US\$445 and US\$565,<sup>50</sup> which was roughly a quarter of the official price of HVN's most popular model, the Super Dream (US\$1,990) in 2000 (Nguyen Duc Hien 2004: 234). It was also much lower than the price of the Wave Alpha (US\$719), the budget model that HVN launched in 2002. The average price of motorcycles produced by the case assemblers in 2004 was US\$470 (Table 9).

In summary, de facto standardisation and emphasis on price-based competitiveness significantly reduced the need for explicit coordination. However, to the extent that de facto standardisation failed to ensure full component compatibility, the need for coordination could not be eliminated completely.

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<sup>50</sup> 'The unpredictable fever' (*Saigon Times Weekly* dated 17 November 2001); 'Glut of imported motorbikes sparks worries about congestion, accidents' (*Viet Nam News* dated 14 December 2001).

### 6.1.2 Dispersed Structure, Limited Capabilities

To begin with, the Vietnamese–Chinese chain had a fragmented structure consisting of a large number of assemblers and a moderately large number of suppliers, both of which were small in scale and possessed limited capability. None of these firms held sufficient capability to exercise power over others.

The overall structure of assemblers in the early 2000s can be confirmed on the basis of official statistics as well as embedded cases. As of May 2002, 51 Vietnamese motorcycle assemblers were in operation.<sup>51</sup> Forty-one such firms assembled less than 40,000 units in 2000, while the largest firm (A2) accounted for just 8.8% of the total turnover of all local assemblers. They had limited knowledge of products and/or production processes: of the 51 assemblers registered as of 2002, only 7 had initial investment in own-production capacity (Ha Huy Thanh et al. 2003: 335).

None of the embedded case assemblers, which were known to be among the largest in the early 2000s, had manufacturing experience prior to starting motorcycle production (Table 9). Their focus on the assembly of imported or purchased components also meant that they did not take on product development, design, manufacturing of key components, marketing, or branding.

Based on official statistics, the total number of suppliers participating in the Vietnamese–Chinese chain in 2002 is estimated to be about 50.<sup>52</sup> However, it is suspected that the actual figure was much larger as hundreds of companies entered into the production of relatively simple motorcycle components for local assemblers.<sup>53</sup> With the exception of Taiwanese firms – most of which were specialised providers of components already incorporated into Taiwanese and/or Japanese chains (Chen and Jou 2002) – suppliers in the Vietnamese–Chinese chain possessed limited design and/or manufacturing capabilities.

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<sup>51</sup> Data provided by the Ministry of Industry of Vietnam. While this number is smaller than the number of assemblers in China – where Ohara (2006a: 22) notes there were 154 motorcycle manufacturers in 2003 – it can still be regarded as very large given the much smaller size of the Vietnamese market.

<sup>52</sup> The author's estimate based on a list of firms producing motorcycle components in 2002 provided by the General Statistics Office, excluding Japanese, Taiwanese, and Vietnamese companies that were known to have participated in the Japanese chain.

<sup>53</sup> Nguyen Duc Hien (2004: 238), citing the report by the Economic and Financial Committee of the National Assembly in 2001, notes that around 550 firms produced motorcycle components.

Virtually all Vietnamese suppliers selected as embedded cases were companies previously engaged in the small-scale production of replacement components, bicycle parts, or household metal and plastic products for the domestic market, and they only acquired rudimentary capabilities in Stage II (Table 10).

Unlike the Japanese chain, assembler–supplier relations in the Vietnamese–Chinese chain were fluid. Table 11 shows several suppliers that received orders from local assemblers over short periods of time ranging from a few months to a few years (T1, V13, V14, and V19). This table also indicates that the majority of suppliers simultaneously traded with a large number of assemblers. Suppliers V16, V17, V20, K1, and T6 specifically emphasised that they had no main customer even though they traded with some of the largest local assemblers.

In summary, the Vietnamese–Chinese chain consisted of a large number of assemblers and a fairly large number of suppliers, both of which were small in scale and possessed limited capabilities. Inter-firm relations were fluid and none of them exercised power over others.

**Table 9.** Profiles of Local Assemblers Selected as Embedded Case Studies

Assembler		A1	A2	A3	A4	A5	A6	
Stages for which detailed data are available		Stages II and III	Stage II only	Stage III only	Stages II and III	Stages II and III	Stage III only	
Experience prior to entering into motorcycle assembly		Trading consumer electronics	Diverse (trading, tourism, real estate, etc.)	n/a	Trading (motorcycles and other products)	Trading (motorcycles and other products)	Motorcycle dealer	
Market share	2000	%	8.5%	8.8%	3.8%	1.9%	1.3%	(not on the list)
		Ranking	3rd	1st	5th	17th	31st	(not on the list)
	2006	%	23.1%	1.8%	8.3%	1.6%	5.1%	2.8%
		Ranking	1st	17th	4th	19th	7th	9th
Annual production (units)	2000	148,000	107,900	72,450	23,731	34,600	(not on the list)	
	2007	300,000	(n/a)	95,000	24,000	20,469	30,000	
Average price of motorcycles (US\$)	2004	365	451 *	(n/a)	439	622	(n/a)	
	2007	310	(n/a)	279	373	745	497	
Number of new models registered	2001–04	71	44	41	26	39	8	
	2005–07	474	31	219	57	47	33	
Local content ratio (%)	2003	(n/a)	(n/a)	(n/a)	85	80	(n/a)	
Number of suppliers	2007	100	(n/a)	55	60	80	48	

## Notes:

- 1) n/a = not available
- 2) 'Market share' denotes the percentage of the market and rank of respective suppliers of all registered Vietnamese motorcycle assemblers included in lists provided by the Ministry of Industry (for 2000) and the General Statistics Office (for 2006).
- 3) 'Number of new models registered' denotes the number of new models registered with the Vietnam Register for sales in the domestic market.
- 4) \* The A2 average price is for 2003, while the data for all other assemblers are for 2004.

## Sources:

- 1) Turnover: Ministry of Industry (for 2000) and the General Statistics Office of Vietnam (for 2006).
- 2) Number of new models registered: The author, based on data from the Vietnam Register (<http://www.vr.org.vn>), accessed 6 January 2009.
- 3) All other data obtained from the author's interviews and questionnaire surveys conducted in collaboration with the Vietnam Institute of Economics, Vietnam Academy of Social Science.

**Table 10.** Capabilities Acquired by Vietnamese Suppliers in Vietnamese–Chinese Chains

	Before Stage I	Stage I	Stage II	Stage III
V13	Machinery components for SOEs		Operational (Prd)	(Shift to other chains)
V14	Machinery components for SOEs		Operational (Prd)	(Shift to other chains)
V15	Bicycle components		Operational (Prd/Eq)	(Shift to other chains)
V16	Bicycle components		Adaptive (Prd)	
V17	Trading		Operational (Eq/PM)	(Shift to other chains)
V18	Bicycle components	Operational (Prd/Eq/PM)		(Shift to other chains)
V19	Bicycle components		Operational (Prd/Eq)	(Shift to other chains)
V20	Replacement components		Operational (Prd/Eq)	Operational (Prd/Eq)
V21	Trading			Operational (Prd/PM)
V22	Trading		Operational (Prd/PM)	(Shift to other chains)

Notes:

- (1) For periods prior to entry into or after exit from the Vietnamese–Chinese chain (the unshaded area), main lines of business are given.
- (2) For periods after entry into the Vietnamese–Chinese chain (the shaded area), the level of new product introduction and production-related capabilities acquired by each supplier in Vietnamese–Chinese chain by the respective stage is shown.
- (3) Types of capability are abbreviated as follows: Prd = new product introduction capability; Eq = equipment-related capability; PM = production management capability.

Source: The author's interviews with suppliers (Fujita 2013b).



**Table 11. Suppliers' Dependence on Local Assemblers**

Supplier	Entry into V-C chain	Types of Components	Ranking by Turnover		Transactions with Case Assemblers						Number of Customers, Patterns of Dependence	
			2002	2006	A 1	A 2	A 3	A 4	A 5	A 6	Stage II	Stage III
<b>Suppliers that expanded transactions with Group 1 assemblers in Stage III</b>												
V16	2000	Silencers	not included	53rd	X	X				X	Traded with 30 local assemblers in 2002, accounting for 80-90% of the local sales.	Traded with 20 local assemblers in 2008, accounting for 50% of the total sales. 2006 was the peak year. A1, A3, A6 among five largest customers.
V20	1997	Silencers	27th	116th	X	X				X	Traded with a total of 46 companies between 1997 and 2008. As of 2008, had 3 customers, accounting for 10% of sales.	
V21	2004	Shock absorbers	not included	not included	X		X			X	(Not yet established)	Traded with 10 local assemblers in 2009, accounting for 95% of sales. During the peak year, had 50 customers.
C1	2001	Plastic covers, frames, lights	not included	6th & 38th	X	X	X	X	X	(n/a)		Traded with 43 local assemblers in 2007. A1 largest.
C2	2002	Clutches	not included	24th	X					X	Traded with 24 companies in 2004, accounting for 50% of sales. A1 and A6 among largest.	Sales to local assemblers accounting for 56% of sales (number of local assemblers unknown). A1 among largest.
C3	2002	Frames	not included	62nd		X				(n/a)		Traded with 19 local assemblers in 2008. A3 largest. No products/customers other than motorcycle components/local assemblers.
C4	2003	Electric components	not included	60th			X		X		Traded with 30 assemblers in 2004. A4 and A6 among largest.	Traded with 50 assemblers in 2008.
<b>Suppliers that had shifted from Vietnamese–Chinese chains to Japanese chains by Stage III</b>												
T1	1999	Stamped components	not included	9th & 11th			(n/a)				Traded with local assemblers only during 1999–2001.	No transactions with local assemblers in 2007.
T2	1998	Shock absorbers	not included	17th			(n/a)			(n/a)		Traded with more 10 local assemblers in 2007, accounting for 25% of sales.

**Table 11. Continued**

Supplier	Entry into V-C chain	Types of Components	Ranking by Turnover		Transactions with Case Assemblers						Number of Customers, Patterns of Dependence			
			2002	2006	A 1	A 2	A 3	A 4	A 5	A 6	Stage II	Stage III		
T3	1997	Electric components	not included	21st	X		X				X	(n/a)	Traded with 16 local assemblers in 2005, accounting for 10% of sales. Only A6 placed regular orders in 2009.	
T4	2004	Electric components	not included	25th								(n/a)	Expanded sales to local assemblers in 2002–2003. Accounted for one-third of sales in 2004.	Traded with 4 local assemblers in 2008, accounting for less than 1% of sales.
T5	2000	Silencers	not included	33rd							X	(n/a)	Traded with local assemblers only during 2000–2004. Accounted for less than 5% of the total sales. A6 among the main customer.	
K1	1999	Switches	9th	46th			X		X	X			Traded with local assemblers in 2004, accounting for 50% of sales. Six relatively large customers.	Traded with 10 local assemblers in 2008, accounting for 5% of sales. A6 among main customers.
V13	2000	Bearings	not included	45th	X	X							Traded with local assemblers only during 2000–2003, accounting for 20-30% of sales.	No transactions with local assemblers in 2008.
V14	2003	Engine components	not included	not included	(no transactions with any of the six assemblers)								Traded with 3 local assemblers only in 2003, accounting for 10% of sales.	No transactions with local assemblers.
V15	2001	Aluminium die-cast components	not included	not included	(no transactions with any of the six assemblers)							(n/a)		Traded with 5 local assemblers in 2008, accounting for 20% of sales. Maintained long-term transactions with 5 customers.
V17	2001	Clutches	not included	not included	X			X	X				Traded with very large number of customers in 2001, accounting for 100% of sales. A1, A4, and A5 among main customers.	No transactions with local assemblers in 2008.
<b>Suppliers that had shifted from Vietnamese–Chinese chains to other products/industries by Stage III</b>														
V18	1997	Steel components	20th	not included									(n/a)	Traded with a total of 36 companies between 1997 and 2006, accounting for 100% of sales.

**Table 11. Continued**

Supplier	Entry into V-C chain	Types of Components	Ranking by Turnover		Transactions with Case Assemblers						Number of Customers, Patterns of Dependence		
			2002	2006	A 1	A 2	A 3	A 4	A 5	A 6	Stage II	Stage III	
V19	1999	Engine components	not included	98th	X				X			Traded with 10 assemblers in 2002, accounting for 60% of sales.	The number of customers reduced to 2-3. Share of local assemblers in total sales 5-7% in 2008.
V22	2000	Chains	not included	not included	X							Traded with two local assemblers in 2000–1, accounting for 50% of sales.	Traded with 10 local assemblers in 2009, accounting for 30% of sales.
V23	2002	Wire harnesses	51st	not included	X							Traded with 12 local assemblers in 2004, accounting for 20% of sales. No main customer could be identified. 2002 was peak year.	No transactions with local assemblers in 2008.
<b>Suppliers for which developments after Stage III is unknown</b>													
T6	2001	Hubs	6th	not included				(n/a)				Traded with very large number of customers in 2004, accounting for 42% of sales. Neither total number of customers nor main customers could be identified.	(n/a)
T7	(n/a)	Chains	not included	66th					X		(n/a)		Traded with 30 local assemblers in 2005, accounting for 12% of sales.
C5	2002	Plastic covers	not included	133rd				(n/a)				Traded with 10 local assemblers in 2004.	(n/a)

Notes:

- 1) Nationality of suppliers can be identified by initial letters of supplier codes as follows: C = Chinese; T = Taiwanese; K = Korean; V = Vietnamese.
- 2) 'Ranking by turnover' indicates placement of respective suppliers among all registered motorcycle component suppliers included in the lists provided by the General Statistics Office.
- 3) 'Not included' indicates that the supplier was omitted from the list, which typically occurred when suppliers were registered under other industries because their main product lines were not motorcycle components.
- 4) 'Transactions with case assemblers' indicate whether the respective supplier conducted business with the respective assembler at any time.

Source: The author's surveys and interviews.

### 6.1.3 Arm's-Length Linkages in Need of Coordination

The discussion in Section 6.1.1 showed that although standardised and simple parameters prevailed in the Vietnamese–Chinese chain, the requirement for explicit coordination was not eliminated entirely. Specifically, the following two types of coordination requirement remained:

- Coordination needs around product parameters remained to the extent that de facto standardisation only partially ensured component compatibility.
- Low quality requirements notwithstanding, even lower levels of supplier manufacturing competence resulted in coordination needs around process parameters.

The following examines how assemblers and their suppliers coped with these coordination needs via in-depth examination of the three assemblers for which detailed data could be obtained: A1, A2 and A4.

Some assemblers opted for vertical integration. Assemblers A1 and A4 conducted in-house manufacturing of components in cooperation with Chinese and Taiwanese partners respectively. Although investment in in-house manufacturing was often made in response to the government policy (see Section 2.3), the fact that it was a costly option for those with small production capacity notwithstanding, these assemblers explicitly noted the advantages of the practice. In this regard, assembler A4 noted:

We want to produce low-price but good-quality motorcycles for [our] customers. Therefore, we face many difficulties in sourcing components locally – the quality is not stable. So, we need to produce some components even though it is not efficient and drives up costs.

(A4 #1)

Asked to compare sourcing components from China, sourcing locally, and manufacturing them in-house, a manager of assembler A1 responded:

Manufacturing components in-house is the best option – in terms of advantages in both cost and quality. The key is that we endeavour to increase the quality of our

products.

(A1 #1)

Implicit in the above comment is that this company saw no possibility of implementing mechanisms for imposing its quality requirements on external suppliers.

However, even with these assemblers, in-house manufacturing was typically limited to a few types of component only. In the main, lead firms engaged in arm's-length transactions with their suppliers in the sourcing of the majority of components.

First, two assemblers interviewed by the author (A2 and A4) explicitly noted that they adopted a trial-and error approach, switching suppliers whenever they found one to be unsatisfactory. This is evident from remarks made by the former procurement manager of assembler A2, the largest assembler in 2000:

Back in the early years [2000–2001], the number of suppliers was limited and thus it was difficult to switch suppliers. However, we still tried different suppliers in search of those that were stable – in terms of quality, payment, prices and delivery.

(A2 #1)

Second, a lack of explicit governance is also evident from the ordering procedure.<sup>54</sup> Given the very small scale of production, local assemblers placed orders on an ad hoc basis.<sup>55</sup> Transactions typically began with the assembler providing the supplier with either a sample for replication or very simple component specifications (e.g. type of component, type of base model, and/or colour). The supplier then provided the lead firm with a sample together with a price quotation. If the lead firm accepted both the sample and the price, the two parties signed a 'basic contract', which normally lasted for a year but did not bind the assembler in terms of either volume or frequency of orders.

Clearly, arm's-length transactions of the sort discussed above failed to provide solutions to coordination needs around product and process parameters. However, although the problem of low quality could simply be left unresolved, the lack of component compatibility posed a serious problem because assemblers were often faced

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<sup>54</sup> Unless otherwise noted, the description of ordering procedure in this paragraph is based on interviews with assemblers A2 #1; A4 #4 and suppliers V13 #1; V15 #2; V17 #1; V19 #2; V23 #1; T6 #1; T7 #1.

<sup>55</sup> Even in assembler A2, which recorded the largest turnover in 2000, the average size of each order was only 100–200 units (interview #1).

with components that could not be assembled. These instances were typically dealt with by ad hoc, ex post adjustments by suppliers with the sole intention of making the components *assemblable*. Suppliers were often asked by customers to modify components once delivered as they were incompatible with adjacent parts (interviews with V13 #1; V15 #2; K1 #2). Nevertheless, such piecemeal modifications fell short of full component compatibility, leading to products that were inferior in quality and performance to original models.

In short, limited lead firm and supplier capabilities resulted in a situation in which coordination issues arising from the shortcomings of de facto standardisation were left unattended. Market-based transactions characterised by ad hoc coordination achieved low prices but at the expense of low quality.

## **6.2 Stage III: Emergence of Coordination from Below**

This section analyses the responses of local assemblers to fresh challenges in a new stage of industrial development: the rapid growth of foreign motorcycle manufacturers combined with increasing sophistication of market demand. Since the sector began to take a concentrated structure, the analysis starts by briefly discussing the overall structure of the industry and then proceeds to detailed analyses of a limited number of the largest assemblers and their key suppliers.

### **6.2.1 Meeting the Japanese Challenge: Two Contrasting Approaches**

As the new stage of industrial development commenced, local assemblers were faced with fresh challenges. First, HVN's penetration of the middle-income market now posed a real threat as it actively invested in production capacity expansion after 2005 (Section 5.3.2). Second, the upward shift in consumers' preferences discussed in Section 5.3.1 put pressure on local assemblers to increase the quality of their products. Having experienced serious quality issues with Chinese motorcycles, Vietnamese consumers were no longer willing to accept low prices at the expense of poor quality.

Local assemblers responded to the new challenges with two distinct approaches.<sup>56</sup> One group of assemblers focussed on producing a larger variety of models carrying imitated

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<sup>56</sup> This finding was initially derived from the author's in-depth analysis of a small number of assemblers (Fujita 2006) but it was corroborated by interviews with suppliers operating in the Vietnamese–Chinese chain, particularly C1 #2, #3; K1 #3; T3 #2; V16 #2; and V21 #1.

designs at low costs, targeting the low-income rural market that the Japanese manufacturers had not penetrated. Another group of assemblers prioritised the improvement of product quality, developing own product designs and/or brand names, even if this should be at the expense of higher prices.

The two contrasting approaches can be observed in the embedded cases of the five assemblers for which detailed data are available for Stage III (Table 9). Assemblers A1 and A3 belong to the former category. They are similar in that they kept product and process parameters simple and standardised, specifying few requirements beyond price level. A number of suppliers explicitly noted that assemblers in this category – A1 in particular – specified limited quality requirement (C1 #2, #3; V16 #2; V21 #1). The low prices of their products are also an indication that their target was low-income consumers. As Table 9 shows, the average price of these assemblers' products in 2007 was less than half that of the Wave Alpha, US\$801.

These assemblers continued to capitalise on Japanese designs as de facto benchmarks. However, unlike the case in Stage II, these assemblers started to make minor (largely cosmetic) modifications to several key components. Alterations to plastic covers and frames, which affected the external appearance of the motorcycle, were of particular importance (interviews with assembler A4 #4; supplier C1 #2, #3).

The above approach to the modification of de facto standard models enabled these assemblers to achieve a remarkable expansion of product variety, as well as speed and flexibility in launching new models. This is most clearly observed in assemblers A1 and A3. Table 8 shows that the number of new models registered by these assemblers increased rapidly after 2005. By this stage, assemblers exploited not only Honda's two most popular motorcycles but also a much larger range of Japanese models – including new ones launched after 2005 – as de facto standards for duplicative imitation (interviews with supplier C1 #2, #3). Moreover, they launched a large number of new products by mixing and matching components with minor modifications (interviews with suppliers C1 #3; K1 #2, #3). Supplier K1, which simultaneously traded with HVN and local assemblers, described the strength of this group of assemblers as the flexibility and speed with which they were able to adjust product strategy:

[They] are sensitive to market information. They try to obtain information on Honda's future models using their connections with the Ministry of Industry, and replicate these products in advance. To cope with the regulations on intellectual

property, they combine different types of components. Honda cannot change its product strategy quickly, but [local assemblers] can change [product strategy] within a week. (K1 #2)

Assemblers A5 and A6 belonged to the latter category of assemblers. Unlike those in the other group, notable changes were observed in their products. The complexity of product and process parameters increased as these assemblers attached priority to quality. Suppliers to these assemblers noted that – although by no means on the scale exacted by Japanese manufacturers – they were more demanding in terms of quality, for which they were willing sacrifice economy of price (interviews with C1 #2; T3 #2; V21 #1). Accordingly, the average prices of their products were higher than those of the assemblers in the former category (Table 9). Product parameters also grew less standardised as these assemblers sought to develop their own designs and brands.<sup>57</sup> Assembler A6 in particular had adopted customised designs for some of its models by 2007, for the manufacture of which suppliers were provided with design drawings together with samples (interviews with assembler A6 #1 and A6's supplier, T3 #2).

Assembler A4 fell between the two categories, in that it did not opt to develop own-product designs or brands and kept product parameters standardised. However, the company did seek to increase the quality of its products, resulting in higher prices than those of assemblers A1 and A3 (interview with A4 #4).

In short, two discrete groups of local assemblers emerged in Stage III, each of which adopted a different product strategy. Yet, the question remains as to which of the two came to represent the dominant actor within the industry. This puzzle is addressed in the next subsection.

### **6.2.2 Consolidation of Assemblers and Rise of Supplier Capabilities**

In Stage III, the local assembly sector of the Vietnamese motorcycle industry was substantially restructured, assemblers being consolidated into a small number of large companies. By 2006, the number of active local assemblers had been reduced to 28, roughly half that of 2000.<sup>58</sup> Accordingly, the market grew more compact, and it was

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<sup>57</sup> Institute for Industry Policy and Strategy (2007: 39) also notes A5 and A6 are among those assemblers that invest in own-product designs and brands.

<sup>58</sup> Based on a list of motorcycle assemblers operational in 2006 provided by the General Statistics Office.



those assemblers that concentrated on price-based competitiveness (the first group discussed above) that captured the bulk of the sales share. As Table 9 shows, the largest assembler (A1) accounted for 23% of the total turnover of local assemblers in 2006, and the four largest firms (inclusive of assemblers A1 and A3) together enjoyed a 50% share.<sup>59</sup> In contrast, assemblers that focussed on non-price-based competitiveness (the second group discussed above) accounted for a much smaller market share.

However, there was little indication that either group of assemblers had amassed new capabilities. Those in the second category developed their own products by mobilising external capabilities rather than building their own internal capabilities: A5 collaborated with Chinese partners (questionnaire survey in 2007), while A6 outsourced product design to overseas companies (interview #1).

Consolidation progressed on the suppliers' side as well. As local content rules were relaxed in 2003, local assemblers as a whole began to depend increasingly on imported components (Table 12), relying on local sourcing only when parts were available at competitive prices. Table 11 classifies suppliers in the Vietnamese–Chinese chain according to their positions in Stage III. Of those interviewed by the author, several quickly expanded sales to local assemblers, the largest firms in particular such as A1 and A3 (V16, C1, C2, C3, and C4). At the same time, the remaining suppliers faced diminishing sales to local assemblers, and they either shifted to the Japanese chain or other industries.

**Table 12.** Value of Imported Components per Vehicle Sold (Unit: US\$)

	2000	2001	2002	2003	2004	2005
HVN	692	641	275	231	203	218
Local Assemblers	506	338	181	179	420	396

Source: The author, based on data provided in Institute for Industry Policy and Strategy (2007).

What is striking is the size of turnover and the number of customers the first group of suppliers served at this stage. Supplier C1 had two factories registered as independent companies, which in 2006 ranked as 6th and 38th respectively in terms of turnover of all operational motorcycle component manufacturers in Vietnam, including the largest Japanese suppliers that served 100% of HVN's growing orders. In 2007, this supplier sold over 860,000 units of plastic covers and frames (interview with C1 #1), which

<sup>59</sup> Based on a list of motorcycle assemblers operational in 2006 provided by the General Statistics Office.

more or less accounts for the total number of motorcycles produced by local assemblers in that year (Figure 1). Moreover, these suppliers simultaneously served 20 to 50 local assemblers in Stage III (Table 11), which was in fact more than the aforementioned number of officially registered local assemblers in 2006.<sup>60</sup>

Suppliers expanding their sales to local assemblers are particularly notable for the extent to which they built design and manufacturing capabilities. Moreover, unlike suppliers under the Japanese model, the accretion of new capabilities in the Vietnamese–Chinese chain was achieved primarily through suppliers’ *independent* volition rather than as the result of explicit demand from or assistance of lead firms. As the most prominent example, C1 had invested in generic manufacturing competencies in order to achieve reasonable quality, prompt delivery, and low prices, whilst mobilising the capability of the company’s R&D centre in China to reverse-engineer existing component designs and conduct minor cosmetic modifications (interview #1). The ability to conduct large-scale manufacturing to reasonable quality standards was developed by importing equipment and machinery from China and mobilising Chinese engineers (ibid.). The huge production volume also enabled the company to exploit economies of scale.

Likewise, V16, a Vietnamese supplier of silencers, was one of the few local suppliers continuing to operate in the Vietnamese–Chinese chain in Stage III. This firm was the only local supplier subjected to in-depth analysis by this study that had acquired an *adaptive* or basic innovative level of new product introduction capability (Table 10). Whereas it had replicated existing products in the 1990s, it subsequently gradually started to make cosmetic and functional modifications to standardised designs (interviews #1, #2). This was achieved through its own R&D efforts and attempts to engage with assemblers. The supplier independently established an R&D department, investing in design equipment, software, and testing and measuring equipment, as well as training its own design engineers (interview #1).

In short, the local motorcycle assembly sector was consolidated into those assemblers that focussed on price-based competitiveness in standardised models with minor external modifications. Consolidation also progressed on the suppliers’ side, which resulted in the rise of those with manufacturing and design competencies.

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<sup>60</sup> This is likely to be because some assemblers had shifted their focus to other lines of business where they were officially registered, yet continued to produce motorcycles on a small scale.

### 6.2.3 The Rise of Supplier-Driven Coordination

The result of the rapid consolidation of lead firms and suppliers amounted to de facto mutual dependence between large assemblers and large, competent suppliers. The results of questionnaire surveys conducted in 2007 show that assemblers A1, A3, A4, A5 and A6 developed relatively long-term relations with a limited number of key suppliers that extended for between three and six years, suggesting that the relations between lead firms and suppliers had stabilised.

However, this does not imply Japanese-type organisation in which lead firms and suppliers are locked into particular relations. Assemblers expressed strong preference to avoid dependence on specific suppliers. Table 13 shows that all of five assemblers under study cited the optimum number of suppliers for each type of component as two to three in order that they should not be dependent on specific firms. Remarkably, no major differences were observed between the two groups of assemblers. Neither were suppliers locked into relations with specific customers, a finding that is clearly illustrated by the large number served by suppliers surviving to Stage III (Table 11).

**Table 13.** Assemblers' Preferred Number of Suppliers of Each Component

	Number of suppliers*	Reason
A1	2–3	Competition based on quality and price is beneficial
A3	2–3	Allows the assembler to take the initiative.
A4	2–3	Allows suppliers to compete based on quality and price.
A5	2–3	Allows the selection of suppliers based on price, quality and delivery.
A6	2–3	Avoids passivity and defensiveness.

Note: \* Assemblers were asked to choose between one, two to three, or more than three.

Source: The author's questionnaire survey conducted in 2007 in collaboration with the Vietnam Institute of Economics, Vietnam Academy of Social Science.

Thus far, it has become clear that the local motorcycle assembly sector came to be dominated by a small number of large assemblers producing low-priced, standardised models with minor external modifications. While their success is plausible given that they catered to the extreme low-end section of the Vietnamese market that even HVN's budget model had not penetrated, the question remains as to how they managed to resolve coordination issues around product and process parameters. First, the limits of de facto standardisation – as discussed at length in Section 6.1 – remained in place. These assemblers should have been able to achieve at least reasonable quality levels

since their target consumers were no longer willing to accept low quality just because the products were cheap. Second, the assemblers were able to make minor modifications to original Japanese component designs, a factor that compounded coordination requirements. The question is therefore one of how firms met the necessary level of coordination.

This question was explored via in-depth analyses of the embedded cases assemblers A1 and A3, and their largest suppliers. The findings suggest that it was the suppliers rather than the assemblers that took the lead in dealing with coordination issues. By dealing systematically with non-compatibility problems arising from de facto standardisation and making modifications to component designs on behalf of their customers, these suppliers became the key force driving the transformation of the Vietnamese–Chinese chain.

Such supplier-driven changes are demonstrated by the in-depth analysis of suppliers C1 and V16 discussed above. C1 rapidly expanded sales to local assemblers by utilising design competencies and generic large-scale manufacturing capacity to provide the complete, fine-tuned component modules that were most critical to the assemblers; incorporating minor cosmetic modifications, and processing them to reasonable quality, prompt delivery, and low cost standards. Although the supplier produced a large variety of motorcycle components, it focussed most sharply on plastic covers, frames and lights (interview #2). This is because local assemblers attached the highest importance to these component modules in terms of product differentiation, meaning that their manufacture called for exacting design work given that they essentially determined the external appearance of the whole vehicle.<sup>61</sup> Each year, C1 launched an average of four designs incorporating minor modifications to these most necessary modules (interview #1). The three types of component that comprised the modules were fine-tuned with each other in order to maximise the performance of the module as a whole. Moreover, unlike the ad hoc, ex post adjustments typically observed in Stage II, supplier C1 systematically adjusted the interfaces of these modules with adjacent components at the initial stages of contact with assemblers (interview #2).

V16 provides another case in point. Its main products, silencers, were critical to local assemblers because they affected both the product's performance and its external

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<sup>61</sup> Interviews with supplier C1 #3 and assembler A4 #4. Ge and Fujimoto (2005: 98–9) note that this was also the case in China.

appearance. This supplier continued to operate in the Vietnamese–Chinese chain in Stage III as it made effective use of its design and manufacturing capabilities to conduct minor cosmetic and/or functional modifications to the existing designs of this important component on behalf of its customers, because “local assemblers did not have design drawings and did not know anything about technical parameters” (interview #1). Based on surveys of local assemblers, motorcycle dealers, and final consumers, V16 regularly launched new designs which reflected the latest market trends and policy requirements and carried the company’s own brand name (interviews #1, #2).

In contrast, there was little indication that the sourcing practices of assemblers A1 and A3 were substantially different from those that had prevailed in Stage II, which suggested that the impetus for organisational innovation did not come from lead firms. Apart from the fact that their relations with key component suppliers had stabilised and been sustained over the long term, there was no evidence that the procedure for placing orders had changed in comparison to the previous stage as described in Section 6.1. Suppliers that continued to trade with either assembler A1 or A3 in Stage III, namely, C1, V16 and V21, noted that the manner in which these assemblers specified and monitored component quality and precision levels remained unchanged (interviews with C1 #2; V16 #2; V21 #1). None of these suppliers were provided active monitoring by assemblers A1 or A3, as noted by supplier C1:

As for assemblers like A1 and A3, because the size of their orders is very large, they do not check the quality of the components carefully. Their complaints mostly concern wrong colours. (C1 #2)

The result of these supplier-driven changes was ‘coordination from below’, which addressed those coordination issues arising from the limitations of de facto standardisation without assemblers or suppliers being locked into particular relations or having to engage in intense communication. With the ability to conduct reverse engineering, design modification, and large-scale manufacturing, the two suppliers discussed in detail above together with several others formed a “shared supply base” (Sturgeon and Lee 2005) for local assemblers as a whole, including major assemblers such as A1 and A3 as well as other firms operating on a smaller scale.

Although the above features of this emerging industrial organisation apparently resembled a modular chain (Sturgeon 2002; Gereffi et al. 2005), the coordination

pattern emerging in Stage III of the Vietnamese motorcycle industry should be distinguished from such a chain because: (1) de facto standardisation was partial in that it did not do away with coordination requirements; and (2) standardisation did not extend to the whole vehicle. Because of this partiality, suppliers C1 and V16 still had to adjust component interfaces for each of their customers, although they managed to reduce the time and cost of modifications by implementing them systematically.

Nevertheless, albeit partial, supplier-driven coordination was the form of organisational adaptation best suited to the market conditions and capability alignment prevailing in Vietnam at the time. For suppliers, exploiting de facto standardisation to serve numerous customers made economic sense because in Vietnam's fragmented market, pooling orders from multiple assemblers was the only way to achieve sufficient economies of scale (Fujita 2011). For assemblers who lacked both design and manufacturing competencies, relying on competent suppliers was the easiest and fastest route to solving the immediate problems of non-compatibility; increasing product variety by achieving cosmetic modifications to several key components; and exploiting the cost advantage of large-scale production.

### **6.3 Summary and Discussion**

This section analysed the emergence and transformation of the Chinese model in Vietnam. In respect of the first sub-question concerning the trajectory of organisational transformation, the findings presented in this section did not render support to the argument of the empirical research to date, which has focussed on a small number of assemblers operational up to Stage II to argue that they started to develop long-term, trust-based relations with their suppliers.

Conversely, the foregoing analysis showed that in Stage III several powerful suppliers took the lead in addressing coordination needs on behalf of their customers without lead firms or suppliers having to engage in intense communication or being locked into particular relations. This suggests that even assuming a lead firm-driven shift towards trust-based relations had obtained among a certain group of assemblers in Stage II, it was still likely to be a transitory. The limited knowledge of products and production processes possessed by local assemblers also suggests that such networks even if they had existed were unlikely to have been sustainable. The research design adopted in this paper was critical in showing the overriding trend of organisational transformation in this sector of the Vietnamese motorcycle industry; that is, empirical research based on

the integration of industry-level and firm-level data facilitated the analysis of changes in the operations of both lead firms and suppliers over an extended period of time.

With regard to the second sub-question concerning the determinants of organisational transformation, it was argued that the product characteristics emphasised in the existing literature are in themselves insufficient to explain the phenomenon. De facto standardisation of Japanese models and low quality requirements reveal why arm's-length linkages prevailed in the early 2000s but do not account for the emergence of supplier-driven coordination in Stage III.

The empirical findings showed that the driver for change came primarily from the rise of supplier competencies. This was in sharp contrast to the Japanese chain, in which the lead firm actively sought to realign the capability structure to create conditions conducive to the effective functioning of its organisational adjustment. By independently accumulating complementary competencies in conducting minor design modifications to existing models and manufacturing them in large quantities to reasonable standards, a small number of suppliers – including those analysed in depth as embedded case studies – formed a shared supply base for large and small assemblers seeking to increase the product variety of low-priced, standardised models aimed at the low-income market still unexploited by HVN.

## **7. Conclusion**

This paper began by highlighting the challenges that the newly emerging Chinese model of industrial organisation posed to the conventional Japanese model. What can we learn from the rivalry between these two models in a third country context? How does its analysis contribute to the literature on models and trajectories of industrial organisation? By integrating extensive primary and secondary data collected at different points in time, this paper sought to describe and explain the decade-long organisational transformation in the Vietnamese motorcycle industry resulting from the direct clash of two contrasting models of industrial organisation. This concluding section summarises the empirical findings corresponding to the two sub-questions, and discusses the contribution of this paper to the wider body of literature on industrial organisation.

First, this paper asked a 'how' question on the dynamic evolution of industrial

organisation in the Vietnamese motorcycle industry: *How did the Japanese and Chinese organisational models evolve in Vietnam?* The literature suggests that these two models converged; however, the present study found that such convergence was short-lived. What seemed like important changes in both Japanese and Chinese models in the early 2000s were eventually abandoned, while more dynamic, long-lasting changes got underway at a later stage of industrial development. In the end, the Japanese model shifted from one variant to another variant of the same captive model of industrial organisation. The Chinese model essentially remained one of loosely coordinated organisation throughout the period of analysis; although it came to be characterised by several competent suppliers playing partial yet critical coordinating roles in later years. Fundamental differences between the two models continued to persist in the medium term.

Second, this study examined the reasons for these organisational changes; that is, *what factors drove the organisational transformation of the Vietnamese motorcycle industry?* The literature emphasises the nature of the product that respective lead firms manufactured. Yet, the longitudinal analysis in the present paper found that explaining short- and medium-term trajectories of organisational transformation required another variable – that of the changing capability alignment in the respective value chains.

The transformation of the Japanese model into an institutionalised competition variant can be explained in terms of changing capability alignment in *both* the lead firm and its suppliers, that is, lead firm acquisition of purchasing power and increasing supplier capabilities but not complementary competencies. It was HVN that took the lead in nurturing the necessary capabilities – not only its own but also those of its suppliers – although it took time and the dismantling of policy constraints before such initiatives started to produce the desired results. Conversely, the transformation of the Chinese model can be explained primarily in terms of the formation of supplier capabilities, that is, the rise of specialist suppliers with design modification and large-scale manufacturing competencies.

In addition to empirical findings specific to the Vietnamese motorcycle industry, this paper also makes an important contribution to the broader body of literature. First, by systematically tracing the long-term transformation of two industrial organisational models, this paper shed new light on the processes through which organisations evolve over time. The empirical findings showed that organisational transformation was far from a smooth and automatic process. In practice, such processes involved challenges,



struggles and tensions. The results were diverse hybrids or intermediate forms of industrial organisation that did not necessarily correspond to the five most typical governance forms. The empirical findings indicate that the captive model – the conventional form of Japanese industrial organisation – can in practice be implemented as two distinct variants, each with strikingly different implications for competitiveness and supplier development. ‘Coordination from below’ in the Vietnamese–Chinese chain is another example of a hybrid form of organisation. Albeit partial, this provided effective means for local assemblers and suppliers to meet Japanese challenges under the conditions prevailing in Vietnam.

Second, this study systematically explained the trajectories of organisational change in terms of two elaborate and operational variables: the nature of product/process parameters and the alignment of relevant capabilities. While much of the previous theoretical and empirical research has focussed on chain governance in its most orthodox forms, these patterns emerge only where specific combinations of these two variables are present. Where models are transferred to different contexts or where they meet new competitive challenges, there may be many instances in which ideal sets of conditions for intended organisational adaptation are unavailable. It is indeed such misalignments of variables that created the aforementioned challenges, struggles and tensions.

Indeed, contrary to Gibbon et al.’s (2008) contention, the two variables did not transpire to be structural constraints to transactions. These variables were heavily influenced by the strategic actions of firms in the value chain, and it was in fact such actions of lead firms and/or suppliers aimed at realigning these variables – albeit with limitations – that drove industrial organisation to full or partial transformation. HVN made active attempts to realign the capability structure in order to create the necessary conditions for the effective functioning of the market forces it sought to introduce. In Vietnamese–Chinese chains, coordination needs arising from the partial nature of de facto standardisation were simply left unattended in the early years because none of the actors had the capacity to deal with them. These needs were eventually met by the rise of competent suppliers that had both the will and the capacity to play a partial yet critical role in implementing the requisite coordination.

Finally, the empirical findings of this study also provide important insights into the emerging rivalry between the Japanese and Chinese models of industrial organisation. In terms of its capacity to exploit the potential (unrealised) market demand and to

capitalise on the existing alignment of relevant capabilities, the Vietnamese case demonstrates that the Chinese model initially proved more adaptable to developing country conditions. However, in the medium term, the Japanese model gained supremacy over the Chinese model as Japanese lead firms made certain – but not fundamental – adjustments to the nature of their products, while actively realigning the capability structure. Conversely, while the Chinese model lost supremacy in the medium term, it nevertheless continued to function in an adapted form as suppliers gained the complementary competencies required by local assemblers. The result of repeated rounds of organisational adaptation was enhanced organisational diversity. After a decade, the two models continued to exist side by side, both retaining the essential features of the original models yet incorporating important adjustment.

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## APPENDIX LIST OF FIRMS, INTERVIEWS, AND SURVEYS

### 1. Interviews in Thailand

Firms	Code	Interview details
Honda R&D Southeast Asia	#1	President on 11 January 2010.

### 2. Interviews in Vietnam

#### (1) Honda Vietnam (HVN)

Code	Interview details
#1	General Director at the factory on 31 July 2001.
#2	Director of Production and Director of Administration/Chief Financial Officer on 21 September 2004 (includes factory visit).
#3	Director of Administration/Chief Financial Officer on 20 November 2007.
#4	Director and Senior Manager of Purchasing Department on 19 September 2008.
#5	Director, Senior Manager, and Manager of Purchasing Department on 7 March 2009.

#### (2) Vietnamese assemblers

Firms	Interviews		Surveys
	Code	Details	
A1	#1	Head of Administrative Department on 22 September 2004 (includes factory visit).	2004/ 2007
	#2	Head of Administrative Department on 1 August 2005 (includes factory visit).	
A2	#1	Former procurement manager (2002-2004) at a café in Tokyo on 24 February 2009.	–
	#2	Former procurement manager (2002-2004) at the Institute of Developing Economies, Chiba on 27 February 2009.	
A3	#1	Officer of Administrative Department on 23 November 2007 (includes factory visit).	2007
A4	#1	Vice General Director on 23 September 2004.	2004/ 2007
	#2	Vice General Director on 2 August 2005.	
	#3	Vice General Director and Factory Manager on 4 August 2005 (includes factor visit).	
	#4	General Director and Deputy Director on 22 November 2007.	
	#5	General Director on 4 March 2009.	
A5	–	(Requests for interviews were rejected in 2004 and 2007.)	2004/ 2007
A6	#1	General Director and Deputy General Director on 26 November 2007 (includes factory visit).	2007

(3) Vietnamese suppliers

Firm	Code	Interview details
V1	#1	Director of Planning Department on 17 October 2003.
	#2	Deputy Director on 3 September 2008.
	#3	Chairman; General Director; and Manager of Planning Department on 24 November 2008 (includes factory visit).
	#4	Chairman; General Director; Deputy General Director; Factory Manager; and five other managers on 3 March 2009 (includes factory visit).
V2	#1	President/General Director and Deputy manager of Personnel Department on 5 September 2008 (includes factory visit).
	#2	Director of Technical Department at the factory on 19 November 2008 (includes factory visit).
V3	#1	General Director on 17 September 2008 (includes factory visit).
	#2	Deputy Manager of Technical Department on 20 November 2008.
V4	#1	Vice General Director on 23 August 2002 (includes factory visit).
	#2	Vice General Director on 3 September 2008 (includes factory visit).
V5	#1	General Director on 16 October 2003 (includes factory visit).
	#2	General Director and Director of Technology Department on 9 March 2009 (includes factory visit).
V6	#1	General Director on 17 November 2009.
V7	#1	Director of Production and Director of Finance on 25 September 2004 (includes factory visit).
	#2:	General Director on 11 September 2008 (includes factory visit).
	#3	Two Vice General Directors on 11 March 2009 (includes factory visit).
	#4	General Director at VEAM's office in Hanoi 13 January 2010.
V8	#1	General Director at the company's factory on 20 November 2008.
	#2	General Director at the company's factory on 5 March 2009 (includes factory visit).
V9	#1	Deputy General Director on 16 September 2008 (includes factory visit).
	#2	Manager of Engineering Department on 21 November 2008 (includes factory visit).
	#3	General Director at the VEAM's office in Hanoi on 13 January 2010.
V10	#1	Managing Director on 28 July 2005 (includes factory visit).
	#2	President on 15 November 2008 (includes factory visit).
V11	#1	General Director and Director on 9 September 2008 (includes factory visit).
V12	#1	Manager of Finance and Deputy Manager of Sales on 12 March 2009 (includes factory visit).
V13	#1	Deputy General Director on 16 September 2008 (includes factory visit).
	#2	Managers of Technical Department, Equipment Department, Manager of Quality Control Department, and Technical Department No.2 on 21 November 2008 (includes factory visit).
V14	#1	Director and Manager of Technology Department at the company's factory in Ho Chi Minh City on 13 March 2009 (include factory visit).

V15	#1	General Director at the company's factory in Hanoi on 3 August 2005 (includes factory visit).
	#2	General Director at the company's factory in Hanoi on 5 September 2008 (includes factory visit).
V16	#1	General Director on 24 November 2008.
	#2	General Director on 5 March 2009 (includes factory visit).
V17	#1	General Director and Director of Sales Department on 12 September 2008 (includes factory visit).
	#2	General Director and Manager of Accounting Department on 22 November 2008 (includes factory visit).
V18	#1	Director on 4 September 2008 (include factory visit).
V19	#1	General Director on 2 August 2005 (includes factory visit).
	#2	General Director on 8 September 2008 (includes factory visit).
	#3	General Director on 10 March 2009.
V20	#1	General Director on 15 September 2008 (includes factory visit).
	#2	General Director on 10 March 2009.
V21	#1	General Director on 4 March 2009.
V22	#1	Managing Director and Factory Director on 14 March 2009 (includes factory visit).
V23	#1	Deputy Director on 25 September 2004 (includes factory visit).

#### (4) Japanese suppliers

Firms	Code	Interview details
J1	#1	General Director on 1 August 2005 (includes factory visit).
J2	#1	General Director on 23 August 2002 (includes factory visit).
	#2	General Director on 26 November 2007 (includes factory visit).
J3	#1	General Director on 20 September 2004 (includes factory visit).
	#2	General Director on 19 November 2007.
	#3	General Director on 18 September 2008 (includes factory visit).
J4	#1	General Director on 22 May 2003.
J5	#1	General Director and Factory Manager on 11 November 2003 (includes factory visit).
J6	#1	General Director on 20 November 2004 (includes factory visit).
	#2	General Director, Director and Manager of Purchasing Department on 20 November 2007 (includes factory visit).
J7	#1	General Director on 4 September 2002.
J8	#1	General Director on 27 July 2001 (includes factory visit).
J9	#1	General Director on 26 November 2007 (includes factory visit).
J10	#1	General Director on 17 September 2008 (includes factory visit).
J11	#1	General Director on 15 January 2010 (includes factory visit).

#### (5) Chinese suppliers

Firm	Interviews		Surveys
	Code	Details	

C1	#1	General Director on 23 November 2007 (includes factory visit).	–
	#2	Manager of Sales Department at a café in Hanoi on 2 March 2009.	
	#3	Manager of Sales Department at a café in Hanoi on 11 March 2009.	
C2	–	–	2004/2007
C3	–	–	2004/2007
C4	–	–	2004/2007
C5	–	–	2004

#### (6) Taiwanese suppliers

Firm	Code	Interview details
T1	#1	Japanese Technical Advisor on 26 July 2005 (includes factory visit).
	#2	Deputy General Director on 28 November 2007.
T2	#1	Sales and Import Assistant Manager on 27 November 2007.
T3	#1	General Director on 3 August 2005.
	#2	General Director on 6 March 2009 (includes factory visit).
T4	#1	Deputy General Director and Manager of Sales Department on 27 November 2007.
T5	#1	Deputy General Director on 29 July 2005.
T6	#1	Director of Finance Department on 10 September 2004 (includes factory visit).
T7	#1	Deputy General Director on 28 July 2005 (includes factory visit).

#### (7) Korean supplier

Firm	Code	Interview codes and details
K1	#1	Chief of Financial Department on 10 September 2004.
	#2	General Director on 29 November 2007.
	#3	General Director on 13 March 2009.

#### (8) Industry experts

Organisations	Code	Interview details
Vietnam Association of Bicycles and Motorcycles (Vinacycle)	#1	Specialist on 23 September 2004.
	#2	Chairman and Chief of Administrative Office on 21 November 2007.
	#3	Chief of Administrative Office on 15 January 2010.

#### (9) Motorcycle retailers

Organisations	Interviews
Hanoi	Several motorcycle retailers on Hue Street, Hanoi interviewed on 27 August 2002.
	Several motorcycle retailers on Hue Street, Hanoi interviewed on 13 January 2010.
Long An Province	Several motorcycle retailers in Tan An, Long An on 25 July 2005.
Ho Chi Minh City	Several motorcycle retailers in Ho Chi Minh City on 11-12 September 2004.