

COMPETITIVENESS ANALYSIS OF EUROPEAN AUTOMOTIVE INDUSTRY

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Abstract. The automotive industry always had an essential role in Europe because of the significant number of people working in the industry and the vital part of its revenue. In the diploma thesis, we wanted to find out the position of European carmakers compared to American and Asian companies. We proceeded from the fact that the position of European car companies has worsened in the period 2009-2019. First, the theoretical base for determining competitiveness and competitive advantages are presented. Furthermore, the data about generated revenues and sales rates showed that the position of the European carmakers at the end of the period was better than at the beginning. Our studied companies were Volkswagen AG, Daimler AG, and Bayerische Motoren Werke (BMW) AG, which are Europe's and world's most successful companies regarding the revenue they generate.

Key words: automotive industry, industry analysis, competitiveness, Porter's model, competitive advantage.

АНАЛИЗ КОНКУРЕНТОСПОСОБНОСТИ ЕВРОПЕЙСКОЙ АВТОМОБИЛЬНОЙ ПРОМЫШЛЕННОСТИ

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Аннотация. Автомобильная промышленность всегда играла важную роль в Европе из-за значительного числа людей, работающих в этой отрасли, и жизненно важной части ее доходов. В дипломной работе мы хотели выяснить позицию европейских автопроизводителей по сравнению с американскими и азиатскими компаниями. Мы исходили из того, что положение европейских автомобильных компаний ухудшилось в период 2009-2019 годов. Во-первых, представлены теоретические основы определения конкурентоспособности и конкурентных преимуществ. Кроме того, данные о полученных доходах и темпах продаж показали, что положение европейских автопроизводителей в конце отчетного периода было лучше, чем в начале. Нашими исследованными компаниями были Volkswagen AG, Daimler AG и Bayerische Motoren Werke (BMW) AG, которые являются наиболее успешными компаниями в Европе и мире с точки зрения доходов, которые они генерируют.

Ключевые слова: автомобильная промышленность, отраслевой анализ, конкурентоспособность, модель Портера, конкурентное преимущество.

Introduction

The automotive industry is one of the essential industries, recently covering a large number of jobs worldwide. The EU is one of the leading powers in car production. Although its role has weakened

somewhat in recent years, with producers from developing market countries and producers from fast-growing markets coming to the fore, both European countries and manufacturing companies are at the top in terms of market share and company size.

Recently, the entire global car manufacturing industry has been facing new trends both within the product itself and in the construction of finished products - cars. Thus, based on which market providers are quicker to accept new challenges and respond to changes, the market shares of individual companies are also formed. After the crisis in 2008, there was a decline in car production with a reduction in its share. That is also reflected in reducing the number of employees in this sector and the consequent increase in unemployment. Trends in recent research show that the share of car production is expected to grow again by 2023 gradually. However, it all depends on what will happen in other sectors because we know that the demand for cars depends on purchasing power. In less developed economies, the share of the middle class and income per capita is increasing, which will undoubtedly be followed by higher demand for more luxurious car brands such as BMW, Mercedes, and Audi, which we know are European.

In this article, we will examine the competitiveness of the European automotive industry in more detail compared to other manufacturers, such as Asian countries and the United States. In particular, we will focus on the EU's current position as a car manufacturer, what has happened to its role in recent times, and present its main competitive advantages that have led to and/or maintained its market share. We will analyze the industry, what influences it, and what is essential for the (better) position of the European car industry compared to other manufacturers in the market. However, we will also touch a bit on the leading players within the European market and future trends that manufacturers are facing and will continue to face.

Research question, methods of work, and research approach

The purpose of the research is to assess the situation of the European car industry as accurately as possible and examine how competitive it is, what its competitive advantages are, and, last but not least, its weaknesses or weaker areas overtaken other European markets. The goals are to:

- theoretically define the European car industry;
- define an approach to analyze competitiveness;
- analyze the competitiveness of the European car industry;
- present the competitive advantages of the European car industry;
- present trends and challenges in the automotive industry in general and how European manufacturers face them;
- describe and analyze the position of European car manufacturers over a while;
- analyze the current situation in the car production market.

Assumptions are the following:

- A1: The competitive advantages of the European car industry are a long tradition, quality, and a robust industrial base (suppliers), which we will find out with the help of databases on the sales of European cars and the number of companies supplying the industry.
- A2: The position of the European car industry, which will be determined by the level of revenue of the most successful European companies, has deteriorated over the last ten years compared to the countries of the East (China, Japan) and the USA.
- A3: The European car industry remains competitive with other producing countries (predominantly Asian countries), which have successfully penetrated the market over the last decade, as evidenced by the number of cars produced and sold.

In the article, we will first choose a descriptive approach to describe concepts such as competitiveness, competitive advantage, and other theoretical foundations. When describing the position of European car manufacturers, we will analyze the position of companies and their market share, the behavior of economic entities at the microeconomic level, especially in terms of demand for cars. We will also compare at the macroeconomic level, i.e., between economies at the international level.

The economic phenomena that we will describe in the diploma work will be analyzed over a while to use a dynamic approach. As for a more detailed analysis of competitiveness, we will use compilation methods, according to which we will summarize other authors who have created a theoretical basis primarily to analyze the situation in the automotive industry. When we compare the position of European producers, we will use the method of comparison to compare the phenomena in Europe and the wider world.

Furthermore, we will take an analytical approach to assess various economic indicators affecting the automotive industry in Europe. More precisely, with the analysis method, we will examine statistical data in

connection with macroeconomic indicators and present them with a descriptive method. At the end of the paper, we will summarize our findings with the help of synthesis.

An analysis of the European automotive industry

Sector analysis

The analysis of the industry can tell us what the level of supply of demand is, what is the level of existing competition within the industry and what are the possibilities of new competitors, what will be the future opportunities for developing the industry in terms of technological changes and innovations; Education Inc., 2021). Industry analysis and related activities help the company better understand the narrower environment in which the company operates. The importance of analysis, however, has several aspects (Hearst Newspapers, LLC, 2018):

- Performance forecast. Anticipating the changes that are likely to occur in the industry will make it easier for them to anticipate what changes await their company, and they will be able to adapt to them on time and prepare a strategic plan to deal with them. Also, management play a crucial role in defining the appropriate plans (Horvat et al., 2019). Management of a company must establish a good business process structure in order to achieve its business objectives (Horvat and Mojzer, 2019, p.11).
- Brand positioning. Brand positioning refers to a company's ability to influence consumers' perceptions of its brand or product compared to competitors. The goal of positioning is to establish the image or brand identity of the product so that consumers perceive it in a certain way, e.g., in cars, the Mercedes-Benz and BMW brands are known as more luxurious brands, just like the iPhone in mobile phones. Before a company can start positioning, it needs to have a clear idea of its market position and a plan for consumers to perceive its brand in the future. This can be achieved by clearly defining within the following steps:
 - Determine what sets a company apart from competitors.
 - Identify the current market situation.
 - Analyze the market situation and competition.
 - Develop a positioning strategy (positioning based on product attributes and advantages; product price; product quality; product use; placement relative to competing products.
 - Identifying opportunities and pitfalls.

Industry analysis can be performed in three different ways, which are as follows:

- the model of competing forces or Porter's model of five forces,
- business environment analysis or PEST analysis,
- SWOT analysis.

In the article, we will use the first method, namely Porter's model of five forces.

Porter's Five Forces Model in European automotive industry

As part of the research, we are mainly interested in the situation of European car manufacturers, so we will also focus on Porter's model to determine how and which competitive forces affect the manufacturers in question, which according to business results, are among the world's top. These are Volkswagen AG (Audi, Bentley, Bugatti, Lamborghini, Porsche, Volkswagen, Seat, Škoda, Ducati, Scania, and MAN), Daimler AG (Mercedes-Benz, Maybach, Smart Freightliner, Sterling, Western Star, Setra, Thomas Built Buses, Orion and Fuso) and Bayerische Motoren Werke or BMW Group (BMW, Mini, Rolls-Royce).

Suppliers

The five largest suppliers are Bosch, Denso, Magna, Continental and ZF Friedrichshafen. Many of these are located in Germany (excluding Denisa and Magna), which can certainly be an advantage for European car manufacturers due to their geographical proximity and consequently lower transport costs and shorter delivery times. In addition to the above, we have a total of at least 50 suppliers in the automotive industry, generating more than one million euros in revenue annually, which means that car manufacturers have many different suppliers, so the strength of a single supplier is relatively weak. Among the fifty, there are as many

as 19 suppliers of European companies, which means that the situation of European producers is relatively optimal (Berylls Strategy Advisors, 2020).

Buyers

Given that the study examines the European automotive industry, we will first touch on the European market. Data on sales in 2019 show that German consumers are the largest group of car buyers here. In 2019, more than 3.5 million cars were purchased in Germany. They are followed by France, the United Kingdom, Italy, and Spain. We, therefore, have a massive number of customers within Europe alone, which means that an individual customer in the whole crowd does not have significant bargaining power. The share of sales fell sharply in 2019–2020 due to the outbreak of the epidemic and its associated consequences, such as job losses and fear of investing due to an uncertain future (Statista, 2021).

Otherwise, the situation in the world is slightly different as far as all cars sold in the same period are concerned, which is entire to be expected. We have the largest market of car customers in China, wherein in 2019, more than 21 million passenger car sales were recorded. The USA follows them, and Europe is already in third place, which means that it is also at the very top of the world in terms of the potential customer market. Given the number of inhabitants by country, this situation is not surprising, but it is not conditioned because the inhabitants of a specific region will necessarily decide to buy a car from a local manufacturer. (German Association of the Automotive Industry (VDA), 2020).

Entry of New Competitors

The automotive industry is one of the most concentrated industries in the world. There are many products on the market, and existing players must constantly look for opportunities to develop innovative products to be one step ahead of the competition, even though a few larger companies dominate the market.

If we look at the data from 2019, the leading four most prominent players generate almost 40% of total production, and all other manufacturers share the remaining 60%. Regarding the number of cars produced, Japanese Toyota follows in a row, followed by Volkswagen, Hyundai, and General Motors. Among the ten most prominent manufacturers are two other European companies, which are also at the top of the world in terms of revenue generated in 2019, namely Daimler AG and Bayerische Motoren Werke (SPIRIT Slovenia, public agency, 2020).

As far as the generated profit is concerned, we have as many as three European companies among the ten most successful, Volkswagen Group, Daimler AG, and Bayerische Motoren Werke, which in 2019 generated a total of USD 590.09 billion in revenue. The data is highly telling, as compared to the size of China and the USA, a much smaller Europe competes more than successfully with its companies, and there are several reasons for this, which we will examine in more detail in future chapters (SPIRIT Slovenia, public agency, 2020).

The reason for such concentration of industry is mainly entry and exit barriers. These make it difficult for new companies to enter the market while existing ones would have high exit costs. One of the factors that are an advantage for the existing competition is undoubtedly economies of scale, as new producers would find it difficult to afford high production costs initially when they would practically only be looking for their customers. On the other hand, we already have existing brands that can be extremely important to customers. When buying with such a high value, the brand often becomes a decisive factor (Kallstrom, 2015).

Substitutes

In addition to the possibility for the buyer to decide to buy another existing car brand on the market, there is also the possibility that one of the alternative modes of transport, such as bus, train, or plane, will be chosen instead of the car. Namely, customers tend to choose the option, in our case the type of transport, with which they will have the lowest costs. In deciding whether to buy a car or not, he will thus weigh between the pros and cons of the purchase. Weaknesses or costs certainly include insurance, maintenance, and fuel costs. In addition to costs, other factors such as time, available resources, personal preferences, and comfort are taken into account when deciding to purchase (Jones, 2021).

Given that today we live in a world where environmental awareness is increasingly important, many consumers are already aware that the automotive industry is one of the biggest polluters with CO2 emissions (around 70%). So individuals may prefer more environmentally friendly alternatives. However, because the automotive industry has advanced so much, today, they offer more and more electric vehicles, which means that the same companies themselves offer substitutes for their products. From this, we can conclude that there is no greater danger of substitutes, as someone who is seriously considering buying a car will probably

not prefer to choose a bus or plane, which means that the industry is profitable for existing competitors within it. (Jones, 2021).

Competitors

Even though there are many competitors, they come from the same countries, which means that it is a concentration of a large part of production between the most established producers and countries that have maintained their position for a long time or do not change significantly. Nevertheless, it is not possible to talk about any monopoly or monopolistic competition, as we have many different manufacturers that achieve large shares of sales of their products.

If we look at the twenty largest manufacturers in the world and the countries where they are located, we find that they come from at most eight countries, given that we are particularly interested in European manufacturers, we can conclude that as many as six manufacturers from European countries: Volkswagen (Germany), Toyota (Japan), Daimler (Germany), Ford (USA), Honda (Japan), General Motors (USA), SAIC (Japan), BMW (Germany), Nissan (Japan), Hyundai (South Korea), FAW Group (China), Dongfeng (China), PSA Group (France), BAIC Group (China), Renault (France), GAC Group (China), KIA (South Korea), Geely (China), Volvo (Sweden), Tata Motors (India).

Many manufacturers are located in China, which started mass car production practically only in the past decade. We can already see from the above graphs that China is the strongest country in the world in terms of production, but on the other hand, it is not among the largest earners, for which there is a logical explanation. Namely, China produces vehicles of a lower price range, which means that their revenues, despite the high share of production and sales, do not reach such levels as, e.g., at Volkswagen, Daimler, and BMW, which we know are among the more prestigious brands, which we will mention below in terms of competitive advantages.

Therefore, the closest followers of European ones are Japanese and American producers, who are very close in terms of revenue. Since the abundance of production is not necessarily consistent with the level of revenue, we will focus more on the latter.

Position of the European automotive industry

13.8 million Europeans are directly or indirectly employed in the car industry, representing 6.7% of all jobs in the EU. 2.6 million people in Europe are employed in manufacturing plants for motor vehicles, representing an 8.5% share of all employees in manufacturing in the EU. European manufacturers are among the world's largest motor vehicle manufacturers, and the sector represents the most significant private investor in research and development (R&D) in the EU (European Commission, 2021).

The car industry is essential for Europe, as it has a multiplier effect on the economy and its contribution. It is closely associated with companies that supply or process raw materials such as steel, chemicals, and textiles, and the automotive industry also needs ICT services and mobility services (European Commission, 2021).

The turnover generated by the car industry accounts for more than 7% of EU GDP, generating € 74 billion in trade surplus for the EU through its exports worldwide. On the other hand, it also generates direct revenues for the state; motor vehicle taxes amount to around € 440.4 billion (ACEA, 2021).

In the following, we want to find out what happened mainly with the profits of European producers in the period 2009-2019. We assumed that their position vis-à-vis the rest - that is, the Americans and Asians - had deteriorated. Otherwise, we can observe more or less constant growth in all of them, with a slight stagnation in 2015 and 2016. We can see that all companies maintained the same position compared to the others, except Volkswagen and Daimler. Both have managed to overtake their rivals over ten years. Volkswagen increased its annual revenues by more than one hundred billion, thus catching up and overtaking Toyota despite a worse starting position, as Toyota had as much as 50 billion higher revenues in 2009. If we compare Daimler's revenues, they have virtually doubled and overtaken their closest rival, Ford, by just under \$ 50 billion (Macrotrends LLC, 2021).

Today's standards, state regulations, and customer expectations have dramatically changed the automotive industry and its products. The introduction of electric vehicles, as many intelligent features as possible, and autonomous vehicles are just some of the trends that have become a constant today (StartUs, 2021):

- Autonomous vehicles: Autonomous or self-driving vehicles have come into use to need a driver behind the wheel no longer and are changing the dimension of everyday transport.

- **Connectivity:** Modern vehicles are equipped with a digital identity that protects them from unauthorized interference, making them safer than other vehicles in traffic.
- **Electrification:** Due to the increasing depletion of fossil fuel stocks and the damage caused to the environment by their use, the production and use of electric vehicles are increasingly required by other organizations.
- **Shared mobility:** Concerning environmentally friendly behavior, the concept of shared mobility, which is an alternative to traditional vehicle ownership, has also become established.
- **Artificial intelligence:** State-of-the-art technologies possessed by artificial intelligence, such as machine learning, deep learning, and computer vision, are increasingly being used in the automotive industry.
- **Big Data:** Today, we are witnessing large databases, and advanced analytics provide us with various information throughout the vehicle's entire life cycle.
- **Human-machine interface:** As autonomous vehicles come into use, the way drivers and vehicles also interact changes.
- **Blockchain:** In the automotive industry, it is used to exchange vehicle data over a network (connectivity and shared mobility) in driving, urban transport, and delivery. In addition, it has a vital role in verifying the supply chain of spare parts and ensuring that raw materials and spare parts come exclusively from legitimate and trusted sources.
- **3D printing:** The technology is used in the automotive industry in three main ways. It enables the rapid production of prototypes with 3D-printed models, which accelerate production planning and testing phases. It also allows manufacturers to print spare parts that meet their requirements. At the same time, it helps to produce individual car parts that are lighter, more powerful, and more durable.
- **Internet of Things:** This factor enables secure communication between vehicles and drivers, and infrastructure components.

The Association of European Automobile Manufacturers (ACEA) has set four primary goals, according to which they want to operate in the next period until 2024. These are based on the trends mentioned above, as they revolve around the operation of all manufacturers. They want to achieve (The European Automobile Manufacturers 'Association, 2021):

- clean and safe mobility,
- intelligent and convenient road transport,
- affordable mobility,
- performance and competitiveness.

Research discussion

In the introduction, we set ourselves to assess the competitiveness of the European car industry and examine its position with other significant players in the car market. We were also interested in how the picture changed over ten years. For the theoretical approach to the study, we chose Porter's model of five forces, with the help of which we found that, in general, within the automotive industry, the situation is relatively favorable for existing manufacturers. Entry is quite difficult for new competitors. While there are no significant pressures from suppliers and customers, the existence of substitutes does not pose a significant threat, and the biggest challenge is to generate maximum possible revenue within existing competition and offer customers a product that would be so differentiated. to opt for it rather than a competitor's product.

We found that the situation for European producers improved compared to the situation ten years ago, as they increased the level of revenue generated and managed to overtake some competitors who in the past generated higher profits than our surveyed companies. We can say that the competitiveness of European companies has improved, as they have managed to follow existing trends despite various problems and recession at the end of the first decade of the 21st century and are currently even working on setting guidelines for future periods, especially in terms of electric mobility and maximizing accessibility for customers.

We set ourselves three assumptions; the first was on the competitiveness of the European car industry. We can confirm it because we assumed that the competitive advantages of European manufacturers are a long tradition, quality, and a substantial supply hinterland. We did not directly mention this as a competitive advantage, which is by definition slightly different, but we mentioned them throughout the task, especially the first two factors - quality and tradition - which contribute to greater brand recognition. We mentioned the substantial supply hinterland in terms of economies of scale. In previous chapters, we found that European suppliers of automotive components are extraordinarily numerous and achieve high revenue levels, which positively affects the competitiveness of European companies.

The second assumption concerned the position of European producers, as we argued that their situation had deteriorated in ten years, which is not the case, so we rejected the hypothesis. Namely, European producers have significantly increased their revenue levels and have overtaken some competitors who had a better starting position in the past.

The third assumption concerned the competitiveness of the European car industry compared to the foreign one (mainly in Asian countries). We can confirm the hypothesis with certainty, which we have already indirectly established with research that otherwise refers to the previous hypothesis. The position of European companies in the industry has improved in ten years, which means that their competitiveness is very high.

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