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„A Comparison of the Competitiveness of the Automobile Industry in China and South Korea on the Basis of Porter’s Diamond Model“

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1. Introduction

In 2005, 4 million cars were sold in China. Eight years later car sales in China reached a new record with almost 18 million sales in 2013, while demand in Europe is declining (Handelsblatt 08.18.2013). As of 2009, China has become the largest car market in the world, surpassing even the USA.

The Chinese car market has become very important for western car makers, who turn to this market for economic growth and profits. GM and Volkswagen, two of the largest car makers in the world, are already selling more than 3 million cars in China alone.¹ China's car market has also gained importance for automobile premium brands. Mercedes-Benz, for example, sold 11% more cars in 2013 than in the year before. Porsche and Audi were able to increase their sales by 19.9% and 21.2% respectively, while Infinity, Nissan Motor's Premium brand, even succeeded in increasing its sales by 54% (Boston and Geiger, 01.09.2014). Furthermore, in 2014, China has already become the largest market in terms of sales for Audi and Rolls-Royce (Murphy 01.10.2014).²

But China has not only become an important export market for international car makers, it also serves as a manufacturing base for their products. Most large international car makers as well as their suppliers have established joint ventures with local partners. And they invest large sums in their production capabilities to meet the growing demand for cars.

According to a CAR Institute study, China's car market will make up a third of car sales worldwide by 2025 and the number of cars currently sold in China might roughly double to about 36 million cars (Bay 02.21.2014). However, the majority of cars sold in China belong to foreign brands. In addition, despite an increase in car production, car exports remain relative low. This raises the question, why a large number of Chinese and international customers still prefer not to buy Chinese automobiles. A hypothesis may be that China's car makers are not competitive enough to challenge their international rivals, even in their domestic market. This thesis analyses how competitive China's car

1 Volkswagen sold more than 3,27 million cars in 2013, GM about 3,16 million. Source: „VW schraubt Absatz hoch“, Handelsblatt, 01.10.2014

2 China became Audi's biggest single market in 2012, selling 313,036 cars in total or 24% of sales worldwide. Rolls-Royce sold about 1000 cars in China in 2013 or 28% of worldwide sales

makers are and if they are already able to catch up to their Western and especially to their Asian competitors.

China's Asian competitors in the automobile world are no longer dominated by Japanese car makers. The South Korean (in the following also referred to as Korean) automobile industry has achieved a remarkable success over the past decades, especially Hyundai and its subsidiary Kia. Ten years ago, both companies ranked 10th on the list for largest automobile makers worldwide. In 2012, they ranked 4th with about 7 million cars sold after Toyota (9.4 million), General Motors (9.1 million) and Volkswagen (9 million) according to the International Organisation of Motor Vehicle Manufacturers (OICA 2013).

Both companies dominate their domestic market and increased their sales and market shares in many important markets in the world over the last years, be it the USA, China or India. They were even able to increase their sales and market share in the European Union, while local car makers like PSA or Fiat are struggling. This tremendous success over a short period of time has been barely noticed in the beginning. But over the last couple years even Western brands like Volkswagen see South Korean car makers as important rivals. Volkswagen CEO Martin Winterkorn identified them as important competitors and a short video of him visiting the Hyundai exhibition stand at the 2011 Frankfurt auto show in which he expressed his respect and concern for Hyundai's engineering capabilities to one of his engineers has become very popular on YouTube and has led to further attention for Korea's car makers (Handelsblatt 09.28.2011).

While South Korean brands have become global players, Chinese car makers are still much less important.

This thesis will analyse how Korea's car makers have achieved this success and whether China's car makers have the potential to follow the success story of their Asian rivals.

1.1 Research relevancy: Why study the automobile Industry in China and South Korea?

As mentioned in the introduction, China has become the largest car market in the world (cf. Table 5) and therefore carmakers from all over the world turn to Chinese customers for economic growth and profit. China has become an import location for automobile production not only for Chinese car makers, but also for foreign companies. Chinese car

makers, which in the past focused almost solely on their home market in terms of car production and sales, have begun to invest overseas and to enter new markets and will therefore not only become competitors to foreign companies in China, but also in other markets.

The automobile industry is also a prestige high tech industry, which is not only important for automobile companies and supporting industries but also for the governments on regional and national levels. China's government has called its auto industry a "pillar industry" and intends to build an internationally successful automobile industry that can compete with international rivals in the future – which of course includes South Korea's car makers. It is therefore interesting to analyse how well China's automobile industry currently fares in comparison with South Korea's automobile industry, which is the second successful automobile industry in Asia after Japan's in terms of export.

Additionally, understanding how policymakers and businessman act in one important industry may be an indicator of how they may operate in other important industry sectors.

From a financial viewpoint, it is important for investors who are interested in the potential for future growth of the Chinese and Korean car markets, to see which companies currently perform well and which might continue to do so in the future in order for them to direct their flow of investments accordingly.

But analysing the Korean and Chinese automobile industry is not only relevant for financial investors but also for foreign automobile competitors because it can help them to better understand the local environment. In doing so, they would be able to evaluate to a much better degree the strengths and weaknesses of their local and maybe even their future global competitors, so they can develop and implement strategies on how to engage them, to remain successful and to keep ahead in terms of technology, sales, market share and revenue. Foreign companies may be able to learn from the success and failures of their local competitors to improve their own performance. In addition, by knowing their customers, competitors and the degree of government influence, foreign companies are more likely to develop successful products for the local markets or to successfully adapt existing ones.

This does not only apply to big car makers, but also to supporting industries, which might wish to sell their products to Chinese or Korean car makers.

Drawing a comparison between South Korea's and China's automobile industry is important for several reasons: Both countries share several similarities. Their economies have achieved a lot of success in the past decades and witnessed a strong government influence on their economies. And both governments see their automobile sector as an important part of their economy. In addition, Korea's automobile industry is the latest success story of Asia's automobile sector and possibly the closest rival for China's car makers. The success of South Korea's automobile industry is in large parts due to the fact that South Korean car makers offer small, inexpensive and fuel efficient cars, thus operating in a market segment that China's car makers are currently targeting as well.

Furthermore, South Korea's automobile industry is in a place where China's government would like to see its car makers in the future. South Korea's car makers have turned into very successful exporters and internationally known brands that can even compete with international rivals in Japan, Europe and the US. Therefore, it is beneficial to benchmark China's automobile industry against South Korea's.

1.2 Research Questions

This thesis analyses and compares the competitiveness of China's and South Korea's automobile industry, thus aiming to answer the following questions:

- How competitive are the automobile industries in China and South Korea?
- Is the Chinese automobile industry ready to compete with South Korea's?
- Has the Chinese automobile industry the same beneficial (and potential) national environment necessary to achieve the same success story as the Korean automobile industry?
- How strong is governmental influence on the automobile industry in China and South Korea?
- How do multinational enterprises affect the Chinese and Korean automobile industry?

2. Organization of this Thesis and Research Methodology

This study analyses and compares the general competitiveness of the Chinese and South Korean automobile industry through the use of a modified Diamond Model from Michael E. Porter.

As a first step, Porter's Diamond Model and its characteristics are introduced and explained in detail in order to demonstrate how Porter measures competitive advantage. At the same time, the advantages and disadvantages of Porter's traditional model are discussed by examining critics and expansions of this model. Furthermore, it is explained why this model needs to be adjusted in order to properly measure the competitiveness of the automobile industries in both countries and to provide answers to the research questions.

Chapter 3 introduces China's and Korea's automobile industry, giving an overview of the historic developments in this industry in both nations. Afterwards, the diamond model is applied to the automobile industry in South Korea and China. However, due to the criticism of this model discussed under chapter 2.2.10 "Critics and Modifications of the Diamond Model", this thesis includes additional factors mentioned in this particular chapter.

In the last chapter the results of this thesis are compared and the research questions will be answered.

2.1 Data Sources

To analyse the competitiveness of the Chinese and Korean automobile industry, this paper uses Michael Porter's theory of competitive advantage and the Diamond Model. Porter's book "The competitive advantage of Nations" is used to present the basic theory. Afterwards, critics and adjustments necessary for this thesis will be discussed based on academic texts in which Porter's Diamond Model has been discussed and tested and eventually criticised and modified or expanded.

In order to answer the research, this paper mainly used data collected from the following types of documents:

- Academic Papers and Books
- (Financial) Newspapers and Journals (e.g. the *Wall Street Journal* or *Handelsblatt*),

- Corporate Reports and Websites,
- Financial Analytics and Consulting companies,
- Motor Industry Association Reports (e.g. the *China Association of Automobile Manufacturers*)
- Governmental Reports (e.g. the National Bureau of Statistics)
- Non-Governmental Organisation Reports
- International Institutions (e.g. World Bank, United Nations)

Statistical data has been gathered mainly from company reports or international institutions.

2.2 Porter's Diamond Theory

In his book „The Competitive Advantage of Nations”, published in 1990, Porter examined how nations become economically successful and extends his “five forces model” on competition from his earlier book “Competitive Strategy” by introducing the Diamond Model, which makes it possible to evaluate why some nations are successful in international competition and how they gain a competitive advantage in a particular industry, whereas other nations have failed to achieve success (Porter 1990, 579).³

Porter believes that “the national environment does play a central role in the competitive success of firms” (Porter 1990, 401). It is therefore necessary for firms to understand which factors in their home nation are crucial in creating or hindering competitive advantage.

The same is true for nations since they have to provide a firm with a beneficial *home base* such as skilled workers, natural resources or infrastructure. But a nation also influences a firm's identity, its workers, its management and the way it operates (Grant 1991, 536).

Porter distinguishes himself from classical economists like Adam Smith and David Ricardo by stating that national competitiveness and national prosperity are created

³ The author used the *Kindle Edition* of Michael Porter's books. The numbers refer to the position in the Amazon Kindle ebook.

rather than inherited. Classical economists argue that factors of production, capital or natural resources create competitive advantages (Porter 1990, 795). Others assume that they originate in macroeconomic factors, government policy or cheap labor. However, several countries have achieved economic success despite high wages, budget deficits, appreciating currencies or a lack of natural resources (Porter 1990, 606). Porter, on the other hand, argues that national advantage and prosperity can be created mainly through competition and demanding local customers in the country, which create pressure and challenges for innovation. However, traditional concepts like Adam Smith's "Absolute Advantage" and Ricardo's "Comparative Advantage" were developed in the eighteenth and nineteenth century and they focus on the economy of their respective eras in which natural resources and factors of production played a crucial role for competitive advantage. These traditional concepts are insufficient in explaining why firms or nations succeed in particular industries because, since then, the international economic system has changed dramatically (Porter 1990, 579 and 828). This has led to increased changes in international competition, technology, globalisation and multinational cooperation.

Other concepts that focus on a single factor like government policy or a certain management style in order to explain competitive advantage have been insufficient as well. A certain government policy or management style may be successful in one industry but fail in another (Porter 1990, 639). None of these concepts can explain by themselves why a certain industry is successful in a particular nation. The reason behind this is rather a combination of several factors like national economic structure, culture or institutions (Porter 1990, 954).

For Porter, a nation's economic policy must aim at achieving prosperity and a high standard of living for its citizens which can be realized through increasing national productivity. An economy has to find the means to "continually upgrade" itself (Porter 1990, 670). It has to innovate in order to sustain its competitiveness and to find new sources in order to create competitive advantages (Grant 1991, 536). Therefore, Porter stresses the importance of productivity as the main factor for international competitiveness because when it comes to prosperity it does not matter which type of industry a nation competes in but rather how productively it competes within those industries.

Technology and skill intensive industries are crucial to improving efficiency, developing higher quality goods, reducing costs and thereby raising productivity. But it is not enough for a company to be relatively more productive than its national competitors. To achieve international success, a company must also be more productive than its foreign competitors. The productivity of domestic industries is fundamental to competitiveness. Public and private sectors play interrelated roles in creating a productive economy. Nations can create and sustain factors that contribute to a company's or an industry's competitive advantage (Porter 1990, 985). Porter intends to explain why a nation has become the home base for a successful company or industry.

"Nations choose prosperity if they organize their policies, laws, and institutions based on productivity. Nations choose prosperity if, for example, they upgrade the specialized infrastructure that allow commerce to be efficient. Nations choose poverty, or limit their wealth, if they allow their policies to erode the productivity of business. They limit their wealth if skills are reserved only for a few. They limit their wealth when business success is secured by family connections or government concessions rather than productivity" (Porter 1990, 122).

Porter seeks to understand which factors contribute to the productivity of a particular industry within a nation (Porter 1990, 763).

He explains that a nation should focus only on some key industries which are very productive, successful and highly competitive since limitations in a nation's resources make it impossible for a nation to be highly competitive in every industry on an international level.

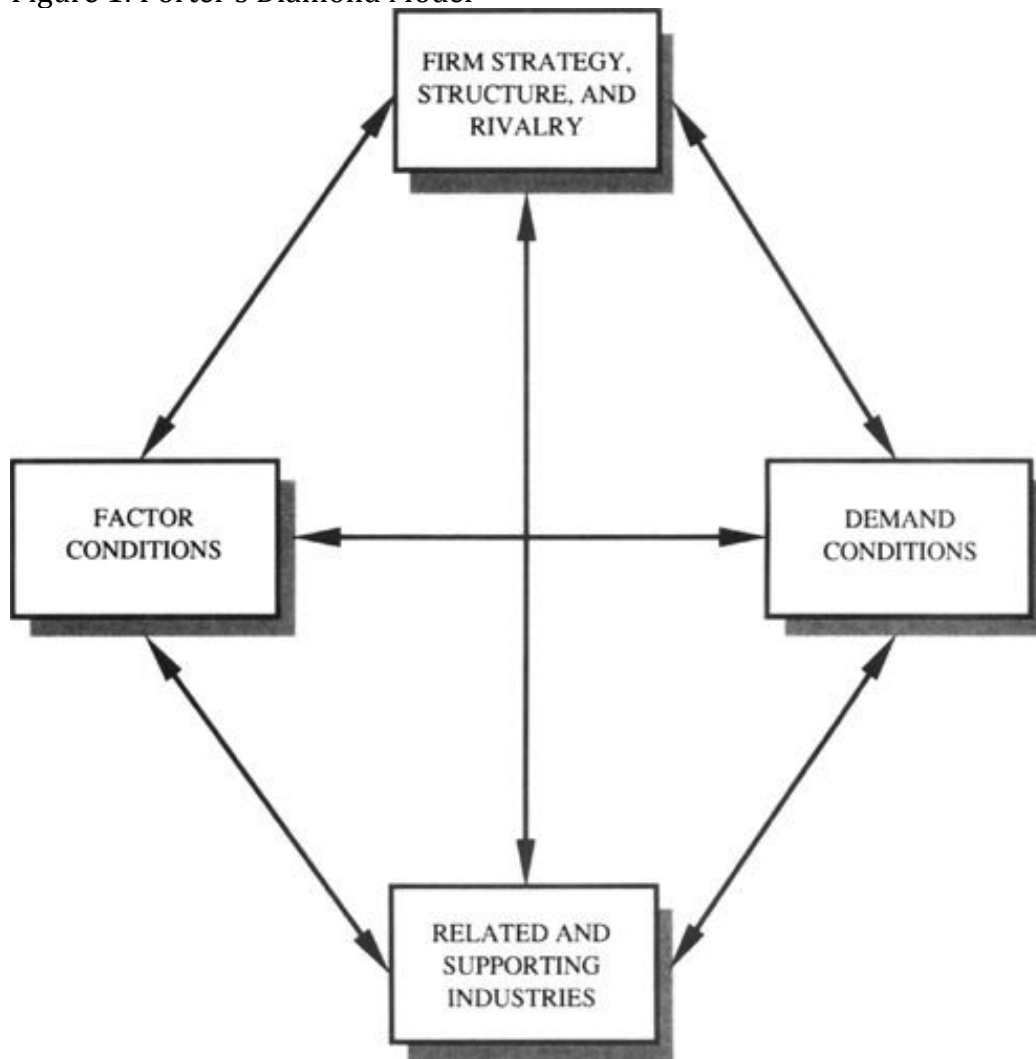
Porter's Diamond model consists of six determinants, which influence each other, and a sixth factor, chance, which influences other factors but which is not influenced by the others. These determinants create an environment in which companies develop, operate and compete. Specific industries in a particular nation are successful because the environment in their home nation is dynamic and forces the companies to innovate, increase productivity and upgrade its economy.

These six determinants are:

1. *Factor Conditions*: Factors of production such as skilled labor, infrastructure or natural resources which are necessary for a given industry.

2. *Demand Conditions*: Extent and nature of the domestic demand for goods and services by customers, who can pressure companies to improve their products or services.
3. *Related and supporting industries*: The existence, quantity and quality of industries within the home nation, which support the given industry.
4. *Firm strategy, structure and rivalry*: Conditions in the home market that influence the degree of competition between companies and how companies are created and managed.

Figure 1: Porter's Diamond Model



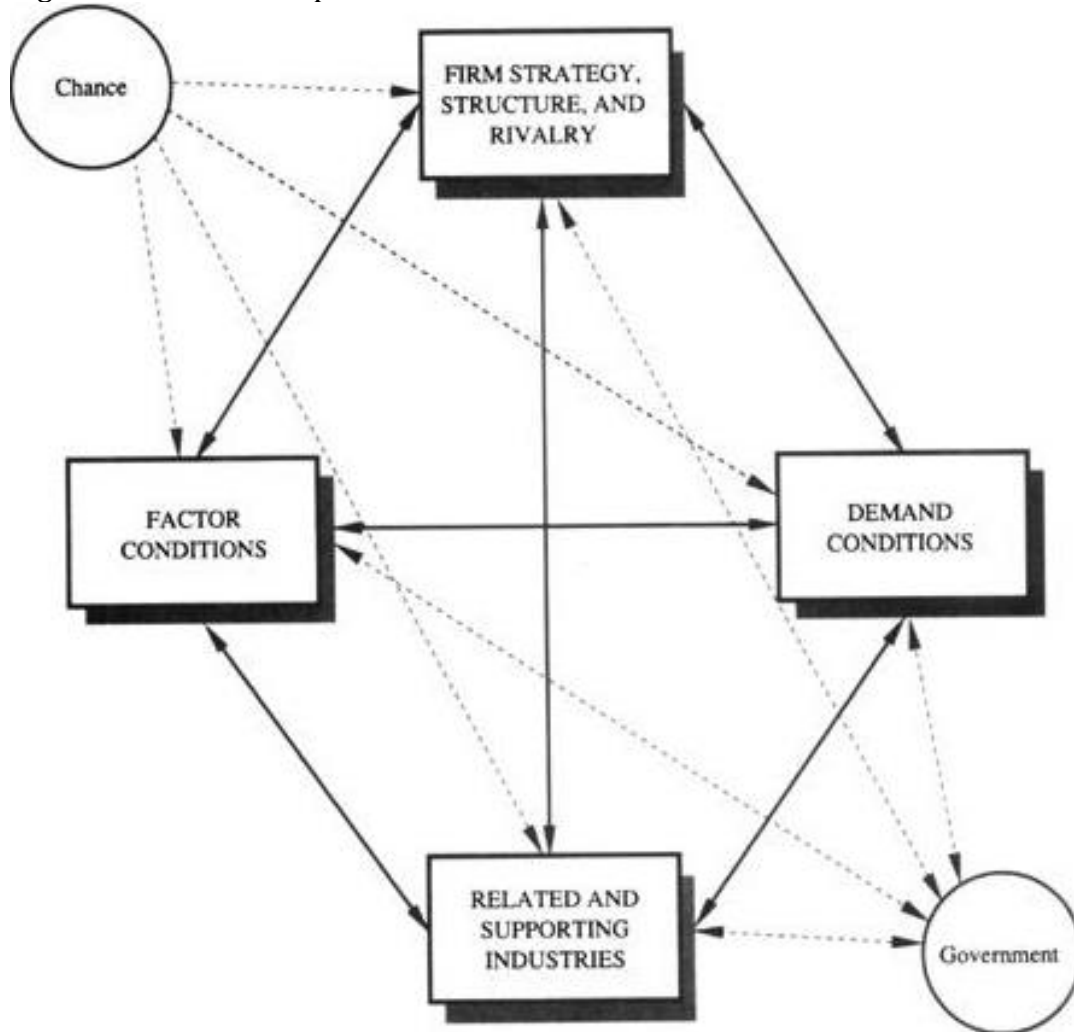
Source: Porter 1990, 2123

Porter arranges these four determinants in the form of a *diamond* (Figure 1). They create the foundation for a company or an industry within a country that are needed to gain competitive advantages.

Particular industries within a country are more likely to succeed with a more favorable diamond.

In addition to the four determinants, Porter identifies two further ones which form the “outside” of the diamond and which influence the other determinants (Figure 2).

Figure 2: Porter's complete Diamond Model



Source: Porter 1990, 3359

5. *Government*: The government can influence industries through economic policies like subsidies or protectionism.

6. *Chance*: The influence of unpredictable events on the given industry.

In the following chapters these six factors are explained in more detail.

2.2.1 Factor conditions

Factor conditions include the factors of production like labor, land, natural resources, capital or infrastructure and each nation possesses these factors. However, the availability of each factor differs from nation to nation. A nation inherits some of these factors like natural resources, whereas it can create some of the others. For Porter, the key factors that determine an industry's competitive advantage are *not* inherited, but created (Porter 1990, 2141).

Porter also defines a hierarchy among factors. He distinguished between *basic factors* like unskilled labor, natural resources, climate or location and *advanced factors* like modern communication, (modern) infrastructure and a highly skilled labor force (Porter 1990, 2206). Another distinction exists between *generalized factors*, which are useful for many industries like infrastructure or college graduates, and *specialized factors*, which only contribute to few industries like special infrastructure or scientific institutes with a focus on special research, related to or necessary for the industry.

Basic Factors are mostly inherited or can easily be created but they do not constitute an advantage in knowledge-intensive industries nor are they able to sustain an economic advantage over a longer period of time. According to Porter, they only play a minor role in national competitive advantage. However, they may serve as the foundation for the creation of advanced factors. These factors are key to competitive advantage. Their development may be time and cost intensive and require special or rare resources but nations and industries may gain a higher level of competitive advantage with them. The hierarchy between generalized and specialized factors is similar to the one between basic and advanced factors. Generalized factors serve as a foundation for various industries but only grant a minor competitive advantage. Specialized factors are often built upon the generalized factors and are more difficult and resource intensive to create, however, they offer a higher level of competitive advantage in return (Porter 1990, 2268).

Nations succeed in industries in which they are particularly good at (high) factor creation. Through investments in infrastructure, communication, education or research, a nation can create higher factors. It is also important that these factors are continuously upgraded to sustain a high level of competitive advantage (Porter 1990, 2302). Porter

stresses the point that the private sector must play an important role in factoring creation since they know best which factors contribute the most to their success.

It is also possible that certain disadvantageous factors, e.g. a lack of cheap labor or natural resources can become advantageous under certain conditions. A nation that faces selective disadvantages must innovate and upgrade to compete. As an example, Japan and South Korea have inherited little natural resources and had to find another way or focus on another industry to compete and to create national prosperity. South Korea, for example invested heavily in education. It is therefore important in which industry factors are deployed and how efficiently and effectively. The sheer existence of a specific factor is not enough to explain competitive advantage (Porter 1990, 2202).

The automobile industry is a high-tech industry and according to Hüttenrauch (2008), automobile makers will face challenges not only in traditional fields such as engine development or chassis construction but also in new areas such as Nano-Technology (new and better material surfaces), Bionics (using nature for new technologies), Information technology and NEVs (Hüttenrauch 2008, 80). This high level of technology requires qualified research personal and facilities and many raw materials such as rare earth minerals and high-quality steel and aluminum.

Another factor are wages. Becker (2010) showed that high wages might constitute a competitive disadvantage in the automobile industry since they can severely increase production costs (Becker 2010, 44f). Nevertheless, high and growing wages may also be an indicator of a shortage of skilled workers.

Diez (2012) adds political stability, infrastructure, location based costs (energy or taxes) and the exchange rate as additional factor conditions (Diez 2012, 66). However, the exchange rate is discussed further in the “government” chapter (cf. chapter 2.2.6 “The Role of Government”) since exchange rate policies can be a government tool to increase competitiveness .

2.2.2 Demand Conditions

Demand conditions describes how demanding customers are in an industry's domestic market and how this influences the industry.

How important the home base or the domestic market continues to be, even in an era of globalisation, was shown by Rugman and Verbeke (2004, 6). They demonstrated that 320 of the largest 500 MNEs still make at least 50% of their sales in their home base in one of the three "triads".⁴ Only a minority of 11 MNEs make more than 50% of their sales in another triad that is not their home base and only nine MNEs are classified as global.

Porter stresses that "the quality of home demand...is more important than the quantity of home demand in determining competitive advantage" (Porter 1990, 2431).

The home market's size can be a competitive advantage for an industry due to economics of scale but this is not necessarily the case since companies can achieve economics of scale despite a small home market by selling their products internationally. However, the size of the home market can be of importance when a large number of customers demands sophisticated goods (Porter 1990, 2464). Other important factors are the structure and range of segments in the home market that influence companies. Companies prefer to invest in larger segments over smaller segments, the latter appearing to be less profitable. Smaller segments are often left to smaller or foreign companies. Companies that offer a range of products in their home market gain more experience in several areas that might be useful for international customers.

An additional factor is the growth rate of home demand, which, according to Porter, can be as important as the size of the home market since growth leads to investments, increasing productivity or the use of new technologies (Porter 1990, 2616).

The domestic market is of such a great importance because companies usually listen more closely to their nearest customers, which may be the ones in their home market, especially in a firm's early stages of development (Gran 2000, 538).

The more sophisticated and demanding domestic buyers are, the more pressure they put on the particular industry to develop high quality goods, increase productivity and

⁴ The term „triad“ describes a geographic space that consists of the USA, Japan and Europe. In 2000, 420 of the 500 largest MNEs are located in these regions. The concept was developed by Kenichi Ohmae in 1985.

upgrade continuously. In addition, sophisticated and demanding domestic buyers can serve as trend or warning indicator of their (eventually changing) needs. Companies that can anticipate and respond to these needs with suitable products before their competitors may gain a competitive advantage, since these trends may develop in other nations as well (Porter 1990, 2555). Early home demand for a new product and the early saturation in the home market force companies to innovate, invest and penetrate foreign markets (Porter 1990, 2646). This prepares the industry to compete internationally in the future. However, as Yetton, Craig et al (1992, 92) note, small domestic demand doesn't necessarily have to be a disadvantage, since it may force companies to enter and invest in foreign markets in a much earlier stage.

2.2.3 Related and Supporting Industries

This determinant describes the importance and influence of related and supporting industries for competitive advantage in a nation.

To produce and develop new products, companies may rely on suppliers, related or supporting industries, which provide them with tools or components that improve their products and which give them a competitive advantage (Porter 1990, 2748).

Internationally competitive, advanced home-based suppliers create advantages in downstream industries because they provide innovation and upgrading. Close relationships between companies and supporting industries are beneficial since they may foster cooperation in development and research or preferential treatment such as early access to new technologies or products. This helps companies to be more cost effective and respond much quicker to buyer's changing needs (Porter 1990, 2772).

But as Porter points out, the sheer availability of home based suppliers is not enough to gain a competitive advantage because in a globalised economy components, tools or machines can be bought from suppliers around the world. These suppliers are also in competition with their international rivals and might offer innovative products. Therefore, Porter stresses a more important factor: coordination. Strong linkages between companies and suppliers create the opportunity for more cooperation, cost cutting measures, innovations and a higher level of productivity since they can combine their R&D, exchange information and technology faster, grant each other preferential access to new technologies and products or suppliers can match their products much

better to the demands of their partners. To sustain their advantage, companies must continuously improve their value system. This process may also affect other related industries and lead to further innovations (Porter 1990, 2770). Both companies and suppliers profit from deeper coordination, which, in turn, gives these companies a much stronger competitive advantage. A nation's companies benefit most when the suppliers themselves are globally competitive. Porter goes so far as to advise companies not to buy from domestic supplies for their own sake (Porter 1990, 11555). If foreign suppliers have superior products, the company should rather buy from them and pressure its domestic suppliers to reach and surpass their foreign competitors in terms of quality. However, Yetton, Craig et al (1992, 92) contradict Porter's view. They argue that relying too much on foreign companies can make it difficult for domestic companies to upgrade or for new firms to emerge in a particular industry cluster.

In addition to the supplier industries, the cooperation or coordination between *related industries* can provide similar benefits. Porter defines related industries as companies, whose products complement each other or compete with each other and sees possibilities for cooperation in areas such as development, manufacturing, marketing or distribution.

However, Porter stresses the point that in many cases cooperation may not be beneficial (Porter 1990, 12800). Cooperation, mergers, acquisitions or alliances between strong rivals or industry leaders might threaten domestic rivalry and hurt the competitive advantage in the long run.

For Becker (2010), suppliers play a key role in the competitive advantage in the automobile industry as they do a large share of research and development of their own which benefits the large car makers. He prefers smaller suppliers over the large ones because they are more likely to adapt to a new environment. In addition, Becker sees a competitive advantage for Germany's automobile industry in the clusters of its suppliers (Becker, 2010, 159).

As Hüttenrauch (2008, 80) showed, car makers face challenges in new areas such as Nano-Technology, Bionics, Information Technology and NEVs. These are fields in which they may have little experience in and for which they may have to rely on specialized suppliers. This close relationship between car makers and the supplying industry is also an important competitive factor for the automobile industry according to Diez (Diez, 2012, 66).

2.2.4 Firm Strategy, Structure and Rivalry

The fourth determinant explains the importance of how companies emerge, are organized and managed as well as the degree of rivalry to competitive advantage. According to Porter, the national environment has an influence on the organization of rivalry, companies and management style (Porter 1990, 2903):

“Nations will tend to succeed in industries where the management practices and modes of organization favored by the national environment are well suited to the industries’ sources of competitive advantage.”

A universal management approach does not exist and neither does a coherent management style within a nation.

Many national factors from various areas can influence the way a company is managed and organized. These factors may include the structure and background of the management, social norms, religion, family, labor organizations, individualism or collectivism or customer relationship (Porter 1990, 2904).

Porter puts an emphasis on a company’s attitude towards international activities. According to Porter, companies are more internationally oriented if their management has a positive attitude towards travel, is willing to learn new languages or if the government uses policy measures to motivate companies to compete globally.

Motivation and commitment to achieve certain goals, as well as the different goals themselves may play an important role in achieving and sustaining competitive advantage. Porter distinguishes between *company goals* and *goals of individuals* (Porter 1990, 2942). Company goals can vary in length, for example short-term oriented or long-term oriented, and they are influenced by the ownership structure, corporate governance mechanism or incentives for the management. Goals of individuals are also important since a motivated workforce is more likely to improve its skills, to be more productive and to continuously contribute and commit to the company’s success (Porter 1990, 3001). Porter notes that incentives for employees may vary from financial incentives to higher social status. National prestige can also be a motivation boost when an industry becomes a national priority.

Nevertheless, Porter sees one of the most important reasons for creating and sustaining national competitive advantage in an industry in a high degree of domestic rivalry (Porter 1990, 3084).

In order to get an advantage over the domestic rivals, companies force each other to improve product quality, cut costs and develop new technologies, ideas, products, services or distribution or marketing concepts. They are forced to continuously upgrade in order to keep up with their domestic rivals. To get additional competitive advantages over their domestic rivals and to profit from scale economics, these companies might try to penetrate foreign markets.

Porter contradicts the common assumption that the best strategies for an internationally successful company are the promotion of inter-firm cooperation or the merging of two or more companies into a national champion which can compete through size, strength and scale economics. Although this strategy might prove successful, Porter found only few of these (Porter 1990, 3116). He also states that a sheer number of domestic competitors is not enough to guarantee success, however, creating and sustaining an environment which allows new companies to emerge and compete with existing companies can benefit domestic rivalry.

The strong domestic rivalry does not only contribute to a higher competitive advantage of the particular industry. It also has positive effects on other industries in the nation by creating innovations, improvements and new products and services in various other industries.

Companies will perform better among international competitors after having successfully competed against strong domestic competitors, which serves as a preparation for difficult international markets. However, as pointed out by Yetton, Craig et al (1992, 116), Porter limits his definition of rivalry to inter-firm rivalry, neglecting the fact that MNEs operate in various countries with similar products and processes, intra-firm rivalry can enhance efficiency as well.

Becker (2010, 14) identifies four basic strategies for automobile makers to improve their competitiveness.

1. *Optimizing* costs through higher productivity and lower costs
2. A *Volume strategy* through mass production to achieve a higher market share and scale effects
3. An *innovation strategy* which could give the company a unique sales proposition through specific (technologic) innovations
4. A *content strategy* through which a car maker can increase a higher share in the value chain of its product.

Becker also shows the importance of NEVs and traditional fuel-efficient cars as a factor for competitive advantage in the automobile industry due to growing oil prices, stricter governmental regulations and the high technological level of NEVs. These factors might also influence a company's image as a high tech company, giving it a unique sales proposition and improving its brand image.

Diez (2012, 66) argues that focus on innovation and technology is an important competitive advantage in the automobile industry. According to Becker, (2007, 28) innovative products are a key component for economic success and competitiveness. To measure innovation, we will take a look at the number of patents in China und South Korea in chapter 3.3 *Factor Conditions*.

In addition, Diez (2012, 83) argues that an open domestic market can be beneficial for the domestic industry since it can tests its competitiveness with international rivals before following a global, export oriented strategy.

Developing cars for local markets on a regional rather than a global level has become another strategy in the automobile industry. However, Hüttenrauch (2008, 107) criticized this approach as not always being cost effective.

Diez (2012, 136) showed how business strategies in the German automobile industry changed depending on the developmental stage. During the first stage German car makers focused on the domestic market and mainly focused on volume and product development. In the second stage, growth was a main driver for the automobile industry. And the companies deployed a multinational strategy to penetrate more markets. In the current stage they apply a global strategy that is characterized by focusing on premium market segments, high innovation and high competitiveness. During this development, the automobile industry increased its technological and globalisation level.

2.2.5 Chance

Chance means events or developments which occur outside of a company's control but which can still have a severe effect on an industry. Chance includes events of very different kinds such as natural disasters, scientific or technological breakthroughs or wars (Porter 1990, 2140). The consequences of such events can change the industry structure completely, making the products of one formerly/erstwhile competitive

industry unnecessary, while at the same time making it possible for new industries and companies with new innovative products to emerge. The effects of chance events can influence the other factors either positively or negatively.

However, as “Chance” is a factor in the diamond model whose effects like natural disasters, wars or technological breakthroughs or discontinuities can be unpredictable, the determinant “chance” will not be a chapter in this thesis.

Parts of the “chance” determinant such as technological breakthroughs or the focus on innovations that would allow new firms to emerge with new technologies will be part of the determinants “Role of Government” (cf. chapter 3.7) and “Firm strategy, structure and rivalry” (cf. chapter 3.6).

2.2.6 The Role of Government

For Porter, the role of government is quite ambiguous. The government can influence the other determinants in the diamond (with the exception of chance) and vice versa. However, government policy can have positive as well as negative effects on the competitive advantage of an industry. It can be negative since governmental influence through measures like protectionism, overregulation, subsidies, the creation of monopolies and obstacles for the emergence of new firms can reduce rivalry among the companies and thereby complicate innovations and the achievement of higher productivity. In addition, the government can allocate resources to inefficient industries that would be better used elsewhere. Governments may also be tempted to devalue the nation’s currency to promote exports and compensate for high factor costs, which could lead companies to focus on producing goods that may be less sustaining (Porter 1990, 3360). Instead, Porter argues that the pressure originating from market forces may be better in the long run. Industries that rely on government protection as their main source for competitive advantage may face threats once a government removes this protection.

Becker (2010, 42) shows that a strong governmental regulation regarding emissions and environment can affect a car maker’s competitiveness as it requires them to improve and upgrade their products, for example, through new engine types or better fuel efficiency.

Diez (2012, 66) agrees with Porter that governmental influence should be limited. He argues that by not supporting companies that lack sufficient competitiveness and that have no chance to remain in the market on their own, governments foster necessary structural changes in an industry and help more competitive companies to expand.

The exchange rate is one of the more important determinants for competitiveness in the automobile industry, especially for countries with a large export share of its automobile production (Diez 2012, 76). It affects revenue, product pricing and production locations. Governments can intervene in the currency markets and produce a favorable exchange rate for their domestic export oriented industry, which would allow them to offer their products for better prices and which would give them a competitive advantage. Porter argues that governmental intervention in order to create a favorable exchange rate would harm domestic companies in the long run as they may come to rely on a weak currency rather than developing and upgrading their products (Porter 1990, 705-722). However, as Hüttenrauch (2008) argues, companies can reduce the influences and risks of currencies that are too volatile by diversifying their production locations worldwide. Production facilities in a location with a weak currency can compensate for others with a stronger currency (Hüttenrauch 2008, 39).

On the other hand, government policy can strengthen the four determinants in the diamond and contribute to innovation, thereby increasing productivity and higher competitive advantage. For Porter, "Government, first and foremost must strive to create an environment that supports rising productivity" (Porter 1990, 151). Its engagement must be limited in some areas such as pricing but in other fields government must play an active role to encourage change, promote domestic rivalry, stimulate innovation or provide infrastructure and skilled labor. Therefore, Porter sees the government not in the role of supporter or helper but in that of a "pusher and challenger" (Porter 1990, 13106). However, Porter distinguishes between government policy and involvement in the economy depending on the current stage the country's economic development is in, attesting an active government involvement in the early stages of economic development a more positive role (Porter 1990, 12893). In the early stages of economic development, the government is able to support industries through strong involvement in factor creation to provide generalized factors. The protection of infant industries in developing countries through prohibiting market entry by foreign firms for example, may be useful in giving the industry the time it needs to develop a

strong home base and in preparing them for international competition (Porter 1990, 12736).

Nevertheless, in later stages, the industry must take the leading role in factor creation and become less dependent on direct government support influence.

In return, government policy can be influenced by the other determinants, for example through lobbying from companies or NGOs.

In order to support the upgrade of its economy, the government should:

- provide the industries with generalized factors such as a high level infrastructure and educational system
- focus (together with the industry) on specialized factor creation (Porter 1990, 11763)
- avoid intervening in factor and currency markets
- enforce strict product safety and environmental standards (with international standards representing the minimum standards)
- sharply limit direct cooperation among industry rivals
- promote goals that lead to sustained investment
- create early demand and pressure the industry to use new technologies
- promote competition to enforce rivalry among the companies and encourage new companies to enter the industry
- enforce a strong antitrust policy and fight industry cartels
- enforce strong domestic antitrust policies
- reject managed trade

However, it is not enough to simply check whether a government invests in infrastructure or education since most governments generally do this (Porter 1990, 3415). As a consequence, it is necessary to look at the investment rates or how efficiently the bureaucracy actually works.

2.2.7 The Dynamics in Porter's Diamond

The determinants in Porter's diamond interdependently influence and reinforce each other, thus creating a dynamic system (Porter 1990, 3415). This is necessary to create a competitive advantage since one individual determinant is not enough to create and sustain strong competitive advantages. Favorable demand conditions alone are unlikely to create a competitive advantage, without existing rivaling companies competing for customers and related and supporting industries, which are needed to produce or develop the demanded goods, which requires highly skilled and educated employees. This means that for a strong diamond or high competitiveness all the determinants must at least be present. However, it is not absolutely necessary for all determinants to be equally strong (more on this in Chapter 2.2.10 *Critics and Modifications of the Diamond Model*). Due to the fact that the determinants influence each other, they might also stimulate an upgrade process in other determinants. Competing domestic companies might require better factor conditions like a higher skilled labor force or better infrastructure. Or they might require more productive and innovative related and supporting industries in order to develop and build a higher class of products which a growing number of sophisticated domestic customers demand.

However, according to Grant (1991, 542), in this dynamic system it is not possible to exactly pinpoint cause and effect among the determinants.

Nevertheless, Porter stresses the point that it is not necessary to have competitive advantages in every determinant to have an internationally successful industry since advantages in one or more determinants can compensate for a disadvantage in another determinant (Porter 1990, 3656).

2.2.8 Clusters

According to Porter, companies of specific industries that are linked to each other are often geographically concentrated, be it in a city or a region (Porter 1990, 3744). These regions are characterized by the presence of domestic rivals, supporting and related supplying industries and demanding customers. Porter calls this phenomenon *clustering* or *cluster* and they are very important to develop competitive advantage since the concentration of rivals and demanding customers stimulates competition. There are two

types of relationships within a cluster: vertical and horizontal relationships. In the former, companies of different sectors are organized as a supply chain. The latter consists of similar companies that compete with each other (Porter 1990, 3801).

An industry cluster creates and stimulates cooperation and competition between the companies within the cluster. Companies may cooperate in areas such as technological development or combined purchasing to reduce costs. Clusters may also lead to improved communication between the companies which is helpful when it comes to sharing knowledge about new technologies, market needs and reducing the chance of unprofitable investments. Porter uses the Japanese *keiretsu* conglomerates to demonstrate the fact that although the companies organized within a cluster show a certain level of cooperation, rivalry is still very intense (Porter 1990, 3833).

A strong industry sector can have spill-over effects on other industries, supported and related industries or startups (Barragan 2005, 42). Subsidiaries within an industry cluster as defined by Porter are internationally-oriented and more embedded than subsidiaries in other industry sectors according to a study by Birkinshaw and Hood (2000). Their study also showed differences between subsidiaries regarding their capabilities for innovation and upgrading and their autonomy depending on the level of foreign ownership, which concluded that clusters with a high percentage of foreign owned companies have subsidiaries with lower capabilities (Birkinshaw and Hood 2000, 150).

If companies or clusters of several industries rely on the same factor conditions like skilled workers or infrastructure, it is more likely that they are able to convince governmental institutions to improve these factor conditions much faster.

2.2.9 Multinational Enterprises

When comparing economic development and creating competitive advantages either through indigenous companies or foreign multinational companies, Porter favors indigenous companies (Porter 1990, 13060). Foreign multinational companies can bring technological knowledge and investments into a country and thereby create jobs or new supporting industries and spur rapid economic growth but they usually only select a host country to make use of its lower factor conditions such as low production costs or access to natural resources and not for the production of more sophisticated parts or for

research and development. In addition, once these advances disappear, e.g. through wage increases, multinational companies can easily relocate their facilities to a more attractive market. Further multinational companies might pose a danger to indigenous companies or industries that are still in an early developmental stage and that are not yet capable of competing with them. Therefore, Porter argues in favour of limiting the influence of foreign multinational companies and proposes instead to focus on developing competitive indigenous companies, which will serve the economy much better in the long run. MNEs can boost competitive advantages only for a short period of time.

Dunning (1993), Rugman and D'Cruz (1993), Rugman and Verbeke (2004) contradict this view. Rugman and D'Cruz (1993) showed that foreign-owned companies are also able to create competitive advantages locally in their host country, for example through conducting R&D.

Dunning demonstrated how MNEs use the benefits of several diamonds in various countries to strengthen their home diamond and thereby are an important driver for regional integration.

According to Dunning (1988), MNEs operate and invest in foreign nations mainly for three reasons:

1. resource seeking
2. to gain access to foreign markets
3. efficiency seeking

While the first two reasons are similar to Porter's views on MNE's reasons to operate in a foreign country, the third reason states that MNEs select a country to increase their production efficiency.

2.2.10 Critics and Modifications of the Diamond Model

The Diamond Model has been tested and used to analyse the competitiveness of various industries in many countries and can explain why particular industries are internationally successful. Although the model can be a useful tool, it is not without its flaws. Grant (1991, 542) describes the Diamond Model as "gloriously rich but hopelessly intractable".

Grant (1991, 540) stresses the fact that Porter sees the reasons why some firms are internationally successful in their ability to innovate, to invest in new products or higher productivity and continually upgrade themselves. In addition, he praises Porter's work on what influence environment and factors have, especially rivalry, and how they can foster and sustain innovation and upgrading. However he also sees several shortcomings in Porter's theory regarding the explanation of economic development on the national level. Grant argues that Porter's goal to develop a versatile theory was partly achieved through adjusting definitions, concepts and theories to fit the various parts of Porter's theory and that these are not always consistent throughout his theory. Further Grant criticises the theory on the empirical level, stressing that Porter tested his theory only on a few selected cases which limits its validity.

Yetton, Craig et al (1992, 99) used the Diamond Model to analyse the economies of Canada, Australia and New Zealand and according to the model they should have been in poor condition, completely lacking a competitive diamond in their home base, when in fact the opposite was true. This is due to Porter's view that upgrading and competitive advantage are linked together. But factor driven industries, such as natural resources export, are still an integral part in several countries such as Canada, Australia or even the USA and despite relying on these industries the aforementioned countries prosper and have high standards of living and productivity (Grant 1991, 541).

Yetton, Craig et al (1992, 99) hypothesised that a strong diamond is not necessarily needed for competitiveness and they concluded that Porter's model cannot be applied to all economies. Furthermore, they attest him a flawed research methodology by focusing on diamonds in successful exporting industries while neglecting non-exporting industries at the same time. This focus on exports and FDIs as important measurements for competitive advantage of a company within an industry is also criticised by Grant (1991, 541), Birkinshaw and Hood (2000, 145). In addition, they criticise that Porter does not offer many explanations about the *how* a diamond can be created and how key industries or firms can be identified or that some successful exporting small- and medium sized companies don't meet his requirements for global industries (for example through a high export share in the industry) and are therefore neglected in his theory. Yetton, Craig et al (1992, 111) cite Australian manufacturing companies, which are small- or medium sized and multi-domestic, as an example of companies which operate through local subsidiaries in many different locations in different countries but which are not considered as competitive by Porter due to his criteria.

In addition, Rugman, Moon and Verbeke (1998, 139) argue that Porter doesn't take the structure of modern day companies into account. In Porter's opinion, a company should be concentrated on one location, preferably its home base and export its products from there. But modern day companies may seek to have implantations in different countries and make the best use of the specific advantages of several countries to suit the specific needs in their structure.

The Double Diamond Model proposed by Rugman and D'Cruz in 1993 was modified by Moon, Rugman and Verbeke in 1998 in order to create a generalized framework for analysing smaller economies. The new model is known as the "Generalized Double Diamond Model".

Moon, Rugman and Verbeke (1998) argue that Porter's model puts the focus on national factors and neglects international factors and effects from globalisation, regional cooperation or multinational companies. To address the problem that Porter didn't consider the impact of multinational activities in his original Diamond Model, Rugman and D'Cruz (1993) proposed the *Double Diamond Model*, which takes these and other factors into account.

Rugman and D'Cruz argue that especially small open trading economies don't have a strong national diamond, which according to Porter would be necessary to become globally competitive. These nations have at least one weak determinant as a characteristic and rely on the determinant in the diamond of another nation for competitive advantage. Hence the name *Double Diamond Model*. Especially companies from small economies cannot simply rely on their small domestic markets and have to enter foreign markets and gain competitiveness through the diamond of another country.

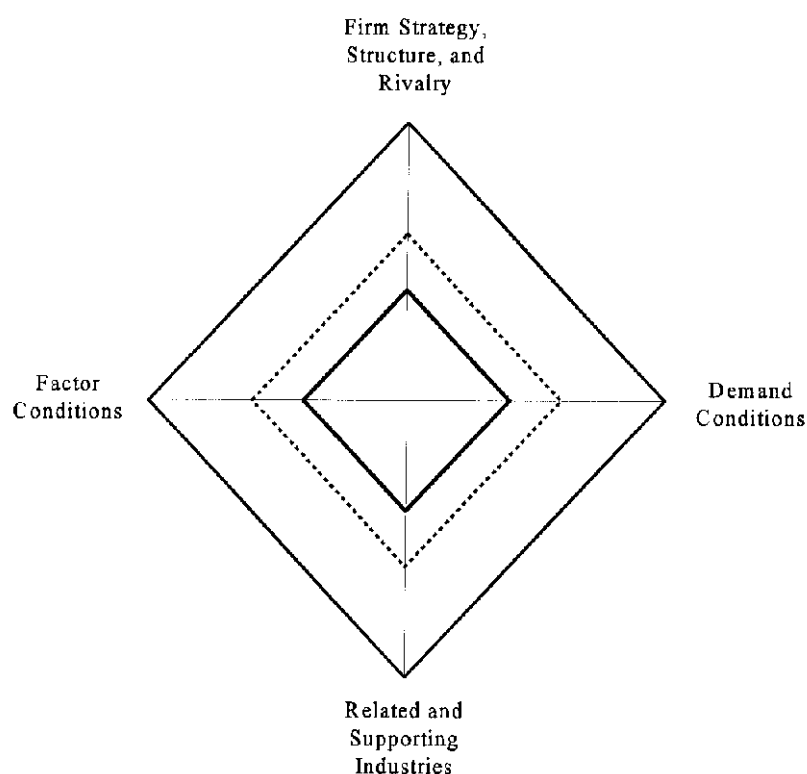
Rugman and D'Cruz (1993) demonstrated this by citing Canada as an example, which has a relatively low domestic demand but compensates this weakness by using the US demand in the US Diamond.

Therefore, both authors argue that some determinants in the diamond model of a specific industry in a particular nation can be connected to the determinants in the diamond model of another nation or even multiple nations.

As already mentioned, Porter neglects the effects that international factors, such as MNEs, can have on an economy's competitive advantage. In a case study of South Korea

and Singapore, Moon, Rugman and Verbeke (1998) demonstrated how important multinational activities are to the international competitiveness of both economies. The study also attributes a bigger role in creating and sustaining competitive advantage to government policy due to it having a stronger influence on the other four determinants. And in case of centrally planned economies this influence can be even stronger.

Figure 3: The generalized Double Diamond



Source: Moon et al. 1998, 138

Figure 3 illustrates the generalized Double Diamond Model. The outer diamond is the foreign or international diamond the size of which is fixed for a certain period of time. The inner diamond illustrates the domestic diamond which can vary in size depending on the country's competitiveness or size. Applying the *Double Diamond* can lead to different results than when merely using Porter's original Diamond Model.

Moon, Rugman and Verbeke (1998) showed why the simple use of Porter's traditional Diamond Model may not be sufficient enough to measure the competitiveness of China's and South Korea's automobile industry. They argue that international factors like international demand or multinational activities as well as the government have a much

stronger influence on the competitiveness of automobile industry in both than Porter's traditional diamond would attest them to have. Therefore, this thesis will take a closer look at the role of government and whether Chinese and Korean car makers rely on the determinants of other diamonds as a source of competitiveness. This means analysing factors like international demand and multinational activities to find out whether Chinese and South Korean car makers target the same group of international customers and how sophisticated these are and whether Chinese and South Korean car makers run international production and research facilities which might be more productive, innovative or cost effective than their domestic facilities and therefore improve the companies' competitiveness.

2.3 Literature Review and current state of research

Due to China's growing economic importance, the automobile market has also received much attention in research and public media alike. However, in public media, China is mostly seen as an important export market for foreign carmakers. Chinese carmakers on the other hand have received less attention from public media but have become the object of economic research. It is only lately with the beginning of Chinese brands emerging in Europe that they have been receiving more attention.

In the case of the Korean automobile industry, the situation is similar. The presence and the success of Korean brands in the automobile and electronics sector like Hyundai, Kia, Samsung and LG, have led to more attention in public media and scientific research. However, the focus of research regarding South Korea has been on the late industrialisation or on the role of government up to the Asian financial crisis. Literature and research on the automobile industry – especially on the past 10 years – has been much rarer.

Porter's Diamond Model has been applied to various industries, including the automobile industry. Barragan (2005) used the Diamond Model and the Double Diamond Model to analyse the competitive success of Mexico's automobile industry and the role of Multinational Enterprises. He showed the limits of the traditional Diamond Model when it comes to analysing the competitiveness of industries in developing countries and used additional theories, namely the *Double Diamond* and *Regionalization*.

His research showed what a positive impact an MNE, in this case the Volkswagen AG, can have in creating a cluster for indigenous industries and their substantial growth.

The Diamond Model has also been applied to the Chinese Automobile industry. Wu (2006) showed that the Chinese automobile industry is still in an early development stage.

Since this Master Thesis and Wu's paper both apply Porter's Diamond Model to analyse the competitiveness of China's automobile industry, it gives us an opportunity to compare Wu's results in the determinants from 2006 with the results in 2014 to show the developments in this industry sector over the past 8 years.

Regarding South Korea, the Diamond Model has been applied by Porter (1990) himself, praising the country as a "remarkable success story" (Porter 1990, 13201) and "a striking example of a rapidly upgrading economy" (Porter 1990, 9383). The country has also been part of Rugman, Moon and Verbeke's (1998) study for developing the Generalized Double Diamond Model in which they argued that Porter traditional Diamond Model was not enough to explain South Korea's competitiveness.

3. Comparison of China's and South Korea's automobile industry

In this chapter, China and South Korea's automobile industry is analysed according to Porter's Diamond Model. The chapter begins with a short introduction to the automobile industry in both countries. Afterwards, the general competitiveness of China and South Korea's automobile industry is analysed, followed by an analysis of the determinants in Porter's Diamond Model: Factor Conditions, Demand Conditions, Related and supporting Industries, Firm strategy and rivalry as well as the Role of Government.

3.1 Introduction to the Chinese and South Korean Automobile Industry

China's automobile industry goes back to the 1950s, however, the production capacities remained on a low level until the economic reforms in the 1980s when the automobile industry became a "national pillar industry" in the government's Five-Year Plans. Since China's automotive industry was not competitive enough in terms of product quality or technology, the Chinese government decided to protect its industry and to open its

market for foreign car makers only slowly. Auto imports were limited through import quotas and tariffs, which were at almost 80% until China's ascension to the WTO, which led to the beginning of a liberalization policy in many economic areas and caused a reduction of tariffs. Today, foreign investments in China's automobile industry and market are permitted only through joint ventures with a domestic partner.

South Korea's automobile industry can also be traced back to the 1950s. Local car makers were protected through government policies and produced cars of little sophistication with foreign car makers like Ford or Nissan. South Korean car makers began to export after the South Korean government began trading its import substitution development policy in for an export-oriented approach. Their export-oriented strategy proved successful and South Korean car makers began developing products on their own. But although they were successful in the more open overseas markets, South Korea's domestic car market remained protected until the 1990s.

The Asian Financial Crisis and the subsequent turmoil led to dramatic changes within the domestic automobile industry.

3.2 General competitiveness

Porter (1990, 1088) argues that it is not sufficient to look at the size of an industry or its domestic profitability to measure its international competitiveness. Instead, it is necessary to also take the following indicators into account:

1. Growing and sustaining exports to the world
2. Growing market share in exports
3. FDIs in that industry
4. Trade balance
5. Proportion of exports in that industry with respect to the total exports of the country

These indicators are examined in the following chapter with special regard to the automobile industry in China and South Korea.

3.2.1 General Competitiveness of China

At the beginning, this chapter takes a closer look at the development of car production in China between 2000 and 2013 and compares it to the rest of the world. In doing so, the growing importance of China for the automobile industry not only as a producer of cars but also as a potential exporter of cars is pointed out.

In 2000, China was the 14th largest producer of cars in the world and produced 604,677 cars (Table 1). China's market share in car production was only 1.45%. Other emerging economies like Brazil, Mexico or South Korea produced more cars and had a larger share in the world's car production market, not to mention the developed economies among the car producers (Table 1 and Figure 4).

Table 1: Car Production Statistics of selected Countries and Years

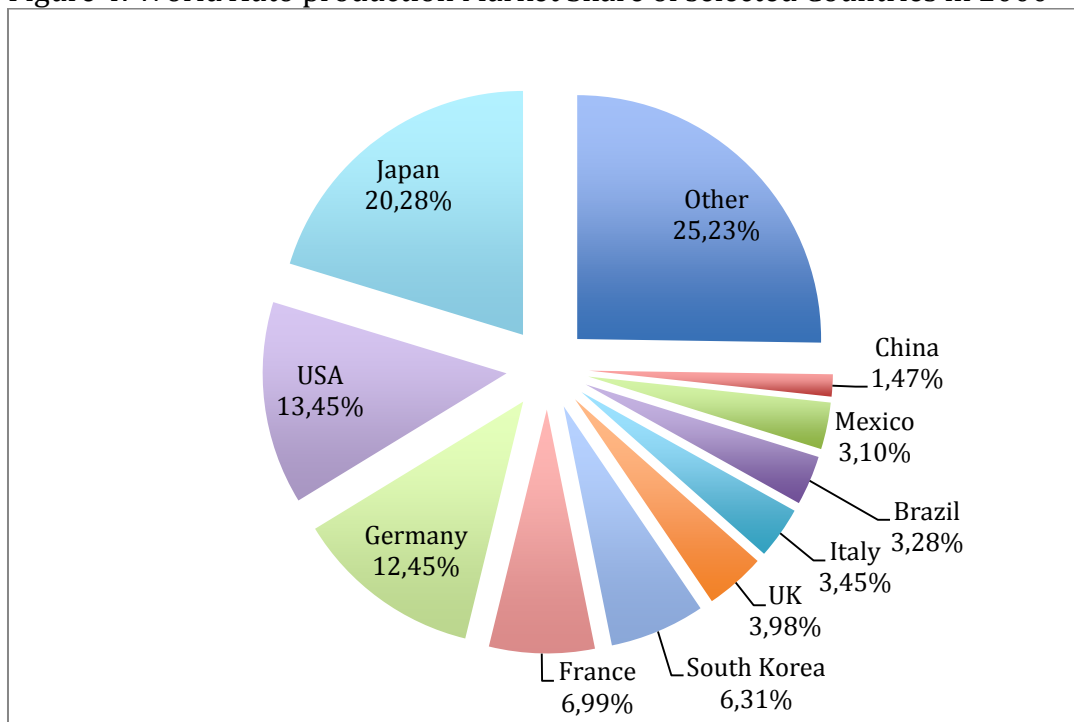
	2000	2003	2005	2007	2009	2011	2013
China	604,677	2,018,875	3,078,153	6,381,116	10,383,831	14,485,326	18,085,213
Germany	5,131,918	5,145,403	5,350,187	5,709,139	4,964,523	5,871,918	5,439,904
India	517,957	907,968	1,264,000	1,713,479	2,175,220	3,040,144	3,138,988
Japan	8,359,434	9,478,328	9,016,735	9,944,637	6,862,161	7,158,525	8,189,323
Mexico	1,279,089	774,048	989,840	1,209,097	942,876	1,657,080	1,771,987
South Korea	2,602,008	2,767,716	3,357,094	3,723,482	3,158,417	4,221,617	4,122,604
USA	5,542,217	4,510,469	4,321,272	3,924,268	2,195,588	2,976,991	4,346,958
World Total	41,215,653	41,968,666	46,862,978	53,201,346	47,772,598	59,897,273	65,433,287
China's Market share	1.45 %	4.81%	6.57%	11.99%	21.74%	24.18%	27.64%
China's Rank as Producer	14.	7.	6.	2.	1.	1.	1.

Source: Author's own composition based on data from the *Organisation Internationale des Constructeurs d'Automobiles* (OICA)

But as Table 1 shows, car production increased dramatically over the following 13 years. In 2003, China ranked 7th among the largest car producers in the world with a market share of almost 5% and more than 2 million cars produced. Car production increased further and in 2009 China became the world's largest automobile producer with a market share of 21.74% and more than 10 million produced cars in the same year. But

China was able to increase its production capacity even further. And in 2013, China produced more than 18 million cars and increased its market share in worldwide car production to 27.64%, further strengthening its position as the world's largest car producer. Figure 4 and 5 show the market share of selected countries in world auto production in the year 2000 and 2013. When compared, both figures highlight the evolution of China's growing importance as an auto producer.

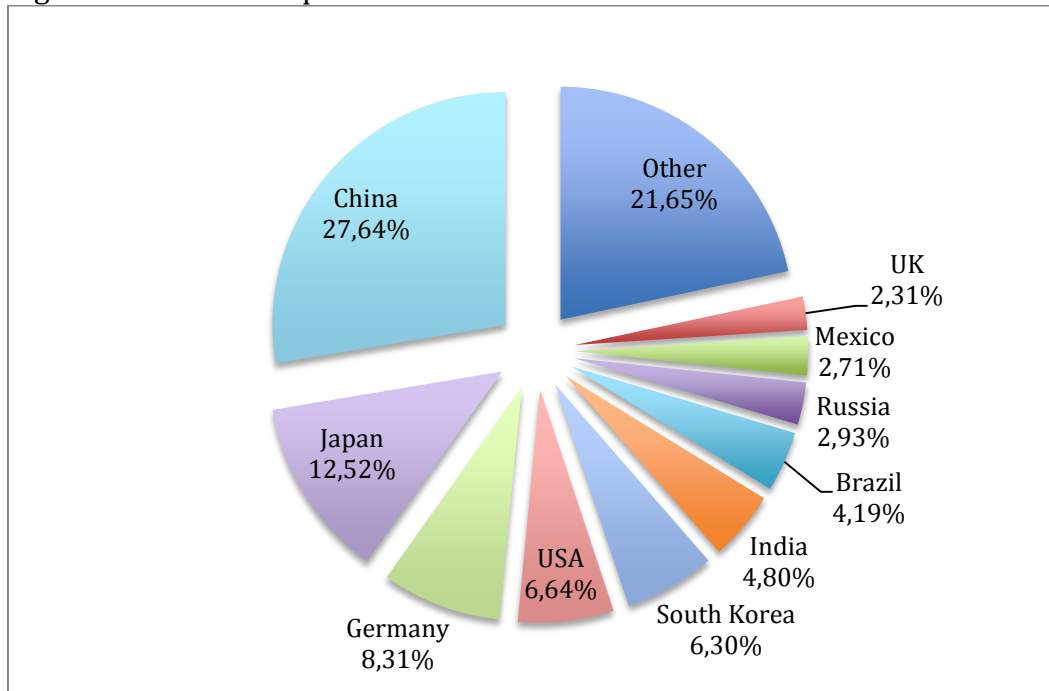
Figure 4: World Auto production Market Share of selected Countries in 2000



Source: Author's own design based on data from the *Organisation Internationale des Constructeurs d'Automobiles* (OICA)

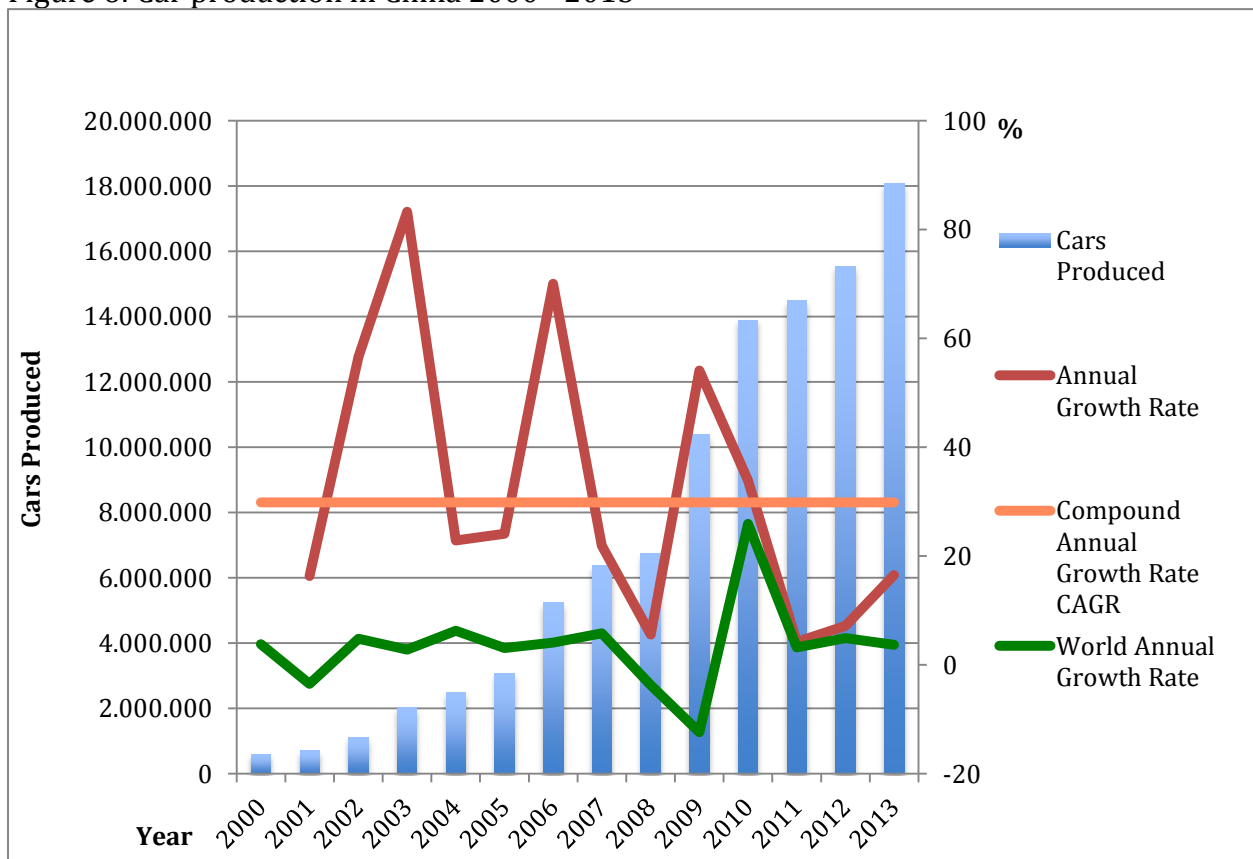
While China was able to increase its market share in automobile production from 2000 to 2013, other countries saw a shrinking market share. Japan's market share, for example, decreased from about 20% in 2000 to 12.5% in 2013. And the USA even lost about 50% of their market share in car production from 13.45% to 6.6%.

Figure 5: World Auto production market share of selected countries in 2013



Source: Author's own design based on data from the *Organisation Internationale des Constructeurs d'Automobiles* (OICA)

Figure 6: Car production in China 2000 - 2013



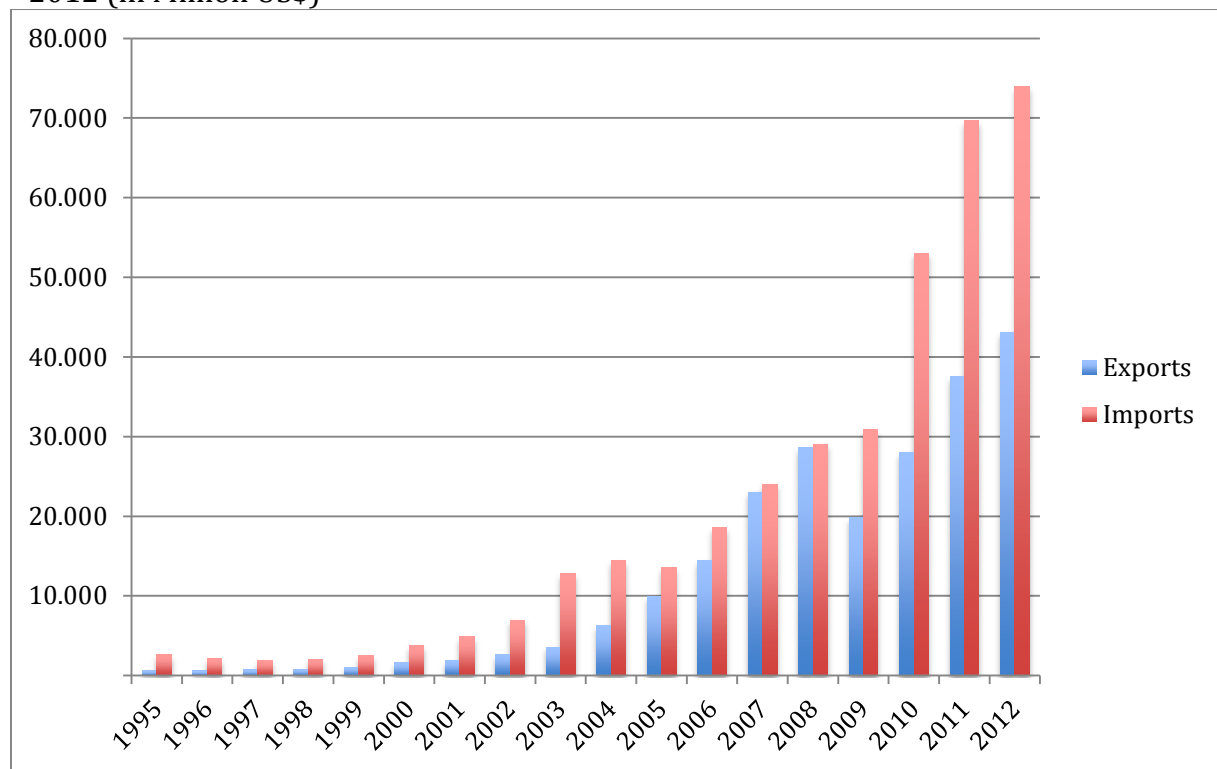
Source: Author's own design based on data from the *OICA* and own calculations (see Appendix)

Figure 6 shows the total increase of China's car production from 2000 to 2013, the yearly growth rate of China's car production, the Compound Annual Growth Rate (CAGR) and in comparison the yearly growth rate of worldwide car production. From 2000 to 2013, China's car production grew about 29% on average. While on the other side the yearly growth rate of worldwide car production is much lower than China's, rarely reaching more than 10%.

The importance of China as a producer of cars been shown but in terms of exports the country's automobile industry is still not as relevant as many of its other industries. As Table A-1 shows, the automobile industry only ranked 9th as China's most important export industries in 2008 in terms of value. Vehicle exports only accounted for 2.75% of total exports and 3.18% as a share of world exports. In 2012 (Table A-2), the export of vehicles increased in terms of value but still ranked 9th. The share of total exports decreased slightly to 2.69%, but the share of world exports increased to 4.32%. Despite China's importance as a car producer, its role as a car exporter is still relatively low.

China's relatively low vehicle exports despite its high production numbers are interesting in that China still has a negative trade balance or net trade in automotive products (Figure 7). China imports more automotive products than it exports. And although the export/import gap almost seemed to close in 2007 and 2008, it is widening again. The value of automotive products imports grows much faster than the value of exports. However, the growing exports indicate a growing demand for Chinese automotive products.

Figure 7: Development of export and import of automotive products in China from 1995 - 2012 (in Million US\$)



Source: Author's own design based on WTO data

This trend seems to continue in 2014. The China Association Automobile Manufacturers (CAAM) reports that in the first four months of 2014, 281.900 cars were exported while 439.100 cars were imported (CAAM 06.17.2014). In addition, the total export of cars in the first 5 months was lower than in the same time period in 2013 and even 2012.⁵

Regarding FDIs in the automobile industry, the importance of FDIs in China's automobile sector can be derived from the high market share of foreign car makers and joint ventures (cf. chapter 3.4.1 *Demand Conditions in China*).

⁵ In January 2014, China exported 68.500 units, down 7% to January 2013 (CAAM 02.18.2014). In February 2014, China exported 53.700 units, down 19.8% (CAAM 03.14.2014). In March 2014, China exported 85.500 units, down 0.6% (CAAM 04.25.2014). In April 2014, 78.100 units were exported, down 12.6% (CAAM 05.14.2014). In May 2014, 76.300 units were exported, down 12% (CAAM 06.17.2014)

3.2.2 General Competitiveness in South Korea

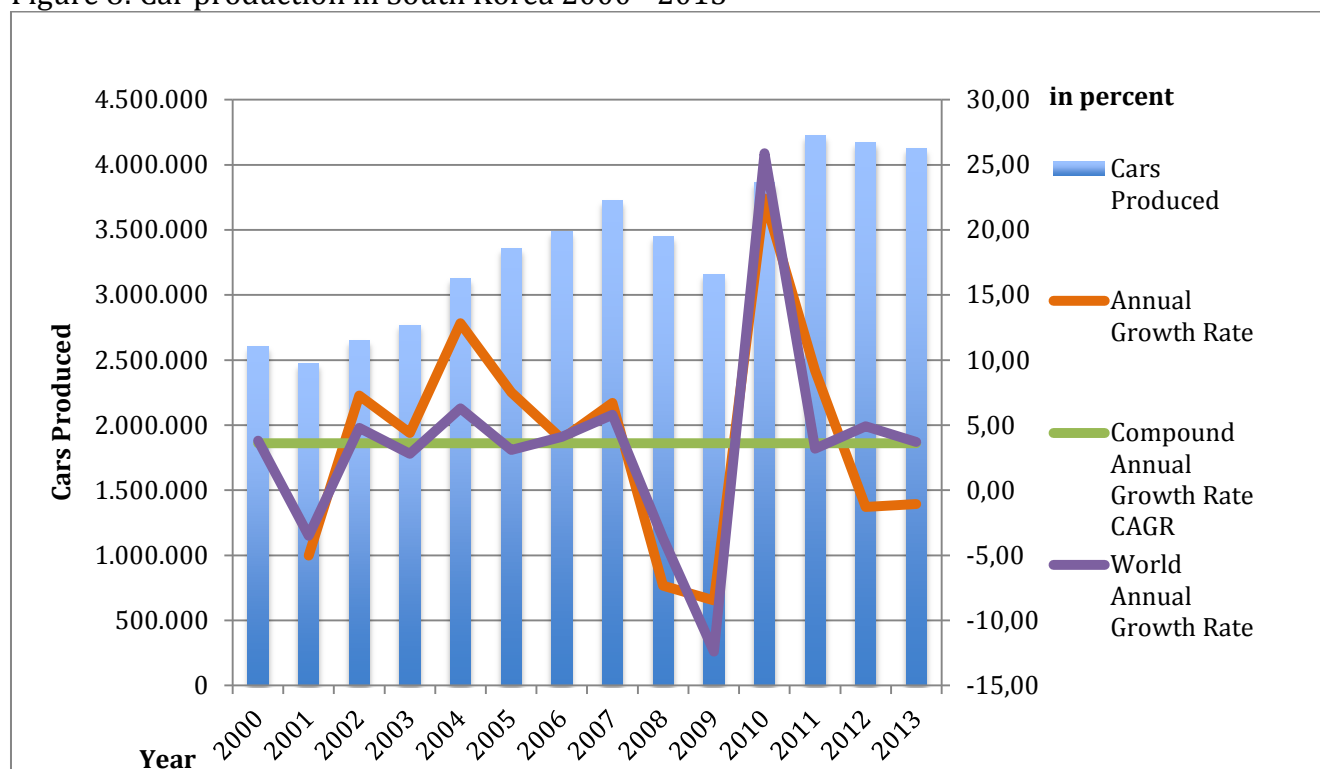
Compared to China's important growth in car production since 2000, which turned the country into the car producer No. 1 in the world, South Korea's development has been much slower and more stable. In 2000, South Korea produced 2,602,008 cars and ranked 5th as car producer in the world with a market share of 6.31% (Table 2). But although the total production of cars increased to 4,122,604 in 2013, the country remained the 5th largest car producer in the world with roughly the same 6.3% market share (Figures 4 and 5). Only in a couple of years between 2000 and 2014, South Korea managed to reach the 4th position and a market share larger than 7%.

Table 2: Car production statistics of selected countries and years

	2000	2003	2005	2007	2009	2011	2013
China	604,677	2,018,875	3,078,153	6,381,116	10,383,831	14,485,326	18,085,213
Germany	5,131,918	5,145,403	5,350,187	5,709,139	4,964,523	5,871,918	5,439,904
India	517,957	907,968	1,264,000	1,713,479	2,175,220	3,040,144	3,138,988
Japan	8,359,434	9,478,328	9,016,735	9,944,637	6,862,161	7,158,525	8,189,323
Mexico	1,279,089	774,048	989,840	1,209,097	942,876	1,657,080	1,771,987
South Korea	2,602,008	2,767,716	3,357,094	3,723,482	3,158,417	4,221,617	4,122,604
USA	5,542,217	4,510,469	4,321,272	3,924,268	2,195,588	2,976,991	4,346,958
World Total	41,215,653	41,968,666	46,862,978	53,201,346	47,772,598	59,897,273	65,433,287
South Korea's Market-share	6.31%	6.59%	7.16%	6.7%	6.61%	7.05%	6.3%
Korea Rank as Producer	5.	5.	4.	5.	4.	4.	5.

Source: Author's own composition based on OICA DATA

Figure 8: Car production in South Korea 2000 - 2013



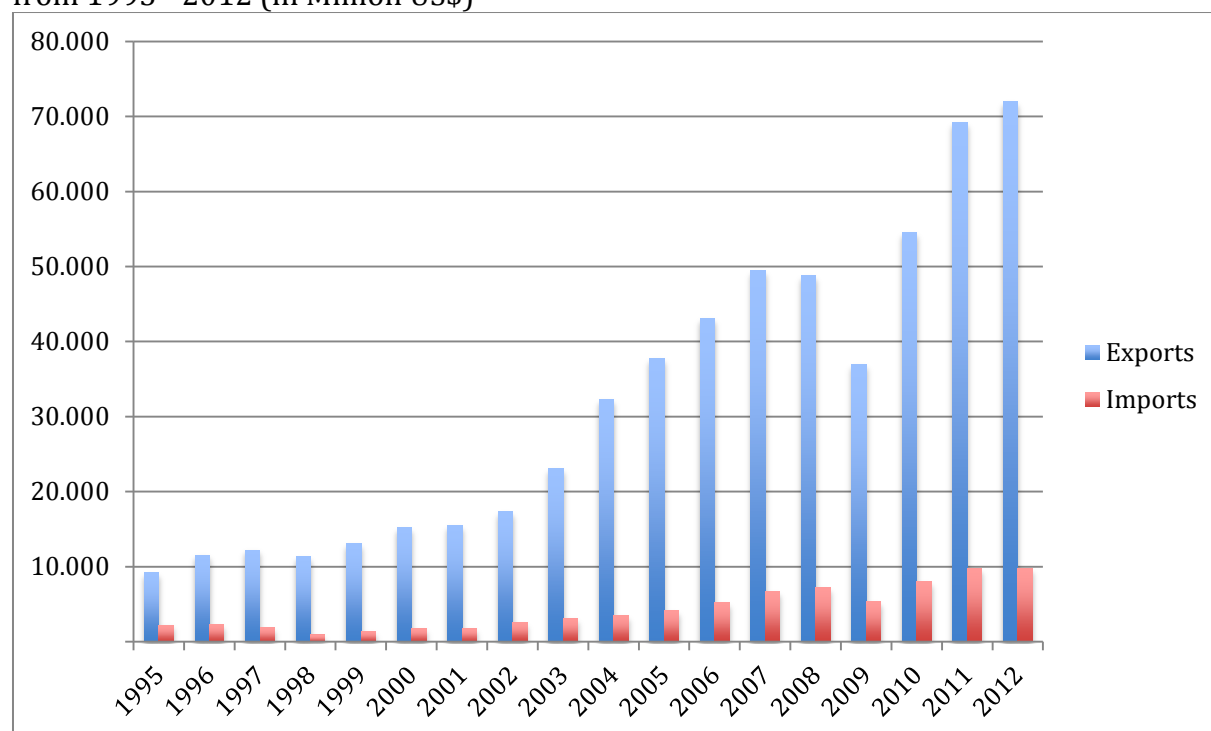
Source: Author's own design based on data from the *OICA* and own calculations (see Appendix)

Figure 8 shows the total increase of South Korea's car production from 2000 to 2013, the yearly growth rate of South Korea's car production, the Compound Annual Growth Rate (CAGR) and in comparison the yearly growth rate of worldwide car production. Compared to China, South Korea's CAGR in car production from 2000 to 2013 is much lower: 3.6% in South Korea compared to 29% in China. The annual growth rates in South Korea are also much lower than China's but more in line with the world's annual growth rates. The highest growth rate between 2000 and 2013 was in 2010 with 22.4%. In addition, unlike China, South Korea experienced a decline in car production and a negative growth in several years.

South Korea's car production in total volume is much lower than in China but the automobile industry's importance for the country's export is much higher. As Table A-3 shows, in 2008, vehicle exports ranked third in the top export industries in terms of value, contributing 11.45% to total exports and 3.91% to total world exports. In 2012 (Table A-4), the role of automobile exports increased, now ranking second after electrical and electronic equipment. The share of total exports grew to 12.79% and the share of total world exports grew to 5.49%.

The importance of South Korea's automobile industry as an export-oriented industry is obvious from the import/export ratio (Figure 9). This figure shows that the import value of automotive products in South Korea is relatively low compared to exports. Since 1995, the value of South Korea's automotive products imports has never surpassed that of the exports. The growing export value is also a sign of a high and continuously growing international demand for South Korea's automotive products.

Figure 9: Development of Export and Import of automotive products in South Korea from 1995 - 2012 (in Million US\$)



Source: Author's own design based on WTO data

Table 3: FDI Flows in South Korea's Motor Vehicle Industry (in million \$ US)

	2003	2004	2005	2006	2008	2009	2010	2011	2012
FDI Outward	179,2	392,3	..	801,962	1601,977	1005,733	1471,859	2156,135	2561,848
FDI Inward	261,2	746,3	177,7	263,8	-165,025	839,435	320,516	750,63	942,511

Source: OECD

Table 3 shows the outward and inward FDI flows in South Korea's Motor Vehicle industry from 2003 to 2012. According to Barragan (2005, 35), growing FDIs can serve as an indicator for an industry's competitiveness. In case of South Korea's automobile

industry, the FDIs in 2012 are much higher than in 2003. It is also interesting to note that the outward FDIs in 2012 are almost three times as high as the inward FDIs, indicating overseas investments and expansion.

Conclusion

China was able to improve the competitiveness in its automobile industry in relatively few years – at least in some areas. In 2000, the country ranked 14th in worldwide car production and produced less than 1 million cars per year and its market share was just about 1.45%. Since 2009, China is the largest car producer in the world and in 2013 the country produced more than 18 million cars and had a market share of 27.6%. But although the production capacity grew dramatically which would show potential for automobile exports, the current export of automobile products doesn't reflect China's importance as a car producer yet. The growing car production and the increasing imports of automobile products mainly serve the country's domestic demand, which could indicate low international competitiveness. The international presence of China's automobile industry is still quite low.

South Korea on the other hand has shown a rather different development since 2000. The country was able to increase its car production in total volume and began as the 5th largest car producer in 2000 and defended this position in 2013 once again. Despite a few increases in market share in some years, South Korea's market share in worldwide car production on the whole remained the same. However, in contrast to China, South Korea's automobile industry contributes a large share to the country's total exports and was able to increase its importance over the past years. In addition, the trade balance of South Korea's automobile sector is quite different from China's. While South Korea's trade balance is positive – the country exports much more automobile products than it imports – China's trade balance is negative. This could be an indication of South Korea's high international competitiveness. In both total terms and the ratio of cars produced and exported, South Korea performs better than China.

3.3 Factor Conditions

In this chapter the factor conditions for the automobile industry in China and Korea are analysed and compared. Among these factors are infrastructure (transportation, energy and communication), wages, education and research facilities and natural resources (raw materials).

3.3.1 Factor Conditions in China

A well-developed infrastructure is a crucial part for economic development and helps securing and improving access to employment or education (ADB 2013).

Moreover, a well-developed infrastructure is also important for exports, since streets or railways connect export-oriented industries with ports in order to ship their products to the world markets (KPMG 2013, 7).

China and South Korea are both important export-oriented economies. According to the World Factbook (2014), China ranks first among the largest exporters in the world, while South Korea ranks 9th. Both countries need a modern infrastructure to maintain or expand their export success. China has been actively investing in its infrastructure, upgrading its roads, airports, ports and railways. According to the World Factbook (2014), China has 71 airports with paved roads over 3,047 meters, 4,106,387 km of roadways, 86,000km of railways, 110,000km navigable waterways and several large seaports such as Dalian, Qingdao, Shanghai, Shenzhen or Tianjin.

China has invested much in infrastructure over the past years – about 8.5% of its GDP between 1992 and 2011 according to McKinsey - but it has still a lot of room for improvement. For example, according to the World Bank, only 63.7% of roads in China are paved. Nevertheless, according to consulting company KMPG, the number of China's highways has grown 16% per year between 2000 and 2012 (KMPG 2013, 11). To further improve its infrastructure, the central, provincial and municipal governments intend to continue with high investments in highway, railway and port constructions, especially in the central and western provinces (KMPG 2013, 8). Regarding railways, the government has not only invested in traditional railways but also in high speed tracks to connect the large cities in the east with the middle provinces. 40,000km of these high speed tracks are to be finished by 2015 (KMPG 2013, 15).

Regarding communication infrastructure, China has the highest number of mobile phone (1.1 billion out of 1.355 billion) and Internet users (389 million) in the world according to the World Factbook (2014).

China also invested a lot in its energy infrastructure, thus turning the country into the largest energy producer in the world (World Factbook 2014). This has been necessary as China is already the largest energy consumer in the world. The Chinese government has taken many measures to supply the country's growing demand for energy, such as investing in foreign oil assets, building oil and gas pipelines or new power plants or by promoting renewable energy sources (US Energy Information Administration 2014).

As Table 4 shows, China's government has been successful in attracting FDIs into several infrastructure sectors such as energy or transport to improve its basic infrastructure.

Table 4: FDI by sector in China in 2011	
Sector	Investment in \$10,000
Total	11,601,100
Agriculture, Forestry, Animal Husbandry and Fishery	200,888
Mining	61,279
Manufacturing	5,210,054
Production and Supply of Electricity, Gas and Water	211,843
Construction	91,694
Transport, Storage and Post	319,079
Information Transmission, Computer Services and Software	269,918
Wholesale and Retail Trades	842,455
Hotels and Catering Services	84,289
Financial Intermediation	190,970
Real Estate	2,688,152
Leasing and Business Services	838,247
Scientific Research, Technical Service and Geologic Prospecting	245,781
Management of Water Conservancy, Environment and Public Facilities	86,427
Source: China Statistical Yearbook 2012	

Another factor of growing importance for the automobile industry are natural resources, specifically rare earth elements.⁶ Despite the name, rare elements are not rare per se but they are usually not found in high concentrations which makes exploitation not economically feasible. The high exploitation costs and environmental problems that came with the exploitation of these rare elements were important reasons why mines in other countries like the USA closed and why these countries have to rely on imports from China, which has become the dominant supplier of rare earth elements in the world with about 95%.⁷ In the automotive industry, rare earth elements are important for the production of catalytic converters, displays, touchscreens and batteries for hybrid and electric cars (Humphries 2013, 3). Especially the latter possible uses might become very important for the Chinese car makers as is demonstrated in the following chapters. In its intention to transform the Chinese economy into one that develops, produces and exports high-tech products instead of exporting raw materials and low tech products, the government has reduced exports of rare earth elements and instead directs these elements to its own high tech industries, thus giving them a cheaper and more reliable access to these important elements and a competitive advantage against international competitors (Wübbeke 05.14.2014).

This dominant role that Chinese companies currently play in the exploitation of rare earth minerals might remain for at least 10 years according to a study of the *Center for European Economic Research (2013)*. The high dependency on China has already resulted in other countries looking for ways to reduce this dependency by recycling rare earth minerals and by increasing exploitation outputs in regions outside of China. Especially Canada, Australia and the United States might become important suppliers of rare earth elements over the next 15 years. However, setting up mines and the necessary infrastructure for exploitation can take up to 15 years, which is why China will likely remain the dominant supplier for the next decade – giving its industry an advantage through preferential access to rare earth minerals.

In order to develop and manufacture high-class products, companies require educated and skilled workers. In 2012, China invested 4.1% of GDP on education, a step up from

6 There are 17 rare earth elements: cerium, dysprosium, erbium, europium, gadolinium, holmium, lanthanum, lutetium, neodymium, praseodymium, promethium, samarium, scandium, terbium, thulium, ytterbium and yttrium.

7 About 15 years ago the USA were self reliant in rare earth elements, since. In 2013 they had to fully rely on imports, mainly from China (Humphries, P.2)

the 3.5% of the year before and the 3.1% from the years 2009 and 2010 (ADB 2013, 321).

In 2012's PISA study, China's students performed very good and ranked among the top six in the fields of mathematics, reading and science (OECD PISA Study 2012). However, only Shanghai, Hong Kong and Macao participated in the study. The study may be useful in the case of Shanghai as the city has a large automobile cluster but with regards to the rest of China the study's results are limited. According to the education part of the UN'S Human Development Report, which includes factors like literacy rate, population with at least some secondary education and student's performance in reading mathematics and science, China performs just above average and only reaches rank 91 out of 187 (UN Human Development Index 2014, 193).

Some universities have established automotive research centers in order to develop new technologies and to train students with necessary skills that are important to the industry. As one result, 40.000 engineers leave Chinese universities every year. But this is still not enough to provide the industry with enough highly skilled employees (Mao 2009). In a study, Mao (2009) showed that income is the most important factor to attract skilled workers, before good working environment or individual factors. China's universities try to motivate their students to study engineering or a natural science and to improve the research environment for their workers. In addition, each university focuses on specific research areas and the government supports industrial conglomeration of related industries around the universities (Mayer-Kuckuk 05.22.2014).

Some car makers have established their own research institutes. Geely opened its Zhejiang Automotive Engineering Institute to train more engineers and to improve their products (The Economist 2009, 94).

This development led to an increase in patent applications. According to the World Intellectual Property Organization (WIPO 2014) China became the number one of patents filed in 2012 with 535,313 patent applications ahead of Japan (287,013) and the USA (268,782). The numbers of trademark and industrial design registrations have substantially increased as well since the year 2000. Trademark registration increased from 129,441 in 2000 to 919,951 in 2012. Industrial design registrations increased from 34,652 to 452,629 in the same time period. So did international patent applications via WIPO administered treaties. Their number rose from 780 in 2000 to 18,617 in 2012 which ranks China number 4 after the USA, Japan and Germany in international patent

applications. The major shares in patent applications are spread out across fields that are related to the automobile industry: digital communication (8.97%), computer technology (6.46%), electrical machinery (5.58%), materials (4.49%), telecommunications (4.09%) or audio-visual technology (3.48%).

In 2013, the average salary for workers in the Chinese automobile industry is about ¥13.58 per hour (Lee 04.19.2013). According to the Chinese Statistical Yearbook of 2012, this is about the average wage in the manufacturing sector in 2011. However, the monthly average wage can vary from ¥1,800 for a Chinese brand to ¥4,000 for foreign brands depending on the company. In addition, foreign companies like FAW-VW may pay their workers additional bonuses between ¥ 50,000 and ¥ 80,000.

Wages in China have been growing dramatically over the past decade. According to the National Bureau of Statistics of China and the China National Yearbook (2012), the average wages in the manufacturing sector in China almost tripled between 2003 and 2011 from ¥12,671 to ¥36,665.

Strikes in China's automobile industry are not yet a large problem and neither are labor unions that still remain weak, especially compared to their Korean counterparts. One of the largest strikes in China's automobile industry occurred in 2010 at Honda's production plant in Guangdong, when workers went on strike for better pay and working conditions (The Guardian 06.11.2010).

Financial support is not a major problem for China's automobile industry, at least not for the large SOEs. The four largest banks in China which account for about 60% of all loans are SOEs.⁸ According to Haley and Haley (2013), these banks give loans to other SOEs not on the basis of market factors or creditworthiness but rather through political directives from central or local governments. The auto industry, called a "national pillar industry" in one of China's Five-Year Plans, receives credits at low interest rates to finance R&D, expansions or mergers and acquisitions.

⁸ The four largest banks in China are the People's Bank of China, the China Construction Bank, the Agricultural Bank of China and the Industrial and Commercial Bank of China.

3.3.2 Factor Conditions in South Korea

South Korea is much smaller than China (99,720 sq km vs. 9,596,960 sq km), which affects the total number of airports with paved runways over 3,047 meters (there are only four in South Korea), the number of railway tracks (3,381 km), roadways (104,983 km), waterways (1,600 km) or the number of major seaports (World Factbook 2014). However according to the World Bank, South Korea has a higher degree of paved roads than China (80.4% vs. 63.7% in 2011).

Between 1992 and 2011, China invested about 8.5% of its GDP in infrastructure; South Korea's infrastructure investments have been at about 8% of its GDP for many years according to the IMF (Mody and Walton, 1998). But Korea's numbers account for an earlier period in the country's development, especially the 1970s. Between 1970 and 1997, Korea's road density grew about 10% per year. Currently, China invests in its infrastructure to catch up with its neighboring countries like South Korea or Japan to reach the same basic infrastructure quality.

Due to Korea's smaller population size (49 million vs. 1,335 billion), the total numbers of mobile phones (53 million) and Internet users (39 million) is lower than China's (World Factbook 2014). However, South Korea invested heavily into Internet and mobile communication infrastructure and as a result the mobile phone and Internet penetration is much higher in South Korea than in China. According to the World Bank (2013), in 2012, 80 out of 100 people in South Korea used the Internet, while in China the number is much lower with only 42.3 people out of 100.

The same phenomenon can be observed by the number of fixed broadband Internet subscribers per 100 people: 37.25 in South Korea and 12.72 in China in 2012. According to OECD (2014) data, South Korea achieves high ranks in households with broadband access and subscriptions as well as historically high penetration rates of fixed and wireless broadband penetration.

With regards to energy supply, South Korea was the 11th largest producer and consumer of electricity in 2011 (World Factbook 2014). According to the US Energy Information Administration (2014), the South Korean government plans to build new coal and gas power plants and to increase the share of renewable energy sources to keep up with the growing energy demand and to supply the economy with stable energy deliveries.

Regarding raw material, South Korea is not rich in natural resources and has to rely on imports (EIA). South Korea has a large competitive electronic industry and its exports

rank first in terms of value. But when it comes to rare earth minerals, China's share of global production is about 95%, which means that South Korean companies will have to rely on imports from China and the Chinese government's regulation (like export quotas) or seek alternatives elsewhere.

However, in the case of the two largest car makers Hyundai and Kia, both can rely on the subsidiaries of their chaebol. Hyundai Motors maintains a steel mill through Hyundai Steel which can supply the car maker branch with high-quality steel.

Regarding investments in education, South Korea invested 3.3% of GDP in this sector in 2011 (ADB 2013, 321). This is slightly more than a year before (3.2%) but less than the 3.7% the government spent in 2008 and 2009 and less than the Chinese government currently spends on education. In 2012's PISA study, Korean students perform quite similar to the Chinese students and reach top positions in mathematics, reading and science. They do however, perform slightly worse than the students in Shanghai and Hong Kong. Nevertheless, it is necessary to keep in mind that the PISA results for China only cover Shanghai, Hong Kong and Macao. In the UN's Human Development Report with regard to education, South Korea outperforms China by far, reaching rank 15 (UN Human Development Index 2014, 192), while China only reaches rank 91.

The high level of education resulted in a high number of patents. Korea shows a steady increase in patent filings, trademark and industrial design registrations as well as international applications via WIPO administered treaties over the period from 2000 to 2014. However, the growth rate is not nearly as high as China's. According to WIPO (2014), patent filings increased from 85,812 in the year 2000 to 203,795 in 2012. The number of trademark registrations grew from 24,342 to 61,505, industrial design registrations from 17,728 to 42,628 in the same time period. International applications grew likewise from 1,578 in year 2000 to 11,847 in 2012. As in the case of China, the major shares in patent applications go to fields that are related to the automobile industry: semiconductor technology (9.84%), audio-visual technology (8.84%), computer technology (7.63%), electrical machinery (7.36%), telecommunications (7.03%) and transport (4.58%).

Salaries in South Korea's automobile industry are quite different from those in the Chinese automobile industry. Their wages are among the highest in the industry which lead to increasing production costs in South Korea. Furthermore, despite the high wages and the second highest rank when it comes to working hours after Mexico, their productivity is just 50% of their US and 80% of their Japanese rivals (Song 05.26.2013).

Another problem is the salary structure. The basic salary is quite low and contributes only 40% to the workers total salary. The rest are regular bonuses like overtime pay or performance based bonuses that are supposed to motivate their workers to work overtime. This practice is common in the automobile industry in South Korea (Song 12.18.2013). However, in March 2012, the Supreme Court ruled that regular bonuses, like overtime, are to be classified as standard wages, which would increase standard wages substantially. This ruling was confirmed in December 2013. However, the judges reduced the number of bonuses that can be classified as standard wages. This means that based on the December 2013 ruling standard wages in South Korea's automobile industry and other sectors will increase but not as much as based on the first ruling from 2012.

According to a report from Korean business management group "CEO Score", the average salary at Hyundai Motors is about ₩94 million and ₩91 million (about \$90,000) at Kia Motors putting both companies among the Korean companies with the highest average salaries (Business Korea 08.08.2013).

Besides the high wages, regular strikes and strong labor unions have become a problem for local car makers. In 2013 alone, labor unions called for strikes on more than 11 weekends which cost Hyundai about ₩1.6 trillion in lost production. Stoppages in production due to strikes in 2012 cost Hyundai about 82,000 cars worth ₩1.7 trillion (Economist 09.11.2013). Therefore, Hyundai and Kia are already discussing the possibility to increase production overseas.

US manufacturer GM plans to cut car production in South Korea by a fifth (Bennett 2013) blaming high production costs due to high wages and strikes that reduced the company's competitiveness.

However, the high wages, likeliness of strikes and relatively low productivity might be an incentive for South Korean car makers to increase productivity in their home base or increase production in their facilities outside of Korea.

In contrast to China's large state-owned car makers, South Korea's competitors rely less on banks to finance their activities and instead prefer the stock market or private banks in search for investors and loans (Wimmer and Benova 2012, 20). However, South Korea's government also supports its car makers financially through subsidies for R&D.

Conclusion

The comparison of China's and South Korea's factor conditions has yielded several results. It became clear that China upgraded several factor conditions, improving infrastructure, education and providing research facilities and skilled workers. The country tries to catch up to South Korea, which is still ahead in areas such as education. Further, China can provide its industry with access to rare earth minerals and other raw materials, while South Korea is poor in natural resources and has to rely on imports.

3.4 Demand Conditions

After the comparison of factor condition, this chapter discusses the demand conditions for the automobile industry in China and Korea. This includes the population and market size (private vehicle possession), the number of cars per 1,000 persons, the sales growth, the auto market composition and the sophistication of buyers. Further, international demand for Chinese and Korean is discussed as well.

3.4.1 Demand Conditions in China

Simply due to its bigger population, one would expect the Chinese car market to be much larger than the Korean in terms of total sales. This might result in large scale advantages for Chinese carmakers even before they enter internal markets, which, in turn, would lead to higher bargaining power and closer or preferential partnerships with supporting and related industries.

Car sales have increased over the past decades with an average growth rate of 18%. In 2009, the sales of new cars increased by more than 50% (Figure 10). In 2005 about 3.9 million cars were sold in China and this number climbed to almost 18 million in 2013 (Table 5). China has become the largest automobile market in 2009 with more than 10 million sales, surpassing the US, with only 5.4 million sales. In 2013 almost 30% of new

cars are sold in China. Figure 11 demonstrates the importance of the Chinese car market. The second largest market, the US can only contribute 12.5% to car sales worldwide. The demand for new cars in China is still growing and is expected to continue to grow in the next years according to several consulting companies, banks and research institutes as well as local and international car makers.

China might surpass the EU auto market in 2015 and by 2019 China's auto market might be as large as that of the US and Western Europe combined (Handelsblatt 08.30.2013).

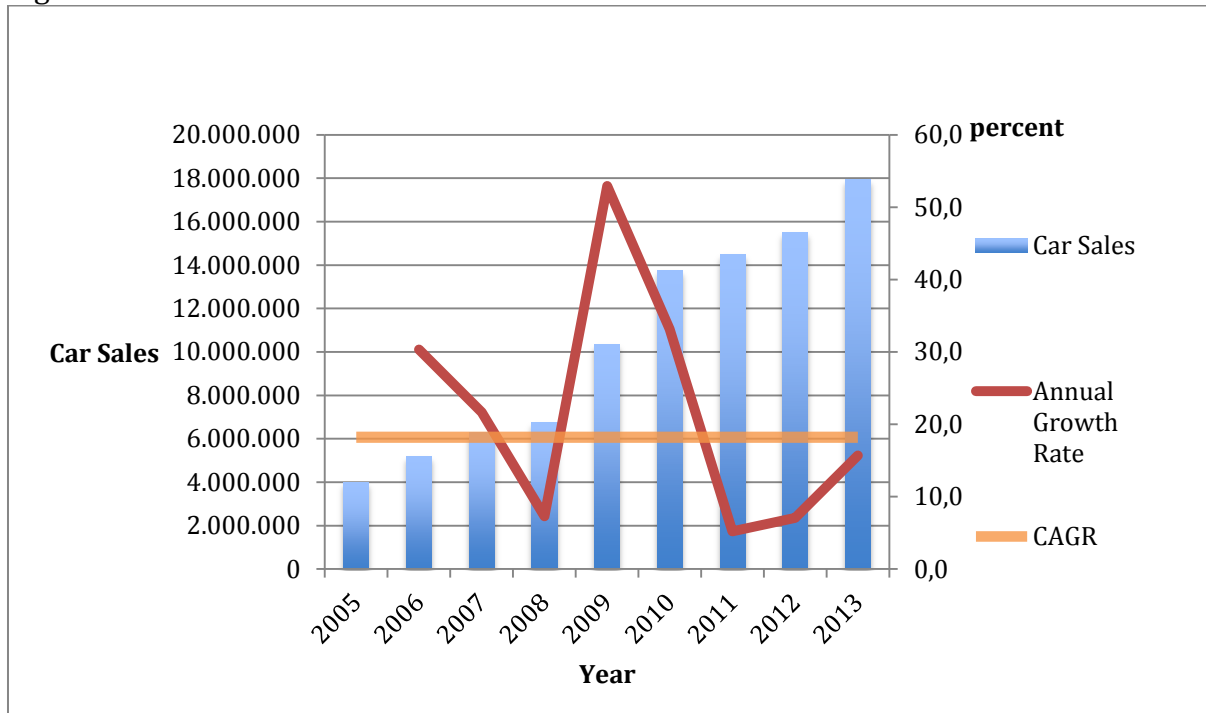
In 2013 consulting company *Ernst & Young* conducted a survey among 150 Chinese car makers and suppliers about their expectations and strategies. The majority of them, about 90%, expect further growth in the automotive market with a least 5% per year over the next two years (Ernst & Young October 2013, 5).

Table 5: Car sales in selected countries in selected years (with a focus on China)

	2005	2008	2009	2010	2011	2012	2013
China	3,971,101	6,755,609	10,331,315	13,757,794	14,472,416	15,495,240	17,928,858
France	2,118,042	2,091,369	2,302,398	2,251,669	2,204,229	1,898,760	1,790,473
Germany	3,319,259	3,090,040	3,807,175	2,916,259	3,173,634	3,082,504	2,952,431
India	364,319	1,545,414	1,816,878	2,387,197	2,510,313	2,781,919	2,553,979
Japan	4,748,482	4,184,266	3,905,310	4,203,181	3,509,036	4,572,333	4,562,282
South Korea	941,483	1,020,457	1,234,618	1,318,257	1,324,095	1,325,229	1,243,868
United States	7,659,983	6,769,107	5,400,890	5,635,432	6,089,403	7,241,900	7,585,867
World Total	45,209,905	49,658,689	49,344,608	55,337,524	57,299,917	60,432,044	62,644,460
Chinese market as % of the world	8.78%	13.6%	20.94%	24.86%	25.26%	25.64%	29.67%
China Rank	3.	2.	1.	1.	1.	1.	1.

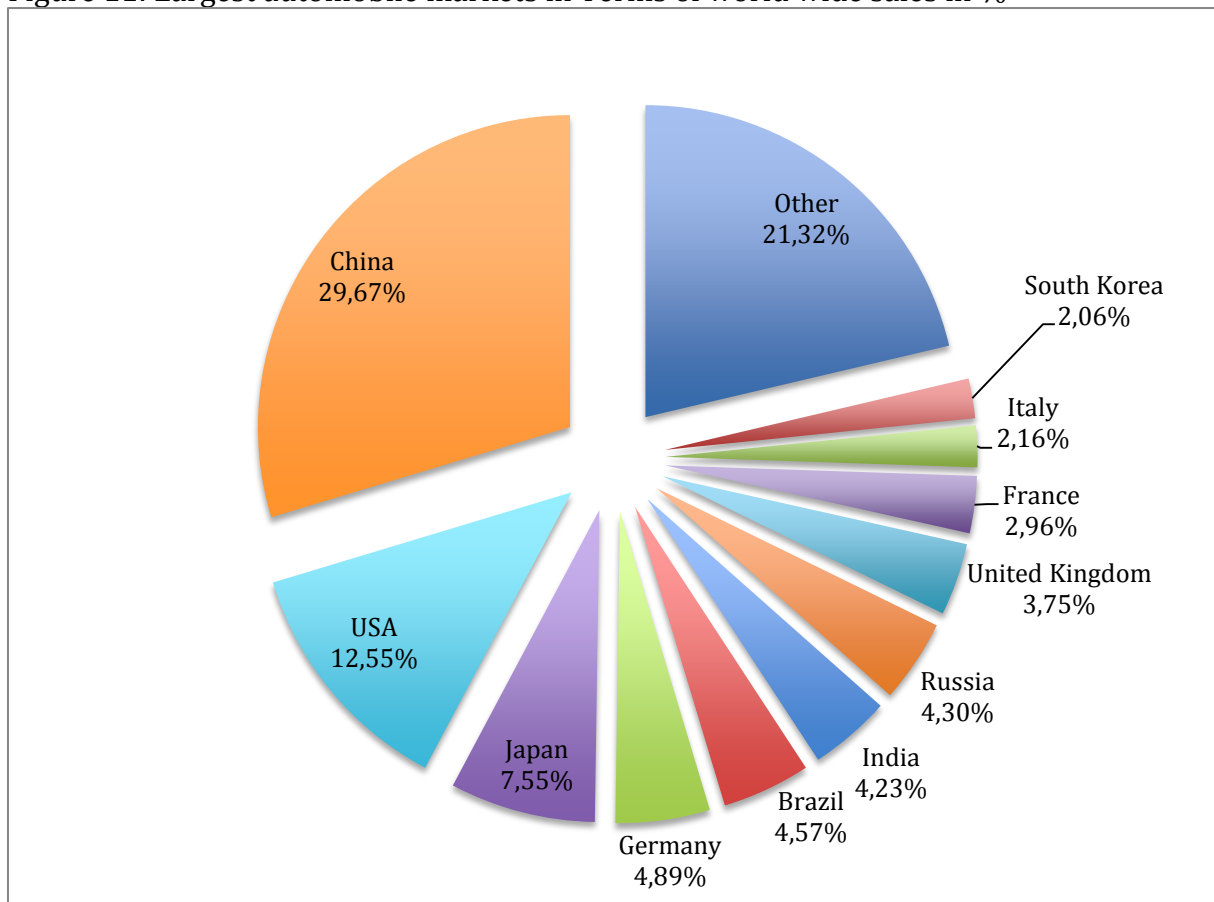
Source: Author's own compilation based on OICA Data

Figure 10: Car sales in China 2005 - 2013



Source: Author's own design based on data from the *Organisation Internationale des Constructeurs d'Automobiles* (OICA)

Figure 11: Largest automobile markets in Terms of world wide sales in %



Source: Author's own design based on data from the *Organisation Internationale des Constructeurs d'Automobiles* (OICA)

This optimism regarding China's car market is due to the still low rate of cars per person in China. According to the World Bank (2013), only 69 out of 1,000 people in China owned a car in 2011 (Table 6). This is much more than in the year 2000, when only 12 out of 1,000 people owned a car. But compared to Western markets like the US (786 cars per 1,000 persons) or Germany (580 car per 1,000 persons) the number of cars per 1,000 persons is still quite low and offers a huge potential for further growth. Even other Asian economies like Japan (588 cars per 1,000 persons) and South Korea (370 cars per 1,000 persons) have more cars per 1,000 persons than China.

Table 6: Motor vehicles per 1,000 people in selected countries

	2000	2002	2004	2006	2008	2010	2011
China	12	16	20	28	27	58	69
Germany	546	576	537	549	556	572	580
India	9	10	12	15	16	18	-
Japan	564	574	581	592	592	590	588
South Korea	257	293	311	239	343	363	370
United States	785	798	810	818	816	782	786

Source: Author's composition based on Data from the *World Trade Organization (WTO)*

China witnessed a tremendous increase in sales and production of cars over the past decade and due to the relatively low number of motor vehicles per 1,000 people, the market has still potential for further growth.

Wu (2004) argued that domestic demand and the growing Chinese middle class together with higher levels of sophistication would be a competitive advantage for China's automobile industry.

However, at the moment the largest beneficiaries of this growing demand are foreign car makers as Table 7 shows. This table shows the top twenty brands in terms of sales in China in the first half of 2014.

Table 7: Top Twenty car brands in the first half of 2014 in terms of sales

Rank	Brand	Manufacturer	Sales
1	Volkswagen	FAW-Volkswagen, Shanghai-Volkswagen	1,477,275
2	Wuling	SAIC-GM-Wuling (SGMW)	764,440
3	Hyundai	Beijing-Hyundai	557,327
4	Changan/Chana	Changan	529,856
5	Buick	Shanghai-GM	451,915
6	Nissan	Dongfeng-Nissan (incl. Zhengzhou-Nissan)	427,651
7	Toyota	GAC-Toyota, FAW-Toyota	427,086
8	Ford	Changan-Ford	398,225
9	Chevrolet	Shanghai-GM	359,168
10	Honda	GAC-Honda, Dongfeng-Honda	336,846
11	Kia	Dongfeng-Yueda-Kia	311,805
12	Dongfeng	Dongfeng (Dongfeng Liuzhou, Dongfeng Fengshen, Dongfeng Sokon, Zhengzhou-Nissan)	285,846
13	Audi	FAW-Volkswagen	250,514
14	Chery	Chery	219,140
15	BYD	BYD	206,396
16	Geely	Geely	187,426
17	Peugeot	Dongfeng-PSA (DPCA)	186,352
18	Haval	Great Wall	172,067
19	Citroen	Dongfeng-PSA (DPCA)	160,038
20	BAIC	BAIC	148,037

Source: Based on *China Auto Web* Data From Passenger Car Sales Jan-May by Brand

Only two Chinese brands (*Wuling* and *Changan*) are among the Top 10 brands in terms of sales in the first half of 2014, only one (*Changan*) when counting only brands that are produced by Chinese manufacturers without a joint venture. However, in the same timeframe, eight Chinese brands reached a position within the Top 20. The remaining positions are claimed by foreign brands. *Volkswagen* has been especially successful, selling almost twice the number of cars as *Wuling*, which ranks second place. Table 8 shows the Top Twenty car brands for the year 2013 in terms of sales, demonstrating that foreign car makers performed even better in 2013, as only a single Chinese brand (*BYD*) was among the Top 10 and only six brands were in the Top 20.

According to the Chinese Association of Automobile Manufacturers (CAAM), the market share of Chinese brands has declined over the years and is currently at an all-time low as only 36.51% of cars sold in May 2014 belong to Chinese brands (CAAM 06.17.2014).

Table 8: Top Twenty car brands in 2013 in terms of sales

Rank	Brand	Sales
1	Volkswagen	2395696
2	Hyundai	1030808
3	Toyota	857749
4	Nissan	843063
5	Buick	807700
6	Honda	729568
7	Chevrolet	714743
8	Ford	678,951
9	Kia	546766
10	BYD	506189
11	Changan	500500
12	Wuling	448484
13	Chery	437044
14	Audi	411730
15	Great Wall	347672
16	Citroen	280001
17	Great Wall Haval	279764
18	Peugeot	272072
19	Skoda	231200
20	Suzuki	229535

Source: Based on China Auto Web, "2013 Passenger Vehicle Sales by Brand"

Table 9 shows the 25 bestselling sedans, hatchbacks and coupes in the first half of 2014. The table again demonstrates the dominance of foreign brands. The bestselling car in these categories from a Chinese brand is the *Changan Eado* on rank 21. Middle class sedan models by foreign brands - mainly Volkswagen - claim the top positions.

Table 9: Top 25 bestselling Sedans/ Hatchbacks/ Coupes in the first half of 2014

Rank	Models	Manufacturers	Sales
1	Volkswagen Lavida, sedan version	Shanghai-Volkswagen	203,008
2	Volkswagen New Santana	Shanghai-Volkswagen	161,952
3	Volkswagen Sagitar	FAW-Volkswagen	155,393
4	Volkswagen Jetta	FAW-Volkswagen	152,621
5	Buick Excelle	Shanghai-GM	147,404
6	Nissan Sylphy	Dongfeng-Nissan	145,214
7	Volkswagen Passat	Shanghai-Volkswagen	135,954
8	Chevrolet Cruze	Shanghai-GM	126,236
9	Volkswagen Bora	FAW-Volkswagen	123,287
10	Chevrolet Sail, sedan version	Shanghai-GM	119,662
11	Hyundai Elantra Langdong	Beijing-Hyundai	114,085
12	Volkswagen Magotan	FAW-Volkswagen	110,449
13	Hyundai Verna, sedan version	Beijing-Hyundai	105,112
14	Buick Excelle GT	Shanghai-GM	100,231
15	Volkswagen Golf	FAW-Volkswagen	91,517
16	Audi A6L	FAW-Volkswagen	85,875
17	Kia K3	Dongfeng-Yueda-Kia	82,274
18	Toyota Camry	GAC-Toyota	81,970
19	Honda Crider	GAC-Honda	81,758
20	Hyundai Elantra Yuedong	Beijing-Hyundai	76,967
21	Changan Eado	Changan	74,553
22	Ford New Focus, sedan version	Changan-Ford	71,971
23	BMW 5-Series	BMW-Brilliance	71,381
24	Kia K2, sedan version	Dongfeng-Yueda-Kia	68,532
25	Ford New Focus, hatchback version	Changan-Ford	64,556

Source: China Auto Web

Two market segments have become very important in China: premium or luxury cars and SUVs.

Demand for these cars has been growing rapidly over the past 10 years. In 2012, 2 million SUVs were sold in China, 25.5% more than the year before (China Daily 02.26.2013). This has led Chinese car makers to develop and offer SUVs themselves. Nevertheless, Chinese brands only account for 39% of market share in this segment, although SUV sales from Chinese brands increased by 59.9% in 2012 compared to the year before (China Daily 11.07.2013).

Table 10: Top 20 bestselling SUVs in China in 2013

Rank	Model	Maker	Sales
1	Haval H6	Great Wall	217,889
2	VW Tiguan	Shanghai-VW	199,782
3	Honda CR-V	Dongfeng-Honda	199,333
4	Hyundai ix35	Beijing-Hyundai	156,876
5	Great Wall M4	Great Wall	128,054
6	Nissan Qashqai	Dongfeng-Nissan	124,589
7	Toyota RAV4	FAW-Toyota	117,800
8	Audi Q5	FAW-VW	102,514
9	Ford Kuga	Chang'an-Ford	95,891
10	Toyota Highlander	GAC-Toyota	95,216
11	BYD S6	BYD	93,168
12	Kia Sportage R	Dongfeng-Yueda-Kia	88,285
13	Chery Tiggo	Chery	78,245
14	Chang'an CS35	Chang'an	75,643
15	Hyundai Santa Fe	Beijing-Hyundai	74,437
16	Trumpchi GS5	GAC	65,742
17	Haval H5	Great Wall	61,875
18	Buick Encore	Shanghai-GM	61,563
19	Ford EcoSport	Chang'an-Ford	59,680
20	Lifan X60	Lifan	56,647

Source: China Auto Web

SUV sales even outpace passenger cars since demand for SUVs grew about 49% in 2013 while the growth rate for total passenger cars is only about 15% (Murphy 04.19.2014). McKinsey estimates that the number of SUV sales will triple by 2022 (McKinsey 2012, 8).

Many companies have announced plans to offer additional SUV models to profit from this trend. The Japanese premium brands *Lexus* and *Infinity* intend to introduce their new smaller premium SUVs in 2015 and American brand *Jeep* will increase production by manufacturing SUVs with FIAT's Chinese partner *Guangzhou Automobile Group*.

One of the few private Chinese car makers that could profit from this trend is *Great Wall* which not only improved its market share from 2.2% in 2010 to 3.5% in 2013 but also increased its profits by 60% compared to last year to about €750,000 (Murphy 01.15.2014). The Great Wall *Haval H6* was the bestselling SUV in 2013, outselling foreign SUVs like the Volkswagen *Tiguan* or the Honda *CR-V* (Table 10). Great Wall's other SUV model the *M4* ranks 5th among the bestselling SUVs of 2013. Other Chinese

brands like Chery, BYD and GAC also managed to successfully offer SUVs that are among the bestselling SUVs in China. With regards to SUVs, Chinese brands seem to be competing much more successfully with their foreign competitors than in other market segments like sedans.

According to Porter (1990), sophisticated domestic customers are a competitive advantage as they demand more sophisticated goods from companies. GDP per capita and the UN Human Development Report will represent customer sophistication. As shown in the previous chapter, China only performed slightly above average in the 2014 UN Human Development Report. However, it performed much better in Shanghai and Hong Kong, which indicates large gaps in education and sophistication in the country. GDP per capita in China was \$6,807 in 2013, a large step forward from \$3,749 in 2009 (World Bank 2014). However, South Koreans performed much better in the UN Human Development Report and in 2013 its GDP per capita was almost four times higher than that of China with \$24,454, indicating that South Korean customers are more sophisticated on average than their Chinese counterparts.

Cars have become a status symbol and Chinese customers are showing more brand awareness, which means that the market for premium cars is growing in China. But the market share of premium cars is still low with only 5.9%, compared with 12 and 18 % in the US and Europe (Schmidt 04.20.2014). In 2013, 1.4 million premium and luxury cars were sold in China. This number might be more than twice as high in 2020, which would make China a larger market for premium and luxury cars than the US market which is expected to grow to 2.3 million car sales in this market segment in the same timeframe (Handelsblatt 03.04.2013).

As a consequence, the Chinese premium and luxury car markets' high growth rates and the future potential are still attracting international car makers that are not yet present in China. Ford, for example, announced their plans to offer their premium brand *Lincoln* in China by 2016 with 60 dealerships located in 50 cities (White 04.17.2014).

The premium and luxury market segments are growing as Chinese customers are becoming more demanding and the number of customers with a high enough income to afford a premium car is already high and continues to grow.

The Chinese middle class, as defined by McKinsey (2013) as a household with an income of \$6,000 to \$25,000 a year, has increased dramatically since the mid-1990s when the middle class in China barely existed. But the number has grown and still continues to do

so, especially in the urban areas. According to a McKinsey study (2013), about 75% of the urban population in China will have an income between \$9,000 and \$34,000 per year by 2022. And 51% of all Chinese families might have an income between \$17,000 and \$37,000 per year by 2020. The study argues that the upper middle class, especially in smaller cities in the inland will become the major share of urban households and the driver for private consumption. In addition, more than 80,000 households in China already have an income of €5 million per year and 360 billionaires currently live in China. According to Porter, demanding customers should benefit Chinese car makers. However, the market for premium and luxury cars is almost exclusively covered by foreign companies from Europe, the US or Japan.⁹ And for some of these companies China has already become the largest market. As a consequence, they adapt their products to fit the taste of their Chinese customers, changing details in the design of the car's interior and exterior (e. g. more Chrome elements in the car) to make the car appear even more luxurious and an even higher status symbol. They offer their cars in China with a longer wheelbase or sell special editions named after symbols in Chinese mythology, for example dragons (Grünweg 05.01.2012 and Mayer-Kuckuk 04.21.2014). Sometimes they also improve their entertainment systems to better recognize Chinese characters like Audi does with its MMI system.

VW China and Audi China already have their own R&D centers in China with more than 2,500 engineers who work on developing products specifically for China (Handelsblatt 04.22.2013)

For Western premium and luxury brands, China has already become the largest market. Rolls Royce sells most of its luxury limousines in China and both BMW and Mercedes sell almost half of their current flagships - the 7 series and the S-class – in this country (Schmidt, 04.20.2014). About 40 % of Audis sold in China are higher class models like the A6 models and above. These segments in China have become very profitable for Western car makers with their high profit margins in spite of the high taxes. Due to these profits and the high growth rates in premium and luxury segment, several international car makers have announced plans to expand their presence in China by

⁹ The German Premium brands alone account for about 80% of China's premium market (Handelsblatt 03.04.2013)

increasing the number of dealerships in China, thus putting further pressure on Chinese car makers (White 04.24.2014).¹⁰

The Chinese automotive industry could benefit from their demanding domestic customers, but only in the mid or long run, when they are able to offer products that can compete with their international rivals. But so far, Chinese car makers have not yet developed a successful premium car. Chinese cars for more than ¥200,000 or €25,000 only accounted for 0.2% of cars sold in China in 2012 (Yu and Murphy, 06.08.2013). FAW revived the *Hongqi* as a premium brand which is based on a Toyota and which retailed for €37,000 with public officials as the main target group. Geely and SAIC try to sell premium cars under the international Volvo and Roewe/MG brands they acquired a few years ago. However, their success has been limited, as sales of their brands remain low.

But although premium and luxury cars have become an important market segment for international car makers, they and their Chinese joint-venture partners and rivals have and are investing in more affordable cars for the mass markets and intend to increase their production for these market segments. VW announced plans to offer a low-price car in China by 2016 or early 2017 that will be sold for a price of ¥60,000 or €7,000 (Handelsblatt 04.20.2014). Japanese rival Toyota announced plans to offer 15 new car models in China by 2017 and to double its current yearly sales of 1.1 million cars (Yu 04.20.2014).

The growing interest in smaller, more affordable cars is due to new potential markets in China. The (smaller) cities in the central and western provinces will account for a major share of car sales in the near future (McKinsey 2012, 8). However, the average household income in these areas is lower than in the eastern cities. Car makers will therefore have to offer more affordable cars to attract these customers.

However, the time of high growth rates in the Chinese car market may soon be over or at least slow down. In the first quarter of 2014, the growth rate of passenger car sales was about 10% (Yu 04.18.2014). This growth rate alone might look impressive but when compared to the 16% growth rate during the same period in 2013 it is a serious decline. Environmental concerns, an economic slowdown and restrictions for new car licenses are the main growth barriers.

10 Lincoln, Ford's luxury brand, plans to have 60 dealerships in China by 2016. Mercedes Benz plans to open even 100 new stores in 2014 alone by opening dealerships in 40 new cities.

Chinese mega cities suffer from the high numbers of cars in their streets, leading to problems such as traffic jams and air pollution (Handelsblatt 01.09.2014). Especially the latter is under government observation. Carbon monoxide levels in some Chinese cities are 40 times as high as those deemed safe by the World Health Organization. Therefore, the government already intervenes in the car market by promoting new energy vehicles (NEV) through subsidies and limits the licenses for new cars (cf. chapter 3.7.1 “Government in China”). Due to the government’s intention to promote NEVs, domestic car makers see the reduction of CO₂ emissions and electric mobility as important trends in the market (Ernst & Young 2013, 7).

The number of new energy vehicle cars in China is growing. In 2012, 11,375 electric vehicles were sold. In 2013, the number grew by 25% to a total of 14,243 sales (China Association of Automobile Manufacturers 2014). However, when compared to the 20 million cars sold altogether in China in 2013, electric cars and other new energy vehicles only account for a tiny percentage of sales and the total sales are far from the 500,000 NEVs that the government hoped would be on China’s roads by this time (Browne 11.27.2013). According to Kasperk and Wilhelm (2010, 6), the number of potential customers who might consider buying an NEV is higher in China than in Europe. The low sales of NEVs and the high sales of SUVs and Premium cars may also be an indicator that Chinese customers consider the display of wealth and status more important than environmental factors when buying a car. Cars have become a status symbol in China and this status is not expressed through environmental factors like sustainability or low fuel consumption (Schmidt 04.20.2014). However, this is slowly changing and more than a third of new car buyers are at least interested in a hybrid car according to a study from the business consulting company Progremium (2011). This led the Chinese government to offer additional incentives to Chinese customers in order to increase the number of new energy vehicles to 5 million. Both the government incentives and the growth rates in this market segment seem to have boosted interest in hybrid cars, as several foreign MNEs such as Volkswagen and Daimler and local companies like BYD and Brilliance China Automotive Holdings Ltd, have announced more than a dozen NEV to be produced and sold in China in the next years.

Nevertheless, there is still potential for further growth. The number of cars per citizen is still low and car makers may look to smaller cities, rural regions and the central or Western provinces for further growth. In addition, new technologies such as electric or hybrid cars may boost sales (Yu and Murphy 11.20.2013).

International demand for Chinese automobiles and automobile parts has grown as well over the past decade as figure 7 shows. Chinese car makers were able to export more than one million cars in 2012. However, in 2013 Chinese car exports fell under the mark of one million cars again. Table 11 shows the Top 15 Chinese exporters in 2012. It can be seen that Chery was able to export the most cars, almost twice as much as Geely on rank two. Another interesting result is that the top three exporters are all private companies. SAIC on rank four is the first state-owned car maker. A possible explanation may be that the private car makers had difficulties competing with their state-owned domestic rivals and their foreign joint-venture partners which focused on sales in China's growing market. As a consequence, some of China's private car makers decided to also follow an export-oriented strategy ahead of their state-owned rivals.

China's car makers have so far focused on developing economies in Africa, the Middle East and Latin America as Table 12 shows. Algeria, Russia, Chile, Iran or Iraq are the top destinations for Chinese cars. Using GDP per capita as a measure for sophistication, then according to GDP per capita in 2013, customers in Algeria (\$5,361), Russia (\$14,612), Iraq (\$6,670), Iran (\$4,763) and Chile (\$15,732) are less sophisticated than in the developed markets like the US, Japan or Germany (World Bank 2014).

Table 11: Top Chinese car makers in terms of export

Car maker	2012 Export sales	Change from 2011 in %
1. Chery	184,757	16.26
2. Geely	100,779	165.01
3. Great Wall	96,465	16.06
4. SAIC	95,653	58.03
5. Lifan	87,014	102.31
6. Dongfeng	84,783	32.26
7. JAC	57,251	-15.30
8. GAC	52,952	71.01
9. Chang'an	51,933	-35.77
10. BAIC	50,869	18.43
11. Brilliance	44,568	32.76
12. Sinotruk	26,132	17.66
13. BYD	23,842	39.26
14. FAW	22,888	76.41
15. Xiamen King Long	19,155	25.26

Source: China Auto News

Table 12: Top Ten export destinations of Chinese cars in 2012 and 2013 (Jan-Nov) in units

Country	Exports of Chinese vehicles in 2012	Country	Exports of Chinese vehicles from Jan – Nov 2013
1. Algeria	149,800	1. Algeria	112,100
2. Iraq	90,100	2. Russia	84,100
3. Russia	89,700	3. Chile	71,600
4. Iran	77,800	4. Iran	50,200
5. Chile	62,700	5. Peru	37,300
6. Peru	37,200	6. Columbia	34,500
7. Egypt	34,600	7. Egypt	32,200
8. Venezuela	32,800	8. Iraq.	28,700
9. Colombia	31,300	9. Uruguay	28,500
10. Ukraine	30,600	10. Ukraine	27,200

Source: China Auto News

3.4.2 Demand Conditions in South Korea

The South Korean market is much smaller when considering total volume in car sales and potential car sales in the future. In 2013, 1,243,868 cars were sold in Korea. This is more than the 941,483 cars sold in 2000 but compared to the almost 18 million cars sold in China in 2013, South Korea's car market is of far lesser significance. South Korea's car market is the 10th largest car market in the world with a share of almost 2% in 2013.

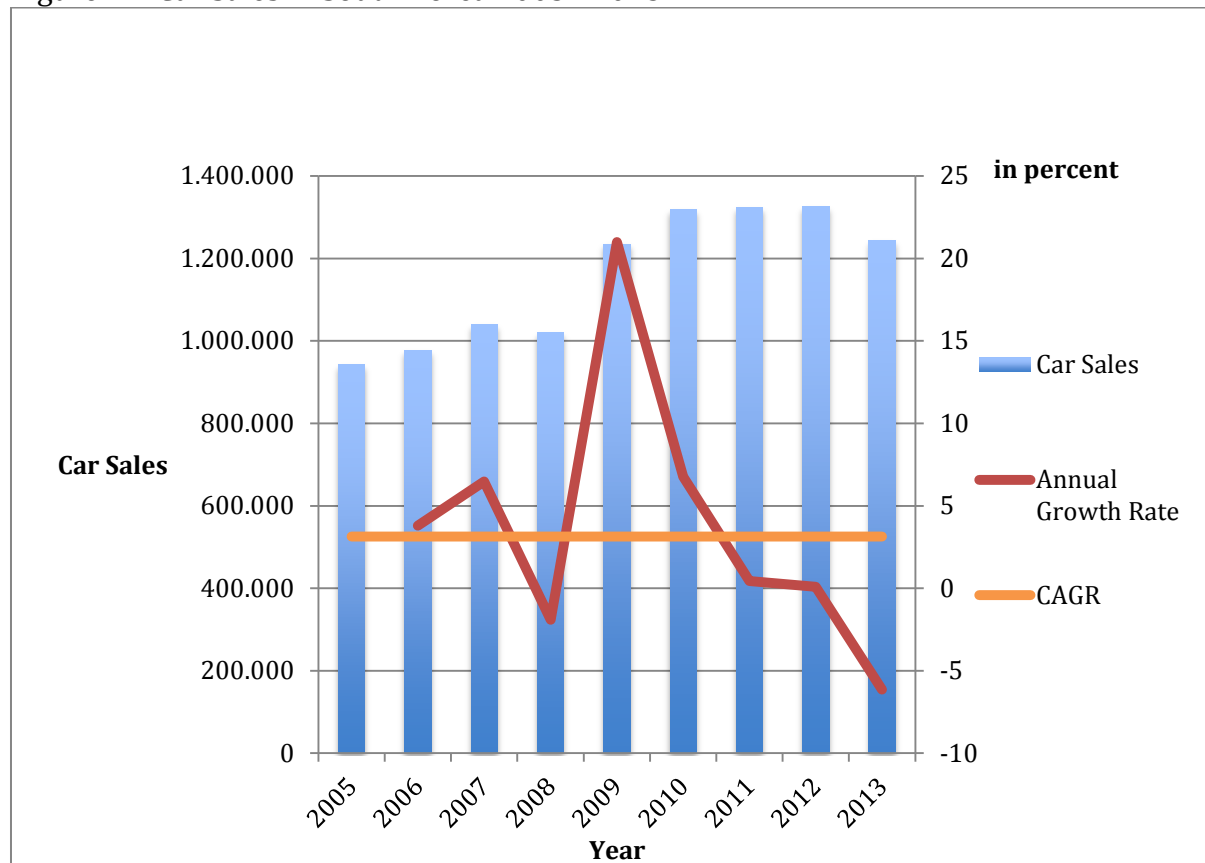
In addition, the growth rates in car sales are also lower than China's. The Compound Annual Growth Rate was only about 3.1% between 2000 and 2013. According to the World Bank, the number of cars per 1,000 people in South Korea was 370 in 2011. In 2000, the number was much lower with 257 cars per 1000 people. When comparing the number of cars per 1,000 people in 2011 in South Korea (370) and Japan (588), South Korea's car market still has potential for further growth.

Table 13: Car sales in selected countries in selected years (with a focus on South Korea)

	2005	2008	2009	2010	2011	2012	2013
China	3,971,101	6,755,609	10,331,315	13,757,794	14,472,416	15,495,240	17,928,858
France	2,118,042	2,091,369	2,302,398	2,251,669	2,204,229	1,898,760	1,790,473
Germany	3,319,259	3,090,040	3,807,175	2,916,259	3,173,634	3,082,504	2,952,431
India	364,319	1,545,414	1,816,878	2,387,197	2,510,313	2,781,919	2,553,979
Japan	4,748,482	4,184,266	3,905,310	4,203,181	3,509,036	4,572,333	4,562,282
South Korea	941,483	1,020,457	1,234,618	1,318,257	1,324,095	1,325,229	1,243,868
United States	7,659,983	6,769,107	5,400,890	5,635,432	6,089,403	7,241,900	7,585,867
World Total	45,209,905	49,658,689	49,344,608	55,337,524	57,299,917	60,432,044	62,644,460
South Korean market as % of the world	2.08%	2.05%	2.5%	2.38%	2.31%	2.19%	1.98%
SK Rank	11.	11.	10.	10.	10.	10.	10.

Source: Author's own compilation based on OICA Data

Figure 12: Car Sales in South Korea 2005 - 2013



Source: Author's own design based on data from the *OICA* and own calculations (see Appendix)

Korean customers may be considered more sophisticated due to higher education and a higher GDP per capita as shown in the previous chapter.

The higher sophistication of Korean customers should translate into a higher demand for sophisticated cars, including premium and luxury cars. Traditionally, these segments have been dominated by Korean car makers. Hyundai and Kia offer their own premium cars like the *Hyundai Genesis* or the *Equus*.

This dominance has been severely reduced since the EU-Korean FTA in 2011. European producers of premium and luxury cars were able to increase their market share in their segment from 28% in 2011 to 41% in 2013 (Knauer Michael 05.20.2013).

It is possible that this trend will continue since tariffs on imported cars will be completely removed by 2016, thus further reducing the cost for European cars. In addition, some European premium brands intend to increase their product portfolio in Korea, putting further pressure on local brands. So far, local car makers have reacted by slicing prices for their products in the premium market segment and they may adapt a new strategy by copying their Japanese rivals which established their own premium brands like Lexus (Toyota), Infinity (Nissan) or Acura (Honda).

But besides the premium market segment, the demand for foreign cars is low despite relatively high growth rates. Before the FTA, imports accounted only for a minor share in South Korea's car market. In 2000, imported cars achieved a market share of 0.4% (Lee 2011, 884). By 2009, imported cars increased their market share to 4.4%.

In 2012, imported car sales grew almost 20% and achieved a record high market share of 10.5% with 131,000 sold cars (KAMA 2013, 5).

Table 14: Imported cars by origin

Region	2012	Share in %
Total	131,963	100.0
EU	97,786	74.1
Japan	23,855	18.1
US	10,237	7.8

Source: Authors composition based on KAMA Data

Most of South Korea's imported cars originate from the European Union followed by Japan and the US (Table 14). German car makers account for the vast majority of European car imports with a total of 83,956 units in 2012 (KAMA 2013, 14). BMW is the leading imported brand in Korea, followed by Mercedes-Benz, Volkswagen and Audi. In addition, BMW's *5 series* is best the selling imported car, followed by Toyota's *Camry*, the *E-Class* and the *3 series*.

According to a 1999 report by J.D. Power, South Korean car buyers were afraid that if they might buy a foreign car they were more likely to be tax audited, that their car might be vandalized that they themselves might be assaulted or that they might be under more control by the police (The Economist Vol. 396 2010, 64).

During the Asian Financial Crisis, when South Korea suffered from economic problems, austerity and the country's growing trade deficit, "*Purchasing imported cars has been criticized by the mass media (and politicians) as kwasobi (over-consumption)*" which would only increase the country's economic problems (Lee 2011, 895). Politicians and celebrities even ran commercials appealing to people's patriotism to buy domestic cars. These campaigns influenced customers even after the Asian Financial Crisis was over.

In contrast to China's auto market with its high growth rate in sales, the growth rates of South Korea's auto market are much lower. In 2012, sales even showed a negative growth (Figure 12). According to KAMA, this is due to economic uncertainty, shrinking purchase power, high personal debt and rising oil prices (KAMA 2013, 9).

Table 15: Domestic sales in passenger cars by Type

Type	2011	2012	Change in %
Total	1,211,284	1,175,891	-2.9
Mini	184,899	202,844	9.7
Small	284,697	262,068	-7.9
Medium	247,854	238,117	-3.9
Large	209,616	163,368	-22.1
SUV	233,699	256,923	9.9
Other	50,609	52,571	3.9

Source: Based on KAMA (2013, 10)

The total passenger car market decreased by 2.9% in 2012 as shown in Table 15. Especially the market segments for large and small cars witnessed the strongest decrease with 22.1% and 7.9% less sales than in the year before. The drop in sales in large cars is also due to stronger sales of imported premium cars (KAMA 2013, 9). On the other side, the market segments for mini cars and SUVs showed a strong growth in sales with a plus of 9.7% and 9.9% in 2012.

Table 16: Domestic sales by Korean car makers

Maker	2011	2012	Change in %
Total	1,474,637	1,410,857	-4.3
Hyundai	684,157	667,777	-2.4
Kia	493,003	482,060	-2.2
GM Korea	140,705	145,702	3.6
Renault Samsung	109,221	59,926	-45.1
SsangYong	38,651	47,700	23.4
Other	8,900	7,692	-13.6

Source: KAMA (2013, 11)

The Korean automobile market is dominated by Hyundai-Kia as Table 16 clearly shows. Together both companies hold a market share of more than 80% in 2012 despite both car makers witnessing a slight decrease in sales compared to 2011. Hyundai alone controls about 47% of South Korea's car market, followed by Kia with 34%. However, the decrease has not been as hard as that of its competitor Renault Samsung which witnessed a decrease in sales of 45%. The other large Korean car makers GM Korea and SsangYong were able to increase their sales in 2012 with SsangYong even increasing them by 23%.

Hyundai and Kia's dominance can also be seen in the Top 10 of sold cars (Table 17). With the exception GM's *Spark* model, the Top 10 are dominated by Hyundai and Kia products.

Table 17: Top 10 cars in South Korea in terms of sales in 2012			
Car	Maker	Type	Sales
Avante MD	Hyundai	Sedan	110,166
YF Sonata	Hyundai	Sedan	94,518
Morning (Picanto)	Kia	Compact	94,190
Grandeur	Hyundai	Sedan	88,520
K5	KIA	Sedan	77,952
Spark	GM Korea	Compact	64,763
Santa Fe	Hyundai	SUV	57,929
Sportage R	Kia	SUV	43,993
Ray	Kia	Electric MPV	43,981
Tucson ix	Hyundai	SUV	37,736
Source: Autor's composition based on KAMA and Company websites			

The table also shows that besides traditional sedans, SUVs and electric vehicles have become an important product category. Nevertheless, Korean car makers continue to focus on cars with a small engine capacity. In 2012, Korean car makers produced more than 2 million cars with an engine capacity of less than 1.600cc, while only about 831,000 cars with a larger engine capacity were produced (KAMA 2013, 26). The situation regarding car sales in South Korea is a little different in that they are more balanced. In 2012, about 443,000 cars with an engine capacity of less than 1.600cc were sold in South Korea, while about 422,000 cars with a larger engine were sold in the same timeframe. The large share of cars with a small engine capacity is meant for export, as they are not sold in Korea's car market. According to KAMA (2013, 42), South Korea's car makers exported about 1,543,000 cars in 2012 with a small engine capacity. This is more than three times the number the exports of cars with a larger capacity which only accounted for about 480,000 units in 2012. However, the MVP category has also been very popular among Korean car makers, which produced about 1.3 million cars and exported about 990,000 in 2012.

International demand for Korean cars has grown for Hyundai and Kia, which increased their exports by 0.6% and production outside of Korea by 15.8% in 2012 to a total of 3,635,000 cars (KAMA 2013, 5).

Due to the FTA between Korea and the European Union, Korean car makers were able to increase their sales and market share in Europe to the detriment of local car makers in the mass market segment like Peugeot, Citroen, Fiat or Opel. The growing international demand for cars by Hyundai and Kia even during the economic crisis since 2008 may be an indicator for a competitive advantage as they even increased their sales in markets that were hit by the economic crisis such as Europe and the US, while other companies, especially French and Italian car makers saw a sharp decline in sales.

Exports to Eastern Europe (6%) and North America (17.4%) increased as well in 2012 while exports to South America and Asia decreased (Table 18). Exports to China decreased in 2012 to 82,338 cars from 128,802 the year before (KAMA 2013, 46). However, production of Korean cars increased in China. North America is still the largest export market but South Korean car makers also are quite successful in developing regions of Latin America and the Middle East.

In contrast to China's exporting car makers, South Korea's rivals are present and successful in developed markets with highly sophisticated customers such as Canada, the USA, Germany or France - all countries with a GDP per capita of more than \$40,000 in 2013 according to the World Bank.

Table 18: Exports by region (in units)

Region	2011	2012	Change in %
Total	3,151,708	3,170,634	0.6
North America	770,826	905,011	17.6
EU	426,057	398,223	-6.5
Europe Others	267,596	283,574	6.0
Middle East	626,046	614,292	-1.9
Latin America	495,164	433,243	-12.5
Africa	180,079	296,776	9.3
Pacific	160,540	160,734	0.1
Asia	225,400	178,781	-20.7

Source: Author's composition from KAMA

Not only are Hyundai and Kia dominating the Korean domestic market, they are also dominating the country's car exports (Table 19). Hyundai's share in total exports in 2012 was about 39%, Kia's share was about 35% and together both contribute more than 70% to South Korea's automobile exports. In addition, both companies were able to increase their exports in 2012 while most other car makers saw a decline in exports. Of

the other South Korean car makers only GM Korea was able to export more than 100,000 units in 2012 with a total of 655,878 cars. Renault Samsung saw not only its domestic sales severely reduced in 2012, but also had to witness a sharp decline in exports of 31.5% to less than 95,000 cars.

Table 19: Exports by maker (in units)

Maker	2011	2012	Change in %
Total	3,151,708	3,170,634	0.6
Hyundai	1,204,155	1,242,083	3.1
Kia	1,075,871	1,102,004	2.4
GM Korea	656,425	655,878	-0.1
Renault Samsung	137,738	94,383	-31.5
SsangYong	73,630	71,553	-2.8
Others	3,889	4,733	21.7

Source KAMA (2013, 13)

Conclusion

This chapter demonstrated the large differences between the Chinese and South Korean automobile market. China's domestic market is much larger than South Korea's in terms of volume but South Korea's car makers already supply a high international demand for Korean cars with more sophisticated consumers in developed countries. Further, China's car makers face strong competition through foreign car makers which the majority of Chinese customers currently prefer and are only successful in developing export markets.

3.5 Related and Supporting Industries

This chapter compares the role and characteristics of China's and South Korea's related and supporting industries regarding the automobile industry, showing their strategies, structure and product quality as well as their relationship with local car makers.

3.5.1 Related and Supporting Industries in China

Along with the high growth in car production and sales in China came the demand for car parts needed to build the cars. The supplier market is still quite fragmented with more than 7,500 firms in 2007, mainly small or medium sized companies. According to Haley and Haley (2013) the number of auto-parts makers is even higher and they count well over 10,000 registered and over 15,000 unregistered auto-parts makers. The majority of them, about 56%, are controlled by the government while the remaining companies are in private hands. With the high presence of foreign car makers in China, many international suppliers decided to follow them and opened production facilities in China. As a result, more than 70 of the 100 largest auto industry suppliers are present in China and regarding the number of plants and production capability, 7 of the 10 largest auto suppliers in China are foreign. And just like the car makers which established joint-ventures with their local partners, many suppliers followed this strategy and established their owned joint-ventures.

Haley and Haley (2013) showed that major auto-parts makers are located in every larger city and region but are concentrated in the higher developed eastern provinces which promise higher revenue due to higher number of cars per 1,000 persons and higher per capita income.

Kasperk and Wilhelm (2010, 7) state that despite improvements in their products, most Chinese suppliers are still conducting little R&D, producing parts on small scale and focusing on products that require less sophistication. Depner and Bathelt (2005) showed that the large state-owned car makers were able to rely on foreign automobile parts makers as their suppliers for their joint ventures. Through their foreign joint venture partners they had contacts to international suppliers, which themselves had to form a joint venture with a domestic suppliers if they intended to participate in China's markets (Depner and Bathelt 2005, 65). However, German suppliers found it difficult to

find partners with the necessary high-tech experience they could rely on to manufacture their products with.

Local suppliers learned from their foreign partners, gained more engineering know-how and upgraded their product portfolio, even developing their own products (Depner and Bathelt 2005, 68). However, they still lack the capabilities to develop and produce parts that require more sophistication.

Therefore, the government is keen to reduce the technological gap between local and foreign companies and to develop better products.

To reduce the technological gap, Chinese auto part makers have begun acquiring their foreign rivals or at least shares of them. In several cases the Chinese auto part makers that invest overseas are SOEs or are majority owned by local governments or other SOEs. In 2009, Beijing West Industries Co Ltd. acquired the global suspension and brakes units of Delphi Corp, including machinery, equipment, intellectual property and customer contracts (China Daily 02.04.2009). SOEs and the municipal government of Beijing own about 75% of Beijing West Industries Co Ltd. In 2010, Pacific Century Motors acquired Nexteer Automotive, an electronic steering manufacturer, from GM. Pacific Century Motors is also partly government owned (Canis 2013, 8). In 2012, Wanxiang Group Cooperation, a component manufacturer for the automobile industry from Hangzhou, bought bankrupt American lithium-ion battery specialist A123 Systems for \$257 million (New York Times 01.30.2013). The same company bought bankrupt American automobile maker Fisker Automotive for \$149.2 million, which specialized in producing luxury plug-in hybrid electric vehicles (New York Times 02.18.2014).

Chinese auto part makers have been buying know-how, machinery, patents and even companies and brands from foreign car (part) makers, which might prove less risky and more cost effective than developing and building products on their own. Especially the acquisition of battery and NEV specialized companies might prove useful should NEV sales in China increase.

The lack of highly competitive relating and supporting industries is not necessarily a disadvantage. Kasperk and Wilhelm (2010, 10) analysed Build Your Dreams (BYD), a private Chinese carmaker focusing on electric cars. Instead of relying on foreign or local suppliers, this company decided to develop and assemble more and more parts internally. The company learned from the development of batteries for cell phones and by analysing foreign cars and later began developing their own electric cars. However,

even BYD admits that most of their know-how originates from public documents and finished products from their competitors and not their own research (Haley 2013).

The high number of more than 18 million car sales per year and the still growing market has also attracted many foreign suppliers to be present in China with production and manufacturing facilities. Austrian supplier Mibas opened its largest plant outside its home country to keep up with the rising demand (Pfluger 03.28.2014).

And as in the case with car makers, foreign supplying companies had to form a joint venture with a local company to enter the Chinese market.

Nevertheless, the Chinese supplying industry has achieved some success regarding exports. About 25% of produced car parts are being exported. And the exports grew about 10 times between 2002 (\$7.4 billion) and 2011 (\$69 billion) (Canis 2013, 6). However, the export success has led the US to announce that they intend to issue a complaint at the WTO against Chinese export subsidies (Canis 2013, 19). The US accuses the Chinese government of having paid subsidies of \$27.5 billion between 2001 and 2011 to export-oriented auto parts makers and of planning on further paying \$10.9 billion until 2020 in form of tax preferences and lower interest rates. These subsidies are prohibited by the WTO according to US officials.

Haley (2013) showed that the major share of Chinese subsidies from central and local governments in the automobile and auto parts industry is currently going to R&D and promotion of NEVs and related technologies. This includes subsidies for the production of NEVs and the necessary parts like batteries as well as the necessary infrastructure and purchase subsidies for NEVs.

The Chinese government intends to upgrade its automobile industry from cheap gasoline cars to NEVs.

3.5.2 Related and Supporting Industries in South Korea

The Korean auto part industry saw a consolidation phase in the past decades and only a dozen companies dominate 70% of the auto parts market (Greimel 05.29.2011).

The Hyundai Motor Company is a South Korean conglomerate also known as chaebols and consists of many companies that operate in various branches and industries, including suppliers for its automobile companies Hyundai Motors and Kia Motors. Hyundai and Kia use steel produced by *Hyundai Steel* and build their cars partly with

machines and equipment made by *Hyundai Heavy Industries*. Despite the split of the Hyundai conglomerate in 2000, the connections between the different industry sectors still appear to be tight (Bay 05.06.2014).

As shown in the previous chapter, Hyundai and Kia are dominating the Korean automobile industry, which gives them enormous purchasing power.

Both companies rely on vertical integration for important auto parts. The important positions within the suppliers that are also subsidiaries of a chaebols are filled with loyal family members, which help to exercise strict control and order from higher ranks within the chaebols hierarchy (Jung 2008, 335)

One of the important suppliers for Hyundai and Kia is *Hyundai Mobis*, which offers parts for the cockpit, chassis and electronic assistance and safety systems. Mobis developed these products themselves and has also begun offering them to other car makers (Wimmer and Benova 2012, 26 and Ritter 2012, 42). *Hyundai Rotem* is another subsidiary and supplies Hyundai Motors with electric engines for Hyundai's hybrid cars. Hyundai and Kia both try to have as much influence and control over the value chain as possible, including suppliers (Lee 2011, 890). They also seem not to allow themselves to become too dependent on an independent supplier (Wimmer and Benova 2012, 25).

However, that does not mean that Hyundai and Kia never work together with independent or international suppliers.

The liberalization policy that followed the Asian Financial Crisis allowed foreign suppliers to enter the market and offer their products. For example, Hyundai and Kia cooperate with BASF to develop materials to reduce vehicle weight and with Microsoft for in-car entertainment and infotainment systems and with Infineon to develop new chipsets (Ritter 2010, 46f). Contrary to Western car maker/supplier relationships in which suppliers have to compete for a successful deal in a project and in which car makers can switch easily to another supplier, Korean car makers prefer a closer relationship to their suppliers. Instead, Hyundai and Kia have established a strong hierarchy among their suppliers with enough influence to affect development, production and prices among their supply chain with little effort. Korean car makers try reducing costs by increasing scale effects through buying a large volume of parts from only a few suppliers and most Korean car makers have their own suppliers that supply only them (Jung 2008, 337). This strategy leads to highly depended suppliers, which in return for their profitable position (as sometimes being the only supplier of specific parts) have to form close ties with the car makers and grant them influential positions

within the company in order to improve product quality or develop and use specific technologies (Wimmer and Benova 2012, 29 and Ritter 2010, 43). Through the tight hierarchy in the decision making process, Korean car makers do not have to spend their resources on negotiating with various suppliers on specific car parts on a project by project base. And the tight control over the supply chain has not only enabled Korean car makers to produce in a very cost effective way but also to develop and bring new cars to international markets much quicker.

However, the supplier structure can differ in other parts of the world. Hung (2008) showed that in China, Hyundai and Kia are willing to change their supplier system from a strong vertical structure to a more open one.

The situation is a little different in the case of GM Korea and Renault Samsung. GM and Renault acquired their Korean companies and require a much higher usage of their own automobile parts. This is simply due to fact that both Samsung and GM Korea also manufacture cars that are based on other models from their respective mother companies and therefore have a large share in common parts. As a consequence, imports of car parts from Japan, France, Germany and the US increased (Jung 2008, 339f).

Conclusion

This chapter showed that China's related and supporting automobile industry still lacks behind South Korea's in terms of competitive advantages. Chinese suppliers still conduct little R&D themselves, focus on low sophisticated goods and prefer to acquire foreign companies to gain their know-how. In contrast to this, South Korea's suppliers have become quite successful. Hyundai and Kia exert a strong control over their suppliers and the large part of the supply chain leading to reduced costs and a fast decision making process. Further, Korean suppliers offer high sophisticated goods internationally based on their own research and development.

3.6 Firm Strategy, Structure and Rivalry

This chapter discusses the conditions in the domestic market that influence the degree of competition between companies and how companies are created and managed.

It discusses the major domestic and foreign carmakers, production volume, sales, firm structure and strategies as well as government policy regarding competition.

3.6.1 Firm Strategy, Structure and Rivalry in China

China's automobile industry is highly fragmented. More than 100 carmakers and brands, from small regional companies that only produce less than 50,000 cars per year and sometimes belong to local governments to the large state-owned national producers, compete for customers alongside their foreign rivals and all together they currently offer 543 different car models (JD Power 04.19.2014).

As mentioned earlier, China has become the largest car market in the world and the market is still growing strong. But the Chinese car makers do not profit from it in the same way their foreign competitors do. On the contrary. While foreign companies were able to increase their market share month after month, domestic car makers continue to lose market share. In January 2014, foreign companies account for more than 60% of new car sales, 6% more than the year before. Many foreign car makers like Toyota or Mercedes Benz were able to increase their sales between 15 (Ford) and 45% (Mercedes Benz), while domestic car makers like Geely or Chery saw their sales cut by a third or even 50% like Geely (Boston and Geiger 2014). As of May 2014, the market share of China's domestic brands is at an all-time low. The growing presence of foreign car makers has put further pressure on the domestic companies and their aggressive capacity expansion plans will increase local competition even further since they plan on new joint ventures and dozens of new dealerships to further increase their sales (Boston and Geiger 2014). VW alone plans to increase the number of dealerships in China by 350 in 2014 to a total of 2750 dealerships (Handelsblatt 04.19.2014). Domestic companies also anticipate that the role of foreign brands in the Chinese car market will continue to grow in the next five years (Ernst & Young October 2013, 7). However, they also see

chances for a growing role of domestic brands not only in their domestic market, but internationally (Ernst & Young October 2013, 9).¹¹

Table 20 shows the top car makers in the first half of 2014 in terms of sales. Table 21 shows the top car makers in 2013. Both tables demonstrate the dominance of joint ventures in China's automobile sector. In 2013, two domestic Chinese car makers made it into the Top 10 without a foreign partner, Great Wall and Geely. In the first half of 2014 only one – Changan – managed to do this. State-owned enterprises and their foreign joint-venture partners dominate the automobile industry in China

Table 20: Top Twenty car makers in the first six month of 2014 in terms of sales

Rank	Manufacturer	Sales
1	Shanghai-Volkswagen	940,478
2	FAW-Volkswagen	906,208
3	Shanghai-GM	823,203
4	SAIC-GM-Wuling (SGMW)	791,743
5	Beijing-Hyundai	552,970
6	Changan	533,933
7	Dongfeng-Nissan	476,803
8	Changan-Ford	400,454
9	Dongfeng-PSA (DPCA)	343,170
10	Dongfeng-Yueda-Kia	310,715
11	Great Wall	282,282
12	FAW-Toyota	251,296
13	Chery	218,667
14	BYD	207,416
15	Geely	189,447
16	GAC-Honda	181,550
17	GAC-Toyota	176,301
18	Dongfeng-Honda	171,860
19	BAIC (Beijing Auto)	149,307
20	BMW-Brilliance	139,685

Source: Author's own composition based on Data from Gasgoo China, China Auto Web and CAAM

11 About 65 percent of the interviewed in the study believe the influence of foreign companies in the car market will grow, compared to 41 percent for domestic companies. However 65 percent also believe that Chinese car makers and suppliers will be of growing importance in the international markets.

Table 21: Top twenty manufacturers in 2013 in terms of sales

Rank	Manufacturer	Sales
1	Shanghai GM	1,542,559
2	Shanghai Volkswagen	1,525,008
3	FAW Volkswagen	1,513,618
4	Beijing Hyundai	1,030,808
5	Dongfeng Nissan	926,229
6	Chang'an Ford	682,686
7	Great Wall	627,436
8	FAW Toyota	554,661
9	Dongfeng PSA (DPCA)	552,073
10	Geely	549,393
11	SAIC-GM-Wuling (SGMW)	548,984
12	Dongfeng Yueda Kia	546,766
13	BYD	506,189
14	Chang'an	500,500
15	Chery	443,944
16	GAC Honda	434,828
17	Dongfeng Honda	321,216
18	GAC Toyota	303,088
19	SAIC	230,020
20	BMW Brilliance	207,327

Source: China Auto Web 2014

To gain access to China's large and growing domestic market, foreign car makers were required to establish a joint-venture with a domestic car maker. Most private car makers emerged in in the 1980s and later (Table 22) and being newcomers to the market, they lacked the capacity to produce a large number of cars and the connections to public officials for governmental support and were therefore of little interest to foreign car makers. A joint-venture with the large state-owned companies was more promising. Nevertheless, a few of China's private car makers have achieved some success since their founding not too long ago and managed to score a rank among the top 20 manufacturers. According to Porter (1980), new companies can emerge and enter a sector putting pressure on the established rivals through better or new products for a better price. Newcomers influence the rivalry and competition among companies in an industry sector. As table 22 shows, several of China's private car makers emerged over the past two or three decades in China's automobile and auto parts industry sector, like BYD, Lifan or Brilliance. Other newcomers like Qoros are even less than ten years old, which would suggest that new domestic car makers can emerge relatively easy in China.

However, new entries can be difficult due to high entry barriers such as high capital requirements. A look at indicators like the time requirement to start up a business or the costs of the startup procedure can help to see how high these barriers are and whether they have been improved over time. According to the ADB (2013, 324), China reduced the number of days required to start a new business from 48 days in 2005 to 33 days in 2012. The costs of the entire start up procedure decreased over the same time period from 13.6% of GNI per capita to 2.1%.

But while new domestic companies emerged in China, it is still difficult if not impossible for a foreign car maker to take over a large Chinese car maker - mainly since the large car makers are state owned. But compared to South Korea, only Hyundai and Kia are still majority owned by Korean families. Foreign companies acquired the other large car makers SsangYong, Samsung and Daewoo.

Most of the larger state-owned Chinese car makers have established several joint ventures with various foreign car makers and automobile parts manufacturers – a requirement for foreign car makers to enter China's market (Table 22). For example by 2001, SAIC ran 55 joint ventures with other companies (Depner and Bathelt 2005, 63). But often due to public support, the large state owned enterprises lack entrepreneurial spirit, since they are mainly run by public officials (The Economist, Vol. 406, 2013, 67).

The smaller private car makers like Geely and Chery had far less government support than their large state-owned rivals and had to find their own strategies to develop a successful business model. They began by reverse engineering other products to reduce R&D costs, hired engineers and other staff from state-owned enterprises (which also brought connections to government officials and partners with them) and relied on the established supplier clusters and networks for car parts (Chin 2010, 185). Their products were much less sophisticated than those of the joint ventures and targeted the low end of China's car market. But this market segment grew fast and so did Chery and Geely. By 2002, Chery was able to produce 350,000 cars per year and established China's first automobile production facility overseas in Iran one year later with a capacity of 50,000 cars and added further production facilities in Russia, Ukraine, Brazil and Egypt in the following years (Chin 2010, 186f and 191f). However, Chery was forced by the local governments to sell a 20% share to SAIC in order to sell cars in their provinces. Nevertheless, both companies remained strictly separated. In addition, Chery, Geely and Great Wall were facing several lawsuits from foreign car makers who argued that their product designs looked too similar to those of their foreign rivals. As a

consequence, they began increasing their R&D activities and began working with foreign car makers and suppliers to prevent further expensive lawsuits with them. Chinese car makers with a foreign partner sought to profit from a joint venture with a foreign car maker through know-how transfer. However these know-how transfers to the Chinese car maker may not always be legal, instead espionage has also been applied to steal data, documents or parts from the foreign joint venture partner to improve their own products.

For example state owned Chinese car maker FAW used its joint venture with VW to obtain products designs for the engine or gear transmission that are only to be used in VWs and the cars produced in the joint venture (Handelsblatt 07.27.2012). FAW copied the engine and other parts, only changing minor details and the brand symbol. FAW began production of these parts in their own facilities to be used in their own cars without obtaining the license from VW. International car makers are required to establish a joint venture with their local rivals if they want to produce cars in the country. And the Chinese car makers are required to have the majority in these joint ventures. It is also possible for a local car maker to have joint ventures with several foreign competitors. Besides VW, FAW has joint ventures with Toyota and Mazda. And these joint ventures are intended to support the Chinese automobile industry to obtain know-how and to improve their competitiveness against their foreign rivals. The strategy to copy foreign parts is not even risky. VW decided not to sue FAW. For once, the minor changes in the copied parts would have been enough for FAW to win in court. But the major reason was that VW did not want to risk its sales in its largest single market by suing a state owned company.

The largest car makers are still government owned and earn much of their profits through joint ventures with foreign companies by selling foreign cars under a new brand. The government hoped that through its joint venture policy a technology transfer from foreign car makers to local companies would occur, benefitting the Chinese car makers in their development to become global leaders and international renown brands. But instead these joint ventures have become a problem for the state-owned car makers. Instead of developing brand new cars by themselves through R&D, which would in return provide them with patents, the state owned car makers pursued other strategies like badge-engineering. Basically, they took foreign cars and made some smaller changes to adapt the model to Chinese regulatory demands and afterwards sold them as Chinese cars (Yan and Takada 09.03.2012). Through this easy strategy, the joint ventures

created jobs and generated large profits with little effort. And although the profits had to be shared among the joint venture partners (of which the Chinese partner is required to hold at least 50%), most managers in the state owned companies thought this strategy to be more profitable than developing cars themselves through R&D. Many managers in the state owned car makers were bureaucrats and/or party members of China's communist party and they received payments and promotions by creating jobs and increasing production and sales of Chinese cars. And the easiest way to do this was to simply adapt foreign cars. Former machinery and industry minister He Guangyuan criticized the joint venture policy as "opium" to which China's state-owned car makers are addicted (Dunne 09.11.2012). When adding the total car sales of the six largest state-owned car makers without the cars being sold through joint ventures with foreign companies, they only account for 2% market share.

Many private companies have also emerged within the last two decades, but many lack the size or know how to compete with the large state-owned companies not to mention international rivals.

The largest private car maker is Great Wall with about 627,200 cars sold in 2013 under its own name. The company is controlled not by the government but by private investors (Murphy 01.15.2014). But China's major private car makers such as Chery, Geely Automobile, Great Wall or BYD also struggle. BYD sales dropped 28% in the first quarter in 2014 compared with the same time period in 2013 and Chery sold 25% less cars in the same time period and Geely's sales even dropped by 37%.¹²

They are trying to fight of the international competitors but continue to loose ground to their foreign rivals. And the pressure from competition in China will become even tenser since the international companies are still building up their capacity and have begun to open up dealerships in cities in the inland where they have not yet been present.

¹² BYD sold a total of 103.500 cars and Chery a total of 109.000 cars and Geely a total of 89.607 cars in the first quarter of 2014 (Murphy, 04.21.2014).

Table 22: Overview of Chinese automakers with a foreign partner and/or a production capacity of more than 100,000 cars in 2013

Chinese Automakers	Company Type	Established	Brands	Sino-Foreign Joint Ventures
BAIC (Beijing Auto, Beiqi)	State-owned	1958	BAIC, Beiqi, Foton, Huansu, Hyundai, Mercedes Benz, Suzuki, Changhe, Changhe-Suzuki	Beijing Benz, Beijing Hyundai, Foton Daimler
Brilliance Auto, Huachen Auto Group	Private	1991	Brilliance, Jinbei, BMW, Zinoro	BMW Brilliance
BYD Auto, BYD Company	Private	2003	BYD, Denza	Shenzhen BYD Daimler New Technology Co., Ltd
Chang'an Auto (Chana Auto)	State-owned	1862	Chang'an, Hafei, Ford, Mazda, Volvo, Suzuki, Landwind	Chang'an Ford, Chang'an-Mazda, Chang'an-PSA (CAPSA), Chang'an-Suzuki, Chang'an Changhe Suzuki
GAC (Guangzhou Automobile Group Co.), Changfeng Motor	Private	1950	GAC, Honda, Fiat, Toyota, Mitsubishi	GAC Honda, GAC Toyota, GAC Mitsubishi, GAC FIAT
Changhe Auto, Chang'an.	State-owned	1960	Changhe, Suzuki	Changhe Suzuki
Chery Auto	State-owned	1997	Chery, Karry, Rely, Qoros, Jaguar, Landrover	Qoros Auto, Jaguar, Landrover
Dongfeng Motor	State-owned	1969	Dongfeng, Nissan, Citroen, Peugeot, Kia, Honda, Venucia	Dongfeng Nissan, Zhengzhou Nissan, Dongfeng Peugeot Citroen, Dongfeng Honda, Dongfeng Yueda Kia
FAW (First Automobile Works)	State-owned	1953	FAW, Toyota, Mazda, Volkswagen, Audi	FAW Volkswagen, FAW Audi, FAW GM, FAW Mazda, FAW Toyota
Foton	Private (subsidiary of BAIC)	1996	Foton	Foton Daimler
Geely Auto	Private	1986	Geely, Gleagle, Emgrand, Engion, Volvo	Volvo Cars
Great Wall Motor (GWM)	Private	1984	Great Wall, Haval	
Hawtai	Private	2000	Hawtai	Hyundai

JAC (Jianghuai Auto)	Private	1964	JAC	
JMC (Jiangling Motors Co.)	Private	1968	JMC, Landwind, Ford	Jiangling Ford
Lifan Motors	Private	1992		
Qoros Auto	Private	2007	Qoros	
SAIC (Shanghai Automotive Industry Corporation)	State owned	1955	Roewe, MG, Chevrolet, Buick, Cadillac, Volkswagen, Skoda, Sunwin, Iveco, Huizhong, Yuein, Wuling, Baojun, Maxus	Shanghai GM, Shanghai Volkswagen, SAIC-GM-Wuling (SGMW), Nanjing Iveco (Naveco), Shanghai Sunwin Bus
SGMW (SAIC-GM-Wuling)	Joint Venture of SAIC, GM and Wuling	2002	Wuling, Baojun, Chevrolet	SAIC-GM-Wuling (SGMW)
Southeast Motor	Joint Venture of Fujian Motor Industry Group, China Motor Cooperation and Mitsubishi Motors	1995	Southeast, Mistubishi	
Zotye	Private	2005	Zotye	

Source: Author's Compilation. Based on Company Websites and Newspaper articles

The problems for China's car makers originate in poor product quality, bad marketing, poor business strategies and an inefficient industry structure (Murphy 04.21.2014).

But so far, many strategies of China's automobile companies to change the situation in the domestic market or at least to defend their position and market share have not yet shown much success. Or at least have not yet been perceived by Chinese customers.

One reason Chinese car makers have trouble attracting customers has been the poor quality of their products.

However, Chinese car makers have taken measures to improve the quality of their products and as a result the quality has improved significantly over the past years according to J. D. Power. In a 2013 study, four Chinese brands achieved an above industry average ranking: GAC Motor, Venucia, Roewe and Luxgen (J.D. Power 04.19.2014). And the overall gap between domestic and foreign car makers in areas such as design, entertainment, engine and transmission quality, safety and fuel economy is getting smaller on a yearly basis (J.D. Power 11.29.2013). In 2003, customers of Chinese brands reported 328 problems per 100 cars according to J.D. Power (J.D. Power 04.19.2013). In 2012, the number dropped to 146 problems per 100 cars. Korean car makers performed best with only 88 problems per 100 cars, European and American showed 108 problems per 100 cars. Chinese car makers were able to reduce the problems in many areas like engine, transmission or heating and air conditioning and improve the long-term durability of their products which resulted in a much higher customer satisfaction rating (J.D. Power 10.31.2013). But so far, the bad reputation of Chinese cars having a poor quality still persists and they still do not have the positive reputation their international rivals do. Especially European cars are the most popular among Chinese customers. 31% of potential car buyers in China in 2013 consider buying a European model, 18% a Japanese and 15% an American model (J.D. Power 08.30.2013). In 2012 only 20% of potential customers would consider buying a Chinese brand. But the overall quality improvements of Chinese car makers are showing positive effects. In 2013 the number increased to 27%. The number is even higher in smaller cities in central or western China, reaching almost 42%. In the eastern cities however the interest drops to about 16%. This is still due to the low reputation of Chinese brands and customers in these regions that intend to buy a car in order to show their social status.

Now they are searching for new ways to regain customers. Geely closed three of its subsidiary brands (Emgrand, Gleagle and Englon) to concentrate on developing cars for the main brand Geely.

Some companies like Great Wall, SAIC Motor and Congqing are developing SUVs to profit from the growing market segment or sell small affordable cars in other provinces. Others like BYD hope that the often proclaimed boom of electric or hybrid cars in China finally takes off.

Others seek to reduce costs in R&D through cooperation like Guangzhou Automobile Group and Chery (Murphy 04.21.2014). Another strategy has been to buy shares of a struggling western car maker like Dongfeng did with PSA Citroen or to buy a western company entirely to gain access to their technological know-how.

But these strategies are risky. In the SUV market segment they have to compete with the products of their state-owned and international rivals and their joint ventures for example by offering better products with more high-tech. Their rivals, however, have also announced plans to offer a wider range of more affordable products and to offer them in more cities and regions in the country. And they already have high production capabilities or can construct new production facilities in the next years to build a high number of affordable cars at lower costs and due to economics of scale they also might be able to offer their products for a better price. Private Chinese car makers will face the same problem regarding electric and hybrid cars. Although international car makers will again have to operate in a joint venture with a Chinese partner to sell their products in China, they might sell a high number of their own electric or hybrid cars under their own or a new brand in cooperation with a large state-owned car maker. This will add further pressure on Chinese car makers, especially on those that do not have an international partner and do not sell a high enough number of cars to profit from scale economics. It is likely that a phase of further consolidation will come sooner or later, when the larger Chinese car makers with their foreign partners will acquire smaller companies.

While China's large state owned car makers have access to high-tech equipment and know-how through their foreign joint venture partners to build cars, the smaller private owned companies have to explore other strategies to survive in the auto market. *Build Your Dreams* decided to make use of the labor cost advantage for construction and by developing and manufacturing as many parts as possible within the company (Kasperk and Wilhelm 2010, 10).

Instead of cutting costs and increasing production through high-tech machinery, BYD intends to get a cost advantage through manual labor and low Chinese wages. More than 50% of the car manufacturing process is handmade. BYD developed batteries for Smartphones and Laptops to gain knowledge in battery development. Afterwards, they began buying small car makers and suppliers to develop a car. The company tries to rely on external parts and knowledge as little as possible and instead gains their own know-how in development and production processes internally. This has received some international attention. Warren Buffet bought 9.9% of BYD shares for \$230 million in 2008. In early 2010, Daimler and BYD agreed to develop an electric car specifically for the Chinese market, to be sold under a new brand.

Nevertheless, China's private car makers have begun to invest more in R&D which resulted in more patents according to a recent study of the Center of Automotive Management (Handelsblatt 03.31.2014).¹³ However, the study noticed that it is still difficult to draw definitive conclusions from the sheer number of patents, due to different patent laws and cultures or business strategies in which companies do not inform their rivals about their technologic developments through patent publications.

Even after years of growing sales the Chinese Market is still interesting for new entrants and new joint ventures.

Renault and Dongfeng Motor Group are launching a new joint venture to build larger passenger vehicles like SUVs for the Chinese market, beginning production in 2016 with an initial capacity of 150,000 vehicles per year (Pearson 12.05.2013). The French company has entered the Chinese market only recently with its *Renault* brand and sold about 30,000 cars in 2013. Renault does not yet have production plants in China and is instead importing cars from its South Korean subsidiary Renault Samsung Motors and has relied on its Japanese partner Nissan Motors (Pearson 12.05.2013). Dongfeng on the other hand has already established joint ventures with other car makers including Honda Motor, Nissan, Kia Motors and PSA Peugeot Citroen to manufacture cars. Tesla Motors Inc., a manufacturer of premium electric cars has also announced its plans to enter the Chinese car market (Murphy 01.23.2014).

While foreign car makers continue to enter the Chinese market, China's car makers have begun to enter the international markets as well but with mixed results.

¹³ Geely publicized 2718 patents in 2013, Number one is Toyota with 14.000 patents before Honda with 6.500.

Some Chinese car makers have begun to export their cars to increase production output, to profit from scale economics and to circumvent direct competition and pressure from their international rivals in their domestic market. And these strategies have achieved some success.

The main targets for exports are other developing countries with South America being the top export destination accounting for about 30% of Chinese car makers' exports (China Daily 04.12.2014). Chinese car makers have gained a market share of 2% in Brazil and even 16% in Chile. In Egypt, Chery alone has a market share of 7% (Rother 03.05.2013).

It is however interesting to note that although Chinese private car makers are struggling and loosing ground to their international competitors, the heads of China's private car makers are doing well. About one quarter of billionaires in the global auto industry is Chinese (Murphy 04.18.2014). Wei Jianjun (Great Wall Motor) is said to have \$7.7 billion, the Lu Family (Wanxiang) \$4.5 billion, Wang Chuanfu (BYD) \$4 billion and Li Shufu (Geely) \$2.5 billion.

While China's car makers perform well in developing markets, success in developed markets has been limited. In Australia, Great Wall and Chery saw their sales severely reduced after asbestos was found on engine parts in their cars.

In 2005, when Chinese brand *Landwind* entered the European market, they only achieved low sales and their cars were criticized for poor performance in safety test. The same happened three years later to *Brilliance*. And due to the stricter safety and emission standards (like the EU6 norm), the situation is unlikely to change in the short run (Strobl 04.02.2014). BYD hoped to sell its electric cars in Europe by 2011 and even talked about a production facility in the US (Spiegel Online 03.15.2010). However, BYD has still not entered Western markets. Mainly because of a decrease in revenue in 2011 due to production delays of their car model, the e6, which was sold a month after the initial plans in China (Seiwert 03.27.2012). In addition, the market for electric cars in China was not as promising as expected at the time and the competition had kept up with BYD.

In the past, other Chinese car makers have also announced their intentions to enter Western markets such as the US or the EU in the near future but most are still not present. According to an Ernst & Young survey (2013), the majority of Chinese car makers themselves currently believe that they can sell cars in the European and

American markets in high volumes in the future but most of them agree that it will take at least 10 years until Chinese car makers can reach that goal, most likely even more.¹⁴

The Chinese Brand *Qoros*, a subsidiary of Chery and the industry holding Israel Cooperation and founded in 2007, intends to perform better than its rivals. The first car intended to be sold in Europe, the Qoros 3, was praised by the European Crash Test Organization EuroNCAP and received five of five possible stars in the ranking making it the first Chinese car ever to do so (Handelsblatt 01.10.2014). The car is to be manufactured in Changshu (China). However, the car was developed under the leadership of Austrian supplier Magna and many parts and components were developed in Europe by European suppliers such as German companies Bosch, ZF or Continental and the main focus for the car is still the Chinese market (Handelsblatt 03.08.2014).¹⁵ Should the Qoros be sold in Europe in the near future, the focus will lie on smaller markets like Slovakia in the beginning before moving to larger countries like Sweden (Focus Online 04.22.2014).

But the European and North American car markets are currently not the main target for Chinese car makers. Most have focused on emerging markets in Africa, South East Asia, Russia or Latin America instead, anticipating even further growth. The saturated markets in Europe and North America are currently not the main focus of most Chinese brands (Ernst & Young 2013, 11).

Currently only Great Wall is investing in a production facility in Bulgaria (Spiegel Online 02.21.2012). Car production is to begin in 2015 with a total production of 4,000 cars per year in the beginning but the number could increase to 50,000 cars yearly. The cars to be produced in Bulgaria are a small compact and an SUV. Both cars are only to be sold in Bulgaria and neighboring countries such as Serbia with prices beginning at €8,000.

But although Chinese companies had little luck in entering the European market through car sales and are under constant heavy pressure from foreign competitions in their

14 In the Ernst & Young survey in 2013: 24 percent of interviewers believe that Chinese car makers can be successful in Western markets within 5 years. 19 percent say 10 years are necessary and 35 percent state that even that is too optimistic.

15 Many parts of the Oros have been developed by international suppliers.

Navigation and Entertainment: Microsoft (USA), Neusoft (China)

Interieur: Magna (Austria), Bader (Germany), Marquardt (Germany), Valeo (France), IAC, Johnson Controls (USA)

Engine and Gear: Valeo, Mahle (Germany), Bosch (Germany), BorgWarner (USA), Continental (Germany), PMG Getrag (Germany)

home market, they have begun to develop new strategies, for example, by buying or investing in European carmakers.

In early 2014, PSA Peugeot Citroen, the French government and their Chinese Partner Dongfeng reached an agreement to expand cooperation in R&D, production, expansion into South East Asian markets and a financial investment of four billion Euros for the French carmaker (Sassard et al. 02.12.2014)

A few years earlier in 2010, Volvo was bought by Zhejiang Geely Holding Group CO. Both companies are also planning to expand the joint venture between their car brands Volvo and Geely to develop a subcompact car meeting Western quality and safety standards in order to sell the car in Western markets and also the Chinese market, where it could profit from European cachet (Zander 01.24.2014). Similar reasons were behind the acquisition of the insolvent British car maker MG Rover by Nanjing Automobile Corporation in 2005 (Wuttke 05.18.2014). Nanjing Automobile Corporation was itself bought by Shanghai Automotive Industry Corporation (SAIC) in 2007. SAIC intends to sell cars under the MG label internationally, which might include a launch in several smaller European countries in 2015.

Chinese companies have not only bought foreign car makers to improve their products. They also hired Western engineers, marketing experts and managers from their international competitors. For example, Cherry hired former Porsche and GM Designers to improve their products (Grünweg 04.23.2013). To further expand their role in the global car market, 25% of Chinese car makers see more take-overs of foreign companies as a viable strategy, although the majority of 53 % prefer joint ventures with international car makers and suppliers (Ernst & Young 2013, 13).

A growing number of Chinese car makers and suppliers are already present in a foreign market and some intend to expand further (Ernst & Young 2013, 15f). But their main focus is on investments in developing countries in Africa or Latin America.

Changan's currently important export markets are Egypt, Iraq or Columbia. But the company intends to expand further in these regions and plans new production facilities in Brazil, Iran and Russia (Bay 09.14.2013).

Nevertheless, a large scale export oriented strategy is not part of Chinese car makers in general, at least for developed markets such as Europe or North America (Murphy and Yu 01.09.2014). These require highly competitive products, technological know-how, brand reputation, a strong dealership network and a local production and a supplier base to compete with the highly competitive, already present and established brands

and companies. Chinese car makers see these factors as the main challenges for their success in other markets as well (Ernst & Young 2013, 14). Not to mention a strong financial basis to finance the conquering of these markets. This is not as much of a problem for the large state owned car makers but for the private companies, which so far lack the ability to finance such an endeavor. And the state-owned companies prefer focusing on their domestic market rather than venturing to developed markets (Murphy 01.15.2014)

Another strategy Chinese car makers are engaging in is to offer customers the integration of new features through the connected car. This may include new user interfaces, application, and access to information, entertainment or connectivity to gadgets such as smartphones (Murphy and Mozur 03.24.2014). As shown in chapter *factor conditions* (cf. chapter 3.3.1 *Factor Conditions in China*) China is the leading developer and exporter of rare earth minerals, key components in the productions of chips necessary for using this technology. In addition, China is home to the largest producers of electronics and several companies have developed around this industry sector, be it computer, smartphone or other electronic producers and software developers, which may become partners for developing new features for the connected car. Development of standardized components has already begun.

Another strategy is led by the government's intention to reduce air pollution and its dependence on oil imports: New energy vehicles (NEVs).

Chinese companies have already bought foreign firms specialized in electric cars and batteries. In 2012, Wanxiang Group Cooperation, a component manufacturer for the automobile industry from Hangzhou, bought bankrupt American lithium-ion battery specialist A123 Systems for \$257 million (New York Times 01.30.2013). The same company bought bankrupt American automobile maker Fisker Automotive for \$149.2 million, which is specialized in producing luxury plug-in hybrid electric vehicles (New York Times 02.18.2014).

Similar to the requirement for foreign car makers to create a joint venture between them and a Chinese car maker in order to produce and sell conventional gasoline cars in China, it is also necessary to produce and sell NEVs. Daimler and BYD announced their joint venture "BYD Daimler New Technology" in 2010 (Seiwert 03.27.2012).

But despite the efforts from car makers, suppliers and government policy and incentives, electric cars still only account for a small percentage of cars sold each year. Even the electric cars of MNEs are falling behind expectations. Dunne (Dunne

02.21.2013) argues that Chinese electric car makers are expecting the government to further pursue its goal to reach five million electric cars sold by 2020 and to increase the number of subsidies and provide the necessary infrastructure.

Regarding the role of Multinational Enterprises (MNE) on China's automobile industry, they used to invest in China mainly for market access to profit from the growing market. And this is only changing slowly. As the demand for foreign cars rises, MNEs are working on increasing their production output to keep up with the demand by investing in new production plants, joint ventures, dealerships, new brands exclusive for China and new products. Volkswagen, the largest foreign car maker in China in terms of sales, intends to keep its top position and announced to invest about €18.2 billion Euros in China until 2018 by building 7 new manufacturing plans (of 10 new plans worldwide) to further increase production (Bay 02.21.2014).

Daimler Benz announced an investment of €1 billion in their joint venture Beijing Benz Automotive Co. with their Chinese partner Beijing Automotive Industry Corp. in order to double the current production output until 2015 (Boston 03.28.2014).

Hyundai is beginning construction on its forth plant in China (in Chongqing) and its sister brand Kia just began production in its third plant and plans to produce 740,000 cars per year by 2015 (Murphy 03.27.2014).

A large number of international suppliers have entered the Chinese market as well, following the Western car makers. Jung (2008) examined the development of the production network of South Korea's car makers in China. He showed that the number of Korean suppliers increased in China after Hyundai and Kia entered the market in 2002 and that they have formed a cluster around Beijing, Shangdong and Jiangsu – regions in which both car makers maintain production facilities (Jung 2008, 347). In addition, not only are up to 50% of the automobile parts used by Korean car makers in China imported from Korea but the imported parts are the expensive high tech parts and modules while the parts produced in China are of a lower technological nature (Jung 2008, 353). Further, as long as the product price is not the key issue, Hyundai and Kia prefer to rely on Korean suppliers in China for their automobile parts and so far Korean automobile suppliers have no R&D facilities in China (Jung 2008, 355 and 361).

Depner and Bathelt (2005) showed that market access was the main driver for German car makers and automobile part manufacturers. If foreign companies wanted to participate in China's growing car and car parts market they had to establish joint ventures with domestic companies. Even if foreign automobile part makers merely

wanted to supply car makers in China, they had to form a joint venture and establish local facilities (Depner and Bathelt 2005, 64f). But they gained access to growing market and to many Chinese car makers, which were able to increase their profits. However, German suppliers found it difficult to find partners with the necessary high-tech experience they could rely on to manufacture their products with.

German car makers and automobile part makers also limited their R&D capabilities in China to make necessary modifications to their existing products to fit the Chinese legal requirement and the local customer's taste (Depner and Bathelt 2005, 68). The development of new models remained in Germany. Depner and Bathelt (2005) showed that this strategy has changed – at least in the case of Volkswagen.

Chin (2010) showed how local car makers, suppliers and public institutions in Shanghai created a successful automobile cluster with the MNE Volkswagen. Stronger regulation and local content requirements fostered the establishing of a local supply chain network (Chin 2010, 98f). VW accepted the tougher regulations as the company hoped for better market access, political support and a more cost-efficient production. In addition, VW demanded that local partners and suppliers had to meet their quality standards and that they had to receive proper management, engineering and cross-cultural management trainings.

Local suppliers learned from their foreign partners, gained more engineering know-how and upgraded their product portfolio, even developing their own products (Depner and Bathelt 2005, 68). However, they still lack the capabilities to develop and produce parts that require more sophistication.

3.6.2 Firm strategy, structure and rivalry in South Korea

As shown in previous chapters (cf. chapter 3.4.2 *Demand Conditions in South Korea*), Hyundai and Kia dominate their South Korean home market in terms of sales and production. Together, Hyundai and Kia produced almost 3.5 million cars in 2012 (Table 23). The remaining Korean car makers produced about 1 million cars combined. In addition, foreign brands only play a minor role despite high growth rates, which can be seen as sign for lack of domestic competition. However, the main markets for Hyundai and Kia are oversea markets where they face strong international competitors.

Furthermore, the major Korean car makers Hyundai, Kia, SsangYong, Samsung and GM Korea are all private companies and none of them are majority-owned by the state. In addition, foreign car makers are allowed to acquire domestic car makers. The ownership structure of South Korea's car makers is quite different from China's. South Korea has no state-owned car maker and due to the Asian Financial Crisis and an economic liberalization policy, all of the major car makers except for Hyundai and Kia are (majority) owned by foreign companies. Samsung Motors belongs to Renault-Nissan since 2000 with Samsung only holding a minority share and General Motors acquired the majority share of Daewoo which is now called GM Korea. Moreover, SsangYong is majority owned by Indian car maker Mahindra & Mahindra Ltd.

Table 23: Automobile production by car maker in units

Maker	2011	2012	Change in %	Established	Type
Total	4,657,094	4,561,766	-2.0	-	-
Hyundai	1,892,254	1,905,261	0.7	1968	Private
Kia	1,583,921	1,585,685	0.1	1944	Private
GM Korea	810,854	785,757	-3.1	2002	Private
Renault	244,260	153,891	-37.0	2000	Private
Samsung	113,249	119,142	5.2	1954	Private
SsangYong	12,556	12,030	-4.2	-	-
Other					

Source: Author's composition based on KAMA and company websites

Hyundai, Kia and Samsung are chaebols, Korean conglomerates which have played an important role in South Korea's economic development and success. In western countries brands like Hyundai and Samsung are probably most likely associated with cars (Hyundai) or electronics such as smartphones or tablets (Samsung). However, the product portfolio of South Korea's chaebols is much larger. For example, Samsung also produces cars, ships, insurance or military equipment. South Korea's chaebols are present in many business sectors, connected through formal and informal links between the various branches, sometimes led by family members.

The Hyundai Motor Company is the third largest chaebol after Samsung and the LG Group and consists of many companies in various branches that are connected through a complex system of ownership and private relations. South Korea's chaebol conglomerates are sometimes compared to Japan's keiretsu due to their common Japanese roots following Japan's occupation of Korea. However, they differ in some key

aspects: management and ownership share a closer relationship in the case of South Korea's chaebols than in the case of their Japanese counterparts. This means that the Korean families have stricter control over the company (Wimmer and Benova 2012, 20). Another aspect regards finance. In contrast to the keiretsu, the chaebols finance their activities mainly through the stock markets instead of banks.

Hyundai was founded in 1968 and began producing cars with the assistance of Ford before beginning to develop cars on its own in the late 70s. Kia was founded earlier in 1944 and began with the production of bicycles before it began car production in the 1980s. When Kia had financial problems in the late 1990s due to the Asian financial crisis, Hyundai acquired a major share in Kia Motors and merged both companies to form the Hyundai-Kia Automotive Group. Both companies share R&D and production plants but the two brands are strictly separated (Ritter 2010, 39).

In the beginning, Hyundai built cars using foreign parts from Mitsubishi, Ford or Italdesign for the engine and transmission (Ritter 2010, 39). Hyundai began exporting cars to developing countries before entering the developed car markets in North America and Europe. Hyundai learned from its partners and their technology and began developing its own cars in the late 70s.

However, while focusing on developed markets such as Europe, they neglected the potential of the growing Chinese car market which they entered relatively late in 2002. The late entry did not prevent Hyundai and Kia from being successful in China's market and today both are among the top car makers in terms of sales and have successfully established two joint-ventures with domestic partners – Beijing Auto Group and Dongfeng – and maintain three plants in China.

Samsung Motors was another Korean car maker established by a chaebol. Founded relatively late in 1994 by Samsung just a few years before the Asian Financial Crisis, the company came into financial difficulties during that crisis. After the crisis Samsung sold the majority of its automobile branch to Renault-Nissan, which renamed the Korean branch to Renault Samsung Motors. Before the acquisition, Samsung already worked together with Nissan and produced cars based on Nissan models (Park 2003, 180). And since Renault acquired a major share of Nissan in 1999, Renault was a welcome partner for Samsung. Renault on the other hand hoped that by acquiring large shares in Nissan and Samsung, it would be able to gain access to further Asian car markets. Today Samsung only holds a minority share of the company and it mainly produces or imports cars based on Renault models for the domestic market.

SsangYong is one of the smaller Korean car makers and had several owners and stake holders after the company came into financial difficulties during the Asian financial crisis. After Daewoo Motors and the Chinese SAIC, Mahindra & Mahindra Ltd currently owns the majority of SsangYong.

The Korean car makers, especially Hyundai and Kia have used several strategies to be successful. First, they offer a wide range of products from small compacts to sedans and SUVs and premium cars. To gain market share in the beginning they pursued a low price strategy – offering simple cars for a low price. Since the early 2000s they began to change their strategies. Hyundai and Kia began a new localization strategy and started hiring western engineers and designers from their competitors in order to improve their products (Maparter 09.20.2012). They hired former VW Designer Peter Schreyer to develop a modern design for their products to create a new corporate identity for their brands.

Another strategy that Hyundai and Kia apply to improve their competitiveness is the platform strategy. This means that various car models can be built upon a handful of basic platforms and by using as many of the same parts in as many cars as possible. Hyundai and Kia reduced the number of platforms from 18 in 2008 to 8 in 2012 but still intend to offer new product series (Wimmer and Benova 2012, 13).

In their strategy to become global players, Hyundai and Kia have adapted their products to local tastes by modifying design and developing some cars locally. The models i30 and i40 were developed in Russelsheim, Germany.

Hyundai and Kia have established regional competence and developing centers that are supposed to reflect the strengths of their regions in their product developments. Large cars are being developed in the US, small affordable cars are built in India and electronics are being developed in Japan. R&D centers are based in the US (the California Design & Research Center, the Hyundai American Technical Center and the Mojave Proving Ground), Germany (Hyundai Motor Europe Technical Center) and Japan (Hyundai Motor Japan R&D Center).

The local facilities do not merely have the function to develop cars specifically for the local market. They also have to apply market research to find out which features their local customers want and need and more importantly which are completely unnecessary. By removing certain features for local models, Hyundai and Kia might reduce the number of features that a product offers but at the same time lower the price of said product, thus making it more affordable (Wimmer and Benova 2012, 40). For

example, Hyundai is developing a small and affordable car mainly designed for the Indian market with only a limited number of features. However, the car might later also be adapted to suit the tastes of customers in other developing markets by inserting more features.

And to convince customers of their product's high reliability, both Hyundai and Kia offer their cars with a seven-year guarantee period. And with some success. According to J.D. Power, Hyundai and Kia are among the brands with the highest overall initial quality (J.D. Power 10.31.2013).

Despite these improvements, Hyundai and Kia continue to draw customers away from their competitors through a lower price and more value for money strategy (Brückner 09.15.2011).

Design, price and reliability are intended to attract new customers and give their products a better image beyond the low price strategy. The companies intend to offer products that can challenge the products of the leaders in their fields.

Following this strategy, Hyundai and Kia have begun to upgrade their brands by offering premium cars like the *Hyundai Genesis*, the *Equus*, the *K7* or *K9*. The *K9* (or *Quoris* in the US market) is Kia's current high-end sedan and sells for about €35,500 in South Korea and offers many features that its international rivals offer as well: modern gasoline engines, rear wheel drive, navigation and entertainment systems, safety features, distance control, eight-gear automatic transmission or LED headlights. But unlike their Japanese rivals who established their own premium brands to distinguish them better from the volume brands, Hyundai and Kia sell their premium cars under their volume brands.¹⁶

However, both Hyundai and Kia focus on Asia and North America as the main markets for their premium cars and do not yet intend to put them up for sale in Europe to compete with Mercedes, BMW, Audi or its Japanese rivals.

Regarding R&D, Hyundai and Kai invested about 2.1% of their revenue in R&D in 2011 (Wimmer and Benova 2012, 43). Although both companies intend to increase R&D investments in 2012 by 10%, they are still behind R&D investments of other car makers like Volkswagen (5.4%), GM (5.1%) or Honda and BMW (both 5.5%).

Nevertheless, both companies are conducting research in NEVs with a focus on Plug-In Hybrids and fuel cell electric vehicles (Ritter 2010, 44). In 2008, Hyundai announced a

¹⁶ Toyota established Lexus, Nissan Infinity and Honda Acura

hybrid system that was lighter and cheaper than that of its Japanese rival Toyota. Hyundai and LG Chem were the first to successfully implement the smaller and lighter lithium-ion polymer batteries in cars rather than the traditional nickel-metal batteries (Ritter 2010, 45). Hyundai and Kia launched their first hybrid cars in 2009 and 2010 and both companies are working on offering more (plug-in) hybrids among their product portfolio as an engine choice.

Samsung offers the *SM3 ZE* sedan, which is based on the Renault Fluence and is the bestselling NEV in South Korea (Yonhap News 03.14.2014). Kia offers the *Optima* as a hybrid model and an electric engine version of its *Soul* is planned to launch in 2015 with hydrogen cars to be sold in the same year. However, especially Hyundai and Kia are still cautious and do not intend to offer many different cars of one specific drive train. Instead, they offer smaller fleets of all engine types and see which type the customers prefer (Bay 05.06.2013). This strategy allows them to be present and gather experience with all NEV types without focusing solely on one specific type that might not be successful in the specific markets.

South Korea's car makers are already global players and the country has become an important location for automobile exports as shown in earlier chapters.

As Table 24 shows, South Korea has become the largest importer of cars in the EU in terms of units with a market share of 20.8%. And while other countries have seen a decrease in car imports since 2008, South Korea was able to increase its sales since 2011 – presumably due to the FTA agreement between the EU and South Korea, which established an FTA on July 1st 2011.¹⁷ However, South Korea still ranks third in terms of import value after the US and Japan (European Automobile Manufacturers Association. (ACEA)).

¹⁷ also see chapter 3.7 “Role of Government”.

Table 24: EU Car Imports (in units)

	2007	2008	2009	2010	2011	2012	% Share in 2012
World	3,214,833	2,783,532	2,212,025	2,139,820	2,76,517	1,932,420	100
South Korea	651,130	446,544	351,142	294,013	382,871	402,062	20.8
Japan	949,317	852,805	676,461	604,151	429,803	345,895	17.9
Turkey	385,188	361,161	314,514	330,548	334,349	318,265	16.5
United States	440,892	351,325	150,142	179,892	236,381	233,835	12.1
Mexiko	152,006	183,647	116,298	139,171	184,180	163,526	8.5
China	336,075	252,801	153,266	155,262	149,025	111,881	5.8

Source: Author's composition based on ACEA Data

Korean car makers have also been quite successful in other sophisticated markets. In the US, Hyundai and Kia reported record sales in the first six-month of 2014 (KBS World 07.02.2014). Kia sold 297,400 cars from January to June 2014 and Hyundai sold 364,400 cars.

Korean car makers have become international players, not only through exporting their products from South Korea but also through establishing production facilities overseas. Through these production facilities, Korean car makers – mainly Hyundai and Kia – were able to increase their production and sales worldwide. China and India have become the countries with the largest production plants of Korean cars outside of South Korea followed by the EU (Czech Republic and Slovakia combined) and the US.

Hyundai has two plants in Europe for passenger cars: Nosovice in Czech Republic and Izmit in Turkey (ACEA). Kia has a plant in Zilina (Slovakia), which achieved a new production record in 2012 with almost 300.000 cars per year (Bay 05.06.2013).

Table 25: Worldwide production of Korean car makers outside of Korea (in units) and development from 2011 in %

Country	Total		Hyundai		Kia	
	2012	Change in %	2012	Change in %	2012	Change in %
US	719,868	17.6	361,348	6.9	358,520	31.0
China	1,342,887	14.2	855,307	15.0	487,580	12.7
India	638,776	3.1	638,776	3.1	-	-
Slovakia	292,050	15.8	-	.	292,050	15.8
Turkey	87,008	-3.6	87,008	-3.6	-	-
Czech	303,035	20.7	303,035	20.7	-	-
Russia	224,420	61.5	224,420	61.5	-	-
Brazil	27,424	-	27,424	-	-	-
Total	3,635,468	15.8	2,497,318	14.4	1,138,150	18.7

Source: Author's composition based on KAMA and ACEA Data

Despite many production facilities worldwide, a large share of Hyundai's and Kia's cars are still being built in Korea and then exported into the world markets. Kia produced about 1.6 million cars in 2012 in Korea and exported 70% (Bay 05.06.2013) while it produced 1.1 million cars overseas. The numbers are different for Hyundai. Hyundai produced about 1.9 million cars in Korea and exported 1.2 million in 2012. Korea still holds the largest production facilities for Hyundai but the majority of its cars, about 2.5 million, are produced overseas.

It is also interesting to note that Hyundai not only has production facilities in more countries than Kia but that it also produces twice as much cars overseas than its sister company.

The impact of multinational enterprises on South Korea's car makers has been mixed, except in the case of GM Korea. Ssangyong and Renault-Samsung Motors only play minor roles in car production and exports. Renault had hoped that by acquiring shares in Nissan and Samsung, it would be able to gain access to further Asian car markets. Samsung's plant in Busan is used primarily for domestic demand. The cars are mostly based on Renault or Nissan models and are sometimes only rebranded through badge engineering. Samsung latest model in South Korea is the *QM3*, an SUV almost identical to the Renault Capture and built in a Renault plant in Spain (Business Korea 12.13.2014). The low priority that Renault-Samsung Motors has among its mother companies Renault

and Nissan is further corroborated by the fact that Renault-Samsung Motors saw the R&D budget and expenditures cut by almost 50% in the past three years (Business Korea 12.18.2013). In addition, the company has not produced a new model in seven years, only face-lifting its current models and imports from rebranded Renault models (Business Korea 02.12.2014). This development led to decreased sales and a low utilisation rate of Renault-Samsungs' plants in South Korea. The plant in Busan produced about 130,000 cars in 2013 but has a capacity of 200,000. To improve the utilisation rate, the plant will begin producing Nissan models destined for export in late 2014. New Samsung models have been announced for 2016, a sedan and an SUV. However, it is not clear whether they will be entirely new models developed by Renault-Samsung in South Korea or if they will be imported models from Renault or Nissan.

SsangYong, which was acquired by Mahindra & Mahindra Ltd, is performing slightly better. The company achieved record sales and growth rates of 34% in domestic and about 12% in foreign markets in 2013, maintaining two oversea plants in Russia and Ukraine and announced investments worth ₩1 trillion for the development of new car models in the next years (Business Korea 01.22.2014). However, when looking at the total production and sales, SsangYong is still relative small.

GM Korea on the other hand became a successful exporter and now ranks third after Hyundai and Kia with 655,878 units in 2012 (Table 19).

Regarding the entry of new companies to an industry, the situation in South Korea is different from China.

Both managed to reduce the required time and capital necessary to start up a business. South Korea reduced the number of days required to start up a business from 17 days in 2005 to 7 days in 2012 (ADB 2013, 324). The country also reduced the capital requirements slightly from 15.7% of GNI per capita in 2005 to 14.6% in 2012.

South Korea performs much better than China regarding the time required to open a business (7 days vs. 33) but when it comes to the financial requirements it is the other way around (2.1% of GNI per capita in China vs. 14.6% in South Korea).

Nevertheless, while China witnessed several successful, new private car makers emerging over the past decade, South Korea's only major newcomer since the 1990s was Samsung Motors.

Conclusion

This chapter compared the differences and similarities in the firm strategy, structure and rivalry between China and South Korea. In conclusion, while private domestic car makers in China are emerging, the industry is still largely dominated by foreign car makers and the SOEs. R&D and export activities have been low, but are increasing. Korea's automobile sector is dominated by Hyundai and Kia which have become very successful internationally and which are able to produce cars and conduct R&D worldwide. Both companies have even begun to offer premium cars which is an indicator of competitiveness as these products have to be of a higher quality as they are to appeal to more sophisticated (international) customers. Hyundai and Kia have *upgraded* their products while Chinese car makers still focus on producing less sophisticated cars.

3.7 Government

China's and South Korea's policy regarding the automobile industry is discussed in this chapter. It shows how both governments support their industry through subsidies or regulations.

3.7.1 Government in China

China's government had long ambitious plans to develop a competitive automobile industry. But it was aware of the fact that as latecomers, the SOEs would have problems catching up to their international rivals in terms of quality and technology. As a consequence, the government forced its large state-owned car makers and foreign companies into joint ventures in the hope that its ambitious plan would become reality through technology and know-how transfer. If foreign car makers want to produce cars in China they have to do so with a local partner.

To foster the development of international competitive car makers, China's government supported 8 – 9 enterprises by granting them exemption of adjustment taxes, preferred

access to bank and policy loans and stock market listings as well as public support for FDI utilization (Chin 2010, 112f). These companies in return had to increase the level of local content in their products and raise their product output to a certain volume.

Companies with a production volume of more than 300,000 cars that invested 3% of revenue into R&D received governmental support to extend their business.

In joint ventures, Chinese companies cannot have less than 50% of shares and the foreign company must meet certain requirements such as having a famous brand, selling high-tech products worldwide and be financially successful (Chin 2010, 115-118). For the joint venture to be approved, it is necessary to establish a R&D facility and to intend to export their products (Chin 2010, 124).

The government hoped that these joint ventures would become development partnerships for the Chinese companies and it wanted them to learn from the leading car makers in the world.

However, the strategy did not produce the desired results and partly backfired as discussed in the previous chapter (cf. chapter 3.4.1 “Demand Conditions in China”). Therefore, the Chinese government expanded the requirements for foreign car makers. To boost technological transfer, foreign companies that intend to invest in China are required to establish R&D facilities worth ¥500 million as of 2004 (Haley 2013). And if they want to expand their production capabilities, e.g. through additional production facilities, they are required to create a new car brand with their Chinese joint venture partner as of 2011.

The high priority that the Chinese government places on the automotive industry can be seen in the Chinese Five-Year Plans. In its seventh Five-Year Plan, the automotive industry is called a “national pillar industry”.

In 2009, the Chinese government introduced the “Plan on the Revitalization and Restructuring of Automobile Industry” describing guiding principles, planning objectives and policies as well as measures to “upgrade” its industry which the Chinese government deems necessary. Many aspects and guidelines in this plan are included in the 12th Five-Year Plan from (2011-2015). The major points regarding the automobile industry are:

- Expansion in consumer demand through financial incentives like subsidies or tax cuts.

- Promotion of industrial consolidation through mergers, acquisitions and restructuring. The government intends to create 2 or 3 large automobile conglomerates with a production capability of more than 2 million vehicles. The creation of 4 or 5 additional smaller car makers with a production capacity of more than 1 million vehicles is planned. This requires new laws and regulations as well as their implementation to support this policy.
- Promotion of the development and use of NEVs through public campaigns and the construction of the necessary infrastructure.
- Promotion of R&D in the automobile sector through financial support for research in fields and technologies necessary for upgrading the industry.
- Increase car exports

Government subsidies in general are an important advantage for Chinese companies according to Usha and George Haley (The Economist Vol. 396 2010, 63). Based on their calculations, Chinese SOEs have received over \$300 billion in subsidies in forms of cheap loans, preferable access to technology or underpriced raw materials between 1985 and 2005. The auto industry alone received over \$28 billion between 2001 and 2011 and may receive an additional \$11 billion until 2020. The subsidies are not limited to SOEs. The study also showed that small and medium sized companies might receive large amounts of subsidies, although it is much harder for these companies to gain access to capital in China. In 2011, Geely was among the private companies with the highest subsidies, receiving \$141 million, which would account for 51.3% of the company's net profits.

China's automotive industry policy and especially its protective measures have been a source of conflict with other countries, especially since China's ascension to the WTO and its required commitments to liberalize the economy.

China lowered the tariffs on car imports from 80 – 100% to 25% by 2006 and removed other barriers and restrictions as well (Canis 2013, 14f).

Until 2008, China maintained its imposed 25% tariff on imported cars and car parts with the intention to encourage international car makers to manufacture their cars in China with car parts being built in China as well (The Economist 08.21.2008). However, China had to change these tariffs in order to comply with WTO rules after the country lost a WTO case against the US, the EU and Canada.

Today, imported cars are subject to a consumption tax of 1-40% depending on the car's engine size. For cars with an engine size of less than 1 liter, the tax is at 1%. For cars with an engine size between 1 and 3 liter the tax is between 8 and 10%, for cars between 3.1 and 4 liters the tax increased from 15 to 25% and for cars with an engine larger than 4.1 liters the tax doubled to 40%. All these high taxes have led to high retail prices especially for imported cars since Chinese car makers still focus more on cars with smaller engine sizes. Nevertheless, these special taxes were unable to change the trend to luxury and premium cars as well as SUVs, which sell rather well in China's car market.

In 2011, the Chinese government enforced sanctions on imported cars with an engine displacement of more than 2.5 liters. Importers had to pay a special tariff fee of up to 21.5% of the car's value. The targets of this policy were foreign car makers from the US, Germany and Japan which built some of their cars in locations outside of China (especially in the USA) and exported them to China (Handelsblatt 12.14.2011).¹⁸ The Chinese government justified this move by arguing that especially the US government would subsidize their automobile industry, which would allow them to offer their products in China for a price below the full manufacturing costs and thereby harm the local industry. To settle the dispute, the US called the WTO, which in 2014 ruled in favor of the United States. According to this verdict China has to lift its sanctions on imported cars (Spiegel Online 05.24.2014).

But tariffs on imported cars are not the only measures that China's government undertakes to support and protect its industry. And it is not the only dispute that had to be settled by the WTO. Chapter 3.3.1 "Factor Conditions in China" highlighted the growing importance of rare earth minerals in many industries, including the automobile industry (batteries for electric and hybrid cars or LCD displays) that are currently almost exclusively being developed in China. In 2011, the Chinese government announced a reduction in exports of these rare earth minerals, stating that their domestic industries needed them more. As a consequence, prices for rare earth minerals increased and the EU, Japan and the US reacted by calling on the WTO court, claiming that the Chinese export restriction are against WTO rules. Their industries fear competitive disadvantages due to price increases and shortages. Especially if the export

¹⁸ Cars produced by GM were fined with an extra tariff of 12.9%, Chrysler had to pay an additional tariff of 8.8%. The German car makers BMW and Daimler had to pay 2.0 and 2.7% respectively (Handelsblatt, 12.14.2011)

prices for the rare earth elements might be considerably higher than the domestic prices for Chinese companies. In March 2014, the WTO ruled in favor of the EU, Japan and US and demanded that China remove its export restrictions on rare earth minerals (Lee 05.13.2014). However, it is unclear how long it will take until the Chinese government enforces the requirements of the WTO ruling. To provide their electric car makers with the necessary raw materials, the Chinese government is in talks with other important suppliers of rare earth minerals such as Chile and Bolivia (Kasperk and Wilhelm 2009, 5).

Another law that shows how far the Chinese government might go to support its industry took effect on January 1 2013. In case of a recall of a car model, this law gives Chinese officials the right to get full access to all data and documents regarding the development of this car model (Grzanna 01.14.2013). Foreign car makers fear that this law could be used to steal their know-how.

The Chinese government further granted subsidies for the purchase of compact cars. In the years following the financial crisis in 2008, the Chinese car market grew by 40% in 2009 due to two stimulus packages of tax cuts for the purchase of new cars with small engines from 10% to 5% and additional subsidies in rural areas (Ruch 05.28.2012).

These tax cuts were mostly removed in 2012 (Kilimann 04.28.2012). Instead, the government announced plans to promote the purchase of cars in rural areas (Ruch 05.28.2012).

The Chinese government also intends to reduce the share of foreign cars in its car fleet and increase the share of Chinese car makers. Every year, Chinese public agencies buy about 900,000 new cars but most of them – about 80% – come from foreign companies (Grünweg 04.28.2012). To support domestic car makers, the government demanded to buy local premium brands like “Hongqi” from state-owned FAW. However, even the Hongqi H7 is not a Chinese development but rather based on Toyota’s Crown and shares its platform, engine and other technology (Chin 2010, 197f).

Subsidies to the auto (parts) industry are the subject of another WTO dispute between China and the US. The US argues that the Chinese government supported its export oriented auto (parts) industries with subsidies worth \$1 billion between 2009 and 2011 which would be a violation against WTO rules (Canis 2013, 19).

As noted in the chapter *3.4.1 Demand conditions in China*, air pollution is a big problem in China, especially in the cities. Car emissions can account for up to a third of CO₂

emissions in some areas of Beijing (Yu 09.03.2013). The government is taking measures to reduce emissions and the automobile industry, as well as car owners are among the targets of new regulation policies (Fuscheng 01.06.2014).

The Chinese government may suspend driving for a number of cars due to air pollution at any time.¹⁹ Which cars exactly are affected by the ban depends on the last digit on their license plate number. In addition some local governments have begun to limit the number of new licenses per year. For example, Tianjin limits new licenses to 100,000 a year (Bruhn 02.18.2014). 40,000 of them are auctioned for a minimum of ¥10,000. The remaining 60,000 are drawn in a lottery among all prospects. Nine out of ten Chinese citizens are not issued a license plate (Bay 02.21.2014). Beijing, a city with about 5.4 million cars on the road, is considering using congestion fees for car owners (Yu 09.03.2013) and will reduce the number of new car registrations by 35.7% from currently 240,000 to 150,000 in 2017 (China Daily 11.07.2013). Additionally, Beijing issued a new car registration quota for NEVs to increase the number of these types of cars on a yearly basis to 60,000 in 2017. Currently seven cities limit car licenses (Beijing, Guangzhou, Guiyang, Hangzhou, Shanghai, Shijiazhuang, Tianjin) but more cities might follow this trend (China Daily 01.06.2014). These new regulations and limitations can come up rather quickly and without warning. Hangzhou was the last of the seven cities to limit new car registrations to 80,000 per year, with 80% issued by lottery and the remaining 20% to be auctioned (China Daily 03.25.2014). City officials announced these measures on March 25th 2014 without prior warning and they were in effect the next day (Xiao 03.31.2014).

But as Michael Dunne (2013) shows, the government is still reluctant to put too much pressure on the industry and its citizens through higher prizes or drastic improvements in fuel quality standards.

Fuel prices are still set by the government to protect the economy and low-income households which might not be able to afford a new car with high fuel efficiency standards or pay for non-subsidized fuel. Fuel quality is quite low, even when compared to other developing countries and state-owned oil companies have no interest in investing into higher quality fuel since they cannot pass the higher costs on to their

19 In early 2014 in Schijiazhuang (Province Hebei), the local government suspended driving for a fifth of cars depending on their license plate number. (Der Standard, 2014)

customers. In addition, high fuel efficiency requirements may force several car makers to shut down as they lack the know-how to develop and manufacture cars with better fuel efficiency. Nevertheless, the government has decided to increase the prices for gasoline and diesel over the next years step by step (China Daily 09.24.2013). Until 2017, prices per ton of gasoline and diesel will increase by ¥290 and ¥270 respectively. After 2017, the prices will further rise by ¥170 and ¥160 per ton. In addition, after 2018 the Chinese government will demand a higher fuel quality and require a reduction of sulfur content in diesel and gasoline from 50 ppm (parts per million) in their current standard called China IV to 10 ppm, called China V, which can be compared to Euro 5 norm (China Daily 12.21.2013). Other dangerous elements such as Manganese or Alkene are to be reduced as well. However, these requirements only apply to the developed regions such as Beijing or Shanghai and not to the western parts of the country, which still only require the lower fuel standard China III with a sulfur content of 150 ppm.

The importance of fuel quality and consumption is getting clearer when considering that China is very depended on oil imports. According to the US Energy Information Administration (2014), the country will surpass the USA as the largest oil importer in 2014. China's growing oil consumption over the past two decades is partly due to the increasing number of cars on its streets. In 2013, China consumed about 10.7 million barrels per day but produced only 4.5 million barrels per day. The remaining 6.2 million barrels per day have to be imported. Until the early 90's, China has been a net exporter of oil but the countries production has almost peaked which means that if China's oil consumption continues to grow oil imports are likely to continue to increase even further. China's government and the state-owned national oil companies are therefore seeking additional sources overseas to secure the oil import flow. The country has diversified its import sources, acquired foreign companies and oil assets but remains highly depended on foreign oil.

In an attempt to reduce air pollution, dependence on foreign oil and to leapfrog international car makers of combustion engine cars, the Chinese government promotes new energy vehicles. Chinese car makers often still do not possess the know-how or the technology to develop cars on the same level as their competitors unless they develop them with foreign suppliers as in the case of Qoros. The government is aware of this and is influencing Chinese companies to move to new energy vehicles such as hybrid or all electric cars.

Central and local government grant subsidies for electric cars (up to ¥ 60,000) but only for locally produced cars and the subsidies will be cut by 10% in 2014 and by a further 20% in 2015 (Murphy 11.27.2013). The Chinese government announced subsidies to 28 pilot cities for promoting new energy vehicles and created a \$650 million large fund for car makers to help them develop new technologies related to new energy vehicles (Murphy 11.27.2013). The municipal government of Beijing grants additional subsidies of up to ¥60,000 per electric car purchase, depending on engine type, hybrid or pure electric car and the number of kilowatt-hour (Ming 11.29.2010). For example, the Denza, an electric car developed by Mercedes Benz and BYD, costs about ¥360,000 or €42,000. Through the subsidies from central and local governments the price can be reduced to ¥240,000 or €28,000. In addition, the city intends to improve the infrastructure for electric vehicles by building charging stations and charging stakes to limit the number of new car sales of traditional gasoline engine cars and instead increase deployment of new energy vehicles up to 170,000 vehicles in the timeframe between 2014 and 2017 (HIS automotive 2014). Other cities like Shanghai are following Beijing's example and promote NEVs while improving the necessary infrastructure at the same time (Jing 03.03.2014). Furthermore, the Chinese government decided to expand the subsidies and incentives for NEV purchases beyond 2015 (China Daily 02.11.2014). But despite the government's ambitions, sales of NEVs are still low and this kickback can at least partly be attributed to government failures. In an attempt to reduce smog, the Chinese government announced plans to remove more than 5 million cars with old combustion engines, 330,000 alone in Beijing (Spiegel 05.26.2014). However, it is yet unclear how this plan is going to be implemented. China is far behind its Five-Year Plan to build the necessary infrastructure for NEVs such as a high number of nationwide charging stations (Browne 11.27.2013). In addition, chargers and plugs from the various Chinese car makers are not always compatible. Several local governments support their local car makers by using and promoting the charging system unique to their local companies. Even when the government promoted NEVs in a campaign called "ten cities, thousand cars" some local governments still did not support companies from rival cities and regions (Pander 04.25.2012).

Since sales for electric cars are still far behind the government's expectations, the Chinese government decided to extend subsidies and other privileges to plug-in hybrid cars as well in the hopes of improving sales. In June 2014, the government announced

that hybrid, fuel cell and electric cars are exempt from the sales tax as of September 1st 2014 (Spiegel 07.09.2014).

In addition, many foreign car makers already announced plans to bring NEVs to the Chinese market. VW already offers a few electric cars in China like the E-Up and E-Golf but more (plug-in) hybrid and electric version of other cars are said to be sold later this year or within two years (Maahn 04.23.2014) This may result in the same developments that Chinese car makers went through with the traditional gasoline engine powered cars, meaning Chinese companies produce and sell cars from their foreign joint venture partners without developing their own cars. And the smaller private car makers might loose out to their stronger international rivals.

To prevent these developments, China's government requires foreign car makers that intend to profit from central and local subsidies and other benefits for NEVs to manufacture such cars locally with their partners. In addition, key components such as the battery or the electric engine have to be developed in China and the patents for all developed technologies have to belong to the joint venture (Schmidt 11.21.2013). And yet again international car makers established new or even extended existing joint ventures with local partners to develop and produce NEVs. This also includes suppliers like Siemens which is cooperating with BAIC to manufacture electric engines (Handelsblatt 04.20.2014). The Chinese government again hopes not only to attract investments and create jobs but also to instigate a know-how transfer in a very important future technology. However, foreign companies are aware of the risk of technology theft and they have found a way to limit the know-how transfer. The electric car *Denza*, developed in cooperation between German Daimler Benz and BYD exclusively for the Chinese market, is based on Daimler's B-Class and BYD electric parts but lacks several high-tech components that Mercedes uses in the international electric B-Class (Grünweg 05.19.2014). In late 2013, BMW and its Chinese partner Brilliance announced their electric car brand *Zinoro*. The first car, the E1, is based on BMW's X1 SUV and has been developed in only a short period of time and is only intended for the Chinese market (Geinitz 11.14.2013). The Zinoro has been developed by BMW's and Brilliance's joint venture and has only basic technology regarding the electric engine parts, so the car doesn't compete with BMW's own high-end electric cars i3 and i8. Other international companies act the same. They offer electric cars that may be based on their conventional cars but the basic electric systems are developed with their local partners in China, while they keep their high-tech products and systems outside of the Chinese

market or offer them under their own brands. Therefore, the knowledge transfer may again be limited and the hopes of the Chinese government again are in vain.

China's National Development and Reform Commission has to approve Joint Ventures like the one between Renault and Dongfeng, mergers or the take over from a company by another (Pearson 12.05.2013). These proceedings can be complicated, since they require the approval of multiple government agencies. In 2009, the merger between China's number six in terms of sales, Guangzhou Automobile Group Co. and the much smaller Changfeng Automobile Corp was complicated by an agency, resulting in a delay of the merger (Yu 10.18.2013). When Geely acquired Swedish car maker Volvo, making it a Chinese company, the government still required both companies to create a new joint venture before they can begin producing Volvos in China.

China's government also supports its export-oriented industries through its exchange rate policy. China uses a managed float policy known as *crawling peg*. The government allows fluctuations of its Yuan to a predetermined degree, which was gradually changed over time, allowing the Yuan larger fluctuations (Morrison and Labonte 2013, 3). US officials have often criticized China's government in the past for its severely undervalued currency that gives the country's export-oriented industries an unfair competitive advantage. The US argue that should China apply a free floating exchange rate policy, its Yuan would appreciate, making US exports to China more competitive and reduce the trade deficit.

China's government has reformed its exchange rate policy during the last decade, resulting in an appreciation of the Yuan against the US Dollar (Morrison and Labonte 2013, 1).

3.7.2 Government in South Korea

South Korea has shown remarkable economic growth over the past decades and has become a very successful economy. In literature, this success is often credited to the large business conglomerates and the South Korean government, which favored an export oriented development strategy over import substitution (Shim and Lee 2008, 34).

Traditionally, the Korean government had a lot of influence over the economy and in order to achieve the economic goals, the government relied on the chaebols.

Beginning in the 1960 under President Park Chung-Hee, the chaebols received cheap loans and other privileges (Wimmer and Benova 2012, 21). The government intervened deeply in the economy. Shim and Lee (2008, 97) describe the government in the early 1960s to the late 70s as a *rule maker and planer*, while the chaebols were *the implementers*. The government decided on which industry sectors companies should put their focus on by offering subsidies to these sectors.

The access to cheap capital led to investments, expansions in various economic branches over time and to a tremendous economic growth which was stopped in the late 1990s by the Asian Financial Crisis. During this period, 11 of the 30 largest chaebols collapsed under debt, including the Daewoo Group. Daewoo's automaker branch was bought by GM later and turned into GM Korea, which focuses on exporting smaller SUVs, sedans and compacts under the Chevrolet brand.

The South Korean government began restructuring its economy including the automobile industry after the Asian Financial crisis. Traditionally, the government was quite protective of its industries, strictly regulated inward FDI and forbade foreign companies to acquire domestic car makers (Park 2003, 179f). SsangYong, Samsung and Daewoo were still in Korean hands until the Asian Financial Crisis hit the country in 1997 which caused an extension of the liberalisation policy in South Korea's government that began in the early 1990s and which opened the possibility for foreign car makers to acquire domestic companies (Park 2003, 181). Park (2003) shows that governmental policy regarding the automobile industry changed dramatically during the 1990s. In the early 1990s, automakers still advocated for a financial and institutional supportive government while at the same time they called for limited governmental influence on their operations. The government decided to continue to support its automobile industry but to release it from its tight grip through several reforms like a liberalisation policy regarding FDIs. However, the Asian Financial Crisis, the fall of Kia Motors and the fear of overcapacity, which could severely harm domestic car makers, forced the government to engage and begin restructuring the automobile sector (Park 2003, 184). It persuaded Samsung to give its automobile branch to Daewoo, which in return gave Samsung its electronics branch. Through this measure, the government hoped to remove the least productive and successful car maker from the market and direct the focus for Samsung on electronics and for Daewoo on cars to create two new national champions in these respective fields. However, conflicting interests between the two chaebols and other local actors like unions and local governments prevented this deal.

As a consequence, the government declared the highly indebted Samsung Motors bankrupt and sold the remaining company parts in an international auction, making the acquisition of a domestic car maker possible for a foreign company (Park 2003, 190).

Governmental influence is still strong today. According to the WTO, Korea's government and bureaucracy focuses on five objectives regarding the country's economy:

"...building a favourable investment environment; promoting the growth of local economies; establishing an innovative R&D system; upgrading core industries; and supporting small and medium-sized enterprises (SMEs)" (WTO 2012, 131).

The government identifies several industries which it expects to develop into a future economic growth engine for the country. In the next step, it focuses on subsidizing these specific branches heavily with the intention to direct the chaebols investments into these specific fields. For example, when the government decided to subsidize research and production in biochemistry, Samsung established a biochemistry branch (Schmidt 06.30.2012).

In case of the country's automobile industry, the government intends to support its industry goal of capturing 10% of the world's market for NEVs by 2015 and to become the largest producer of NEVs with a market share of 40% in worldwide NEV production. The government hopes to increase production of NEVs up to 1.9 million cars by 2020. The Ministry of Knowledge Economy (MKE), which also sets the energy policy, subsidizes the development of highly efficient batteries for electric cars and other systems with \$62.3 million between 2009 and 2014 and a further grant of ₩1 billion for selected R&D projects regarding NEVs and supporting industries (WTO 2012, 132). In addition, the MKE announced plans to invest together with private companies more than ₩ 0.1 trillion for the construction of NEV production plants.

South Korea's government uses financial incentives to promote NEVs in its domestic auto market. Between 2009 and 2012 the government issued tax deductions worth \$2,800 for the acquisition of a hybrid car. For the purchase of an electric vehicle, the government grants a subsidy of \$13,900. The goal is to have one million electric vehicles on Korea's streets by 2020 (Electric Vehicle News 04.18.2014). The subsidies are also an incentive for Korea's car makers to increase production of electric vehicles to 1.2 million by 2015.

Besides the subsidies granted by the South Korean government, local governments and cities offer additional benefits of up to \$7,400 for purchasing an electric vehicle.

The local government of the island of Jeju plans to replace all 300,000 traditional gasoline cars on the island with electric vehicles by 2030. Currently, the local government grants a subsidy of \$7,400 for the purchase of an electric car. Combined with the \$13,800 central government subsidy, this cuts the price of some electric vehicles by almost 50%. And additional subsidies might follow to encourage more electric vehicle purchases. Besides financial subsidies, the local government invested in the necessary infrastructure for electric vehicle like recharging stations and is still working on increasing their density.

Regarding traditional gasoline engines, South Korean government taxes cars based on its engine capacity. Cars with an engine capacity of less than 1.000cc are exempt from individual consumption tax that has to be paid on purchase (KAMA 2013, 18). 5% of ex-factory price have to be paid for an engine capacity up to 2.000cc and 7% for more than 2.000cc. However, the latter is to be reduced to 5% by 2015 and Hybrids and NEVs are exempt from the individual tax until 2014 (WTO 2012, 84). After the purchase, owner's automobile tax also depends on the engine capacity. Below 1.000c the tax is ₩80/cc, up to 1.600cc ₩140/cc and above 1.600 it is ₩200/cc.

In addition to taxation on engine capacity or subsidies, South Korea's government has also implemented stricter regulations regarding recycling, emissions and fuel efficiency (KAMA 2012, 21). Traditional gasoline engines sold in South Korea have to meet emission regulations of California's NMOG (Non-Methane Organic Gases) law of 2009, which requires car makers to reduce emissions step-by-step to a specific low value until 2015. Cars with a Diesel engine are required to follow the EURO-5 standard. In addition, car makers have to guarantee that emissions remain the same for a specific period of time or distance.²⁰ The government also promotes a higher degree of recycling in South Korea's automobile industry and prohibits them from using lead, mercury or chromium on a manufacturing level.

However, this policy is not only due to environmental concerns. It also forces South Korea's car makers to upgrade and improve their products by developing cars that are fuel efficient, reliable and compatible with international standards which in return might increase oversea sales. In addition, South Korea is very dependent on oil imports and the policy is therefore a measure to reduce dependence on foreign oil. According to

20 For cars with a gasoline engine the time period depends on the engine size is up to 10 years or 192.000km. For cars with a Diesel the time period is 10 years or even 500.000km.

the Energy Information Administration, South Korea relies almost entirely on oil imports and is the fifth-largest importer of oil in the world.

Between 1962 and 1986, imports of foreign cars were prohibited and even after the liberalisation policy slowly began in 1986, the government enforced a tariff rate of 60% on car imports (Lee 2011, 887). However, this rate continuously dropped to 8% in 1995. South Korea's government further supports its industry by improving access to foreign markets through FTAs on the one hand and by limiting foreign competition through non-tariff trade barriers on the other hand.

Ahead of the FTA talks between the USA and South Korea, US car makers criticized South Korea's automobile regulations regarding safety and emission standards and the certification process (Lee 2011, 887). They argued that US standards were higher than Korea's own and that the certification process took too long, was unfair towards foreign car makers and prevented imports. During the first bilateral talks in late 1990, South Korea began improving market access for foreign companies and reduced the requirements for them.

With regard to the automobile industry, the FTA between South Korea and the USA reduces Korea's tariffs on US imported cars and car parts from 8% to 4% and removes them as of 2016 (Cooper et al. 2013, 19). The US on the other hand reduces its tariffs on South Korean cars from 2.5% to 2% and removes completely them in 2016 as well. In addition, South Korea agreed to increase transparency regarding environmental and safety standards and to show greater acceptance of US standards in order to improve market access for US automobiles (Cooper et al. 2013, 21).

The criticism that the Korean government protects its home market from too much foreign competition came up again during the discussions of an FTA between South Korea and the EU (The Economist, Vol. 396, 2010, 63). This agreement would remove import duties on most products, including automobiles.²¹ Especially the European car makers criticized this agreement citing the unilateral benefits for South Korea's car makers. With the FTA taking place, South Korea's car makers would be able to offer their cars for at least €1,000 less than before the FTA while the Korean car market on the other side would remain impenetrable for most European car makers. Tariffs on car imports from Europe to Korea will be removed or lowered as of July 2014 (KBS World 06.30.2014). The current tariffs of 1.6% on cars with an engine capacity of more

21 Before the FTA the import tariffs were at 10% in the EU and 8% in South Korea.

than 1.500 cubic centimeters will be removed. The current tariff on cars with smaller engine capacities will be lowered from 4 to 2.6%. These measures are expected to lower the price of imported cars by €500 - 800 on average. These tariffs based on engine sizes for cars from the EU are similar to those in the Korea-United States FTA (WTO 2012, 33). As shown in the previous chapter, the export-oriented strategies of Korean car makers were quite successful, especially for Hyundai and Kia. In 2009 alone, Korean car makers exported about 700,000 cars to the EU while their European counterparts barely managed to export 32,500 cars to South Korea with those coming mainly from German premium brands.

This is due to the fact that the premium brands do not directly compete with the local car makers and are able to bear the high costs of meeting the strict regulations the South Korean government has set up. To ease the tensions, the South Korean government agreed to remove non-tariff barriers, improving access for European car makers. However, this does not mean that the government is not going to introduce new regulations and standards to protect its industry after the agreement was signed. In the mid-1990s, South Korea agreed to improve market access for American car makers. But shortly after the agreement with the USA was signed, they introduced new unique standards and regulations. To adapt their products to all of the new regulations only for the South Korean market would have been economically unfeasible for foreign car maker to offer their products in this market (The Economist, Vol. 396, 2010, 64).

Despite criticism, the FTA came into effect on July 1st 2011 and three years later the development has been quite positive for South Korea companies. According to the Korea International Trade Association, exports from South Korea to the EU grew about 18.4% in the first year of the FTA (Germis 06.30.2014). However, the growth of the exports declined and in the past year exports grew only about 4.1%. A growing share of Korea's exports to the EU and a decline in exports from Japan, Taiwan and China (which lost market share to Korea companies), stress the FTA's advantage for South Korea's car makers. The Korean automobile industry is among the top beneficiaries of the FTA as their car sales and market share have increased over the past years (Table 24).

US car makers face the same problems as their European counterparts. While they are barely able to export a high number of cars to Korea, Korean car makers export cars in much higher volume.

Another factor that influences export oriented car makers' competitiveness is a countries currency and the exchange rate policy. The US government suspected that

Asian countries like Japan, China and South Korea were supporting their export-oriented industries through their exchange rate policies. However, South Korea as well as Japan have adopted a free floating policy regarding their exchange rate and only intervene if the rates for their currencies are too volatile and could harm the economy (Martin 2008, 2).

The Korean Won has appreciated over the past years and its strength had a negative influence on most of the profits of South Korea's car makers (Business Korea 07.17.2014). Hyundai, Kia, GM Korea and SsangYong might see a decrease in profits, since a large share of their products is exported and transactions overseas are paid with US dollars. Hyundai might be less affected than the others since it already manufactures a large share of its products overseas. Only Renault-Samsung Motors might profit from an appreciating won as the company imports many cars and car parts and pays for them in Won.

Conclusion

This chapter demonstrated the strong role of government in China's and South Korea's automobile industry. Both governments support their industry through subsidies but China's intervenes much stronger in its automobile sector, protecting domestic industries and trying to create a know-how transfer from foreign joint venture partners to domestic car makers. South Korea on the other hand has pursued a more liberal approach, allowing the acquisition of domestic car makers through international companies and improving access to overseas markets through FTAs.

4. Conclusion

The purpose of this thesis was to analyse and compare the competitiveness of China's and South Korea's automobile industry based on Michael Porter's Diamond Model Framework.

Table 26 summarises the results based on the analysis in the previous chapters. The table's structure and rating levels Low, Medium and High as well as the transition ratings like Low to Medium are adapted from Barragan's (2005) study on the competitiveness of Mexico's automobile industry.

The diamond framework has been useful in analysing the automobile industry's competitiveness but had to be expanded to incorporate additional factors that influence competitiveness such as competition in international markets and overseas demand.

In 2004, Wu classified China's automobile industry as less competitive but he also argued that the national diamond would continuously increase pressure on domestic policy makers and the automobile industry to intensify efforts to improve their competitiveness. And indeed, China was able to improve its competitiveness in some areas and its automobile industry performed better in 2014. Nevertheless, it still cannot compete with South Korea's car makers which are already successful internationally and are able to compete with other sophisticated international rivals.

China has improved its competitiveness in many fields. It upgraded its factor conditions through large investments in roads, railways, airports and ports, which provide the necessary infrastructure for export-oriented industries. The growing number of research facilities and modern forms of communication further support the economy's competitiveness. China's growing investments in education are a further bonus. In Shanghai, students are already capable of competing with students from developed countries for the highest ranks in the OECD's PISA study.

And even in basic factor conditions China gains competitive advantages due to its role as the dominant supplier of rare earth minerals that have become very important over the past years, while South Korea is poor in natural resources and has to rely on (expensive) imports. The wages in China's automobile sector have increased almost three times between 2003 and 2011 but still remain lower than in South Korea, which pays some of the highest wages in the automobile industry. Furthermore, China's automobile industry has not a big problem with strikes and labor unions than its South Korean rival does.

However, China still falls behind South Korea in some areas. Its infrastructure in the central and western provinces falls behind the well-developed eastern provinces and South Korea's infrastructure. In addition, mobile phone and broadband Internet penetration is much higher in Korea.

And while Shanghai students can compete with their Korean counterparts, China as a whole only performs average in education while South Korea ranks 15th in the UN Human Development report.

In addition, China's car makers receive financial support through the state-owned banks, while South Korea's car makers have to look to the private sector to finance their activities (e.g. through the stock market or loans from private banks) where companies receive loans or other investments based less on political order but rather on market forces and creditworthiness. This forces Korean car makers to work more cost effectively.

Both countries have and are investing to provide their industries with a good infrastructure and skilled employees but South Korea is still ahead of China in the areas of education, infrastructure or finance where it maintains a competitive advantage. China on the other hand dominates the market for rare earth minerals and offers employees with lower wages, who, in addition, strike less than their Korean counterparts.

When comparing the volume of domestic sales, China's car market is by far larger than South Korea's which is not surprising given the much bigger population size. However, compared to the number of cars per 1,000 people, China still ranks much lower than South Korea despite high growth rates in car sales and it also has more potential for further growth. The higher number of car sales could give Chinese car makers a scale advantage over their Korean competitors. But since Korea's car maker already produce a large share of their cars overseas, they do not have to rely on scale effects through domestic sales for the most part.

Furthermore, international demand for Korean cars is much higher than for Chinese automobiles. Despite a production volume of more than 15 million cars in 2012, China's car makers barely exported more than 1 million cars. And while Chinese car makers focus on customers in developing countries with lower sophistication as the main export targets, their Korean rivals are already successfully competing internationally for market share and highly sophisticated customers in developed markets. This would suggest a higher international competitiveness for South Korea's car makers.

In addition, the current developments pose a major challenge for Chinese car makers, which profit much less from the growing domestic market than their foreign competitors. Their market share decreased over the past decade to an all-time low. This would suggest that a majority of Chinese customers do not yet see their domestic brands offering as competitive products as their foreign rivals do. Chinese brands have only been successful in a few market segments like SUVs and small affordable cars.

Regarding customer sophistication, South Korean customers might be considered more sophisticated than their Chinese counterparts which is on average due to the higher GDP per capita and a higher rank in the UN Human Development index. Korea's car makers still dominate their domestic market despite increasing competition from foreign brands. The fact that Korea's domestic brands have a high market share might also be seen as an indicator that their products are sophisticated enough to be preferred to foreign cars. In addition, while Chinese car makers still have no successful premium brands, Hyundai and Kia already have begun offering products that target highly sophisticated customers and that have to be competitive enough to be able to challenge the established premium brands from Japan and Germany.

When considering the high number of exports to sophisticated markets, the high domestic market share of domestic brands, the higher sophistication of domestic and international customers and the growing international demand for Korean cars, Korea's automobile industry is currently more competitive than China's.

So far, China's domestic companies in related and supporting automobile industry have only few competitive advantages as they still focus on low sophisticated parts and conduct little R&D themselves. In addition, foreign automobile parts manufacturers found it difficult to find joint-venture partners capable of producing sophisticated products, despite an increase in knowledge and engineering know-how among China's related and supporting industries.

However, while especially the large state-owned car makers rely at least in part on foreign suppliers, China's smaller private car makers like BYD have begun to develop their own parts. Further, some of China's larger automobile suppliers – backed by SOEs or local governments - have gained know-how through acquiring foreign companies, which can be transferred to China's industry and be implemented in their products in the future. In addition, China's automobile suppliers have become successful exporters and the Chinese government intends to continue subsidizing R&D in the automobile parts sector with a focus on NEVs.

But in the meantime China's related and supporting automobile industry is still behind South Korea's. Korean car makers can rely on the various companies in different branches within their chaebol network as their main suppliers. Especially Hyundai and Kia have established a strong hierarchy among their suppliers and the supply chain and rely on vertical integration, producing and developing a high share of automobile parts themselves.

South Korea's supplier have also developed goods with a higher level of sophistication, like batteries and systems for hybrid cars and offer them to other international car makers.

China's automobile industry is still dominated by the large state-owned car makers. However, new private companies have emerged over the past decades and a few achieved some success in terms of sales and exports. And while the SOEs still rely on joint-ventures, private car makers have developed their own strategies for economic success.

China's car market on the other hand is dominated by foreign car makers and brands and the market share of Chinese brands is at an all-time low, which shows a high degree of competition in the domestic market that could increase further in the coming years.

Korea's car market and automobile industry on the other side is still dominated by Korean brands, especially Hyundai and Kia, which indicates low competition. However, the market share of foreign brands increased over the last couple years and might increase further due to the FTAs. Korean car makers, mainly Hyundai and Kia, compete internationally for customers and are quite successful, even in developed markets. Taking international markets into consideration, Korean car makers face high competition and demanding customers and their success indicates a high degree of competitiveness. The export oriented strategy and the international demand and rivalry, force Korean car makers to continuously improve or upgrade their products to remain competitive.

The large state-owned Chinese car makers are still mainly focused on the domestic market, conduct little R&D on their own and rely on their foreign joint venture partners for development. But some companies have begun to conduct their own R&D, export their products and acquired foreign companies to gain know-how and to improve their product quality. China's car exports are still relatively small in terms of volume and while Chinese car makers have successfully entered markets in developing countries, entries in developed markets on the other hand have been unsuccessful so far.

Korean car makers on the other side are already successful in international markets, produce cars and conduct R&D worldwide and even have begun to develop premium cars to compete with established premium brands.

MNEs are in China primarily to gain access to the country's growing market. They conduct little and mainly basic R&D locally and their locally produced cars are intended for the Chinese market and not for export. However, the presence and growing pressure from MNEs in South Korea and especially China might force the local car makers to intensify their measures to develop new products of higher quality to compete with their foreign rivals.

The situation is a little different in South Korea. Renault Samsung Motors was acquired for access and its production facilities manufacture mainly to supply the Korean market. GM Korea on the other hand has become a successful exporter, which indicates that GM acquired Daewoo not only for market access but also for efficiency seeking reasons.

However, as successful as the Korean car industry currently is, its success is mainly due to Hyundai and Kia, which dominate their domestic market and automobile industry. The remaining car makers are of much lower relevance and while new private companies emerge in China's auto industry, South Korea lacks successful newcomers.

The influence of government is still strong on their respective automobile industries. However China's government exercises a stronger influence on its automobile sector as it hopes to create internationally competitive domestic MNEs in the future. It protects its domestic car makers, forces foreign car maker into joint ventures and uses several forms of subsidies, incentives and regulations to benefit domestic companies.

China's industry policy may harm the country in the long run. The large SOEs have preferable access to capital, technology, raw materials, and governmental protection as well as know-how but they lack the entrepreneurial spirit and are run by public officials. The small and medium sized private car makers partly lack these advantages and yet have to compete with the large SOEs.

But China's government policy has been quite ambivalent. On the one hand it is very protective of its domestic companies, on the other hand it allowed the emergence of private domestic car makers and exposed them and the SOEs to the far more competitive foreign car makers, which currently can increase their market share month after month. However, this pressure might lead domestic car makers to develop their own innovative strategies and products to successfully fight off the foreign car makers and improve their competitiveness. China's plans for state-owned car makers may have

not yet been very successful but the private automobile industry is growing and is already exporting cars. In addition, China's government puts pressure on all car makers to develop NEVs, a potentially important market in the future.

South Korea's government used to be very protective of its automobile industry and provided many subsidies to create internationally successful MNE's, especially in the industry's early stages. One reason for the competitive advantage of South Korea's car makers may be contributed to the government's export oriented economic strategy that forced its domestic car makers to develop competitive products, capable to challenge international car makers.

Nevertheless, the automobile policy changed in 1990s especially after the Asian Financial Crisis when South Korea's government liberalized its automobile sector.

The government remains an important factor, as it uses financial incentives for its companies to invest in branches and technology it deems profitable in the future and tries to improve market access for its companies in oversea markets through FTAs.

In conclusion, it can be said that China's automobile industry showed some positive developments over the past decade but it will take much more time to be competitive enough to challenge established international car makers like its Korean rivals Hyundai and Kia. At the moment, South Korea's automobile industry is more competitive and will likely remain it for the next years.

Table 26: Assessment of the modified Diamond Model

		Factor Conditions	Demand Conditions	Related and Supporting Industries	Firm Strategy, structure and rivalry	The Role of Government
China	Assessment	Medium to High	Medium	Low to Medium	Medium	Medium
	Sources of Competitiveness	- Quality infrastructure in the Eastern provinces - Improvements in education and R&D - Main supplier of rare earth elements - Average wages	- Large and growing domestic market with average sophisticated customers - Low international demand and less sophisticated customers in export markets	- Fragmented industry - Dependence on foreign companies - Focus on less sophisticated goods - Low R&D capabilities - Acquisition of foreign companies	- Growing competition through foreign and private car makers - SOEs and joint venture still dominant with a focus on the domestic market - Private car makers are becoming more competitive and begin to export - MNE in China for market access	- Protective government - Many subsidies for domestic car makers - Regulations to benefit domestic industry (know-how transfer) - Exposes domestic car makers to high degree of competition

	Factor Conditions		Demand Conditions	Related and Supporting Industries	Firm Strategy, structure and rivalry	The Role of Government
South Korea	Assessment	High	High	High	High	High
	Sources of Competitiveness	- Quality infrastructure - Highly educated population and workforce - High wages	- Smaller domestic market with sophisticated customers - Competing in growing international market with sophisticated customers - High market share of domestic car makers in domestic market	- High R&D capability with focus on highly sophisticated goods - Strong connection between suppliers and car makers - Strong organization of the supply chain	- Still low competition in the domestic market - But high competition in South Korea's export markets - Dominance of Hyundai and Kia - Strategy to develop premium cars and NEVs - Worldwide production facilities and R&D	- Protective in the past - Export oriented policy - Liberalisation policy of the domestic automobile sector - Subsidies and incentives for investments in selected branches and technologies

5. Abbreviations

ACEA	European Automobile Manufacturers Association
ADB	Asian Development Bank
BASF	Badische Anilin & Soda Fabrik
BAIC	Beijing Auto Industry Cooperation
BMW	Bayerische Motoren Werke
BYD	Build Your Dreams
CAAM	China Association of Automobile Manufacturers
CAGR	Compound Annual Growth Rate
CEO	Chief Executive Officer
CIA	Central Intelligence Agency
EIA	Energy Information Administration
EU	European Union
FAW	First Automobile Works
FDI	Foreign Direct Investment
FTA	Free Trade Area
GDP	Gross Domestic Product
GM	General Motors
KAMA	Korean Automobile Manufacturer Association
Ltd	Limited
MKE	Ministry of Knowledge Economy
MMI	Multi Media Interface
MPV	Multi Purpose Vehicle
MNE	Multinational Enterprise
NMOG	Non-Methane Organix Gases
NEV	new energy vehicles
OECD	Organisation for Economic Co-operation and Development
OICA	Organisation Internationale des Constructeurs d'Automobiles
PISA	Programme for International Student Assessment
R&D	Research and Development
SOE	State-owned Enterprise
SAIC	Shanghai Automotive Industry Cooperation
SUV	Sport Utility Vehicle
UN	United Nations
US	United States
USA	United States of America
VW	Volkswagen
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

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7. Appendix

Table A-1: China's Top 20 Export Industries in Terms of Value in 2008

	Industry	Exports in value (in thousands USD)	Exports as a share of total exports (%)	Exports as a share of world exports (%)	Net trade
	All industries	1,430,693,525	100	8,75	293,113,282
1.	Electrical, electronic equipment	329,159,582	23,01	16,73	59,694,903
2.	Boilers, machinery; nuclear reactors, etc	281,474,568	19,67	14,13	140,969,065
3.	Articles of apparel, accessories, knit or crochet	60,877,445	4,26	33,45	60,023,827
4.	Iron and steel	53,473,096	3,74	10,29	28,939,162
5.	Articles of apparel, accessories, not knit or crochet	52,490,191	3,67	28,63	51,268,294
6.	Articles of iron or steel	48,419,160	3,38	15,77	37,871,388
7.	Optical, photo, technical, medical, etc apparatus	43,331,251	3,03	9,6	-34,408,550
8.	Furniture, lighting, signs, prefabricated buildings	42,832,821	2,99	24,25	41,306,252
9.	Vehicles other than railway, tramway	39,273,455	2,75	3,18	12,310,231
10.	Toys, games, sports requisites	32,815,339	2,29	33,33	31,356,161
11.	Mineral fuels, oils, distillation products, etc	31,773,213	2,22	1,11	-137,478,552
12.	Plastics and articles thereof	29,942,054	2,09	6,24	-18,963,979
13.	Footwear, gaiters and the like, parts thereof	29,720,433	2,08	32,27	28,705,090
14.	Organic chemicals	29,094,627	2,03	8,15	-10,142,523
15.	Ships, boats and other floating structures	19,570,787	1,37	13,22	18,282,486
16.	Articles of leather, animal gut, harness, travel goods	16,989,387	1,19	33,98	16,288,560
17.	Other made textile articles, sets, worn clothing etc	16,776,085	1,17	37,1	16,496,277
18.	Aluminium and articles thereof	14,224,651	0,99	8,68	7,389,733
19.	Inorganic chemicals, precious metal compound, isotopes	13,333,599	0,93	11,05	4,142,007
20.	Rubber and articles thereof	11,577,682	0,81	7,42	-325,155

Source: United Nations Statistics Division

Table A-2: China's Top 20 Export Industries in Terms of Value in 2012

		Exports in value	Exports as a share of total exports (%)	Exports as a share of world exports (%)	Growth of exports in value (% p.a.)	Growth of exports in volume (% p.a.)	Growth of world exports in value (% p.a.)	Net trade
	All industries	2,048,782,969	100	11,16	9	-		219,163,385
1.	Electrical, electronic equipment	486,822,538	23,76	21,08	10	-	4	96,015,636
2.	Boilers, machinery; nuclear reactors, etc	375,545,913	18,33	18,3	7	-	1	196,379,254
3.	Articles of apparel, accessories, knit or crochet	87,045,218	4,25	41,47	9	-	4	85,700,391
4.	Furniture, lighting, signs, prefabricated buildings	77,886,164	3,8	37,98	16	-	4	75,013,605
5.	Optical, photo, technical, medical, etc apparatus	73,236,076	3,57	12,43	14	-	7	-37,378,629
6.	Articles of apparel, accessories, not knit or crochet	61,224,320	2,99	32,69	4	-	1	58,561,415
7.	Articles of iron or steel	56,156,064	2,74	18,91	4		-1	46,091,082
8.	Plastics and articles thereof	55,453,790	2,71	9,98	17	6	4	-14,066,821
9.	Vehicles other than railway, tramway	55,117,059	2,69	4,32	9	-	1	-15,480,598
10.	Footwear, gaiters and the like, parts thereof	46,811,259	2,28	40,48	12	-	6	45,026,207
11.	Pearls, precious stones, metals, coins, etc	45,451,330	2,22	7,4	52	-	15	32,232,044
12.	Organic chemicals	40,408,440	1,97	9,3	9	7	5	-20,455,801

13.	Ships, boats and other floating structures	38,819,914	1,89	26,12	19	-	0	37,034,985
14.	Iron and steel	37,117,676	1,81	8,75	-9	-	-5	13,837,325
15.	Toys, games, sports requisites	35,619,095	1,74	39,79	2	-	-2	34,010,066
16.	Mineral fuels, oils, distillation products, etc	31,017,966	1,51	0,93	-1	0	4	-282,049,014
17.	Articles of leather, animal gut, harness, travel goods	28,243,838	1,38	40,57	14	-	9	26,367,906
18.	Other made textile articles, sets, worn clothing etc	24,015,837	1,17	43,47	9	5	5	23,621,548
19.	Rubber and articles thereof	22,151,613	1,08	10,74	18	16	7	1,499,838
20.	Aluminium and articles thereof	18,641,289	0,91	11,89	7	-	-1	9,043,052

Source: United Nations Statistics Division

Table A-3: South Korea's Top 20 Export Industries in Terms of Value in 2008

	Industry	Exports in value	Exports as a share of total exports (%)	Exports as a share of world exports (%)	Net trade
	All industries	422,002,868	100	2,58	-13,266,680
1.	Electrical, electronic equipment	94,286,407	22,34	4,79	32,438,034
2.	Boilers, machinery; nuclear reactors, etc	49,528,922	11,74	2,49	7,943,543
3.	Vehicles other than railway, tramway	48,333,862	11,45	3,91	41,153,046
4.	Ships, boats and other floating structures	40,967,637	9,71	27,67	37,607,546
5.	Mineral fuels, oils, distillation products, etc	38,454,692	9,11	1,35	-104,060,990
6.	Optical, photo, technical, medical, etc apparatus	28,556,995	6,77	6,33	15,974,074
7.	Iron and steel	21,333,983	5,06	4,11	-14,451,017
8.	Plastics and articles thereof	20,218,348	4,79	4,21	12,743,741
9.	Organic chemicals	15,785,711	3,74	4,42	4,754,144
10.	Articles of iron or steel	9,062,483	2,15	2,95	2,737,584
11.	Rubber and articles thereof	5,550,689	1,32	3,56	3,048,861
12.	Copper and articles thereof	4,149,142	0,98	2,8	-2,139,716
13.	Knitted or crocheted fabric	3,262,997	0,77	12,58	3,164,556
14.	Manmade filaments	2,931,280	0,69	6,88	2,142,226
15.	Pearls, precious stones, metals, coins, etc	2,665,579	0,63	0,75	-862,117
16.	Paper & paperboard, articles of pulp, paper and board	2,620,934	0,62	1,48	1,159,534
17.	Aluminium and articles thereof	2,435,982	0,58	1,49	-3,007,397
18.	Inorganic chemicals, precious metal compound, isotopes	2,264,900	0,54	1,88	-2,913,043
19.	Miscellaneous chemical products	2,162,165	0,51	1,41	-4,129,731
20.	Manmade staple fibres	1,398,738	0,33	4,44	561,602

Source: United Nations Statistics Division

Table A-4: South Korea's Top 20 Export Industries in Terms of Value in 2012

	Industry	Exports in value	Exports as a share of total exports (%)	Exports as a share of world exports (%)	Growth of exports in value (% p.a.)	Growth of exports in volume (% p.a.)	Growth of world exports in value (% p.a.)	Net trade
	All industries	547,853,624	100	2,98	7	1		28,279,446
1.	Electrical, electronic equipment	117,859,871	21,51	5,1	6		4	51,826,757
2.	Vehicles other than railway, tramway	70,074,106	12,79	5,49	10		1	60,726,888
3.	Boilers, machinery; nuclear reactors, etc	59,303,887	10,82	2,89	5		1	18,257,109
4.	Mineral fuels, oils, distillation products, etc	57,492,607	10,49	1,73	11	7	4	-128,698,442
5.	Optical, photo, technical, medical, etc apparatus	38,487,048	7,03	6,53	8	5	7	13,677,959
6.	Ships, boats and other floating structures	37,828,431	6,9	25,45	-2		0	35,285,723
7.	Plastics and articles thereof	28,406,175	5,18	5,11	9	5	4	17,512,631
8.	Iron and steel	25,375,015	4,63	5,98	4	6	-5	1,553,033
9.	Organic chemicals	23,284,666	4,25	5,36	10	7	5	8,931,744
10.	Articles of iron or steel	12,467,411	2,28	4,2	8		-1	4,664,987
11.	Rubber and articles thereof	9,340,220	1,7	4,53	14	6	7	6,008,116
12.	Pearls, precious stones, metals, coins, etc	6,433,959	1,17	1,05	25	6	15	2,542,269
13.	Copper and articles thereof	4,570,452	0,83	2,71	2		3	-2,057,016
14.	Knitted or crocheted fabric	4,069,824	0,74	13,23	6	3	4	3,951,333
15.	Manmade filaments	3,452,413	0,63	7,56	4		2	2,498,788

16.	Miscellaneous chemical products	3,270,827	0,6	1,86	11	4	3	-3,970,400
17.	Paper & paperboard, articles of pulp, paper and board	3,259,102	0,59	1,85	6	3	0	1,574,019
18.	Inorganic chemicals, precious metal compound, isotopes	3,155,389	0,58	2,65	9		0	-2,847,746
19.	Aluminium and articles thereof	2,561,817	0,47	1,63	1		-1	-2,989,782
20.	Furniture, lighting, signs, prefabricated buildings	2,056,212	0,38	1	28	18	4	122,997

Source: United Nations Statistics Division

Table A-5: Data for Figure 4: World Auto Production Market share of Selected Countries in 2000

Year 2000

Other	10400766
China	604.677
Mexico	1.279.089
Brazil	1.351.998
Italy	1,422,284
UK	1,641,452
South	
Korea	2,602,008
France	2,879,810
Germany	5,131,918
USA	5,542,217
Japan	8,359,434
Total	41,215,653

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobiles*

Table A-6: Data for Figure 5: World Auto Production Market share of Selected Countries in 2013

Year 2013

Other	14166603
UK	1,509,762
Mexico	1,771,987
Russia	1,919,636
Brazil	2,742,309
India	3,138,988
South	
Korea	4,122,604
USA	4,346,958
Germany	5,439,904
Japan	8,189,323
China	18,085,213
Total	65,433,287

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobiles*

Table A-7: Data for Figure 6: Car Production in China 2000-2013

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	604.6	703.5	1.101.6	2.018.8	2.480.2	3.078.1	5.233.1	6.381.1	6.737.7	10.383.8	13.897.0	14.485.3	15.523.6	18.085.2
Cars Produced	77	21	96	75	31	53	32	16	45	31	83	26	58	13
Annual Growth Rate in %		16,34	56,59	83,25	22,85	24,1	70	21,93	5,58	54,11	33,83	4,29	7,16	16,5
Compound Annual Growth Rate														
CAGR in %	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87	29,87
World Annual Growth Rate in %	3,8	-3,5	4,8	2,8	6,3	3,1	4,1	5,8	-3,7	-12,4	25,9	3,2	4,9	3,7

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobiles*

Table A-8: Data for Figure 7: Car Production in South Korea 2000-2013

South Korea

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	2.602.0	2.471.4	2.651.2	2.767.7	3.122.6	3.357.0	3.489.1	3.723.4	3.450.4	3.158.4	3.866.2	4.221.6	4.167.0	4.122.6
Cars Produced	08	44	73	16	00	94	36	82	78	17	06	17	89	04
Annual Growth Rate in %		-5,02	7,28	4,39	12,82	7,51	3,93	6,72	-7,33	-8,46	22,41	9,19	-1,29	-1,07
Compound Annual Growth Rate														
CAGR in %	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6	3,6
World Annual Growth Rate in %	3,8	-3,5	4,8	2,8	6,3	3,1	4,1	5,8	-3,7	-12,4	25,9	3,2	4,9	3,7

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobiles*

Table A-9: Data for Figure 8: Development of Export and Import of Automotive Products in China from 1995- 2012 in Million US\$

Year	Exports	Imports
1995	621,19	2.609,35
1996	591,75	2.156,42
1997	731,92	1.904,53
1998	796,41	2.061,00
1999	1.039,85	2.538,06
2000	1.580,69	3.798,40
2001	1.891,74	4.912,26
2002	2.677,30	6.960,21
2003	3.571,43	12.778,09
2004	6.272,04	14.427,76
2005	9.956,94	13.545,03
2006	14.409,90	18.579,61
2007	23.032,49	24.033,35
2008	28.636,14	29.068,78
2009	19.852,88	30.848,30
2010	28.036,75	53.043,14
2011	37.493,79	69.641,82
2012	43.109,58	73.972,61

Source: Author's own design based on WTO data

Table A-10: Data for Figure 9: Development of Export and Import of Automotive Products in South Korea from 1995- 2012 in Million US\$

Year	Exports	Imports
1995	9.166,09	2.217,92
1996	11.555,23	2.314,05
1997	12.222,51	1.920,24
1998	11.372,76	917,91
1999	13.034,54	1.392,87
2000	15.193,90	1.773,03
2001	15.428,43	1.771,07
2002	17.330,01	2.542,27
2003	23.115,96	3.042,08
2004	32.319,74	3.464,90
2005	37.748,44	4.096,09
2006	43.059,23	5.210,43
2007	49.484,06	6.683,96
2008	48.842,02	7.250,43
2009	37.002,53	5.371,36
2010	54.487,95	8.017,43
2011	69.171,15	9.746,14
2012	72.005,06	9.793,67

Source: Author's own design based on WTO data

Table A-11: Data for Figure 11: Largest automobile markets in terms of world wide sales in percent

Other	12.884.577
South Korea	1.243.868
Italy	1.303.534
France	1.790.473
United Kingdom	2.264.737
Russia	2.597.720
India	2.553.979
Brazil	2.763.718
Germany	2.952.431
Japan	4.562.282
USA	7.585.867
China	17.928.858

Total	60.432.044
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Source: Author's own composition based on *Organisation Internationale des Constructeurs d'Automobiles*

Table A-12: Data for Figure 10: Car Sales in China 2005- 2013

China									
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Car Sales	3.971.101	5.175.961	6.297.538	6.755.609	10.331.315	13.757.794	14.472.416	15.495.240	17.928.858
Annual Growth Rate in %		30,3	21,7	7,3	52,9	33,2	5,2	7,1	15,7
CAGR in %	18,2	18,2	18,2	18,2	18,2	18,2	18,2	18,2	18,2

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobiles*

Table A-13: Data for Figure 12: Car Sales in South Korea 2005 - 2013

Korea									
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Car Sales	941.483	977.140	1.040.372	1.020.457	1.234.618	1.318.257	1.324.095	1.325.229	1.243.868
Annual Growth Rate in %		3,79	6,47	-1,91	20,99	6,77	0,44	0,09	-6,14
CAGR in %	3,14	3,14	3,14	3,14	3,14	3,14	3,14	3,14	3,14

Source: Author's own composition based on Data from the *Organisation Internationale des Constructeurs d'Automobile*

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Abstract

China has become the largest car market in 2009. In 2013, car sales in China reached a new record with about 18 million cars sold. The country is an important market for international car makers. However, China's domestic automobile industry and its car makers have not yet received much attention internationally.

South Korea's car makers on the other hand have been very successful internationally, especially over the past decade. However, South Korea's car makers are rarely the focus of current research.

This Master Thesis aims to fill this gap. The competitiveness of China's and South Korea's automobile industry is analysed and compared on the basis of Michael Porter's Diamond Model. This thesis shows whether China's automobile industry is already competitive enough to challenge South Korea's and which factors influence the competitiveness of this particular industry in both countries.

The results show that China's automobile industry is not yet as internationally competitive as South Korea's. Despite some factors like a well-developed infrastructure, a large domestic market and high degree of competition that have a positive effect on the competitiveness of China's car makers, other factors like a low level of R&D, low degree of exports and the dependence on government support and joint ventures with foreign car makers have a negative impact on industry competitiveness.

South Korea's car makers are more competitive due to a high degree of R&D and an export oriented strategy. This is why this thesis comes to the conclusion that South Korea's automobile industry will continue to be as successful as it is today for the next few years.

Kurzzusammenfassung

Seit 2009 ist Chinas Automobilmarkt der größte der Welt und verzeichnete mit rund 18 Millionen verkauften Fahrzeugen in 2013 einen neuen Absatzrekord. China ist als wichtiger Absatzmarkt von großer Bedeutung für ausländische Automobilkonzerne, aber Chinas eigene Automobilindustrie ist bisher international von geringer Bedeutung und erfährt auch in der aktuellen Forschung wenig Beachtung.

Ähnliches gilt für Südkoreas Automobilhersteller. Diese konnten besonders in der letzten Dekade große Erfolge vorweisen. Allerdings stehen auch Südkoreas Automobilhersteller selten im Mittelpunkt der aktuellen Forschung.

Diese Master Arbeit zielt darauf ab, diese Lücken zu schließen. Auf Basis von Michael Porters Diamanten Model werden die Wettbewerbsfähigkeit von Chinas und Südkoreas Automobilindustrie analysiert und verglichen. Es wird herausgearbeitet, ob Chinas Automobilindustrie schon so wettbewerbsfähig ist, um mit Südkoreas Automobil Konzernen zu konkurrieren und welche Vor- und Nachteile die Wettbewerbsfähigkeit der Automobilindustrie in beiden Ländern beeinflussen.

Die Studie zeigt, dass Chinas Automobilindustrie noch nicht wettbewerbsfähig genug ist, um mit Südkoreas Automobilindustrie international konkurrieren zu können. Zwar wirken sich einige Faktoren wie gute Infrastruktur, ein großer Heimatmarkt und hoher Konkurrenzdruck positiv auf die Wettbewerbsfähigkeit von Chinas Automobilindustrie aus, doch andere Faktoren wie geringe eigene Forschung, niedrige Internationalisierung der Firmen und Abhängigkeit von Politik und ausländischen Unternehmen haben einen negativen Einfluss.

Südkoreas Automobilhersteller sind u.a. durch einen höheren Grad an eigener Forschung und Entwicklung sowie aufgrund einer strategischen Ausrichtung auf internationale Märkte deutlich wettbewerbsfähiger. Aus diesem Grund kommt diese Masterarbeit zu dem Schluss, dass Südkoreas Automobilindustrie auch noch über die nächsten Jahre hinweg so erfolgreich sein wird wie sie heute ist.

Lebenslauf

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