

Fordism Light: Hyundai's Challenge to Coordinated Capitalism

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ABSTRACT

Despite receiving a strikingly pessimistic evaluation in the acclaimed volume *The Machine that Changed the World* (Womack et al., 1990), the Hyundai-Kia group has overcome numerous crises to become the fourth largest auto producer in the world.

Hyundai's rise is especially striking because the company has repeatedly failed to implement Toyota's famed "lean production" system. Hyundai's labor unions, though well paid by Korean standards, have opposed management's attempts at rationalization, and gone on strike almost every year. Aside from a few key component companies firmly controlled by the Hyundai group, relations with suppliers remain distant and overwhelmingly focused on price. Hyundai's impressive achievements in improving quality have stemmed from relentless attention by top management and extensive use of quality inspectors rather than from intensive cooperation with workers and suppliers. Corporate governance remains closed and murky. Even after democratization, Korea's political system has not provided an environment conducive to cooperation and coordination among assemblers, suppliers and labor.

Recent studies of manufacturing have focused on the success of "Toyotism" and "coordinated capitalism," but the rise of Hyundai suggests that firms in upper-tier developing countries with rapidly growing demand and reasonably high-quality human capital can use a modified version of Fordism—mass production of standardized commodities by vertically-integrated firms employing a reasonably paid but not highly incorporated labor force—to achieve great success in international competition even with complex and highly integrated products such as automobiles. Hyundai has blazed a path on which firms from China, India and other developing countries may follow.

The global financial crisis of 2008-2009 accelerated a long-term trend toward declining employment in manufacturing. Instability and weakened demand combined with increasing competition from rapidly growing, low-wage economies such as China and India to hammer manufacturing firms in Europe, Japan, and North America. China's ever-expanding trade surplus in particular elicited alarm and outrage, though in many ways it simply consolidated the surpluses previously run by a large range of Asian countries (Keller and Rawski 2007).

The "Varieties of Capitalism" (Hall and Soskice, eds. 2001) literature suggests that firms in advanced countries ought to be able to compete with low-wage producers of standardized commodities by utilizing two types of innovation: radical innovation to create new products and processes, and iterative innovation to produce improved versions of traditional goods with higher quality and greater flexibility. *Varieties of Capitalism* synthesized and advanced a long tradition of work analyzing alternative approaches to capitalist development, particularly contrasting the Anglo-Saxon liberal market economies to the coordinated capitalism common to Germany and much of continental Europe. Liberal countries such as Britain and its long-term colonies share a financial system dominated by stock and bond markets; decisive top executives; and a labor force characterized by general and portable skills and weak unions. In contrast, the coordinated economies (ten northern European countries plus Japan) combine bank-dominated financial systems; corporate boards of directors in which chief executives typically are merely first among equals; and a workforce possessing specialized skills and a significant degree of union coordination.

While both systems have proven capable of supporting a high standard of living, the liberal regimes tend to be more flexible and excel at radical innovation, the varieties of capitalism (VOC) authors contend, while the coordinated regimes are less flexible and innovative but more skilled at incremental innovation and quality production, and more egalitarian in the distribution of wealth and power. For the VOC authors, the pressures to conform to global capital markets and "best practice" so often cited in the financial press are neither overwhelming nor uniform. Coordinated economies respond to global competitive pressures in ways that maintain or even enhance local cooperative networks.

While the Anglo-American countries grew more rapidly, at least in the decade or so leading up to the financial crisis, in one vitally important industry, Japan and Germany have shown robust signs of viability and international competitiveness: automobiles. Both countries

are leading producers of automobiles and auto parts, and firms from each have engaged in successful investment in major consuming areas such as North America and China. The rapid expansion of Toyota, Nissan and Honda exerted enormous pressure on the traditional American auto assemblers. GM and Ford lost market share, while for a time Chrysler sought salvation in an alliance with Germany's Daimler-Benz. Many suppliers of components and modules, such as Japan's Denso and Germany's Robert Bosch, also expanded operations internationally.

Most analysts credit the success of the German and Japanese auto industries to factors emphasized by the *Varieties of Capitalism* logic (see e.g. Fujimoto 2003 on the centrality of product integration in the auto industry). Cars are a mature product in which innovations in both product and production processes tend to be incremental rather than radical. Rapid development of new models, maintenance of high levels of quality, and reduction of manufacturing costs depend vitally upon tacit knowledge acquired over long periods by engineers and production workers, and close collaboration within the divisions of assembly firms and between assemblers and their suppliers (Misawa 2005). Incremental innovation and effective collaboration, in turn, require stable, motivated, and highly skilled work forces.

Based on these strengths, the system of "lean production" pioneered by Toyota and other Japanese auto companies became a widely hailed model of capitalist development. The ideal-typical lean production model combined several attractive elements (Womack et al. 1990):

- Designing quality in rather than fixing problems after assembly
- Just-in-time production to minimize inventories and force companies to solve production problems immediately
- Producing only in response to demand ("demand-pull" rather than a Fordist "supply-push")
- Flexible production of multiple models on a single, rapidly reconfigurable line rather than mass production of a single model
- Shop-floor skill development through regular job rotation and active use of quality circles
- Reliance on project teams and close cooperation with suppliers rather than sequential product development by isolated engineering, production, and marketing divisions.

Later research cast doubt, however, on the sharpness of the contrast between "Fordism" and "Toyota-ism," particularly when it came to shop floor practices (Tate 1995). Coffey (2006) mustered detailed data showing that Toyota and other Japanese auto producers were neither as efficient nor as flexible as Womack et al. (1990) had claimed, and that overall inventories had not really declined much. Instead, the success of the Japanese assemblers stemmed, Coffey claimed,

from high levels of capacity utilization and extensive use of overtime. Ihara (2007) built on his experience as a temporary worker at Toyota to cast doubt on the skill intensity of auto assembly: in return for relatively high wages, Toyota's carefully selected employees worked hard and accepted rigorous discipline, but most of them did not develop sophisticated skills.

To be sure, the lean production model was not just a mirage. Some elements, such as an emphasis on rigorously ferreting out the root causes of defects rather than simply fixing the results after assembly, diffused throughout the global auto industry. Others proved hard to imitate and left Japanese firms with an enduring competitive advantage, particularly in rapid development of new models via close cooperation with crucial suppliers, enabling Japanese auto companies to improve product integration and minimize reliance on costly rebates to flack aging models (Misawa 2005; Fujimoto 2003).

On balance, though, lean production proved to be less of a revolution and less of an obstacle to new entrants in developing countries than originally anticipated. Contrary to the prediction of Womack et al. (1990), auto production steadily shifted to countries with lower wages and more rapid growth in demand (<http://oica.net/category/production-statistics/>). In 2009, China surpassed the United States and Japan as the largest market and production site for automobiles (though not yet the most lucrative, since the average price per vehicle was lower in China). Most Chinese cars and trucks came from joint ventures with Volkswagen, GM, Toyota and other advanced Western and Japanese firms, but around 40 percent issued from the assembly lines of independent Chinese companies (Noble forthcoming). A similar picture emerged in India, where Tata and other local firms began to catch up with joint ventures led by Suzuki, Hyundai, and other foreign firms. Investments by Toyota and other Japanese assemblers led to the emergence of "the Detroit of the East" in Thailand, while European and American auto giants took the lead in Brazil and Argentina. Spain emerged as an early low-cost production site in Europe (Guillen 2003), but then faltered as the leading auto assembler decamped for cheaper sites on the periphery of Western Europe, such as Poland, the Czech Republic and Turkey. Even South Africa emerged as a significant producer and exporter of automobiles.

In sharp contrast, the financial crisis swept faltering GM and Chrysler into bankruptcy, and nearly took Ford with them. The leading auto firms in Europe proved more resilient, but they, too, were damaged, and struggled to stay profitable in a stagnant market. Japanese auto makers did better (Toyota's infamous recalls were more the result of excessively rapid expansion and insufficient attention to crisis management than proof of any fundamental flaw), but they too had

to cope with stagnant domestic demand and a steady flow of production abroad: from the late 1990s to the late 2000s, the value of automobile-related production in Japan increased by only about one-quarter, while the overseas production of Japanese auto firms more than doubled, far outstripping the domestic market (JAMA 2009: 4, 58).

The biggest winner, however, was the Korean auto industry led by Hyundai and its subsidiary Kia, which thrived in the downturn and passed Ford to become the fourth largest auto group in the world (trailing only Volkswagen-Porsche, Toyota, and GM). The Korean auto industry rose to global prominence in the mid-late 1980s on the basis of low costs. Domestic structures were virtually the opposite of northern-European cooperation, as a powerful interventionist state, gigantic business groups and a seething labor movement struggled for control, and elbowed aside small and medium-sized suppliers.

Despite the initial success of Korean exports such as Hyundai's Pony sub-compact, doubts about Korean cars became rampant. Even the low prices of Korean cars, it became apparent, could not overcome their shoddy construction. Democratization, a surging labor movement and skyrocketing wages threatened even Korea's cost competitiveness. Exports and profits shrank. Absent a switch to lean production methods based on coordinated capitalism, Korea's auto industry appeared doomed, as Womack et al. (1990) suggested.

In the early 1990, the Korean companies, led by Hyundai, staged a powerful and unexpected recovery. Surging domestic demand stimulated a wave of investments that improved productivity and quality. The aggressive competition for market share weakened the industry, however, and even before the collapse of the Thai baht triggered the Asian financial crisis in the summer of 1997, Kia and other Korean auto companies began to fail. After a sharp decline in 1998, the Korean industry, staged an even more impressive comeback, dramatically improving product quality, and steadily expanding its share of the global market, particularly in North America. (See Table 1)

Table 1: Hyundai-Kia Production

Year/Company	Hyundai	Kia	Hyundai-Kia
1970	4,300	5,700	(10,000)
1975	7,100	20,000	(27,100)
1980	61,800	34,100	(95,900)
1985	240,700	87,200	(327,900)
1990	676,000	377,300	(1,053,300)
1994	1,134,600	619,900	(1,753,500)
1998	899,000	365,000	(1,264,000)
1999	1,307,000	796,000	(2,103,000)
2000			2,488,321
2001			2,518,443
2002			2,641,825
2003			2,697,435
2004			2,766,321
2005			3,091,060
2006	2,505,027	1,270,722	3,775,749
2007	2,617,725	1,369,330	3,987,055
2008	2,777,137	1,395,324	4,172,461

Sources:

1970-1994: Kim 1997, 106;

1998-2008: OICA (<http://www.oica.net/category/production-statistics/>)

Tellingly, the Korean auto industry led by Hyundai tried but repeatedly *failed* to introduce the elements of “lean production,” and chose not to develop stakeholder-dominated corporate governance systems, intimate assembler-supplier relations, or sophisticated mechanisms for the acquisition and upgrading of skills. Instead, with the support of a powerful government only intermittently sympathetic to workers and unions, and largely immune to local politics and the concerns of small firms, it relied on a reassertion of vertical integration and top-down control, a kind of “Fordism light.” As a latecomer to the world auto industry, Hyundai started off depending on a wide range of foreign suppliers, then gradually built up a core of domestic suppliers under its own control. In the schema of transaction costs economics (Williamson 1985), Hyundai ultimately chose vertical integration or arms-length transactions rather than creating an intermediate solution analogous to the “horizontal keiretsu” common in the Japanese auto industry.

State and Chaebol Business Groups in the Development of the Korean Auto Industry

Korea repeatedly tried and failed to emulate the Japanese approach. The auto assembly industry in Korea stemmed not from wartime mobilization, postwar crisis and a sustained period of indigenous development, as in Japan, but from a combination of statist intervention and the ambitious development by entrepreneurial but sometimes reckless domestic business groups. Initially, as in most developing countries, creating a competitive auto industry exceeded the political will and technical capacity of the government. Producers and models proliferated and economies of scale remained but a distant vision. With vigorous support from government banks and technology licensed from firms in advanced countries, local producers such as Kia and Hyundai did begin to export cars in the 1970s, but only by dumping dated compacts of execrable quality at prices far below production cost.

When inflation, the second oil crisis and the assassination of President Park hammered the industry in the early 1980s, the story took an unusual twist. The authoritarian government of President Chun enforced a draconian division of labor that concentrated production of passenger cars in just two firms and authorized only one engine size, 1.5 liters. The government forced the local assemblers to enter capital tie-ups with foreign firms. Hyundai, which insisted on retaining management control, sold a minority share to Ford, later replaced by Mitsubishi, while Daewoo entered a 50-50 joint venture with GM. Both firms fiercely and successfully resisted the government's attempts to merge them. Still, the Korean government carried out consolidation more rigorously than in any other developing country. During the period of enforced consolidation from 1981 to 1986, production quadrupled from the previous peak attained in 1979. By the mid-1980s Korean auto producers, each a leading member of a major industrial conglomerate, enjoyed significant economies of scale and could call upon the formidable industrial base created by President Park's inefficient but effective program of heavy industrialization (Amsden 1989). Hyundai, in particular, insisted on unbundling the technology acquired from abroad rather than relying on a single foreign partner, and it invested far more than its rivals in R&D (Kim 1997; Hyun 1999).

Though Korea joined Japan as a major producer and exporter of automobiles, its competitive base was quite different. Korean firms relied upon low costs, mass production and exports (in addition to airtight protection of the domestic market). In its first two decades, Hyundai relied on a small number of models that it rarely updated. The stable and highly articulated organizational structure that sustained coordinated production in Japan was largely

lacking in Korea. Korea's economics ministry shared MITI's developmental orientation, but it contested jurisdiction with a powerful and more liberally-oriented Economic Planning Board, and technocrats in the Blue House (president's office) could overrule either. The government treated the Korea Automobile Manufacturers Association (KAMA) as a top-down device for implementing government policy, and as a result it failed to develop the elaborate cooperative activities characteristic of the Japanese Automobile Manufacturers Association (JAMA). Both government policy and the orientation of assemblers focused attention on in-group supplier associations rather than pan-industry or cross-industry cooperative groups.

The ferment and reorganization attending democratization in the late 1980s, strained the once-largely cooperative relations between big businesses and government. Chung Ju-yong, founder of the Hyundai group, took the unprecedented step of mounting a bid (ultimately unsuccessful) for the presidency himself rather than backing the existing conservative party. His effrontery, combined with a series of political scandals and the bankruptcies, the turmoil attending the Asian financial crisis, and the determination of the center-left governments of Kim Daejung and Rho Muhyon to break up the chaebol business groups and restructure the economy, effectively precluded sustained attempts at government-business cooperation. Nor did the Federation of Korean Industries (FKI) represent the big business community effectively. FKI could hardly play a constructive role in fighting the after effects of the financial crisis when its head, the Daewoo founder Kim Woo Chung, fled the country to avoid prosecution for one of the most egregious and costly corporate frauds in the history of the global economy. Nor were his successors active or persuasive.

Finance without monitoring: state influence, the rise of chaebol, and the Asian financial crisis

The Korean financial system did not support a tightly coordinated approach to economic development. During the rapid industrialization period the government nationalized the banks and treated them as cash dispensers, allocating funds to favored big businesses without much consideration of relative risks. The government did impose a degree of market discipline by channeling capital to firms that invested heavily and especially those that succeeded in boosting exports. Liberalization from the early 1990s opened up a large non-bank sector that became dominated by the chaebol business groups. Companies also avoided government controls by borrowing abroad, typically in foreign currencies and for short terms, thereby contributing to the

financial crisis. Overall, comparative studies of banking systems before the financial crash rated Korea one of the worst in the region, well below Taiwan and inferior even to countries such as Malaysia with far lower levels of per capita GDP (Noble and Ravenhill 2000). Nor did Korea possess a stable, well-regulated domestic stock or bond market. Its financial system was compatible neither with a liberal market economy nor with a European-style coordinated economy. Rather, it uneasily balanced a strongly developmental state with an occasionally corrupt political system.

Through the Asian financial crisis the Korean financial system provided relatively patient capital to major players such as auto assemblers, though not to the army of small components suppliers, many of which depended upon the assemblers for financing. The banks did not provide, however, serious monitoring of the chaebol business groups. Through cross share-holdings of group firms, strategic utilization of unlisted subsidiaries, and closed boards of directors, the founding families of the chaebol managed to parlay relatively minor shareholdings into high levels of voting power, and complete effective control. All but a handful of groups failed to establish a system of professional managers separate from the ownership. Decision-making was notoriously opaque and treatment of minority shareholders arbitrary and unfair (Haggard et al 2003). Lacking effective oversight from either shareholders or main banks (and in the early 1990s even from the government), chaebol groups tended to emphasize size and market share rather than efficiency and profitability.

Though these problems were hardly new, financial liberalization and increasing competition in many scale-sensitive industries rocked the smaller and weaker of the top 30 chaebol. Even before the devaluation of the Thai baht in 1997, weaknesses at the construction and steel companies of the Kia conglomerate dragged under the financially weakened Kia Motors. As the crisis progressed, an accumulation of debts pulled down the mighty Daewoo empire. Soon only Hyundai Motor was left standing.

Chaebol-dominated Supply networks

Supply networks in Korea also lacked the cooperative elements so central to Japan's success. Most sophisticated parts were either imported from Japan or Germany, or produced in-house by the assemblers or by a handful of suppliers so tightly linked to their parents that they were virtually divisions of the parent company, such as Hyundai Mobis (originally Hyundai Precision Industry) and Hyundai Powertech. Lower-valued added parts came from smaller local

suppliers, many of which sold directly to the assembler rather than participating in the tiered pyramids that organized the division of labor in Japan. Suppliers relied on a single assembler for around one-half to two-thirds of their revenues, far higher than in Japan (the degree of dependence varied by supplier size--smaller parts companies often sold to just one client; assembly firm; the nature of the part; and the time period) (Lee 2004: 52; Chūshō kigyō sōgō kenkyū kikō kenkyūbu 2000: 38). Finally, since suppliers were smaller and less politically influential than in Japan—before the mid-1990s Korea did not even carry out local elections—assemblers were far more likely to pay suppliers only after long delays, undermining the incentive to engage in complementary investments. Collaborative engineering was far rarer in Korea not just because the industrial base was thinner and the capacities of local firms, especially smaller ones, more limited, but in good part because there was little on which to collaborate. As in Japan, Hyundai demanded access to detailed financial data on its suppliers, but it provided much less engineering support in return.

Labor: repression and militancy

Even more different from Japan was the organization of labor. The tradition of animosity between labor and capital had deep roots in postwar Korea, and was intensified by the ideological struggles over how to deal with the threat from North Korea. Chaebol owners were generally highly hostile to unions, while the generals, bureaucrats and ruling politicians assailed center-left parties as communist sympathizers. Unions, for their part, criticized the government's pro-chaebol bias. Ironically, the preference of the chaebol for big companies and big plants made it easier to organize unions than in Japan or Taiwan, with their teeming and variegated small business sectors.

The explosive growth of the auto industry in the mid-late 1980s exacerbated the tendency of management to focus on managing labor as a group rather than assessing and improving the skills of individual workers. Management concentrated on building giant new plants and on implementing new mass production techniques to utilize the plants. Hyundai, for example, produced the Pony subcompact virtually unchanged for seven years as it strove to expand output. The successor Excel model also continued for years without significant modification; Japanese workers, in contrast, had concentrated on applying new foreign technologies to a wide range of models. Transfers across or even within work units that would have allowed workers to gain diverse experiences, and that provided management a great deal of flexibility in reacting to

fluctuations in demand or introduction of new technologies, were far less common than in Japan. Unions feared arbitrary discretion against politically active workers, while management hoped to keep radical workers from infecting pristine new areas with militant ideas (Lee 2004).

Democratization and the formation of unions in formerly hostile territory (in Hyundai's case, 1987) contributed to the rigidity already plaguing the Korean workplace. At Hyundai, the new union promptly went on strike and, boosted by a strong economy, won huge pay increases of 28.5% in 1988 and 23.5% in 1989, far outstripping both inflation (7.1% both years) and Hyundai's operating profits (6.2% in 1988 and 5.6% in 1989) (Lee 2004: 108). Though wage demands and settlements moderated over the 1990s, wages in the Korean auto industry came to double those of neighboring Taiwan, even though Taiwan's per capita income was at least as high as Korea's (International Labour Organization, Sectoral Activities Programme 2005: 45). The union victories reinforced the preexisting tendency of workers at the large chaebol firms to view themselves as entitled to permanent employment and a stable seniority system. Management responded to the aggressive unions by dispersing factories to new greenfield sites, so that most Korean factories and suppliers were separated by more than the radius of 30 minute's drive time that marked the outer limits of the "just in time" system perfected in Japan, though determined workers soon organized the new workplaces (Lee 2003). An especially telling case was Kia, which had accepted unions decades before Hyundai:

During the 1990s, the company tried, unsuccessfully, to adopt a lean management system modeled on Toyota. Not only did it fail to be innovative in its manufacturing systems, it did not effectively utilise its human resources and became mired in labour conflicts...The union opposed management's trial of elements of the LPS [lean production system] at Sohari [plant near Seoul], claiming it would lead to labour intensification. The union also succeeded in eliminating a time and motion study at the Sohari plant. Management, however, regarded these trials as essential for the development of further production balancing and work standardisation, which are key elements of a LPS. Other elements which inhibited the effective utilisation of human resources at Sohari included: the rigid seniority-based wage system and the absence of performance appraisal; the workers' feelings of job insecurity; and unstable employment relations which were deepened by intra-labour conflict. Each of these factors contributed to the relatively lower performance of the company. (Lansbury et al. 2004: 128, 119).

As this account suggests, labor rigidity contributed to a crisis in the Korean auto industry. Rising costs, low quality, and sluggish new model development contributed to a drop in exports from 1988 to 1990; the industry did not surpass the levels set in 1988 until 1993. Since efforts to institute “lean” production processes largely proved failures, management intensified old approaches, aided by a recovery in the still-protected domestic market, which tided over the five-year lull in exports. Assemblers invested even more aggressively, installing capital-intensive equipment to reduce their reliance on recalcitrant labor. Companies fought for market share, piling up debt and depressing profitability. In 1996, as the industry headed toward crisis, the Kim Yong-sam administration pushed through legislation permitting rationalization layoffs, which were then accelerated by the Asian financial crisis and the reforms demanded by the IMF.

The Korean Auto Industry after the Financial Crisis

Finance and corporate governance

Excess debt and the drastic decline in demand attending the financial crisis caused the collapse or forced merger of all the Korean auto assemblers except Hyundai. Chung Mong Koo, the eldest son of the founder of the Hyundai group, Chung Ju-Yung, succeeded his uncle (Chung Se-Yung) as head of Hyundai Motor. After acquiring control of Kia, the Hyundai group’s domestic market share exceeded two-thirds in autos and approached monopoly in trucks—yet the government declined to apply the anti-monopoly law. The auto industry, like Korea more generally, achieved a sharp recovery. Hyundai performed especially impressively, increasing quality and sophistication of design, and sharply increasing spending on research and development (*AutoAsia* February 27, 2005; *Business Week* May 17, 2004).

Hyundai’s success stemmed from vigorous top-down leadership from Chung Mong Koo, who ordered a ten-fold expansion of the quality control department to 1,000 inspectors (*Forbes*, April 25, 2005) rather than relying on the Japanese approach of designing in quality through engineering collaboration and attentive assembly by skilled on-line workers. Chung also hired the American auto consultancy J.D. Power to root out quality problems. In 1999, with quality improving, Hyundai took the bold step of offering warranties of unprecedented length and scope in the North American market: 10 years or 100,000 miles for the powertrain, and five years or 60,000 miles for most of the rest of the vehicle. The new warranties played a crucial role in restoring the confidence of American consumers in Hyundai products. By the mid-2000s, Hyundai drew even with Toyota (though not its luxury subsidiary Lexus) in surveys of initial

quality. Eventually Hyundai overcame weaknesses in Korean parts and made up ground in long-term durability as well (Detroit News, March 18, 2010; www.dailyautosblog.com/j-d-power-and-associates-2010-vehicle-dependability-study-vds-released, March 18, 2010). In 2009, auto journalists in the United States and Canada named Hyundai's Genesis, a mini-luxury model comparable to the BMW 3 series, as North American car of the year (Reuters, January 11, 2009).

If top leadership was a crucial driver, finance certainly was not a major lever for change. After the financial crisis, the Korean government expended considerable effort in reforming banks and upgrading the structure of financial supervision. Some banks, notably those acquired by western financial firms, improved, but overall the confusion, paralysis and instability was more impressive than any immediate improvement in Korean banks. Nor were capital markets an immediate success. Waves of public offerings had occurred in the auto industry in the late 1980s and 1994-1997; after 2000 a new wavelet occurred. The total number of automobile firms capable of listing on the stock market remained quite limited, however (Tōyō Keizai 2005: 2005: 278-296; 534-38; 764-5). For Hyundai and a handful of other large firms, more important was a return to profitability and the subsequent ability to issue corporate bonds and short-term paper at low rates of interest. On balance, though, changes in the financial system were too moderate to exert a major influence on corporate strategy or behavior.

A major reason the gradual liberalization and reform of the financial system had relatively little impact is that the pattern of corporate governance at the leading local automakers proved remarkably resilient. Despite the collapse or dismemberment of Daewoo, Kia, and many of the other major chaebol groups, corporate groups displayed impressive continuity amidst change. In particular, while pressure from the markets and the government led to the dissolution of the original Hyundai group of firms, which included construction, shipbuilding, electronics, autos and other firms, a smaller and more focused, but still very substantial, business group emerged around Hyundai Motor; as of 2005, the group officially included the two assemblers (Hyundai and Kia) and twenty parts suppliers (Kia web site). The founding family still managed to use cross-shareholdings and special voting rights to parlay a small ownership share into effective control: as of 2003, family members owned only 4.8 percent of shares yet they controlled 31.9 percent of voting rights (Lee 2004: 138). While Chung Mong Koo earned virtually unanimous acclaim for his success in improving quality and directing international expansion, observers worried about the shallowness of management talent and the problem of succession, not least because Chung's conviction in a bribery case caused delays in overseas

investments. "Hyundai Motor relies on one man. Only he has power to control management." (Stephen Ahn, an auto analyst at Woori Investment & Securities, quoted in *Los Angeles Times*, February 4, 2009).

Nor was there any move toward separation of ownership and management. Hyundai Motor and its closest affiliates remained a family affair. For over three decades, Hyundai group's founder Chung Ju Yung left Hyundai Motor Company in the hands of one of his younger brothers, Chung Se Yung, who co-founded the company and guided it from near bankruptcy to global force. Then in 1999, amidst the turmoil of the financial crisis and infighting among Chung Ju Yung's sons, the 83 year old patriarch forced his brother to exchange a 8.3 percent stake in Hyundai Motor for a 37.7 percent share of Hyundai Industrial Development and Construction, and installed Chung Ju Yung's eldest son, Chung Mong Koo, as president of Hyundai Motor, despite the son's limited experience in the group's automotive interests (*Asiaweek* March 19, 1999). Chung's son-in-law, Shin Sung-Jae, and his nephew, Chung Il-Sun, were promoted to head affiliated companies. Mong Koo's thirty-year old son, Chung Eui-sun, then took a position as purchasing director. Six years later, Mong Koo named Eui-sun president of Kia and director of planning for the Hyundai-Kia group, as well as interim president of the group's most important supplier, Hyundai Mobis. At the same time Mong Koo's son-in-law became president of steelmaker Hyundai Hysco. As an industry publication noted, "All three men are still in their 30s and none have outstanding records so these are, to say the least, fast-tracked promotions." (*AutoAsia* February 27, 2005; *Chosun Ilbo* [Japanese edition] May 27, 2005). A cousin of Chung Mong Koo on his father's side, Chung Mong-won, headed the Halla group, including Halla Climate Control, and also owned nearly ten percent of Mando Corporation, Korea's largest parts supplier.

Hyundai's board of directors was tiny and dominated by Chung family members. The complex and opaque intermingling of interests did not endear Hyundai Motor to the American rating agencies: despite impressive growth in sales between 2000 and 2004 (up 50 percent) and income (nearly tripled), and a significant decrease in the debt-equity ratio (from 128.78 percent down to 94.3 percent), Moody's rated Hyundai's credit quality as barely adequate (Baa3), while Standard & Poor's rated it questionable (BB+), and issued a report in June 2005 warning that inadequate corporate governance made Hyundai a critical credit risk to investors (Hyundai Motor Company, "Financial Highlights/Annual" and "Credit Ratings/Overseas" accessed August 2005; *International Herald Tribune* July 7, 2005).

Supply networks

Similarly, change in supplier networks was limited and certainly not in the coordinated direction. Rather than develop a Japanese-style network of closely allied but independent suppliers selling to all major assemblers, Hyundai relied on subsidiaries and affiliates under its control, or outsiders chosen primarily on the basis of price. As production expanded rapidly in the 1980s and 1990s, new suppliers proliferated. Assemblers made greater use of multiple suppliers for one part, though they often assigned the same part from different models to different suppliers, so as to combine competition with economies of scale for individual models. The consolidation of assemblers after the financial crisis pitted suppliers from previously separate groups against each other and accentuated the tendency to compete on price rather than ability to collaborate on new product development (Chūshō kigyō sōgō kenkyū kikō kenkyūbu 2000: 26-29).

A few of the leading suppliers with close ties to the assemblers, notably Hyundai Mobis, demonstrated the capacity to build more sophisticated and complex components, but the quasi-independent suppliers fostered by Japan's mix of competition and cooperation were rare. A 2008 survey of the world's hundred leading auto parts suppliers revealed only two Korean firms: Hyundai Mobis, with 2007 revenues of \$6 billion, at #27, and Mando Corporation at #76 (*Automotive News* supplement, "Top 100 Global Suppliers," June 23, 2008). Mando produced chassis, suspension, steering, and brake assemblies. It had 2007 revenues of \$2.4 billion, less than a tenth of the \$38 billion earned by the largest supplier, Japan's Denso, or the \$34 billion dollars in revenues of the second largest supplier, Germany's Robert Bosch.

Nor was Mando fully independent of Hyundai. Founder Chung In Yung, a younger brother of Hyundai's Chung Ju Yung, established Mando in 1962. The Asian financial crisis led to the bankruptcy and dissolution of the original Halla group, now under the control of Chung In Yung's son. Mando sold many of its holdings, and fell under the control of an affiliate of JP Morgan-Chase, but it continued to flounder. In 2008, it was acquired by Halla Climate Control, a major producer of heating and air conditioning modules, which fought off a counter-offer from Hyundai Motor.

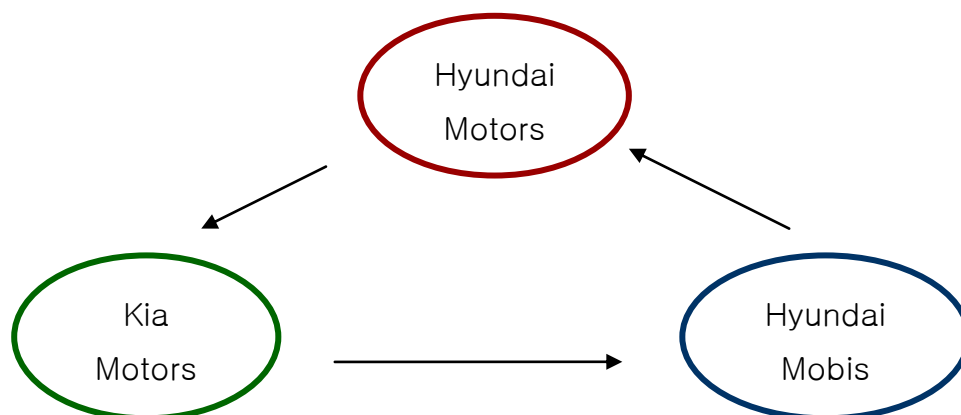
The Asian financial crisis dealt a heavy blow to Halla, as well, and in 1999 Halla's long-time partner Visteon (formerly the parts arm of Ford Motor) acquired 70 percent of Halla's shares. By then, though, Visteon had little to teach Halla in the way of technology or management, and in 2008 Visteon in turn fell into bankruptcy. Halla avoided becoming an out-

and-out subsidiary of Hyundai Motor, but it was far from independent. The two Chung cousins cooperated closely, and a Mando executive noted that, “Mando is part of Halla Engineering, not Hyundai, but there is still a strong Confucian element to the relationship.” After Halla’s acquisition, Hyundai immediately intensified cooperation with Mando (Author interview with Yoon Pal-Joo, Vice-President, System R&D Center, Mando Corporation, July 3, 2008). Korea’s top suppliers--Hyundai Mobis; Halla Climate Control, now including Mando; automatic transmission specialist Hyundai Powertech; and Hyundai Autonet, an audio and electronics supplier--remained far smaller, less diversified and less independent than their equivalents in Japan or Germany.

Perhaps most surprising, Hyundai Motor realized a long-cherished dream when it finally persuaded the government to allow it build a multi-billion dollar steel facility to supply its assembly plants, making Hyundai the only auto producer in the world to control its own integrated steel mill, literally harking back to the heyday of vertical integration under Henry Ford (*European Motor News*, January 6, 2010). (See Figure 1)

Figure 1: Hyundai-Kia group structure

(as of 2007; auto-related firms only; thanks to Professor John Ravenhill)



<Holder: Hyundai Motors>

Name	HMC Share
Kia Motors	38.67%
KEFICO	50.00%
Hyundai Rotem	57.64%
Hyundai Dysmos	47.27%
Hyundai Hysco	26.13%
Hyundai Powertech	50.00%
Wia	39.46%
Hyundai Autonet	16.77%
Mando M&Soft	25.82%
Partecs	56.00%
Ijin Industrial Co. LTD	20%
Daesung Automotive co. LTD	20%

<Holder: Kia Motors>

Name	Kia Share
Hyundai Mobis	17.79%
Wia	39.33%
Hyundai Dymos	45.37%
Hyundai Hysco	13.91%
Hyundai Powertech	37.58%
INI Steel	21.39%
Hyundai Autonet	8.91%
Partecs	31.00%

<Holder: Hyundai Mobis>

Name	Mobis Share
Hyundai Motors	14.98%
Partecs	13.00%

The fire-sale prices and weakened currency following the financial crisis led to an influx of foreign suppliers, but few Korean parts firms ventured abroad, despite the export orientation and rapid growth of Korean assemblers. A telling test came when Hyundai Motor opened a billion-dollar plant in Alabama in the spring of 2005: only about a dozen suppliers from Korea moved to Alabama to supply the new plant, far fewer than typically moved with Japanese transplants in North America (*Chosun Ilbo [English edition]* May 20, 2005; *Detroit News* May 16, 2005). With a handful of limited exceptions such as Mobis and Mando, Korean parts firms lacked the engineering excellence and firm-specific assets necessary to justify investments abroad. As a U.S. government report noted, “unlike the Japanese, many of Hyundai’s Korean suppliers are partially or wholly owned by foreign parts manufacturers which may already have U.S. plants and not need to relocate from Korea.” (McElroy 2002: 17). A second telling case came when Hyundai expanded its operations in Beijing. Rather than using its Korean subsidiary Halla Climate Control, the primary supplier of air conditions to Hyundai in Korea, the American firm Visteon built its own thirty million dollar facility to support Hyundai in China (Halla Climate Control press release, September 1, 2004). The implications for the ability of Korean firms to leverage local skills into global volume and heft are obvious.

The influx of foreign suppliers into Korea after 1997 was a mixed blessing. On the one hand, the foreign firms brought advanced technology, high quality standards, meticulously detailed standard operating systems, and powerful global brands. Hyundai’s improved quality was built in good measure on the incorporation of foreign parts. On the other hand, foreigners often find it difficult to work with the fast-moving and mercurial Koreans at Hyundai and Kia. A Korean employee at a subsidiary spun off from Mando to the giant French supplier Valeo reports that culture clashes over planning and operations are endemic. Frustrated with the French, he also finds fault with Hyundai Motor’s unwillingness to share the fruits of productivity gains, and concludes that, “Hyundai is a tyranny.” (Author interview, Peak Seung-lyul, production control team, Valeo Electrical Systems, Kyongju, July 3, 2008). Perhaps because of these culture clashes, Hyundai and the Korean parts firms have sought to decrease reliance on foreign parts firms.

Evaluations of the competitive sustainability of the Korean parts industry are mixed. Recent trends have been highly positive. The exuberant expansion of exports by assemblers has created strong demand for Korean components, both for use in finished vehicles and as replacement parts for Korean vehicles purchased abroad. Many observers praise the ability of

Korean firms to create a “sweet spot”: quality and reliability are superior to Chinese parts, while costs of Korean engineering and manufacturing remain far lower than in Japan, with a per capita income nearly three times that of South Korea (*Business Week* March 21, 2005; April 25, 2005).

Other analysts are more skeptical about the long-term viability of the Korean auto industry, particular on the parts side, which already accounts for two-thirds or more of the final value of the finished vehicle. Foreign investors express great unhappiness with uncertainties caused by the tense labor situation, and caution that unless Korean firms and engineers can create more unique competencies, the foreigners may not remain committed to Korea.

Korean researchers express particular concern about the coming competitive threat in auto parts and potentially even whole vehicles from China. Asked if China posed a future threat to Korea, an engineer at the axle and manual transmission maker Dymos replied, “China is already a threat.” (Author interview, Kim Yong-Kee, General Manager, P/T Advanced R&D Department, Dymos, Inc., Hwaseung-si, July 1, 2008). Tens of billions of dollars of foreign investment from virtually every major assembly and parts firm have provided China with some of the most modern production facilities in the world: while many small companies and state-owned enterprises in the interior remain woefully backward, careful comparative studies find that the best Chinese companies, mostly joint ventures and private firms along the coast, are already operating at world-class levels (Sutton 2004). After 2000, the total export volume of Chinese auto parts caught and surpassed that of Korea. Analysis of revealed comparative advantage found that of all major auto-producing countries, China was closest to Korea (Lee 2005; Noble, Doner, and Ravenhill, 2005). While the long-term viability of the Korean parts industry may be hard to predict, as of 2010 it is not firmly grounded in the tacit knowledge and cooperative design that powered the Japanese industry to world dominance—it is not part of a coordinated economy.

Labor and skill

Perhaps the least change in the Korean auto industry involves labor. If labor relations became slightly less contentious by the end of the 2000s, they remained distant and suspicious. Thanks in good measure to Hyundai’s near monopoly in the domestic market, where Hyundai cars sold for about 25% higher prices than in the United States, the company’s workers earned high wages, averaging about \$60,000 a year including overtime. Hyundai wages reached twice the average in the Korean manufacturing sector, or about 60%-70% of the level at Toyota, though Korean autoworkers put in about 25% longer working hours. Production workers in Korea earned more than those in Hyundai’s Alabama assembly plant (Author interview, Cho Seong-Jae,

Research Fellow, Korea Labor Institute, April 16, 2008; Japanese salary survey reported in *Shūkan Tōyō Keizai*, October 7, 2006).

Wages at supplier firms were much lower, however, and auto firms increased their use of temporary and foreign workers, leaving unions uneasy about job security. Right after the Asian financial crisis, HMC forced about 10,000 workers into early retirement with a less-than-generous severance payment equal to about one year's pay. Overall employment in the auto industry declined by about 20%. Temporary employees, who earned only about 60% of the base salary of regular employees, and enjoyed fewer benefits and no job security, grew to about 20% of the overall workforce; other temporary workers with even lower salaries worked as contractors within Hyundai factories (*New York Times*, July 23, 2009). Hyundai increased outsourcing to union-free suppliers, and greatly stepped up the use of robots, so that the level of automation exceeded that of Japan. Unions fought to keep jobs at home, but by 2010, the share of Hyundai's production from overseas factories surpassed that from Korea. Growth in China was especially impressive, and Hyundai redoubled its efforts in the rapidly growing Indian market.

Even after two successive center-left presidents, the old ideological conflicts over North Korea and domestic welfare issues remained sharp. From its formation in 1987, the Hyundai union went on strike every year except 1994. The union demanded not only higher wages, but also shorter working hours, a share of the profits, and the right to participate in management decisions concerning overseas expansion, employment of irregular workers, and other issues affecting labor (*Chosun Ilbo* [Japanese edition] May 25, 2005; *Chosun Ilbo* [English edition] August 25, 2005). Permanent employment, in principle destroyed by President Kim Yong-sam's aggressive labor policies and temporarily breached by the turmoil of the Asian financial crisis, survived almost intact as a practice but not as a mutual commitment. Management felt constrained by its inability to rationalize work procedures, while workers and unions worried that their jobs were insecure.

The influence of the unions over internal operations showed up in a scandal at Kia, where union officials accepted huge kickbacks in return for "introducing" job candidates, many of them apparently well-connected to influential politicians, intelligence officers and journalists (*Dong-A Ilbo* [Japanese edition], January 24, 2005; *JoongAng Ilbo* [English edition], January 28, 2005). Protests by unions greatly slowed the acquisitions of Daewoo by GM, and the ailing sports utility vehicle producer Ssangyong by Shanghai Automotive, which was unable to deal with the unions

and eventually let the company slide into bankruptcy.

Over the course of the 2000s, however, political and market pressures gradually weakened the resistance of the unions. In mid-2006, Hyundai Motor unions left the Korean Federation of Trade Unions to join the more specialized metal working industry union (KMWU). Two years later, the government of the new conservative president Lee Myung-bak, the famously tough former head of Hyundai Construction, cracked down on unions, and arrested dozens of KMWU officials. In September 2009, Hyundai workers elected a more moderate union leader. In December, with the after-effects of the 2008-09 global economic crisis still plaguing the global auto industry, the union agreed, for the first time in 15 years, not to go out on strike, and to accept a wage freeze in return for job security for regular workers and some one-time payments, though over one-third of the workers voted against the agreement (International Metal Federation, December 19, 2008 at www.imfmetal.org/index.cfm?c=18783 *Korea Times*, December 22, 2009; Reuters, December 23, 2009; Hankyoreh at http://english.hani.co.kr/arti/english_edition/e_editorial/395420.html).

Weakened resistance, however, was still far from the active cooperation seen in Japan. Management made little progress in increasing the flexibility of employment. Seniority remained the de facto basis for most promotions and wage increases. Transfers across work units were still extremely limited. In the case of Hyundai, a June 2000 full employment pact limited the use of part-time workers and effectively eliminated the blue-collar/white-collar distinction, but the lengthening time to promotion as the huge cohort of the late 1980s aged, and the continuing lack of clear job categories and evaluation procedures impeded efforts to improve productivity (Lee 2004: 95-121). Korean auto firms made increasing use of formal training systems, especially for white-collar workers (Kim Yong Kee interview), but shop-floor skill development and productivity remained far behind those of Japan (*Los Angeles Times*, February 4, 2007; cf. Koike et al. 2001).

Conclusion

The rise of Hyundai suggests considerable caution in evaluating the claim of the “varieties of capitalism” literature that advanced countries can permanently specialize in mature industries characterized by incremental innovation, intensive use of skilled workers and engineers, and close cooperation among firms (for other doubts, see Taylor 2004). The Korean car industry managed to overcome crises engendered by democratization in the late 1980s and the Asian

financial crisis of 1997-99 (as well as its own reckless expansion) without adopting Japan's coordinated approach. In relations with both labor and suppliers, Korean assemblers repeatedly tried and failed to implement elements of the Japanese approach to "lean production," instead relying, like Henry Ford of old, on either vertical integration or arms-length price negotiation. In corporate governance, they did not even try to learn from Western or Japanese approaches. Chung family members dominated not only Hyundai but also many of its subsidiaries and closest affiliates.

And yet Hyundai is the most dynamic major assembler in the world. It has grown rapidly, greatly improved product quality and durability, and accelerated the speed of new product development. These accomplishments suggest that relative factor endowments and the quality of corporate management still matter a great deal even in an extraordinarily complex industry such as automotive manufacturing. Without the huge advantage conferred by low wages of both factory workers and engineers it is highly unlikely that Hyundai would have begun to challenge Toyota. The varieties of capitalism approach is right that production approaches require certain political preconditions, but wrong that only certain production approaches are viable in international markets. Sophisticated, highly integrated production such as automobile assembly is shifting to middle and upper level developing countries that combine robust domestic demand with still-moderate wages. The shift is particularly striking in China and India, which also produce vast numbers of competent and inexpensive engineers, and boast a number of ambitious domestic assemblers. Hyundai is probably so solid, and so globally diversified (not least in China and India) that it is safe for the foreseeable future, but many Korean auto parts firms may become vulnerable to competitors with even lower wages and more vigorous market growth.

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