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**Places for Korean Firms in China:
Looking for a Viable International Division of Labor in 1990-2000**

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Abstract

In the past decade, increasing economic integration with China has offered vast business opportunities to Korean firms. Given the changing industry map in East Asia, Korean firms have been seeking a new international division of labor with Chinese firms via foreign direct investment. During the most recent two decades, Korean firms in China attempted to create business models that implemented either a full set of business activities (full model) or a partial set of business activities (partial model). We have found that the competitiveness of Korean firms in China experienced drastic changes, which determined the viability of a specific model for Korean business in China. Our cases have indicated that the partial model was vulnerable to environmental changes in the host market.

The central reason for such changes is that, as Chinese firms accomplished a technological catch-up, they began to replace the roles of Korean firms in China at a rapid rate, which obsoleted the bargaining power of Korean firms in China in their relations with their Chinese partners. Our study implies that Korean firms going to China, when seeking for a viable business model, should deliberately consider the possibility of catch-up for Chinese firms within the industries.

Keywords: industrial relocation; China; Korea; manufacturing sector; foreign direct investment; trade; category-killer; conglomerates

JEL classification: F14, F23, O14, O53

1. Introduction

With the rapid growth of the Chinese economy, business and academic societies, particularly those in the neighboring East Asian countries, have been keenly interested in the changing layout of the global economy that China presents (Abe, 2003; Chen, 2003). “China shock” on the neighbors has taken several forms. Taking an example from Korea, China shock includes the flood of imports of Chinese consumer goods in Korea or the more competitive Chinese goods than the Korean ones in the U.S. market. At the same time, economic integration has drastically increased between China and Korea, as suggested by the Korean offshoring rush to China in the form of foreign direct investment (FDI).

As the Korean FDI in China has continued to grow, Korean business models in China have also grown in their complexity, showing the varying levels of survival (or exit) and performances (Hahn and Choi, 2010; Ito and Hahn, 2010). A business model is selected when it is optimized, given the bargaining power between a foreign investor (the FDI firm) and host market. The bargaining power of a foreign investor in host countries is derived from a comprehensive set of factors. On one hand, there is a firm-specific advantage to be concerned with, such as technology, product differentiation (including strong brand names), or product diversity (Ramamurti, 2001). On the other hand, a comparative (dis)advantage of a firm’s home market (Korea) to a specific location (China) and firm determines host-country bargaining power. The comparative advantage of China vis-à-vis Korea offers accesses to natural resources or local labor available in the host market, which attracts Korean investors.

Most literature has investigated the issues of international business based on the assumption that the business model that serves as an entry mode for foreign business, once chosen, continues until termination. However, as an increasing number of Chinese firms have

shrunk the technology gap, they have threatened the comparative advantage of Korean firms and, further the Korean business model in China. If a firm possesses the higher level of brand power, it will concentrate resources on a wider range of activities. If the brand power is weaker, a firm is less likely to build an empire aboard but invests in a select few functional activities. A firm's specific advantage, as well as host-country bargaining power, also changes over time, as the factor costs (labor costs, for example) change, and some industries use the factor more intensively than others. Accordingly, identifying a viable business model is an essential task for firms to go offshore.

In this study, business models of Korean firms in China, with a focus on their responses to the changing environments in host markets, are examined. Witnessing vicissitudes of these business models in China, this study investigates *what has been the viable business model for Korean firms doing business in China* and provides a long-term analysis based on firm-level cases and in-depth interviews. The successes or failures for Korean foreign direct investment in China from 1990-2010 were observed. The obstacles posed to the Korean firms doing business in China were then identified, and the viability of the business models so far adopted by Korean firms in China were revisited. This research discusses and provides implications for practitioners and, at the same time, is useful to academic readership interested in an international division of labor in the rapidly shifting context of global competition.

This paper is organized as follows: in section 2, the changing nature of economic integration between China and Korea is illustrated, which provides the research setting for this study. In section 3, the business models of Korean offshoring firms in China are examined. Section 4 concludes this study by providing implications for future Korean offshoring in China.

2. Backgrounds: Economic Integration Between Korea and China

The Bilateral Trade Pattern: From Inter-Industry to Intra-Industry Trades

One of the most controversial issues regarding Korea-China economic relations is the persistent trade deficit in China (see Table 1), a complaint that China has voiced clearly. Until the early 1990s, the bilateral trade was regarded as highly complementary, as it was a typical inter-industry trade; that is, China exported primary goods and Korea exported manufacturing goods. However, as China increased its manufacturing exports, Korea and China began to compete over the exports of manufacturing goods, which continued until the end of the 1990s.

[Insert Table 1 here]

An interesting fact to note is the trade pattern between Korea and China. As Table 1 illustrates, during the early 1990s, Korean trades with China remained unstable, seesawing between surpluses and deficits. The fluctuation soon entered into a phase of continuous trade surpluses in Korea as the intra-industry in the manufacturing sectors between the two countries increased rapidly (Lee and Kim, 2001). Most notably, trades within the same industry increased: Korea exported intermediate or capital goods to China, and China exported final goods using the intermediate goods imported from Korea.

But the intra-industry trade has caused trade deficits in China. As shown in Table 2, the share of intra-industry in the total trade balance was less than 10% in 1991 but amounted to almost 39% in 2008, far exceeding intra-industry trades between Korea and Japan. Over the last three decades, trade deficits in Korea with Japan were attributed to the increasing imports of

capital goods from Japan, as Korea increased production and exports of final goods. Now the same pattern is observed in the Korea-China trade relationship. The increasing intra-industry trade between Korea and China reflects the rising level of economic integration, rather than perfect rivalry, between the two countries. It also implies that Chinese firms have promoted manufacturing capability; like Korea, as China has produced and exported more goods, it has increased imports of intermediate goods.

[Insert Table 2 here]

The increase in intra-industry trade suggests the changing nature of Korean FDI (foreign direct investment) in China. Korean firms in China have heavily imported intermediate goods from Korea but have generated an overall trade surplus in China due to the large amounts of exports from China to the third world. According to a survey conducted by the Korean Traders' Association of over 1,280 Korean firms in China in 2003, approximately 38.5 percent (in dollar terms) of intermediate goods were imported from Korea, and 44.3 percent was purchased locally. On the other hand, only 15.8 percent of the final goods (in dollar terms) were exported to Korea, and 40.6 percent was sold locally (Institute for Trade Research of the KTA 2003).¹ The pattern became more remarkable over time (Hahn and Choi, 2010).

Korean Entry into China: The International Division of Labor via FDI

The KTA survey showed that imports of intermediate goods by the Korean firms (Korean FDI) in China in the early 2000s contributed to the Korean surplus in trades with China. Thus, the sustainability of Korean surpluses from the trades with China seem to depend upon (a) the

rate of growth in Chinese firms' manufacturing capabilities in the capital-goods industry in their home market (China), and upon (b) the degree of Korean firms' competitiveness in the capital-goods industry in their home market (Korea). The rapid growth of Chinese firms, plus the ongoing process of production relocation from Korea to overseas in key capital or intermediate goods industries, foreshows the advent of the trade balance between Korea and China. In fact, trade surpluses in Korea have continued to decrease.

Table 3 illustrates that Korean FDI in China has experienced several phases. The first phase spans from the late 1980s to 1994 (two years after the re-establishment of a diplomatic relationship). During this period, Korean firms regarded China merely as an alternative sourcing base to Southeast Asia. It was mainly small-sized Korean firms in the labor-intensive sectors that rushed in China who were looking for cheap labor. In this phase, exports from Korea to China increased because the Korean FDI in China needed the imports of intermediate goods from Korea. Processed products were re-exported back to Korea or elsewhere, which meant that only a few Korean firms in China actually penetrated into the local Chinese market.

[Insert Table 3 here]

The second phase spans from 1994 to the climax of the Asian financial crisis in 1998, when the large Korean firms (*Chaebols*) began to invest in capital-intensive industries, targeting both the Chinese and overseas markets. Recording 1994 as the peak of inward China FDI (in terms of the number of FDI cases), the Korean FDI in China started to decline although investment amounts per project increased (see Table 3). At the same time, some of the small Korean FDI firms began to relocate their manufacturing bases for intermediate-good production to China.²

The third phase spans from 1999 until now. The Korean FDI in China plummeted in 1998 when the financial crisis crashed the Korean economy. *Chaebols* also completed the first round of their investments in China and had a pause in the investment cycle. However, the Korean FDI regained momentum shortly after the Korean economy began to bounce back. Consequently, the third phase was typified by a new wave of Korean investors—SMEs (small and medium sized enterprises), which were partners or subcontractors for *Chaebols*. SMEs took the lead in the China FDI during the third phase.

The businesses of the SMEs that crowded into China in the third phase were concentrated in high value-added and relatively capital- or technology-intensive industries. Unlike SMEs in labor-intensive industries during the earlier stages, SMEs in the third phase showed a characteristic that their entries were encouraged by *Chaebols*. *Chaebols* were their main customers, already settled down in China in the early FDI stage. Attracted by the cheaper local supplies in China, *Chaebols* in China urged the long-term partners (mainly SMEs) to move to China to reduce search costs for selecting local Chinese suppliers, while at the same time maintaining product quality; alternatively, *Chaebols* in China brought their production network so that they could replicate the Korean production system in China in order to reduce all possible costs (Lee and He, 2009). In contrast to the earlier phases, the hollowing-out process happening in Korea surged the capital-goods industries and proceeded on a massive scale.

As a response, Korean firms have kept high value-generating industries or segments within Korea while relocating others to China. The current Korean FDI in China should be understood in this context. There were two sets of strategic choices available for Korean firms: (a) continue to manufacture intermediate and capital goods in Korea and move the production lines for final-good assembly to China, and (b) conduct R&D and logistics in Korea and manufacturing in

China. The next section illustrates , among the Korean firms which chose option (a) or (b), how some succeeded while others failed.

3. Korean Firms Seeking for “Viable” Korean Business Models in China

Relationships between (developing) host markets and foreign direct investors are characterized by antipathy and mutuality of interest (Kobrin, 1987). The relationship, balanced in the bargaining power between firm-specific advantages of foreign investors and country-specific advantages of host markets, decides a business model as a mode of entry. Kindleberger (1969) asserts that the essential components to determining a business model are divergent interests, some degree of mutual interests, differences resolved through an initial entry process with outcomes as a function of relative power, and the changes in relative power over time. Vernon (1976) argues that, once invested, fixed capital becomes sunk, a hostage as well as a source of host-market bargaining strength. Likewise, technology, once arcane and proprietary, matures over time and becomes available to local firms in the host market. These factors together determine the viability of a business model over time.

The Korean FDI in China: Who Are They?

In this study, business models are differentiated by their levels of replicating domestic activities in the foreign setting. A full business model (hereafter, full model) refers to a set of activities starting from inbound logistics, production, marketing, and sales. The typical types of firms implementing full model is *Chaebol*. *Chaebols* have built another empire in China that orchestrates functions from R&D to production, as well as to marketing across subsidiaries. They

even make huge social contributions and are devoted to non-profit activities in China, in an attempt to promote the corporate image among Chinese consumers. In this business model, success depends on the levels of vertical integration with affiliates and sub-contractors, of unique ownership advantages such as technology or brand names, and of project-execution capability that enables a quick and decisive jump start with high resource commitments (Dunning 1988, 1995).

Another type of firm adopting full models are “category-killers.” Like *Chaebols*, this business model operates the entire functional activity. They are usually the middle-sized enterprises which build a production base in China and export to global markets. The sectors optimal for this model are usually traditional industries or the business of specialized items, for example, toys (Aurora World Co.), condoms (Weneed Co.), or hats (Yong-an Co.), which do not require strong vertical integration.

On the other hand, firms may consider undertaking a fraction of the domestic business activities in a foreign market (the so-called partial model). The partial model focuses on core business activities without the intention of forward integration (for example, a non-marketing supplier or design-house). Some Korean firms were involved in both R&D and production but left the marketing function which was undertaken by the Chinese partners. These firms conducted R&D and the procurement for operation but did not possess the managerial and marketing capabilities. Firms choosing a partial model subcontracted or formed a joint venture with Chinese firms. This business model has provided advantages for local production networking but has also been vulnerable to the changes in the comparative and competitive advantages of a firm.

The Full Model: Its Past and Current Viability

During the early 1990s, while Korean firms continued to regard China merely as a production or export base, the Chinese economy grew faster than forecasted, and the consumer market also expanded rapidly. Accordingly, Korean firms started to recognize China as an important market for sales. From the mid-1990s, *Chaebols* built a local market-oriented production network in China, which was designed particularly for product standardization, rapid innovation, and speedy responses to the growing Chinese market (Lee and He, 2009). *Chaebols*, including Samsung, LG, Hyundai Motors, and POSCO, are now deemed to have had a remarkable success in China despite their later entries compared to rivaling MNCs.³ In the consumer-electronics industry, they established more than ten subsidiaries in China over the course of a few years and sharply increased market shares through the functional integration of the businesses. For example, shares of the Chinese and Korean markets in Samsung's global sales in 2004 were 10% and 20%, respectively; in 2008, the China share in the global sales increased to 15.6%, while the percentage of Korean market decreased to 18.4%.⁴

Among other things, Samsung's successful penetration into the Chinese market was credited to project-execution capability obtained from the group structure.⁵ The subsidiaries in China and in Korea shared resources and offered support when Samsung conducted sequential market entries in China: the group structure provided a jump-start to new businesses. Hence, the greater the number or frequency of projects the firm undertook, the greater the knowledge it acquired. Business groups, from this perspective, benefitted from the organizational structure more than stand-alone firms when making geographic diversification (Kock and Guillen, 2001). Through this mechanism, Korean business groups successfully built another empire in China.

Chaebols in the information and telecommunication (IT) industries established R&D

centers, although the R&D projects conducted in China focused mainly on modifications of existing products to serve the taste of Chinese consumers. While the main function of the R&D centers was to develop products designed for the Chinese market, the roles of R&D centers in China over time grew beyond local adaptation to target the global market.

However, *Chaebols* are not the only type of firms that chose a full model. The history of a full model traces back to the early stages of FDI. During this period, Korean investments in China were driven by small or middle-sized enterprises (SMEs), which needed to establish export-oriented and low-cost manufacturing bases to sell labor-intensive products to third countries, not in China. Given their limited capabilities, the performances in the early phases showed mixed results. Korean firms during this period showed a fledgling form of a category killer. They were non-diversified, item-specialized, and doing a complete value chain. They conducted some R&D, but the R&D intensity was very low.

Most Korean SMEs in this phase moved to China due to rising wages in Korea, and since the products they manufactured in China gained price competitiveness, they soon obtained orders from big customers in developed countries. Yet the enlargement of their customer base extended the life of a business only by a few years until the profitability completely expired. Without particular product-design capability or brand power, the benefits of low-cost production in China were nothing but a temporary remedy.

After the grace period, the firms in this business model that survived and prospered were only those who successfully developed self-design capabilities. For example, toys—an industry typically represented by a saturated market—used to be one of the leading exports in Korea in the 1970s, and there were more than 700 OEM producers in Korea during that period. From the late 1980s, however, many relocated their factories to China and Southeast Asia. While a

majority of the Korean toy manufacturers neglected the need to upgrade to ODM and to OBM (own-brand manufacturing), China almost replaced Korea as the location for toy production. As a result, as of 2009, only a few firms in Korea remain in the toy-manufacturing industry. Among them, only one firm is an own-brand manufacturer (OBM)—*Aurora World*—which exports self-branded toys. *Aurora World*, specializing in toy products, survived by investing largely in building R&D capabilities and in nurturing their own brands, which is a good example of business model B.⁶ The role of the headquarters in Korea has mainly been R&D and marketing, while the production bases are located in Indonesia (since 1990) and China (since 1995).

The Partial Model: Its Past and Current Viability

Chaebols, including Samsung, LG, and SK, continued to expand their production networks into China with massive investments and localized operations. This included an implementation of the entire value chain at the local level. The aggressive strategies by *Chaebols* eventually enabled them to have remarkable success in China within a relatively short period of time.

However, the success of *Chaebols* was not a generic reference for small or middle-sized Korean firms because *Chaebols* possessed resources and capabilities enough to carry out the strategies while SMEs did not. Given the situation, a non-marketing supplier model (production by Korean SMEs and marketing by Chinese partners) emerged as the common mode of Korean SMEs' businesses in China.

The essential task required by the partial model is to ally with Chinese firms performing a division of labor. For example, Koreans firms in China specialize in R&D and production, while the Chinese partners take care of marketing. In the mobile-handset industry, the primary entry mode of Korean SMEs was subcontract manufacturing. Because the mobile-handset market in

Korea was very competitive, subcontracting in China offered a good opportunity to Korean SMEs, and, in fact, became the common business model for Korean SMEs who possessed technological, but not marketing, capabilities. Korean subcontracting was also beneficial to the Chinese firms since the Chinese firms could sell the handsets labeled as their own brands in the rapidly growing local market, although they did not even possess production capacities.

The division of labor for subcontracting was quite simple. Korean SMEs produced mobile handsets as a finished product while Chinese partners sold the products through their distribution channels and brand power. However, the alliance did not last long as the production technology for mobile handsets became standardized in China. Once production technology became standardized, the number of mobile-handset manufacturers increased in the Chinese market: not only new Korean rivals began to do subcontracting in China, but Chinese vendors also began to set up their own production facilities independently. Furthermore, as the Chinese mobile-handset market became saturated, retail prices fell, which blunted the competitive edge of Korean mobile-handset manufacturers in China. Korean SMEs in China thus began to emphasize the innovative designs and technical advancement of their products, trying to upgrade to the stage of independent product designs.⁷

At the same time, the process of upgrading to an ODM undergoing in Korea also drove Korean SMEs out to China. As the domestic market in Korea became more competitive with the increasing number of manufacturers who possessed design capabilities, subcontractors in Korea had to reduce costs by relocating production lines to China. Also, as the Chinese government began to restrict the import of mobile handsets, relocation to China became necessary for subcontractors in Korea to penetrate into the Chinese market.⁸ Accordingly, relocating the production lines became a precondition for the successful business of Korean SMEs in the

handset manufacturing industry.

Table 4 shows the strategic responses of three major Korean SMEs in the mobile-handset industries to the changes in their business environment in China. To cope with the growing competition domestically and internationally, they expanded production capacity to achieve economies of scale and built more production bases in China, while making efforts to move from subcontracting to own-design manufacturing.

[Insert Table 4 here]

The firms presented in Table 4 concentrated on R&D and production as the key components, at the same time transferring the labor-intensive manufacturing technique to China. Although overseas relocation to China raised a concern about the leakage of core technologies to Chinese companies, the Korean own-design manufacturers aggressively proceeded with local adaptations.⁹ Localized operation as an alternative to exporting became essential because it became extremely difficult for Korean firms to penetrate into the Chinese market due to the growing competition in the market and the increasing restrictions by the Chinese government. Korean SMEs found it especially difficult to have a sustainable business relationship with their Chinese partners as Chinese firms became more independent and technically competitive by accumulating managerial know-how and production skills. The Chinese government also explicitly pushed ahead the “Market for Technology” policy, which fundamentally required more investments in and technology transfers to Chinese firms.

Further, the local adaptation accompanied by local R&D involved the risk that the knowledge-oriented value chain might disappear in Korea or might become disintegrated if the

Korean subsidiary in China lost key functions in the value chain. Thus, Korean SMEs had to re-strategize the partnership with their Chinese customers in such a way that they could maintain the technological advantage and improve the cost efficiency and market access. Also, because the mobile-handset market in China was already saturated (Gartner, 2006), the bargaining power of Korean firms with the Chinese partners shrank when the Korean firms left marketing and product branding to be managed completely by the local partners.

In this regard, the case of Sewon Telecom (SWT) is noteworthy.¹⁰ As a middle-sized but one of the leading telecommunication equipment manufacturers in Korea, SWT designed and manufactured both CDMA (code-division-multiple-access) and GSM (global system for mobile communications) handsets. With a commitment to innovative R&D and customer satisfaction, SWT grew steadily after its establishment in 1988. It acquired the relevant technologies through licensing from Qualcomm and Wavecom. Developing varying models of CDMA/GSM mobile handsets, SWT began to export to Chinese vendors in the 2000s.

When SWT contracted with Chinese vendors, the Chinese government limited the production and sales of mobile handsets in China. Production and sales were allowed only to manufacturers with business permits issued by the Chinese government. Firms without business permits produced handsets as suppliers, or established joint ventures with the firms that had business permits. SWT decided to subcontract and, simultaneously, to co-brand with Chinese vendors such as Ningbo Bird and Haier.

Due to the changes in competition and regulations in the mobile-handset market, SWT was soon aware of the need to possess design capability. It also had to provide more SKD (semi knocked down) or CKD (complete knocked down) handset kits for Chinese vendors to carry out the final assembling process. Furthermore, as the market became buyer-controlled, SWT had to

face more arbitrary demands from Chinese vendors, such as concurrently requests for new specifications and functions installed on the handsets before delivery. This frequently led to disputes between the two parties and even a break-up in the partnership. For such reasons, SWT finally ended the partnership but could not continue business in China due to the lack of brand power as a consequence of the own-design strategy. The firm also could not compete against the cheaper Chinese products. Falling profitability drove SWT into financial difficulties, and SWT finally went bankrupt in 2005.

From the middle of the 2000s, *Chaebols* expanded China's businesses more aggressively. They entered China with a cluster of production teams, most of which were design-houses or production-only suppliers. For SMEs, it was the least risky business model in China. When *Chaebols* entered China in the late 1990s, SME joint entries were not common because SMEs working with *Chaebols* in Korea did not want to put aside the stable business in Korea and take the risks of new international operations. As a result, in the late 1990s, the diversifier model was adopted mainly by the *Chaebols* affiliates. In the middle of the 2000s, *Chaebols* built well-networked production bases in China and invited the firms (SMEs) in the production network located in Korea. The *Chaebol*-affiliated SMEs were involved in a single value-segment (production), leaving other value segments (such as R&D or marketing) to be taken care of by *Chaebols*.

Hyundai Motors in China, for example, are now working with more than 40 suppliers which have worked with Hyundai Motors in Korea.¹⁰ The Korean suppliers, together with 13 local Chinese suppliers, contributed to Hyundai Motors' fast increase in the localization ratio of up to 70 percent within two years of the subsidiary establishment. Samsung Electronics (mainly the mobile handset division), as another example, brought more Korean suppliers in China. The

Korean system transplanted in China speedily facilitated the vertical integration and production-network formation of Samsung (Lee and He, 2009).

In contrast to the firms affiliated with *Chaebols*, non-affiliated SMEs had an alternative business model—contract manufacturing as a part of the Chinese firms' supply chain. As the global production network developed in China, this model became popular among the small high-tech or venture firms in the information and technology (IT) industries. Bellwave (BW), for example, designed telecommunication equipment with a focus on GSM handsets and CDMA data modules from its establishment in 1999.¹¹ The firm specialized in R&D and did not manufacture products.¹²

In this regard, the business model of BW was noteworthy. It formed an alliance network with companies specializing in the partial value chain. The BW network included a license company to provide the core technologies, a subcontract company to supply the components, and a manufacturing company to assemble the final products. The role of BW was to develop handset designs based on the source codes of GSM chipsets that were provided by the core technology company, Texas Instrument (TI). After the formation of a tripartite collaboration, it contracted on the sales of turnkey design solutions with companies like Chinese mobile-handset vendors who handled all of the value chain except R&D. BW, thereby, earned a large amount of royalty income from the self-developed designs.

As a design-house, BW became a key player in the network of mobile-handset production, leading the division of labor with customers or partners.¹³ Unlike most Korean suppliers who possessed design capabilities but were under-networked, BW funded from and technically cooperated with global leaders such as TI. The global competitiveness of BW was further enhanced by the strong and supportive international investors who were BW's strategic

shareholders.¹⁴ This model was sustained for some time because BW had the unique design and development capability to advance its core technologies. BW concentrated on R&D for new designs, while the Chinese vendors took care of manufacturing and marketing. The partial model in China involved three actors: TI, which provided the GSM chipsets, BW, which advanced technologies for the chipset application, and the Chinese vendors, which completed manufacturing and delivered the mobile handsets to the consumers.¹⁵ The business of BW as a technology provider seemed quite eligible for a benchmarking reference. The innovativeness, up-to-date styles, and speedy responses to environmental changes enabled BW to be positioned as a successful design-house rather than an inventor.

However, as the Chinese mobile-handset vendors also accumulated technologies and know-how, they soon developed their own designs by directly contracting with the chipset companies. The mature mobile-handset industry also sprouted design-houses and weakened the bargaining power of BW. In addition, given the share of R&D expenditure was very high at BW's cost structure, the saturating mobile-handset market in China (due to an increasing number of Chinese vendors) rendered BW unprofitable consecutively for three years. BW finally went bankrupt in May 2007 due to problems of financial liquidity.

5. Summary and Conclusion

The industrial map in East Asia changed by the rise of China, which has inevitably affected industrial structures in its neighboring countries, including Korea. Previously perceived as a threat, now growth of the Chinese economy is considered to be a window of opportunity. The increasing economic integration between the two countries is reflected in multiple dimensions. In

trades, for example, the two countries started with a complementary inter-industry trade but have increasingly competed over final manufacturing goods. In the meantime, intra-industry trade between the two countries has grown rapidly. The rising share of intra-industry trade between Korea and China suggests that the final goods manufactured in China have used more intermediate goods imported from Korea. The increasing intra-industry trade is attributed to the fact that Korean FDI firms in China have increased imports from Korea and have decreased exports to Korea. As a result, Korean firms in China have been seeking the right model to have a successful business in China.

In this study, data was collected from the archives and in-depth interviews and provided a long-term analysis with cases that we observed from 1990 to 2010. Korean business models in China were observed generally as two types: models to implement in China a full set or a partial set of business activities undertaken in Korea (full model vs. partial model). The business models, once adopted as an optimal entry mode, showed distinctively different results as bargaining power, based on the investor's firm-specific advantages and host-market country-specific advantages, changed.

The full model was favored particularly by *Chaebols*. *Chaebols* rapidly replicated the Korean-style whole value chain (the core competence in the home country) in China. The speedy internationalization benefited from the group structure and had remarkable business success. However, the full model was not necessarily characterized by the *Chaebol* model. Early Korean investors, such as SMEs in the labor-intensive and/or export-processing sectors, entered China with a choice of full models. Some survived in the Chinese market, transforming into category killers, which generally exploited the advantages of low production costs in China. Among these firms, only those who upgraded their technological capabilities and built brand names survived.

In this model, the determinants for success were the possession of technological capability and knowledge-based assets, such as brand, which enabled non-*Chaebol* firms to create a competitive edge for doing business in foreign markets, mainly in narrowly focused or niche markets. Otherwise, the Chinese category killers accomplished catch-up and have driven Korean category killers out of business.

The partial model was attractive to and adopted by SMEs that had weak brand power but competitive technology, the new division of labor seemed determined by the relative levels of their resources in technology, marketing, or finances vis-à-vis Chinese firms and other Korean firms. The partial model had two prevailing modes, that is, a non-marketing supplier model (R&D and production by Korean FDI firms in China and marketing by the Chinese partners), and a non-marketing single value-segment model (design-house or production-only supplier).

Since non-marketing suppliers did not possess financial resources enough to undertake the entire value chain in China (in contrast to *Chaebols*), they found allying with Chinese firms more profitable. However, the alliance strategy had downsides. Korean firms, for example, channeled technologies to Chinese partners, but the Chinese partners often had more leverage in negotiations based on the large domestic market and the inward FDI firms from other countries (Mu and Lee, 2003). In fact, the majority of Korean firms who chose this model were actually taken over by the growing Chinese firms or grew incapable of maintaining financial stability due to an excessive focus on the competition in China. Also, as the Chinese firms promoted technological capabilities, Korean firms implementing the multiple value-segment model lost technical superiority and failed to cope with the lower prices that the Chinese rivals offered to consumers. Without brand power, the unsatisfactory performance in China even threatened business at the headquarters in Korea.

The non-marketing single value-segment model provided Korean firms in China opportunities to join the production network led by the local firms. Nevertheless, most Korean firms in this model were actually neither the low-cost manufacturers nor the well-known technologies or brands. As the Chinese competitor promoted technological capabilities, the firms that chose this model soon lost their grounds of competitiveness. Even though pre-clusterization with *Chaebols* to some degree guaranteed the sustainability of a business, the Chinese government continued to push *Chaebols* into replacing the pre-clustered suppliers with Chinese suppliers.

Overall, the findings illustrate that, among the attempted models, the partial model showed low viability in China. However, this study does not necessarily mean that an international division of labor between Korean and China is impossible. There are several joint ventures that have proven viability, for example, Pulmuwon or Korea Yakurt. They have been involved in production, and the joint venture partners have taken care of distribution and marketing. It seems that, after all, the key concern is to maintain bargaining power in the relationship with the host market. In this research, the main factor in determining changes in bargaining power has been the capability-building of Chinese firms.

These cases suggest that the speed of catch-up by Chinese firms increased, which weakened the viability of the Korean firms in China. Without strong brand power, the role of Korean firms in the local production network in China was gradually substituted by the rising Chinese firms, which accomplished the technological catch-up. The future of Korean firms in China, therefore, seems to rest upon the speed of innovation by Chinese firms and brand-building by Korean firms in China.

Notes

¹ In other words, these firms are contributing to the Korean surplus. In aggregate terms, all the sample firms together invested 4.93 billion US dollars in China and generated a trade surplus of 3.05 billion dollars by buying more Korean-made intermediate goods (6.38 billion dollars) and selling less to Korea (3.33 billion dollars). If this total amount of surplus is divided by the total amount of their investment, one can calculate how many dollars of surplus each invested dollar generates. That is 0.62 dollar (3.05 divided by 4.93).

² Relocating production lines to China was a main part of the hollowing-out process; however, the scale (in terms of dollar amounts) was not substantial during this period.

³ See Luo (2001) for a comparison of strategies and performances of the MNCs in China.

⁴ See Lee and He (2009) for further details. The 2009 data was obtained from the annual financial statement of Samsung Electronics.

⁵ *Project execution capability* refers to the skills required to establish or expand corporate facilities, including undertaking pre-investment feasibility studies, project management, project engineering, procurement, construction, and the start-up of operations (Amsden and Hikino, 1994). Project-execution capability appreciates in value through a deliberate process of learning-by-doing and then transforms the learning into know-how, embedding it in the organizational memory.

⁶ An interview with Aurora World was conducted on 14 January 2004.

⁷ See Lee (2003) for more information.

⁸ The government also started to restrict the import of semi knocked down (SKD) and completely knocked down (CKD) handset kits that are mostly from Taiwan and Korea in order to protect and foster its domestic industry.

⁹ As Table 5 shows, Telson, despite its relatively smaller size compared to *Chaebols*, established an R&D center in China in order to shorten its time to market.

¹⁰ Now the number of firms that entered China jointly with Hyundai Motors amounted to 87 firms, as of May 2010.

¹¹ An interview with Bellwave was conducted on 12 January 2004.

¹² As a design-house, nearly 75% of 390 employees at BW were trained engineers with more than five-years experience on average in the field of design and development for communication technology. Due to their outstanding expertise, the R&D team at BW was awarded many times for its achievements in innovative technology design. BW also developed the thinnest and lightest module for data communications that was ever introduced to the telecommunication industry. The firm once dominated the module market in Korea with more than 45% market share.

¹³ BW has a long history of success in the competitive Chinese market, including one of the best-selling handset designs (Model: A8) in the history of mobile phones sales in China. Designed and developed for Amoisonic, this sleek, super thin GSM mobile phone was compact, feature-rich, and affordably priced, making it the most popular design in China. Its market share reached 12% in 2003, outselling competing models from industry giants such as Motorola, Nokia, and Samsung.

¹⁴ For example, the company attracted \$2 million from the world's largest financial group Citi Corp. in December 2000 and \$4 million from TI in April 2001. In June 2003, the company also succeeded in making an investment deal with Softbank Corp. worth 16 billion won. This constituted 8%, 16%, and 18%, respectively, of BW's total capital stocks.

¹⁵ The tripartite cooperation was considered an example of a global production network (GPN) (Ernst, 2002; Ernst and Kim, 2002).

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References

- Abe, Shigeyuki (2003), "Is China Fear Warranted? Perspectives from Japan's Trade and Investment Relationship with Japan," *Asian Economic Papers* 2: 106-131.
- Altenburg, Tilman, and Hubert Schmitz (2008), "Breakthrough? China's and India's Transition from Production to Innovation," *World Development* 36(2): 325-344.
- Amsden, Alice H., and Takashi Hikino (1994), "Project Execution Capability, Organizational Know-how and Conglomerate Corporate Growth in Late Industrialization," *Industrial and Corporate Change* 3(1): 111-147.
- Chen, Sunghoon (2003), "Analysis of Mobile Handset Component Industry," Meritz Securities.
- Dunning, John H. (1995), "Reappraising the Eclectic Paradigm in an Age of Alliance Capitalism," *Journal of International Business Studies* 26(4): 461-491.
- Dunning, John H. (1988), *Explaining International Production*, New York, NY: Harper Collins Academic.
- Ernst, Dieter (2002), "Global Production Networks and the Changing Geography of Innovation Systems: Implications for Developing Countries," *Economics of Innovation and New Technology* 11(6): 497-523.
- Ernst, Dieter, and Linsu Kim (2002), "Global Production Networks, Knowledge Diffusion, and Local Capability Formation," *Research Policy* 31: 1417-1429
- ITR (Institute for Trade Research) (2003), *Survey Report on the Situation of the Korean FDI Firms in China*. Seoul, Korea: Korea Trade Association.
- Kindleberger, Charles P. (1969), *Six Lectures on Direct Investment*. New Haven, Conn.: Yale University Press.
- Kobrin, Stephen J. (1987), "Testing the Bargaining Hypotheses in the Manufacturing Sector in Developing Countries," *International Organization* 41(4): 609-638.
- Kock, Carl J., and Mauro F. Guillen (2001), "Strategy and Structure in Developing Countries: Business Groups as an Evolutionary Response to Opportunities for Unrelated Diversification," *Industrial and Corporate Change* 10(1): 77-113.
- Lall, Sanjaya, and Manuel Albaladejo (2004), "China's Competitive Performance: A Threat to East Asian Manufactured Exports," *World Development* 32(9): 1441-1466.
- Lee, Jun-Yeop, and Hong Gi Kim (2001), "Analysis of the Korean Trade with China and Japan (in Korean)," *Hyundai Joongkook Yon-gu* 3: 103-127.
- Lee, Youngyo (2003), "Mobile Handsets (in Korean)," Daishin Economic Research

Institute.

Luo, Yadong (2001), *Strategy, Structure and Performance of MNCs in China*. West Port: Quorum Books.

Mu, Qing, and Keun Lee (2003), “Knowledge Diffusion, Market Segmentation and Technological Leapfrogging: The case of telecommunication industry in China,” paper presented at the 2003 European Summer School on Industrial Dynamics, held in Corsica, France.

Ramamurti, Ravi (2001), “The Obsolescing ‘Bargaining Model’? MNC-Host Developing Country Relations Revisited,” *Journal of International Business Studies* 32(1): 23-39.

Table 1. Changes in Korea's trades with China and Japan (unit: 100 million USD)

Year	With China			With Japan		
	Exports	Imports	Balance	Exports	Imports	Balance
1990	5.8	22.7	-16.9	126.4	185.7	-59.3
1991	10.0	34.4	-24.4	123.6	211.2	-87.6
1992	26.5	37.2	-10.7	116.0	194.6	-78.6
1993	51.5	39.3	12.2	115.6	200.2	-84.6
1994	62.0	54.6	7.4	135.2	253.9	-118.7
1995	91.4	74.0	17.4	170.5	326.1	-155.6
1996	113.8	85.4	28.4	157.7	314.5	-156.8
1997	135.7	101.2	34.5	147.7	279.1	-131.4
1998	119.4	64.8	54.6	122.4	168.4	-46.0
1999	136.8	88.7	48.1	158.6	241.4	-82.8
2000	184.5	128.0	56.5	204.7	318.3	-113.6
2001	181.9	133.0	48.9	165.1	266.3	-101.3
2002	237.5	174.0	63.5	151.4	298.6	-147.1
2003	351.1	219.1	132.0	172.8	363.1	-190.4
2004	497.6	295.8	201.8	217.0	461.4	-244.4
2005	619.1	386.5	232.7	240.3	484.0	-243.8
2006	694.6	485.6	209.0	265.3	519.3	-253.9
2007	819.9	630.3	189.6	263.7	562.5	-298.8
2008	913.9	769.3	144.6	282.5	609.6	-327.0

Source: Korea Trade Association (www.kotis.net).

Table 2. Share of trading types in total trade balance of Korea (%)

Year	With China			With Japan		
	Inter-industry	Intra-industry		Inter-industry	Intra-industry	
	Vertical	Horizontal		Vertical	Horizontal	
1991	91.5	5.4	3.1	73.6	19.6	6.7
1992	89.7	7.9	2.4	72.2	19.3	8.4
1993	96.7	2.8	0.4	67.7	18.4	13.9
1994	93.5	4.6	1.8	73.0	15.0	12.0
1995	92.4	5.1	2.5	75.8	19.0	5.2
1996	77.0	17.6	5.4	74.9	16.2	8.9
1997	77.4	15.1	7.5	70.8	24.5	4.6
1998	84.7	11.7	3.6	58.2	39.1	2.7
1999	81.8	13.6	4.5	68.1	27.5	4.5
2000	72.3	22.4	5.3	64.7	30.1	5.1
2001	73.4	20.0	6.7	62.0	32.9	5.1
2002	66.0	27.9	6.2	66.4	28.7	5.0
2003	71.0	22.8	6.2	66.3	28.0	5.7
2004	74.0	19.5	6.6	69.7	26.3	4.0
2005	73.6	20.6	5.8	66.6	28.2	5.2
2006	66.7	27.6	5.8	68.9	26.3	4.8
2007	62.7	28.6	8.6	72.2	23.4	4.4
2008	61.5	29.7	8.8	70.3	24.1	5.5

Source: Korea Trade Association (www.kotis.net)

Note: Figures from 1991 to 2000 were cited from Lee and Kim (2001). Following Lee and Kim (2001), figures after 2001 were reproduced by researchers.

Table 3. Korean FDI in China, 1988-2008

	Year	FDI cases	Actual investment (1,000 USD)	Amount per case (1,000 USD)
Stage 1	1988	3	994	331
	1989	7	6,360	909
	1990	25	17,146	686
	1991	69	42,466	615
	1992	173	141,310	817
	1993	386	290,778	753
	1994	845	677,349	802
Stage 2	1995	757	913,790	1,207
	1996	745	1,019,728	1,369
	1997	642	790,119	1,231
	1998	280	685,444	2,448
Stage 3	1999	464	352,838	760
	2000	790	756,738	958
	2001	1,077	664,213	617
	2002	1,422	1,097,402	772
	2003	1,723	1,830,291	1,062
	2004	2,214	2,370,246	1,071
	2005	2,346	2,828,696	1,206
	2006	2,377	3,389,856	1,426
	2007	2,218	5,483,700	2,472
	2008	1,340	3,813,659	2,846
Total		19,903	27,173,123	24,358

Source: KEXIM Overseas Investment Statistics (www.kexim.co.kr)

Table 4. Multiple value segment model and strategies of the three major Korean SMEs in the mobile handset industry

Name	Pantech	Telson	Sewon
Products	CDMA and GSM	CDMA / New on GSM	CDMA and GSM
Production	<p>Trying to realize 'Economy of Scale' by increasing annual production capacity to 10 million handsets; Trying to become a global company with localized production networks.</p> <ul style="list-style-type: none"> - The annual production capacity of Pantech and its subsidiary, Pantech and Curitel, already reached 10 million handsets in 2003. - Trying to become one of the global top 10 companies by localizing in China 		
China Strategies	Treat China as a strategic market; Exploit its low-cost labor to reduce cost, and secure local sales network	Differentiated production lines to produce high-end products in Korea, while transferring mass production of low-end products to China	
Value Segments	<ul style="list-style-type: none"> - Localizing production and R&D - Planning to build its own brand 	<ul style="list-style-type: none"> - Setting up its own local factory and R&D center in China 	<ul style="list-style-type: none"> - Making production subcontract with local Chinese partner
Current Localization in China	<ul style="list-style-type: none"> - Set up a JV with a Chinese partner, Daxian Telecom. - Production capacity: 300,000 in 2003, 3 mil. in 2004, 5 mil. in 2005, and 10 million in 2008 - To increase its stake in the JV from 30% to 50% in order to launch its own brand 	<ul style="list-style-type: none"> - Setting up a local factory with production capacity of 6 mil. handsets in Yantai. (solely invested by Telson Electronic & operated by Telson Yantai; Main R&D activities include surveying the market and modifying their products to fit the needs of locals. 	<ul style="list-style-type: none"> - Strategic partnership with Haier. - Haier to produce 5 million handsets annually as a subcontractor of Sewon. - Sewon to provide new handset models and key components for Haier. - To use Haier as a production base for the Chinese & export market.
Subcontracting or own-design manufacturing	Shifting its main business from subcontracting to own-design manufacturing, while trying to build its own brand	Subcontracting/own-design manufacturing ratio changing from 7:3 to 3:7	
Current Status	Acquired by SK Teletek	Bankrupted in 2005	Bankrupted in 2005

Sources: inews24 (03.11.12), Digital Times (03.11.13 & 02.11.5), and other news reports

Table 5. Korean business models in China

A. Full Model	
<i>A-1. Chaebols</i>	
Market/Customer group:	Chinese consumers
Role of Chinese/local firms:	none
Strategy for long-term success:	vertical integration & ownership advantage
Examples:	Samsung, LG, Hyundai Motors, or Posco (<i>Chaebols</i> targeting Chinese markets)
<i>A-2. Category Killer (Export processor, or specialized small or middle-sized firms)</i>	
Market/Customer group:	Global market
Role of Chinese/local firms:	None
Strategy for long-term success:	Own-branding or high-tier manufacturing
Examples:	Aurora World or Weneed
B. Partial Model	
<i>B-1. Non-marketing suppliers (Subcontractors doing R&D and production)</i>	
Market/Customer group:	Chinese firms
Role of Chinese/local firms:	Marketing and distribution
Strategy for long-term success:	Own-branding, JV, market diversification, or possession of proprietary technology
Examples:	Telson or Sewon
<i>B-2. Non-Marketing design house or production-only Suppliers)</i>	
Market/Customer group:	Other (Chinese/Korean) firms in China
Role of Chinese/local firms:	Production, marketing, and distribution
Strategy for long-term success:	JV, technology upgrading, or vendor diversification
Examples:	<u>Bellwave, Youil (sub-contractor for Hyundai Motors)</u>

Source: Authors' interview