

NEW CHALLENGERS: CHINA'S CAR MANUFACTURERS AND THEIR ROUTES TO THE EUROPEAN MARKET

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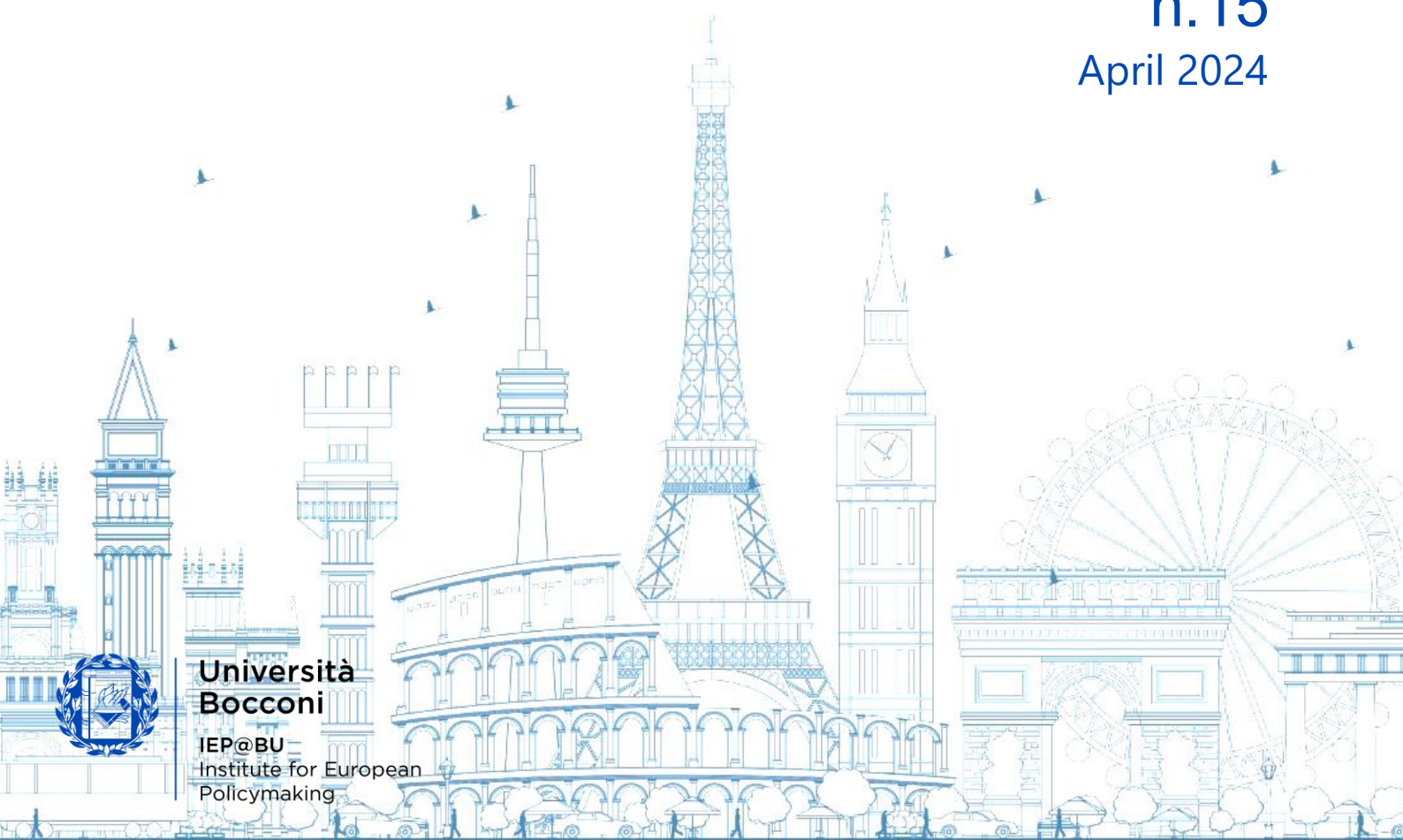
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Introduction

Europe's car manufacturers are facing new challengers from Asia. After the Japanese manufacturers some 40 years ago and the South Koreans 20 years ago, Chinese manufacturers are now trying to gain a foothold in the EU market. Unlike their predecessors from Japan and South Korea, the Chinese manufacturers are focusing on a new technology with the battery-electric-powertrain, the spread of which is prescribed by law in the EU.

As the Chinese market is also the lead market for this new technology, Chinese manufacturers have several advantages on their side that their predecessors from Japan and South Korea had not. They are at the forefront of technological development, particularly in the field of battery cells.

There are also considerable economies of scale due to their production in China. Large production capacities for battery cells and vehicles are available there, sales of electric vehicles are also very high not least because of government subsidies, and Chinese factories have noticeable cost advantages over European assembly plants in terms of labour and energy costs (cell production is an energy-intensive process).

This situation has stoked fears in Europe that the EU internal market could be flooded with electric cars manufactured in China in the foreseeable future, to the detriment of European jobs. But is this really a realistic scenario?

Experience to date with the localization of automotive production sites tends to speak against it. In the volume sector in particular, all manufacturers have so far opted for production in the target market as soon as a certain number of sales has been reached.

The reasons for this include high logistical costs for intercontinental transport, very long delivery times in which a lot of capital is tied up, faster response times to changes in the target market, independence from import duties and a better brand image among the target group of buyers. The Japanese and Korean challengers, but also Tesla, have followed this path.

This trend is also emerging among the major Chinese manufacturers. The Chinese market leader BYD has already announced the establishment of a car production facility in Hungary and other manufacturers are also sending out several signals that they are looking for suitable locations in the EU.

However, it should be noted that these developments only apply to the premium segment to a limited extent. The more expensive the vehicles, the more likely it is that they will be produced at the brand's home base and sold intercontinentally from there.

Steady exports from China to Europe can therefore be expected from the new Chinese premium brands in particular, although these are currently still comparatively small and concentrated on the Chinese market, which continues to grow rapidly.



An Heterogeneous Group of Manufacturers

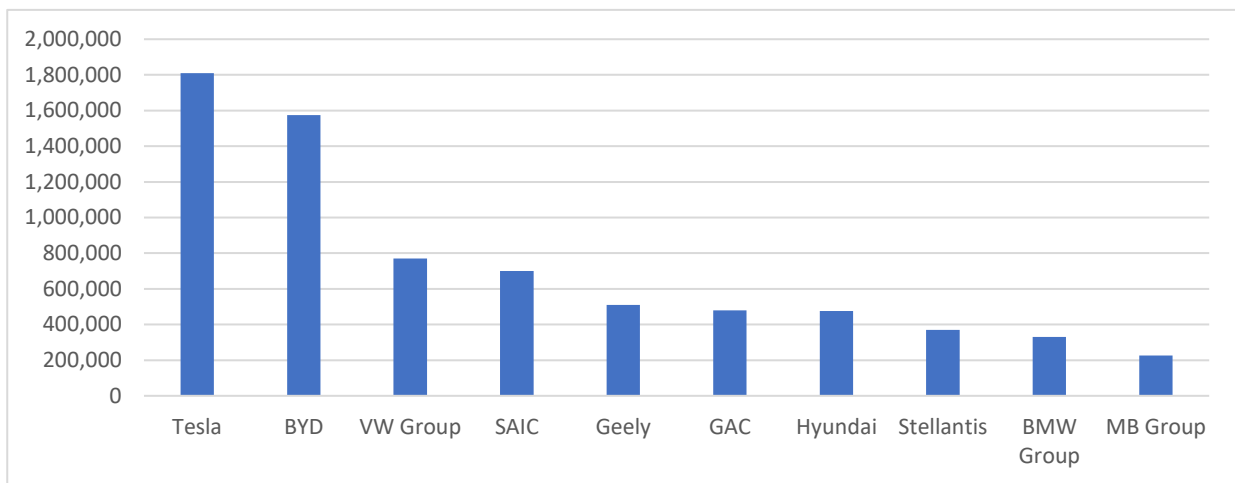
If you want to analyze the new Chinese challenge, it is a good idea to start by gaining an initial impression of the companies involved. It should be noted that Chinese manufacturers represent a very heterogeneous group. At times, there were up to 500 companies in China whose corporate objective was the production of electric vehicles. A few of them have achieved this goal and have grown to a considerable size. This applies primarily to the new industry giant BYD, which emerged from a battery manufacturer.

BYD is now the largest manufacturer of Battery electric vehicles (BEV) after Tesla. Almost 1.8 million BEVs of the BYD brand were delivered in 2023. A good 1.2 million plug-in hybrids (PHEV) were also delivered, making BYD the world's largest manufacturer of electric vehicles (EV). The best-selling car in China last year was a PHEV made by BYD.

However, there is also a significant gap behind BYD in China. Although there are three other Chinese manufacturers among the world's 10 largest BEV producers, they do not even reach BYD's production level together.

The group of the 10 largest manufacturers also includes all three German manufacturers, as well as groups from France and South Korea. Japanese manufacturers, on the other hand, are conspicuously absent (Figure 1).

Figure 1 Tesla and BYD lead the pack
BEV Sales by Brand in 2023



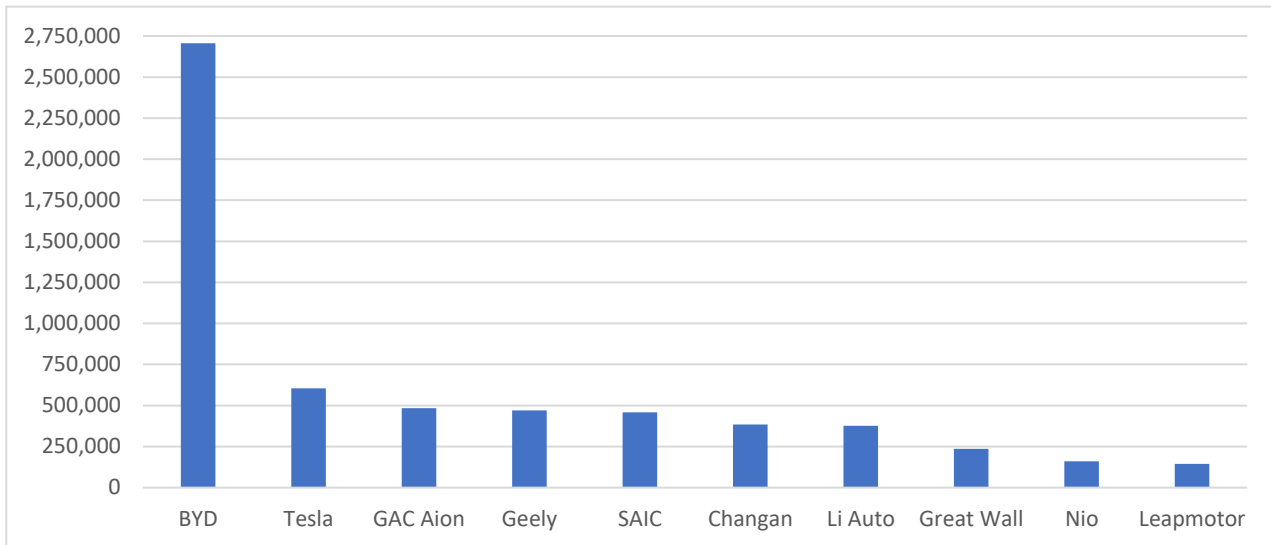
Source: *Ev-volumes, 2024*

If you look at EV sales in China, BYD's outstanding position among Chinese BEV manufacturers is even more tangible. No other Chinese manufacturer achieved sales of more than 500,000 EVs in China last year (Figure 2).

This means that most Chinese EV brands are still quite small for intercontinental expansion and, if the domestic market continues its dynamic growing, there is currently not too much pressure for them to expand except for tough competition in China, which depresses sales prices.



Figure 2 BYD is by far the biggest Player in China's NEV Market
EV Sales of the top 10 Brands in China in Units



Source: CNEVPost, 2024

In 2023, China became the largest vehicle exporter in the world. The country exported around 4.1 million passenger cars and 800,000 commercial vehicles. One of the main markets was the ASEAN region, which was also a particular focus for BYD. The export of BEVs to the EU played a smaller role.

Chinese manufacturers sold a good 150,000 BEVs in the EU last year, which corresponds to a market share of 10% for BEVs and a share of 1.5% of the overall market.

The largest sales of Chinese BEVs were recorded by the MG brand, which is owned by SAIC, followed by vehicles from the Polestar brand, which belongs to the Geely Group. These two companies have the advantage that they already have cooperation partners and their own brand plants in Europe in the form of VW (SAIC) and Volvo (Geely).

Industry leader BYD, on the other hand, only achieved EU sales of 16,000 vehicles (Forbes, 2024), but currently only has networks in Europe aimed at selling electric buses. However, BYD is aiming to quickly and significantly expand its share of the European passenger car market.

External forecasts assume that BYD will achieve a share of at least three percent of the EU passenger car market in 2030, which would correspond to a good 550,000 vehicles. The upper limit of expectations is around 1.5 million vehicles, which would make BYD one of the largest players in the EU passenger car market (Fig. 3).

BYD wants to master the market entry that has now begun with passenger cars manufactured in China. BYD has ordered a total of eight car transport ships (RoRo-Ships), the first of which is already in operation on the European route, not least for the move into Europe.

In view of BYD's sales targets, however, these ships are only a stopgap or a start-up aid. In view of a pure travel time of around 30 to 35 days - currently more like 40-45 days due to the problems in the Red Sea - such a ship can manage around 5 trips per year. The newly commissioned transporter has a capacity of 7,000 units, which means it can transport around 35,000 cars to Europe in a year. Always assuming that the ship is not also used for transportation to the previously more important Asian sales markets.



In the long term, these transport capacities will have more of a supplementary function. This is also supported by the fact that BYD announced the purchase of a site for a future assembly plant in Hungary in December 2023 (electrive.net, 2024). This should be able to start production in 3 years. SAIC is also considering the construction of a European assembly plant if corresponding sales are achieved in Europe (elektroauto-news.net, 2024).

A Familiar Pattern

BYD is thus following a pattern of behavior that has been present since the early days of the automotive industry. Typically, an attempt is made to produce vehicles close to the market if sales in the target market are large enough to fill a plant to capacity.

This approach was the basic prerequisite for the emergence of the global automotive groups that dominate the world market today. It all began when Ford and General Motors ventured into Europe almost 100 years ago. The same pattern can be found in the penetration of the European and US markets by Japanese and Korean manufacturers. BEV pioneer Tesla now also has plants in the three most important passenger car markets (China, USA, Europe).

There are various reasons for this typical approach in the automotive industry. Many of them have to do with the fact that the production of vehicles for different markets at a central location is associated with high additional expenses in production and logistics. These are relatively obvious in the case of increased logistics costs.

Transporting cars over long distances requires a whole chain of specialized transport equipment. This begins with freight wagons and the railroad at the plant, continues with the appropriate loading terminals at the departure and destination points and the necessary RoRo-ships, right through to transportation from the destination ports. Such a transportation chain is comparatively cost-intensive on the one hand and limited in terms of capacity on the other.

As already mentioned, BYD's new car transporter has 7,000 parking spaces. That sounds like a lot but measured against a lower sales target of 500,000 cars per year, it is rather low. In addition, appropriate parking space is required for loading and unloading in the ports and space is a valuable commodity in most ports.

Another complicating factor from the perspective of Chinese manufacturers is that intercontinental car transportation is time-consuming. In the case of Chinese exports to Europe, the pure travel time of a RoRo-ship from a Chinese port to the European ports of the North-West Range is 30 to 35 days. Due to the tensions in the Red Sea, the much longer Cape route is currently being used, which increases the pure travel time to over 40 days. Depending on the location of the production site in China, the transportation and loading of the new vehicles can also take quite a long time.

Finally, the vehicles must be transported from the port of destination and distributed to customers throughout Europe. The total transportation time can therefore quickly amount to 1.5 to 2 months. During this time, a lot of capital is tied up in the products and the risk of damage must also be covered.

All this makes intercontinental car transportation quite expensive. It should therefore come as no surprise that most BEV models imported from China are currently in the high-price segments which



enables higher margins. The long transport times also increase the reaction time with which a manufacturer can respond to market changes. These circumstances ensure that intercontinental transportation becomes less attractive as volumes increase.

In addition, production for different target regions also complicates actual vehicle production, as there are typically different approval regulations in the individual target markets. The implementation of different construction regulations on a single production line makes production control more complex.

Another advantage of production within the targeted sales market is that the manufacturer can make itself independent of possible tariff increases. In addition, production in Europe is also a sales argument for many customers. This is all the truer if the reputation of the domestic production location is not too good.

From the perspective of Chinese manufacturers, these advantages of production within the EU must be weighed against the current cost advantages of production in China. It should also be noted that the production environment in Europe is tending to improve.

The production of battery cells in Europe is currently expanding rapidly, with Chinese companies such as CATL also building large plants. In addition, EU regulation requires very rapid market growth for BEVs. This and the high willingness of BEV customers to pay compared to China suggest that the relative favorability of production in Europe should tend to improve.

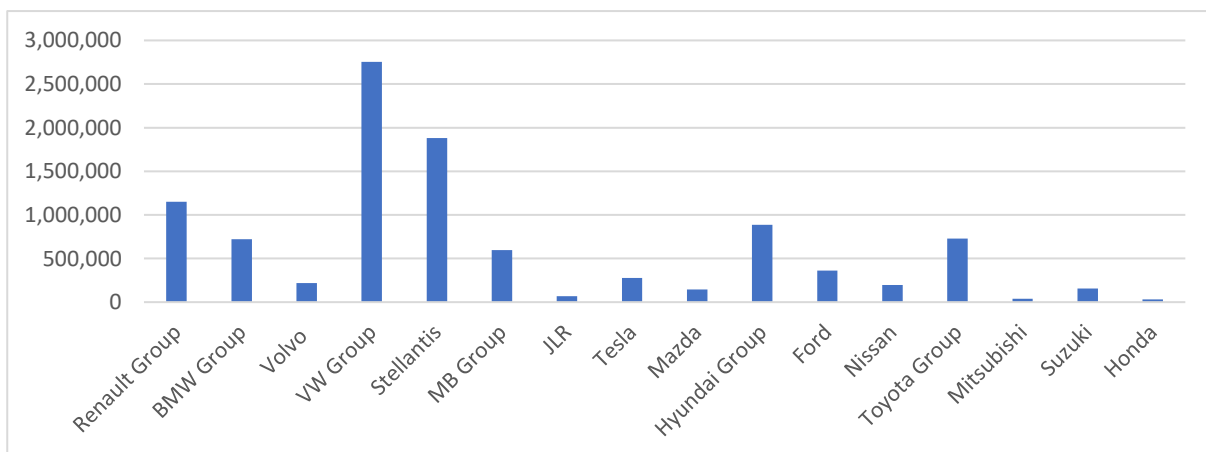
A look at the current passenger car market in the EU (Figure 3) shows that all relevant players have their own production sites in Europe. The manufacturer with the highest sales in the EU without its own plant was Nissan, with just under 200,000 sales in 2023.

However, this manufacturer is in a somewhat special position, as it originally had access to the single market via a plant in the UK, which was moved out of the common market because of Brexit.

The next largest manufacturer without a plant in Europe was Mazda, with just under 150,000 new registrations in 2023.

In addition, Honda and Mitsubishi also did not have their own plants in the EU but have also largely abandoned this market. Together, they have fewer than 100,000 new registrations. The same applies to Americas General Motors, which only achieved around 2,000 sales in the EU in 2023.

Figure 3. The European Market
Passenger Car sales in Europe by brand



Source: ACEA, 2024



In Europe, there are a total of around 80 locations where cars are assembled. Most of them belong to European manufacturers, who also account for most new registrations. The Volkswagen Group is the market leader, followed by Stellantis and the Renault Group, which together had a market share of around 55 percent.

The largest non-European player was the Hyundai Group with a market share of 8.4 percent. The Korean manufacturers have plants in the Czech Republic and Slovakia, where the i30, Tuscon and Kona models are produced. The smaller i10 and i20 models are manufactured in Turkey. Toyota was the second largest non-European manufacturer behind the Hyundai Group.

The Japanese manufacturer has 5 assembly plants and 3 component plants in Europe, 2 of which are in the UK. These produce the majority of Toyota models sold in Europe. The other places in this ranking were taken by the US manufacturers Ford and Tesla, which serve the European market almost exclusively through their plants in Germany.

Chinese Brands Entry Points in the European Market

The strategies of previous market entries in Europe suggest that the probability of a European production base increasing significantly when a foreign manufacturer permanently exceeds a sales volume of 200,000 units.

Given the huge sales growth over the last 2 years, this threshold is within reach for the Chinese brand MG and BYD's expansion plans in Europe go well beyond this figure. It therefore comes as no surprise that these manufacturers have made considerable progress with their plans to start production. By contrast, there are no signals in this direction from Chinese manufacturers focused on the premium market such as Nio, Li-Auto or the BYD premium brand Yangwang.

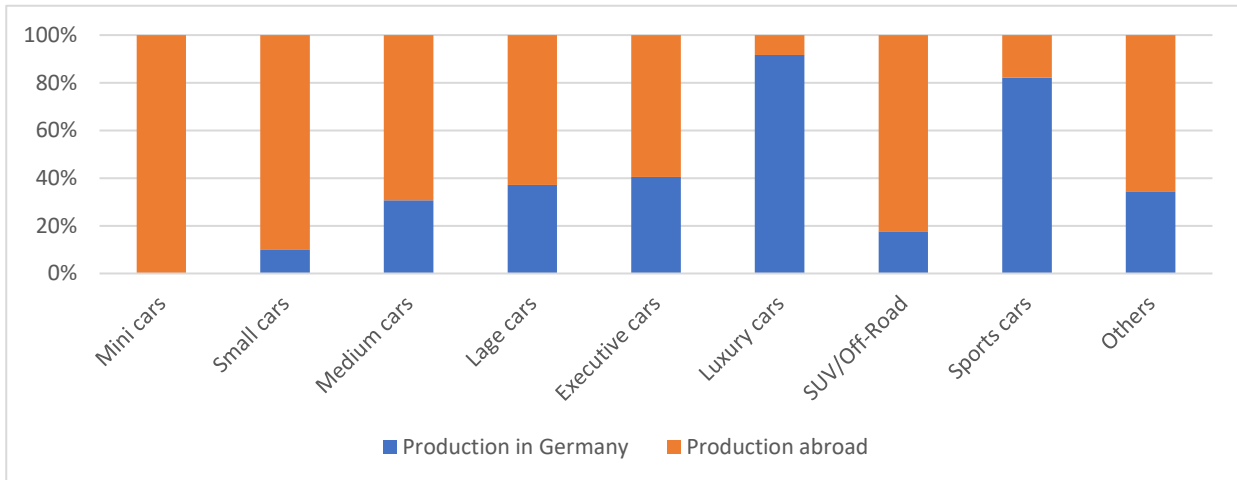
Here too, the approach of the Chinese challengers follows established patterns, as the production of premium models has proven to be much more location-loyal in the past than was the case with volume models. For example, not a single model of Toyota's premium brand Lexus is built in Europe. Even in North America, Lexus's largest sales market, only one SUV model is produced. All other models are manufactured in Japan.

The pattern of premium models being produced in the domestic market can also be found on a smaller scale in Italian brands such as Ferrari or Maserati. However, the difference is best illustrated by the German automotive industry, which today controls between 70 and 80 percent of the premium segment, depending on how you define the premium segment.

Figure 4 shows the shares of production in Germany and other countries by segment for the German Group brands, i.e. including brands owned by German groups such as Skoda, Mini or Lamborghini.



Figure 4 Premium cars are more likely to be produced at the home location of the brand
Production of German group brands in Germany and abroad by segment



Source: VDA, 2024

There is a clear trend. The larger and more expensive a vehicle, the more likely it is to be produced in Germany. Over 90 percent of luxury class vehicles (S-Class, BMW 7 Series) were manufactured in Germany. The remaining 8 percent, for example, include Rolls Royce and Bentley vehicles, which are only manufactured in their brand home country of England.

In fact, luxury vehicles account for more than 7 percent of total German production, an extremely high figure by international standards. Over 90 percent of the luxury vehicles produced in Germany are exported, with China and the USA being the largest customers.

The second segment with extremely high loyalty to the location is sports cars, over 80 percent of which are built in Germany, mainly due to the Porsche brand. However, the sports car production of German group brands is not even half as large as in the case of the luxury class. As a result, sports cars only account for a good 3 percent of German production, but 80 percent are exported, again with the USA and China as the main customers. The big exception are the high-priced SUVs. Both BMW and Mercedes produce these vehicle types in the US and export them from there to the whole world, including Europe.

Only the smaller SUVs are produced in the domestic market. This is due to the fact that North America is a much larger market for these vehicles compared to Europe, which is why they have opted for production in the main market.

A look at the smaller vehicle segments, on the other hand, reveals a clear trend. The 'A' segment (Mini), for example, is hardly produced by German groups and not at all in Germany. Small cars from German group brands are now almost exclusively manufactured abroad. In the medium cars class (i.e. VW Golf) the production in Germany beginning to reach relevant quantities. The export ratio in this segment is below average at a good 68 percent and the main customers are the countries of the European Union. The change then continues via the larger cars and the executive class. Germany's share of production and the export ratio increase, while the transportation distance increases too. Together, these two classes account for almost 30 percent of production in Germany.

There are several reasons for the higher location loyalty of premium production documented here. First, total sales in the high-priced vehicle segments are comparatively small. A large sales market is therefore required to utilize production capacity at an additional location abroad and thus justify it.



The additional expenses for intercontinental transportation are then less significant in relation to the sales price for premium models.

In addition, premium customers have higher expectations in terms of quality and image. The former can be fulfilled more easily at a single production plant location close to the Headquarter. The latter plays a role, for example, when "Made in Germany" is used as a sales argument. However, this is particularly clear in the case of absolute luxury products. Hardly any customer would be prepared to buy a Rolls Royce that does not come from England or a Ferrari that was not manufactured in Maranello. In these cases, the production location becomes an exclusive selling point.

For large and executive class cars, CKD production abroad has therefore often been used in the past. Vehicles are shipped as a kit and only assembled on site. This represents a middle way of opening a market, which also makes it easier to set up production in the target market when a critical market volume is reached.

The new Chinese manufacturers who want to serve the electrified premium segment currently seem to be following the pattern of the established premium brands. Brands such as Nio, Li-Auto and Yangwang are currently building up large-scale production capacities in China. In doing so, they are currently primarily targeting the rapidly growing market for premium BEVs in China, where they are the fastest growing players. These manufacturers are highly unlikely to be aiming to tap into the European market with their own production facilities. The arguments are the same as those that have prompted the previous premium brands to make their location decisions.

Conclusion

Chinese car manufacturers are pushing into Europe with their electric cars. Thanks to good products, a technical lead in the battery sector, a fast-growing domestic market with strong sales and currently unrivaled low production costs, they represent a very serious challenge for European manufacturers. Imports of Chinese BEVs into the EU have increased significantly in recent months.

However, it is also clear that the Chinese brands with the strongest sales are already looking for production sites in Europe. As the long-distance transportation of vehicles is associated with high outlays, there is much to suggest that Chinese manufacturers will follow the example of their predecessors from Japan and South Korea and start producing electric vehicles in the lower segments in Europe even if the very low prices in China currently make it difficult for it to pay off.

General conditions for production in Europe are likely to improve relative to China. The expansion of battery cell production in Europe is of particular importance as it reduces the scarcity of the most important and cost-intensive component for BEVs.

China's industry leader BYD already has very concrete plans for this and is aiming to become one of the largest players on the European passenger car market, which would hardly be possible without local production facilities. Instead, imports of Chinese BEVs will continue to focus on high-priced models.

The new manufacturers, who are targeting the premium segment, will focus more on the long-distance transportation of their products for the European market. All in all, the advance of Chinese manufacturers into the European market means less the end of the European automotive industry than an intensification of competition in a market with high vehicle prices by international standards.



This will coin turn has raised concerns among established manufacturers and has undoubtedly contributed to the EU Commission launching an anti-subsidy investigation into Chinese BEVs.

At this point, however, it should be emphasized that the European manufacturers' view of possible tariffs on Chinese BEVs is likely to be quite different. This is because shielding the Western European market from Chinese imports and possible countermeasures by the Chinese government mean very different benefits and risks for manufacturers.

The difference between the German and French brands is most striking. The French manufacturers (Renault, Peugeot, Citroen) sell around half of their vehicle production in Western-Europe are therefore susceptible to an increased competition in this market. Their economic survival is primarily determined by this market, as they have deliberately focused on it in the past. As a result, they have hardly any presence in large non-European markets such as the USA or China. To overcome this serious weakness, French manufacturers have used various instruments over the last 10 years. Renault, for example, has formed an alliance with Nissan and Mitsubishi and has achieved a presence in these markets as an alliance partner. With the takeover of FCA, PSA has secured the Jeep and Ram brands, which means a solid foothold in the US market.

However, this does not change the fact that Renault and, to a lesser extent, Stellantis are highly dependent on the e-market, especially in the smaller vehicle segments. This is precisely where the expected advance of the Chinese manufacturers is likely to be most noticeable. The market shares of the Japanese and Korean manufacturers have also been held primarily by the French and Italian brands in the past. For these companies, isolation through tariffs therefore means a rather high benefit with minimal risk.

This is very different with German manufacturers. They also sell around a third of their vehicles in Europe in terms of unit sales, but they tend to be lower-margin vehicles. Measured in terms of profits, Europe's share is significantly lower.

On the other hand, German manufacturers sell between a third and 40 percent of their vehicles in China, including many high-margin models. Around 250,000 cars are exported from Germany to China every year, including many luxury models. This very profitable export business could be severely affected by Chinese countermeasures at a time when German manufacturers are already in fierce competition with Chinese manufacturers on the Chinese market.

An EU anti-subsidy action against Chinese BEV will most likely also affect the brand-image of German cars in China. Therefore, there is a considerable risk from the German point of view. On the other hand, the potential benefit is rather weak due to the fact, that the production of Chinese premium BEV is so much cheaper. It is most likely that they will be able to compensate for an additional toll and still be profitable.

Therefore, the European manufacturers have slightly different views on the new challenge from China and the potential outcome of the EU anti-subsidy investigation although it is expectable that the Chinese advance will go to the detriment of all European manufacturers.



Sources

ACEA, 2024, New Car Registrations, European Union, https://www.acea.auto/files/Press_release_car_registrations_full_year_2023.pdf [22.03.2024]

CNEVpost, 2024, Automakers' NEV market share in China in 2023, <https://cnevpost.com/2024/01/10/automakers-nev-market-share-in-china-in-2023/> [22.03.2024]

Ev-volumes, 2024, Global EV Sales for 2023, <https://www.ev-volumes.com/country/total-world-plug-in-vehicle-volumes/> [22.03.2024]

Forbes, 2024, BYD And Chinese EV Win In Europe Might Be Delayed, <https://www.forbes.com/sites/neilwinton/2024/02/09/byd-and-chinese-ev-win-in-europe-might-be-delayed/?sh=4d93f08c44c8> [22.03.2024]

VDA, 2024, Automobilproduktion, <https://www.vda.de/de/aktuelles/zahlen-und-daten/jahreszahlen/automobilproduktion> [22.03.2024]

