Comparative Case Study of Malaysia and South Korea Automobile Industry Competitiveness Analysis

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Abstract

The Malaysian and South Korean automobile industries started to develop in the 1960s and have experienced similar economic crises. At the beginning stage, the two industries adopted the same protectionist policy while in the following decades the Korean automobile industry headed for liberalization, while the Malaysian car industry remained relatively protectionist and closed. This essay explores how these industrial policies affect the competitiveness of the automobile industry in Malaysia and South Korea. By applying the PEST (Political, Economic, Social and Technological) analysis, this paper examines the different industrial policy directions of the two case study countries from historical perspectives. How the different directions affect current performance is then examined by applying Porter's Five Force and Diamond Theory. Finally, some suggestions for future improvement are discussed according to the research results.

Key Words: Automobile Industry, PEST analysis, Porter's Five Forces, Diamond Theory

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Introduction

The evolution of automobile industries in most developing Asian countries share similar characteristics at the initial phase with high levels of government protection. With similar experiences of being former colonies during war time, the development of car industries in Asian countries relies heavily on foreign firms, especially those from Japan and the U.S. The shock of the oil and the Asian currency crises forced these governments to change their industrial policies which led to varied performance from their respective automobile industries. This paper investigates how these varied approaches affect the performance of each industry and explores possible solutions for future improvements.

To analyze the competitiveness of the automobile industry in Malaysia, this paper is divided into four sections. First, the relevant research in this field is examined. Second, the main concepts provided in Michael E. Porter's theories and the related challenges from other theorists are discussed. Third, it examines Porter's Five Force Theory (Competitive Strategy, 1980) and related critiques. Finally, Porter's Diamond Theory (Competitive Advantage of Nations, 1990) is discussed.

The development of Asian automobile industries has been widely discussed, however, most studies focus mainly on the description of development policies and the discussion of protectionist policies. By contrast, in addition to the discussion of the development paths of the automobile industry, this study also analyzes the current comparable competitiveness in order to explore solutions for improving the competitiveness of the Malaysian automobile industry. Although comparative research of the Malaysian automobile industry has been widely conducted in this field, there are few studies comparing the Malaysian automobile industries with those of Korea.

Porter's Competitiveness of Perspective

From Porter's perspective, the structure of industry affects the profit gained by the company and it is the position of the company and the relative forces the company faces within industry that determine the possibility of success and sustainability (McGahan and Porter, 1997). Of course, this concept is challenged by other theories, one of which is the resource-based perspective. This perspective, which is provided by Barney (1986) and Rumelt (1991), emphasizes that the competitive advantages of a firm result from how many and what kind of resources that firm can authorize. Unlike the theories provided by Porter, which view the strategy of a firm as driven by industry, the resource-based perspective sees strategy as constrained by the resources of the firm. However, recent research done by Henderson and Mitchell in 1997 suggests that both industry and resources affect the performance of the firm and that there is a causal relationship between these two perspectives (Yiannis E. Spanos and Spyros Liolas, 2001).

According to Porter (1980), the structure of five competitive forces determines the state of competition in an industry and the collective strength of these forces determines the potential profits of the industry. The five forces are: threat of substitute products or services, bargaining power of buyers, bargaining power of suppliers, threat of new entrants and rivalry among existing firms. Even though this theory has been criticized as an impractical one because it tends to overstress macro analysis and fails to account for management

actions (Tony Grundy, 2006), this theory still provides a useful and effective method to help us to do 'systematic thinking' in our research.

a. Threat of Entry

New entrants often bring new capacities, they compete to gain market share and the price of the products can be bid down or the cost of incumbents can be increased. As a result, new entrants usually decrease the profitability of the industry (Porter, 1980). According to Porter, there are seven factors that affect the height of barriers against new entrants.

- Economies of Scale[3]
- Product Differentiation[4]
- Capital Requirements[5]
- Switching Costs[6]
- Access to Distribution Channels[7]
- Cost Disadvantages Independent of Scale[8]
- Government Policy[9]

b. Intensity of Rivalry among Existing Competitors

According to Porter (1980), rivalry occurs because some of the existing firms seek to make improvement to their products and services or to cut prices to reach better market positions. Firms in one industry are usually mutually dependent; when the moves and countermoves among firms escalate, all firms in the industry may suffer from decreasing profit potential. The factors affecting the level of intensity of rivalry among existing competitors are:

- Numerous or Equally Balanced Competitors[10]

[3]The average cost of one unit of product decreases as the volume of the product increases. Economies of scale can result from joint costs (when the firm that produces product A will have the capacity to produce product B), multiple businesses share operation systems or functions, and learning from experience.

[4]Brand identification, customer loyalties and differentiation of products and services require great initial investment by new entrants in order to overcome the existing disadvantages for them.

[5]The financial resources required in the beginning create a barrier to new entrants with less capital.

[6]The costs facing the buyers when they switch from buying product A to product B. When the switching costs are high, the new entrants have to spend more on product improve ment to attract buyers.

[7]The capability of new entrants to access the distribution channels is related to the height of entry barriers. It may be difficult to access existing distribution channels for the new entrants, which sometimes requires huge initial capital investment.

[8]Existing firms may have some advantages which cannot be replicated by the new entrants, such as better locations, better access to distribution channels, R&D, and government subsidies that create entry barriers.

[9]Government can control the barriers of entrance into certain industries by setting requirements, laws or taxes. In some countries, this is the most significant factor affecting the competition level of certain industries.

[10]When the number of firms is large in a given industry, firms are likely to make competitive moves because they may believe that the moves they take will not be noticed. Even when the number of firms in one industry is small but the firms are almost equal-sized, the firms in that industry are under pressure to compete with each other for resources and market share.

- Slow Industry Growth[11]
- Lack of Differentiation or Switching Costs[12]
- High Strategic Stakes[13]
- High Exit Barriers[14]

When the exit barriers are high, firms with low returns compete with other firms at any cost and induce more serious competition in the industry.

c. Pressure from Substitute Products

In Porter's study, all firms in one industry are competing with other firms which have products with similar functions. Those products with similar functions are called 'substitute products'. Substitute products can limit the potential return of firms in that industry because they might compete by setting lower prices or better functions.

d. Bargaining Power of Buyers

According to Porter (1980), buyers have bargaining power to force prices down or demand better quality of products and services. These all decrease the potential profits of the industry. That is, the higher the bargaining power of buyers, the lower the potential profits of the industry. In some circumstances the bargaining power of the buyer is strong:

- Buyers are concentrated or purchase large volumes relative to seller sales[15]
- The products purchased represent a significant fraction of the buyer's costs or purchases[16]
- The products purchased are standard or undifferentiated[17]
- Buyers faces few switching costs[18]
- The buyer has full information[19]
- The industry's product is unimportant to the quality of the buyers' products or services[20]

[11]Slow industry growth induces the competition among firms for market share. If the industry grows rapidly, firms can expand without competing seriously with each other.

[12]If the products in the industry are similar and lack differentiation, or the switching costs of the customers toward the products are low, price or service competition is likely to be induced in the industry.

[13]If the firms in the industry can gain huge strategic stakes while succeeding in certain places, the competitive level in the industry rises.

[14]Exit barriers are the barriers that keep the firms in one industry staying in the industry even when they suffer from low or even negative profits. The factors affecting the height of exit barriers are specialized assets with high costs of transfer, fixed costs of exit, strategic interrelationships, emotional barriers and government and social restrictions.

[15]If the buyers purchase large amounts of product, they have stronger bargaining power for lower price or higher quality.

[16]Buyers are more price sensitive. They tend to bargain for lower price to decrease their total costs.

[17]Buyers can find the products they need in other firms or acquire the substitute products easily.

[18]The costs the buyers face when they want to transfer from one firm to another. If the switching costs are low, buyers have bargaining power over the firms. If firms cannot produce the products they need, buyers can transfer their purchases to another firm easily.

[19]The more information about the market the buyers know, the more bargaining power they have. The buyers can buy the products at lowest prices and, in consequence, the potential profits of the industry will be decreased.

[20]When the industry's product is vital to the buyers' products or services, the buyers have less price sensitivity and bargaining power over the firms.

e. Bargaining Power of Suppliers

In Porter's study, suppliers can lower the potential profits of producers by raising prices or decreasing the quality of materials. Both of these actions increase the costs of production. In some circumstances suppliers have more bargaining power:

◆ A few suppliers dominate the material market

◆ The industry is not an important customer of the supplier group

◆ The supplier's product is an important input to the buyer's business

f. The Role of Government

So far, governments have been discussed as a factor affecting entry barriers, but in the 1970s and 1980s, governments came to be seen as a factor affecting the whole industry structure and the state of competition (Porter, 1980).

Governments play the role of buyer and supplier, which affect the supply and demand conditions of the market. Furthermore, governments influence the competition by setting regulations, imposing taxes and giving subsidies to certain firms in certain industries. This paper emphasizes the influence of the Malaysian government on its automobile industry and the related policies the government has adopted.

Diamond Theory

According to Porter (1990), Diamond Theory is used to analyze national competitiveness. Nations usually succeed in industries where the national diamond (the determinants) is most favorable (Porter, 1990). The original diamond theory contains 4 segments:

◆ Demand Condition.

◆ Related and Supporting Industries.

◆ Factor Conditions.

◆ Firm Strategy, Structure and Rivalry.

These four segments are mutually reinforced and each individual segment affects others. For example, firms will rethink and reorganize their strategy and structure to fulfill customer demands and related industries will influence the demand condition of customers. As a result, the analyst should consider the four determinants as a whole. Two additional variables affect the whole determinant system, which are government and chance. The effects of government can be seen by examining the effects of its policies on the determinants. Governments usually set rules to govern the industries or impose taxes and give subsidies to companies. These policies affect the structure and strategy of industries, the demand conditions of consumers and the supporting industries and the factors which can be utilized. Conversely, chance, according to Porter, includes all the factors that influence industry which are beyond the control of

[21]It is difficult to firms to bargain for lower price or higher quality of material when there are only few suppliers in the market. Therefore, the suppliers can increase the price easily.

[22]If the industry is important to the supplier group, the relationship between the industry and the supplier will be interdependent and the supplier group tends to protect the industry by setting reasonable prices and offering high quality materials.

[23]The more important the products from the suppliers, the more bargaining power the suppliers can exert. Therefore, the suppliers can have more control power on the industry.

firms and government. For example, the breakout of war, or the discovery of new natural resources, new technologies or diseases. I will now explain the four segments of this theory individually:

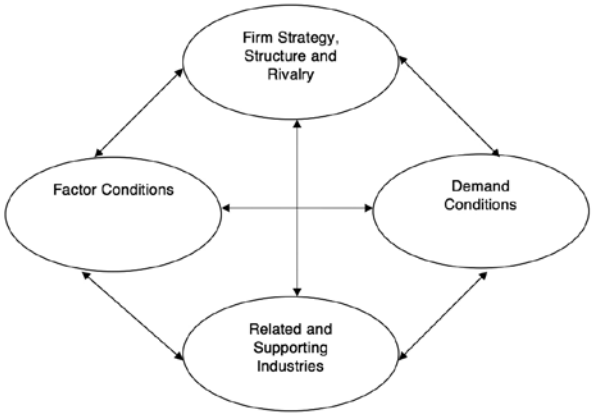

Figure 1 Diamond Framework

a. Factor Conditions

As stated in The Competitive Advantages of Nations (Porter, 1998), the factors are referred to the resources necessary to the industries. For example: human resources, physical resources, knowledge resources, capital resource and infrastructure. The nation gains advantages where the factors are preferred and well mixed. Furthermore, the factors can be divided into natural factors and advanced factors. Nations should utilize these factors efficiently and effectively (Porter, 1990).

Home Demand Composition: As Porter mentioned, the segment of home demand plays a vital role in national competition. Nations gain competitive advantages if the domestic customer demand forces the industries to innovate, or if the demand reveals clearer and earlier pictures of customer needs than foreign rivals can perceive, so that the domestic industries have the chance to lead the global market and gain early profits.

b. Related and Supporting Industries

Nations gain competitive advantages in certain industries if there are suppliers or related industries which are internationally competitive. The supporting industries can be educational/research institutions, suppliers, industrial clusters, or those industries can share activities or cooperate with each other. If the domestic supporting industries are internationally competitive, the possibilities for certain domestic industries to be successful are greater than for those in foreign nations (Porter, 1990).

c. Demand Conditions

If the domestic market for a product is larger and more demanding at home than in foreign markets, local firms potentially put more emphasis on improvements than foreign companies. This will potentially increase the global competitiveness of domestic exporting companies. A more demanding domestic market can thus be seen as a driver of growth, innovation and quality improvements. For instance, Japanese consumers have historically been more demanding of electrical and electronic equipment than Western consumers. This has partly founded the success of Japanese manufacturers within this sector (Porter, 1990).

d. Firm Strategy, Structure and Rivalry

According to Porter, nations tend to be successful in the industries where the patterns of management or organization of the industries are suitable for the environment with competitive resources for the industries. The ways in which companies are organized and managed and the role played by domestic competitors are important to the competitiveness of certain industries. If the managerial system can help industries utilize the strategic resources that exist in the environment, the nation will succeed in the industry.

This theory is challenged by Regional Diamond theory, proposed by Rugman and D'Cruz

in their research of Canadian firms in 1993. They pointed out the drawbacks of Porter's National Diamond theory. For example, it is not applicable to multi-national corporations from small countries where Regional Diamond theory is more practical. Also, Andreas F. Grein and C. Samuel Craig (1996) doubt the relationships between the determinants. The performance of the nations mentioned in Porter's Diamond varies for different countries and changes over time. However, this theory is still a useful framework for us to examine the competitiveness of the case-study automobile industries.

Although the theories provided by Porter are criticized as impractical for management, Five Force and Diamond Theory nevertheless provide effective methods for doing 'systematical research', which illustrates the factors that should be considered in a comparison of nation/industry competitiveness (Sally Sledge, 2005). Therefore, this paper will utilize these two frameworks to investigate the automobile industry competitiveness of Malaysia and Korea.

Research Methodology

This study is mostly conducted by utilizing Archival Method, which is one type of qualitative research. The advantage of using this method is that the data needed is mostly extant and this helps to minimize the problem of reactivity (Sherri L. Jackson, 2008). By utilizing the existing data this study can compare the figures across nations and periods within limited time. As a result, this study is not limited by time and resources and will acquire more objective findings. However, the disadvantage of this method is the questionable reliability and validity of the data collected by others.

The data is mainly collected from secondary sources. In terms of the statistical data, the figures and numbers were collected from the annual reports of the largest companies and the websites of import/export institutions. National information is also available on the websites of some worldwide institutions, such as the IMF and World Bank, which were the main contributors. As for the non-statistical data, related studies discussed within 20 years were acquired from academic journals. The contribution from earlier studies are the initial policies and developing paths of the industries, while the recent studies contributed more on the new performance of the industries and the discussion of globalization. The theory discussion frameworks and data were mainly collected from bibliographies and academic journals.

The limitations of this study are the time and resources allowed. Owing to the fact that the duration of the study is only a few months and the word length is restricted, this study can only collect secondary data in the main; without field survey, it will be difficult to collect the most objective findings.

Analysis of the Case Study Automobile Industries

1. Malaysian Automobile Industry[24]

The history of the Malaysian automobile industry can be divided into three phases: 1) Creation of local production capability (1957-1981).

[24]Law in Asian developing countries is basically enacted to comply with those policies, therefore, the factor of law in PESTEL analysis is combined with politics. The main environmental factors for the development of the case study industries are economic and social. As a result, the factor of environment in the PESTEL framework is combined within economy and society in this essay.

2) Rationalization and Localization (1982-2003).
3) Liberalization (2004-Present).

Phase I

In 1957, Malaysia gained independence from Britain. However, there were social problems such as the unemployment rate and inequality. In 1971, the New Economic Policy was announced with the aim to restructure the national economy and decrease the poverty level (Wanrawee Fuangkajonsak, 2006). In this phase, the policies concerning the automobile industry were mainly connected to import substitution; Increasing the import tariffs, making import licenses compulsory and increasing the required level of local content. In 1979, the Mandatory Deletion Program (MDP) was enacted and this program listed certain components of cars which should be produced in Malaysia (Mai Fujita, 1997). From 1957 into the 1960s, the unemployment rate and inequality level increased and incomes decreased. This led to the ethnic violence in 1969 (Wanrawee Fuangkajonsak, 2006).

The three main racial groups in Malaysia are Chinese, Indian and Malay. Although the proportion of Chinese and Indians are relatively small (38% and 12%) in comparison with that of Malays (49%), the shares of total income among these groups were comparable (Charles Hirschamn, 1980; Tan Tat Wai, 1982). In this period, the industrial technologies relied heavily on skills from foreign companies. The biggest problem was that too many companies produced different models and could not reach economies of scale. Most components were imported from foreign partners (Jomo, 1999).

Phase II

In the 1980s, the prime minister, Mahathir Mohamad, introduced the development policy called "Look East Policy" which was intended to copy the development strategy of Japan and Korea and utilize it in the Malaysian economic development process. Under this policy, the Heavy Industry Corporation of Malaysia was established as a tool to intervene in the market (Wanrawee Fuangkajonsak, 2006).

The first national car project was announced in 1982 with the aim to increase the participation level of Malays and advance the technology. The first national car project, Perusahaan Automobile National (Proton), was established in 1984 and the government helped enable it to capture most of the domestic market share by exempting it from import tariffs for Completely Knocked Down (CKD) auto parts, reducing excise duties and by making low interest loans to the company. Furthermore, the local content requirement level increased steadily each year. In 1990, the second national car project was announced and the second national automobile company, Perodua, was established.

Table 1

Localization Requirements in Malaysia

	Passenger Cars (Displacement Volume)			Commercial Vehicles (Vehicle Weight)	
	1850cc or Less	1850cc to 2850cc	Over 2850cc	2.5 tons or Less	Over 2.5 tons
1992	30%	20%	No	20%	No
1993	40%	30%	Specified	30%	Specified
1994	50%	35%	Localization	35%	Localization
1995	55%	40%	Ratio	40%	Ratio
1995	60%	45%		45%	

Source: Mai, Fujita 1997

The economic recovery and the employment rate rose steadily before 1998 and the demand for automobiles expanded. In 1998 the breakout of the currency crisis brought negative influences on the national economy and the sales of national cars as well. Afterward, the economy recovered

steadily (World Bank, 2009). In comparison with the social situation in the first phase, society was relatively stable in this phase except for the period of currency crisis.

In this period, the large number of foreign producers who produced low volume and changed models frequently brought uncertain demand and greater learning difficulties for local producers. As a result, the cost of components and parts became relatively expensive. The government resolved this issue by limiting the entrance of foreign firms (Jomo, 1999). In addition, Proton was established with the aid of the Malaysian government and Mitsubishi Motors to promote the development of technology.

Phase III

There are several international rules that the Malaysian government should obey and these rules push the Malaysian automobile industry toward liberalization. The main rules are: 1) AFTA: Regional tariff reduction goals; 2) APEC: Tariff reduction and elimination of non-tariff barriers should be achieved by 2020 for developing nations; 3) WTO: Developing countries should eliminate investment measures that are against the principles of world trade such as local content requirements and foreign exchange restrictions by 2000 (Mai Fujita, 1997). Although the Malaysian government applied for a time extension, the automobile industry was still on the path of liberalization in 2008. The import duty on Completely Built Units (CBU) was decreased from 140-300% to 70-190% in 2003 and to 5% within ASEAN nations (Malaysia Automotive Association, 2009).

From 2003 to 2008, the real GDP growth rate increased from 4.2% to 6.3%, although the growth rate peaked at 7.1% in 2004. However, the number dropped to 5.2% in 2005 and 5.9% in 2007 because of the economic recession. As for the PPP per capita, it increased from $10,158 (USD) to $14,023; however, the growth rate decreased as well (IMF, 2009). The society was relatively stable in this period, even during the economic recession. The unemployment rate remained steadily low, between 3.0% and 3.8% from 2003 to 2008 (CIA World Factbook, 2008).

In 2002, Proton cancelled its agreement with Mitsubishi and its sales dropped in the following years. In 2007, Proton was struggling without an alliance with foreign firms (Akifumi Kuchiki, 2007). According to Proton's 2007 annual report, the company intended to improve the quality of manufacturing by investment in new R&D and through new partnerships with foreign companies. However, according to research conducted by the Japanese Automobile Manufacturers Association (JAMA), the production capability is still low in Malaysia (Wanrswee Fuangkajonsak, 2006).

2. Korea Automobile Industry

The history of the Korean automobile industry can be divided into three phases: 1) 1960s~1980: Protectionists; 2) 1980~1997-After the second oil shock and prior to the financial crisis; 3) 1997~present-Post financial crisis, moving toward liberalization.

Phase I

The Korean government's attempts to foster its automobile industry began in 1962 when it enacted the 'Automobile Industry Protection Law' (Andrew E. Green, 1992; Joonghas Suh, n.a.). The law contained three key principles: 1) Prohibit the import of completed cars; 2) Tax exemptions for assemblers; 3) No import tariffs on imported parts and components. In 1974, the government announced the 'Long-Term Automobile Production Plan' which aimed to encourage import substitution

and the rise of local content ratio. During the 1970s, the Korean automobile market was mainly domestic (Andrew E. Green, 1992). The main automobile-related policies in this phase were import restrictions and control over foreign direct investment (FDI). As a result, until the end of the 20th century, almost all the carmakers in Korea were domestic (Bae-Gyoon Park, 2003; Terry Ursacki and Vertinsky, 1994).

Demand for cars during this period fluctuated. This reflected the economic situation: inflation, lack of foreign exchange and high interest rates depressed the demand for cars (Andrew E. Green, 1992). However, the share of mining and manufacturing in GDP increased dramatically, from 15.5% in 1961 to 30.7% in 1981 (Terry Ursacki and Vertinsky, 1994) which reveals the economy was undergoing industrialization.

Society was relatively steady during this period. The government limited the role and power of unions and actively used the coercive power of state to curb industrial unrest and prevent worker dissatisfaction from disrupting the economy (Terry Ursacki and Vertinsky, 1994). Additionally, the formation of 'chaebols'[25] affected the relationships and development among firms (Nicole Woolsey Biggart and Mauro F. Guillen, 1999).

The national automobile manufacturer, Hyundai, started its car business in 1967 with the assistance of Ford and in 1970s it began reverse engineering its first automobile from Ford with an engine supplied by Mitsubishi. However, in 1980, by American standards, the cars produced in Korea were technologically out of date; domestic manufacturers lacked the knowledge to design engines to American emission standards (Andrew E. Green, 1992).

Phase II

In 1987, the first president election was conducted, which meant Korea became more open and democratic. Under pressure from its trading partner (U.S.) and believing that liberalization brings greater competitiveness, the government started to lift restrictions. In 1989, the government implemented a five-year program of tariff reductions and in 1992 it announced another three-year plan for import liberalization ratio. Overall, the government lifted the industry entrance restrictions from 1989 and increased the number of carmakers and competition in Korea (Terry Ursacki and Vertinsky, 1994).

In 1980, the second oil shock tripled the petroleum price and, together with the anti-inflation policies, seriously depressed the demand for automobiles. This led to the restructuring of the automobile industry. As a result, the Korean Institute of Economics and Technology (KIET) suggested that the automobile industrial policy should be shifted from import-substitute to export-orientation because the domestic market was too small for the manufacturer to achieve the economics of scale (Andrew E. Green, 1992). In the years following the second oil shock, the economy recovered quickly; the production of automobiles rose from a mere 55,928 units in 1980 to over one million in 1988 and the export ratio grew dramatically as well. Furthermore, in this period, the main export/import countries were Japan and U.S., which were also the main source of advanced technology.

[25]Chaebols are large, family controlled firms with strong ties among each other and the government agencies. Each chaebol contains several firms from different industries and certain Chaebols have privileged to access scarce resources.

The democratization of Korean politics in 1987 led to the empowerment of the middle class and the demand for equality, which sparked social unrest. In 1986, there were only 276 labor disputes recorded, however, after the democratization, the total number of worker strikes between 1987 and 1990 was seven thousand. The strikes paralyzed production and in response to the strikes, the average wage of labor increased from low to medium level. This, in turn, increased the financial burden of the automobile industry (Andrew E. Green, 1992; Terry Ursacki and Vertinsky, 1994).

In comparison with the technology level in phase I, the level in phase II improved dramatically, even though it was still behind the level of the world-class countries. For example, the number of researchers with advanced skills increased from 5,000 in 1968 to 66,000 in 1989, but the resulting ratio of 16 per 10,000 of the population was still lower than that of Japan and the U.S. Furthermore, the number of patent applications rose from 3,000 in the mid-1970s to 20,000 in 1988, yet this was still much fewer than in Japan (35,000) and in the U.S. (140,000).

In this phase, the government set policies to improve the development of technology. For instance, the 'High Advanced National' program aimed to attract foreign firms, institutions and researchers; investment totaling 718 billion dollars went to universities to encourage basic research and the promotion of technological alliance and exchanges (Terry Ursacki and Vertinsky, 1994).

Phase III

During this phase, government policies were focused around the principle of liberalization. For example, the GATT required member countries to open their markets and the OECD required Korea to embrace the principle of free capital flows. After the financial crisis, one of the requirements set by the IMF for granting rescue loans to Korea was liberalization of FDI (Bae-Gyoon Park, 2003).

The financial crisis damaged the Korean economy in 1997. However, the situation improved quickly in the following years. The GDP growth rate was 9.5% in 1999, which was double that of 1997. The main economic problems in this phase were the inflation rate and the global economic downturn of 2008. In this phase, the main export/import countries for Korea were China, U.S. and Japan. The emergence of China as a major trading partner forced Korean industries to face challenges from China (Asian Development Bank, 2008).

After the financial crisis, the unemployment rate remained around 1% higher than before (3-4% in comparison with 2-3%). The labor force growth rate has decreased steadily in recent years (Asian Development Bank, 2008).

According to the survey conducted by Korea Auto Industries Cooperation Association in 2002, the percentage of employees of automobile parts makers working in R&D was 8.1%, which is slightly lower than that in Japan (8.7%), and surveys done by the Japanese Industrial Location Center and the Korean Development Bank conclude that the technology in the Korean automobile industry is strong in production but weak in design capability. However, the overall technology level is advanced in Korea compared to other countries (Joonghae Suh, n.a.).

By comparing the development process of the automobile industries in Malaysia and Korea, it can be found that both governments conducted protectionist policies in the first phase. However, the Korean government encouraged competition

and began lifting import tariffs gradually in the second phase, while the Malaysian government still conducted protectionist policies. The Korean car industry expanded its market competition by conducting export-oriented policies while the main market of the Malaysian car industry was limited to the domestic market. In terms of the development of technology, the Korea government set policies to attract foreign firms, researchers and alliances while the Malaysian automobile industry relies heavily on the development of the main national companies. Therefore, the level of technology in the Korean car industry is much higher than that of Malaysia due to the higher level of competition in the domestic and foreign markets and the close alliances with foreign firms.

Table 2

The Comparison between the policies and technology levels in Malaysia & Korea

Phase	Malaysia Policy	Korea Policy	Malaysia Technology	Korea Technology
I	- Import substitution. - High barrier for foreign firms. - High protection for local firms	- Import substitution. - High barrier for foreign firms. - High protection for local firms	- Heavily rely on foreign firms for technology. - Too many small firms to reach economic of scale.	- Lack of key Knowledge. - Cannot meet the American standards.
II	- Enhance the restrictions toward foreign firms. - More protectionist policies for national car companies.	- Lift the restrictions toward foreign firms. - Increase the investment in R&D. - Liberalize and open the market. - Export oriented.	- Heavily rely on foreign firms. - Learning difficulties of local producers. - High Cost of part producers.	- Number of researchers increased dramatically. - Number of Patent rose. - Attract foreign researchers and key techniques.
III	- Toward more liberal under the pressure of regional integration and globalization.	- More liberal - Attract FDI	- Still rely on the foreign alliance. - Production capability remains low. - Intend to invest R&D greater.	- Advanced technology in comparison with other countries. - Design capability should be improved.

3. Comparison of Performance

The production and sales growth rates of the Malaysian automobile industry fluctuated dramatically between 2003 and 2008. In 2003, production and sales dropped because customers withheld their purchases with the expectation of lower car prices under AFTA in 2005. Production and sales growth rates decreased again because of the economic recession. By contrast, the Korean automobile industry was more successful, with steadier growth rates in production and sales between 2003 and 2008. However, the rates declined in 2008 as a result of the economic recession (JAMA, MMA, KAMA statistic data, 2008).

The Korean automobile industry's production and sales figures exceed Malaysia's during this period. According to the research conducted by the International Organization of Motor Vehicle Manufacturers (OICA), the Korean automobile industry is ranked 5th in the world in terms of

production (3,806,682 units) while Malaysia ranked just 25th in 2008 (530,810 units). Additionally, the proportion of exported vehicles greatly outweighs domestic sales in Korea, while the proportion of exported vehicles in Malaysia is relatively low (only 5% exported in 2005).

3.1 Malaysia Automobile Industry

a. Rivalry within the industry: (Low)

The automobile industry in Malaysia is supported by the government and the domestic car companies are established to lead the industry. Under the protectionist policies, the domestic car companies grew fast. In a survey by Jomo, the price of domestically produced cars were set 20% to 30% lower than those of other assemblers and the market share of the first national car company (Proton) reached 73% in 1988, which is a monopoly market. According to a survey conducted by the Malaysia Automobile Association (MAA), the market share of the first and second national car companies (Proton and Perodua) declined dramatically under the trend of liberalization, reaching 24.2% and 33.3% respectively in 2007, followed by 25.9% and 30.5% in 2008. According to Shepherd's CR4 theory, this market is a tight oligopoly market, still lacking domestic rivalry but improving nevertheless.

b. Threat of Entrants: (Low)

The protectionist policies shield the car industry from competition; according a source from MAA, the sales of domestically produced cars in Malaysia were almost 4 times higher than that of non-domestic cars from 1995 to 1997 and this ratio increased dramatically to around 8 times higher after the currency crisis of 1998. The main protectionist policies were the Mandatory Deletion Program (MDP), the local content requirement and the import duty/tariffs. However, under pressure from AFTA and the WTO, the entrant barrier has been lowered. In 2008, the import duty of CBU decreased to 5% and the Malaysian automobile industry now has to face the threat from new entrants, especially from Thailand, which is also the member of ASEAN and has a higher ranking in terms of production and sales (Mohd. Uzir Mahidin and R. Kanageswary, 2004).

c. Bargaining Power of Buyers: (Low)

The protectionist policies supported national car makers and limited the number of competitors in the market. By setting lower prices or imposing higher duties on non-domestic cars, the government increased the demand for domestic cars (Mohd. Uzir Mahidin and R. Kanageswary, 2004). As a result, the bargaining power of buyers is relatively low. In the report conducted by Jomo, consumers claimed that these policies forced them to accept poorer quality domestic cars and limited their choice.

d. Bargaining Power of Suppliers: (Low)

The bargaining power of suppliers is relatively low. As mentioned above, the automobile industry in Malaysia is an oligopoly market with only two main national car companies capturing over 50% of market share. Furthermore, the number of component producers in Malaysia in 2004 was 350; 234 of them were vendors of Proton, while 135 of them were vendors of Perodua (Mohd. Uzir Mahidin and R. Kanageswary, 2004). This implies that the suppliers have little bargaining power and the main car companies can switch to other suppliers when others provide cheaper prices, higher quality or better service.

e. Threat of Substitution: (Low)

Threat from substitutions is relatively low in Malaysia. According to the survey conducted by Barter in 2000, public transport usage (rail,

bus, trams and jitneys) as a percentage of total motorized travel in the capital city of Kuala Lumpur is only 20% while the usage of rail was 0% in 1990. The low usage of public transportation and high usage of automobiles makes the threat from substitutions low.

3.2 Korea Automobile Industry

a. Rivalry within the industry: (Low in domestic but high in oversea markets)

In 2008, the market share of the largest automobile company in Korea, HYUNDAI, in terms of domestic sales was almost 50% (KAMA, 2008), this reveals that the domestic market still lacks competition. However, the main markets of the Korean automobile industry are the overseas markets owing to the fact that the export volume is much higher than the domestic. As a result, the competition conditions are relatively high.

b. Threat of Entrants: (High)

After the industry restructure and the liberalization of government policy in the 1990s, foreign firms were allowed to invest in the Korean automobile market. In 2000, one South Korean automaker, Samsung Motors, was taken over by a French company, Renault. This was the first acquisition conducted by foreign firms and this trend continued in the following years. Even in the automobile parts industry, 50% of the top ten companies were foreign owned by 2002 (Joonghae Suh, n.a.).

c. Bargaining Power of Buyers: (Medium)

The Korean automobile industry is relatively liberalized and as a result buyers can choose different types of cars from different manufacturers. Furthermore, the main export destinations of Korean automobiles are the U.S., Japan and China, which are countries with higher average incomes or GDP growth rates, meaning that buyers have higher purchasing and bargaining power. However, the nature of the automobile industry keeps the buyer's bargaining power comparably low because quality and uniqueness of cars are important to buyers and the volume they can purchase is usually low.

d. Bargaining Power of Suppliers: (Medium)

Historically, the bargaining power of suppliers is low in Korea owing to the government's policies. First of all, 70% of parts suppliers in Korea are small to medium enterprises. Secondly, the 'Gey-yol-hwa' law was enacted in 1975 which promoted vertically integrated networks in the automobile industry.[26] Even though the law was abandoned in 1995, the increasing trend of outsourcing through e-commerce means the bargaining power of suppliers has been further depressed.

However, after the financial crisis, parts suppliers have tended to diversify their customers. From the survey conducted by KAICA in 2004, the average ratio of contractors to parts suppliers has steadily increased from 1.57 in 1999 to 1.95 in 2003 (Joonghae Suh, n.a.).

e. Threat of Substitutions: (High)

The threat of substitutions in Korea is relatively high. According to a survey conducted by Barter in 2000, the usage of public transportation (rail, tram, jitney and bus) as a percentage of total motorized travel in the capital city of Seoul, ranked at 54% in 1990, which is higher than that of most Asian countries. Wide spread railway and efficient bus systems make the threat from substitutions high.

[26]Networks with the final assembler at the top and numerous suppliers below.

4. Diamond Analysis

4.1 The Malaysia Automobile Industry

a. Factors Conditions

The advantages of Malaysia are political stability, no prolonged war of independence, a rich endowment of natural resources, and its administrative mechanisms inherited from the U.K. Moreover, the electronic and transport equipment industries have been the main contributors to the industrialization of Malaysia for years (26.8% and 12.7%, respectively, in 2003) and these industries have close relations with the automobile industry, providing aid in its development. However, the research conducted by the Malaysia Institute of Economic Research center suggests that the main problem facing Malaysia is the quality of its education system. An interview conducted by Akifumi Kuchiki with workers at the PREIDUA company found that the proportion of manufacturing done by automation is only 9% while the percentage in Japan is 99%. This indicates that there is a lack of skilled human resources in Malaysia. Moreover, one of the reasons the Malaysian government requested a two-year extension before opening the auto industry market in AFTA is that the technology of the automobile industry was still in its infancy.

b. Related or Supporting Industries

Although the "Proton City" has been established as a base for agglomeration by its suppliers, the protectionist policies of the government still have some negative effects on the attraction of foreign industry suppliers. The lack of skilled labor and an unstable tax system are the two main difficulties facing foreign suppliers when they move into Malaysia (Akifumi Kuchiki, 2007). Moreover, the local suppliers still need aid in technology development from the domestic car companies and other government agencies such as the 'Small and Medium Industries Corporation' and "Standards Research Institute of Malaysia". Furthermore, according to an interview conducted by the Institute of Developing Economies with Malaysian automobile professors, component suppliers for the domestic car companies cannot meet international quality standards. The JAMA study also reveals that the production capability of part producers in Malaysia is relatively low in comparison to that of Thailand, its main regional competitor. Therefore, the Malaysian automobile industry lacks world-leading suppliers.

c. Firm Strategy, Structure and Rivalry

The automobile industry has developed into an oligopoly market in Malaysia, which means the firms in this industry face less competition and are under less pressure to improve the capability and technology. This increases the production costs and decreases the profitability and competitiveness of the whole industry (Wanrawee Fuangajonsak, 2006). However, under the liberalization path of AFTA, there are now more competitors in this industry. For example, in 2003, the sales of Proton dropped significantly mainly because of people's expectations of lower prices under AFTA, but at the same time, other renowned brands provided more sophisticated models of cars at more attractive prices. Therefore, the rivalry situation and industry structure will be changed within years.

d. Demand Conditions

Protectionist policies such as the local content requirement, high duty on imported CKD and CBU mean that the prices of imported cars are much higher than those of domestic cars. Most people can only afford the price of domestic cars. As a result, the policies discourage consumers from purchasing other models (Mohd. Uzir Mahidin and R. Kanageswary, 2004). Based on the five force

analysis above, the bargaining power of domestic buyers is low and in this situation, it is difficult to cultivate discerning customers. Malaysia's relatively small population (only 25 million people in 2007) is another reason why domestic demand is not great enough to drive the development of the automobile industry. Furthermore, export demand is not promising, owing to the protectionist policies which have been implemented for years and to Malaysia's relatively small export market (only 5% in 2005) (Akifumi Kuchiki, 2007).

4.2 The Korean Automobile Industry

a. Factor Conditions

Among the main industries which contribute to the Korean GDP, the manufacturing industry has been the largest for 20 years, while the transport and communication industries have risen steadily in importance (Asia Development Bank, 2009). At the same time, the growing percentage of the automobile industry's workforce which is employed in research indicates an increasingly well-educated labor force.

b. Related or Supporting Industries

The technological capability of parts suppliers has improved in the wake of the government's liberalization policies. The government provided incentives to attract foreign firms investing in the automobile market and the domestic parts suppliers had to compete with the foreign suppliers without protection. As a result, the competitiveness of domestic suppliers improved; they increased their expenditure on R&D activities and increased the number of researchers.

c. Firm Strategy, Structure and Rivalry

Even though the largest automobile company captured almost 50% of the domestic market share in 2008, the competition level has risen over the years since industrial liberalization because the companies now have to compete with top overseas manufacturers, mainly from Japan and the U.S. Furthermore, because export volume outweighs domestic sales, the competitors in the U.S. and Japanese markets also play a vital role in improving the competitiveness of the Korean automobile industry. Finally, the increasing number of middle-class enterprises and the shrinking power of 'Chaebols' raise the level of competition as well.

d. Demand Conditions

The large size of the Korean economy (between 11th and 15th in the world) and the higher per capita income in comparison with other Asian countries means the demand condition stays relatively high in the Korean automobile industry. Moreover, the high export ratio to the U.S. and Japan also provides opportunities for Korean automobile firms to improve their competitiveness. They must fight for market share against international competitors for the overseas demand, while customers in these countries who have higher life standards place higher expectations on innovation and design.

According to the five force analysis, it can be found that the Malaysian automobile industry faces a lower level of competition and threats from entry and substitution while the level of competition in the South Korean automobile industry is relatively high. This results from the different policies conducted by the two countries, which led to completely different directions for the development of their respective automobile industries.

Therefore, the diamond theory analysis reveals that the Korean automobile industry enjoys a higher level of production technology, demand condition, suppliers with advanced capability and rivalry which mainly results from the intensive competition in the industry and challenges from foreign firms.

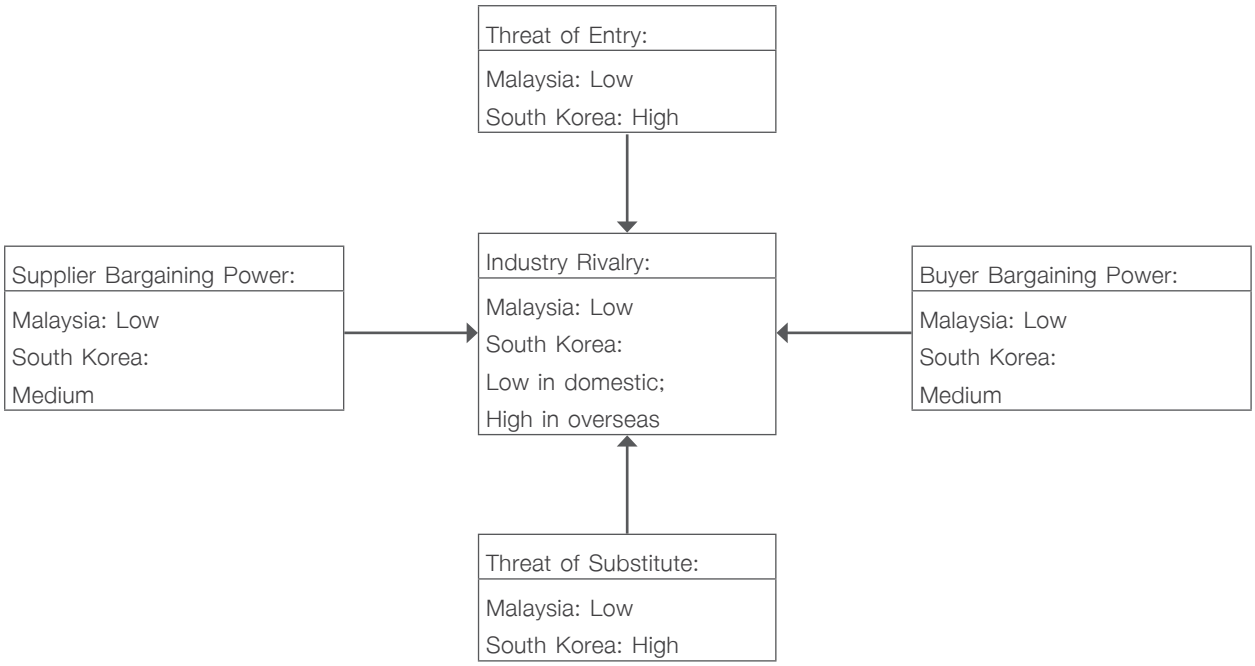

Figure 2 Five Force Analysis of the Two Case Study Industries

Table 3

Diamond Analysis on the Case Study Automobile Industries

	South Korea	Malaysia
Factor Conditions	- Mature manufacturing industry - Numerous researchers with advanced knowledge	- Manufacturing industry is the main contribution to the country. - Lack of researchers, low level of education
Related or Supporting Industries	- Huge foreign part suppliers investment - Local part suppliers compete with international firms - Part suppliers with advanced competitiveness	- Top international part suppliers reluctant to make investment - Local part suppliers depend on the aid from government - Competitiveness of part suppliers is low
Demand Conditions	High average income, large size of economy, huge volume for export, high power of buyers. Demand Condition is high.	Small domestic market, low average income, low bargaining power of buyers. Demand Condition is low.
Firm Strategy, Structure and Rivalry	High level of competition in domestic and foreign markets.	Low level of competition and lack of key technology.

Recommendations and Conclusions

The automobile industries in both Malaysia and South Korea started to develop from the 1960s and have experienced similar economic crises. At the beginning stage, the two industries adopted the same protectionist policy while in the following decades the Korean automobile industry headed for liberalization, and the Malaysian car industry remained relatively protectionist and closed. The different policies led to the different performance within the two industries and according to the analysis of this research, the Korean industry faces a higher level of competition which has resulted in greater industry competitiveness. In contrast, the Malaysian car industry has been strongly protected by the government and the growth rate is relatively slow. Until now, the industry is still lacking in key technologies and a profitable environment.

It can be concluded that the degree of protection and liberalization plays a vital role in the development of industry. In these political and economic situations, it is more suitable for developing countries to adopt more liberal directions to enhance their industrial competitiveness. As a result, the Malaysian government should adjust its path to be more liberalized and delicate when investing in human resource and basic infrastructure in order to become more competitive.

According to the analysis above, it can be found that the main reasons for the low competitiveness of the Malaysian automobile industry are as follows: 1) Lack of advanced technology; 2) Low levels of competition; 3) Lack of a profitable environment for foreign firms; 4) Small export volumes. Recommendations for improving competitiveness utilize Porter's Diamond Framework:

a. Rivalry

Malaysian government should increase the level of competition by liberalizing the domestic market and setting policies to attract foreign investment. By liberalizing the domestic market, foreign firms with advanced technology will produce vehicles in Malaysia and their technology will be spread throughout the industry.

b. Related or supporting industries

By increasing the level of competition, the domestic parts firms and automobile producers striving to stay in the market will have to increase their capabilities by investing in R&D and other management skills.

c. Factor

The government should enhance the level of worker education, cultivate advanced skills and enhance the basic infrastructure to attract FDI.

d. Demand Conditions

The Malaysian government should encourage exporting. Through increasing the volume of exports, domestic firms will improve their capabilities when competing with foreign firms for the demand of customers in overseas markets. Furthermore, encouraging exports can also help to solve the problems resulting from limited domestic markets, and increase demand conditions.

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