

Policy Brief, No. 06
2023



The German Automotive FDI in China: EVs, Innovation and Competitiveness

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september 2023

Abstract

German carmakers Volkswagen (VW), BMW and Mercedes-Benz are increasing their presence and Foreign Direct Investments in China, which is showing new investment patterns. The Chinese Electrical Vehicle (EV) expertise and technology, together with the country's large market, could help the European automotive industry to retain global competitiveness and further its electrification process. In this context, the EU should place the European automotive industry's interests at the centre of its green transition. Apart from the growing political scepticism and potential competition, economic collaboration with Chinese companies and the need for a broader understanding of the Chinese market, as well as related strategies will become increasingly important in the long term.

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The German Automotive FDI in China: Electrical Vehicles, Innovation and Competitiveness

Given the relevance of the German automotive sector in the EU, exploring its latest FDI trends in China may offer a better understanding of the Common Market's inconsistencies. If the EU's green transition may be regarded as threatening to the industry's profitability and innovation capacity, the Chinese market still represents an opportunity for German carmakers. After the Made in China 2025 strategic plan helped transform the country into a key electrical vehicle (EV) market, Volkswagen (VW), BMW and Mercedes-Benz deepened their integration into the Chinese ecosystem. In particular, their increasing FDI into China is set to challenge home-grown companies and capitalise on Beijing's EV technology. In doing so, the German carmakers are trying to remain globally competitive and complete their electric transformation. Besides assessing the political backdrop, the following analysis will assess the German automotive sector's investment model in China and its (demand- and supply-side) rationales. The possibilities that could arise from competition and collaboration with Chinese companies clarify why the EU should engage China in a long-lasting dialogue and relationship on the subject. Europe maintains its strengths but a clear vision for its automotive industry - compatible with its green ambitions - is still largely missing.

1. Germany's Increasing Interest in the 'New China'

1.1 The Chinese structural evolution in the EV sector

The competitive advantage of nations depends on their ability to be at the cutting-edge of innovation, particularly in those technologies able to reshape the economic landscape in the coming years. Backing Xi Jinping's will to transform China into a technological superpower, the country has successfully applied this principle to build its hegemony in the electric vehicle (EV) market.

The turning point was the announcement of the Made in China 2025 (MIC 2025) strategy in 2015. This forward-looking plan was designed to transform the 'Factory of the World' into a knowledge-based economy, progressively closing the gap which separated it from the technological frontier. To carry out this transition, the Chinese government identified several cutting-edge sectors with the aim to reposition the country within the Global Value Chains (GVCs), moving to a new stage of autonomous development. China has been providing substantial subsidies to reduce its foreign dependencies and to base its growth on internal innovation generated by state-backed companies. In this way, market shares can progressively

be secured domestically, and ultimately overtake international competitors. Nonetheless, the development of the country's home-grown technological base was inherently linked to the [absorption of expertise from abroad](#)¹. This is why in 2018 China's industrial policies started to 1) support national enterprises in their externalisation activities; and 2) promote FDI inflows towards the MIC 2025's targeted industries, forcing technological transfer towards domestic firms. The stream of inward investments has thus constituted both a driving force in the modernisation process and a factor for maintaining a dynamic, competitive environment in China.

The success in the EV sector – one of the MIC2025's explicit targets - demonstrates the effectiveness of the Chinese top-down economic policy in foreseeing the strategic markets of the future, thereby upgrading its industry, absorbing external knowledge and leveraging the first-mover advantage to take global technological leadership. In the early 2000s, China's internal-combustion engine market was dominated by foreign brands. During this phase, technological transfers from Western traditional carmakers helped Chinese companies develop the general processes and equipment necessary to make EVs. After having realised that its domestic industry could not compete in the internal-combustion production, the Chinese government decided to heavily invest in this nascent electric technology². China was the first country to pioneer with a large-scale policy for encouraging production, purchase and wide-spread innovation in the EV field. In accordance with its MIC 2025 ambitions, [over 29 billion USD were pumped into relevant subsidies and tax breaks](#) between 2009 and 2022. As a result of this proactive strategy, China took domestic control of the market and became an innovation hub in the Electric Vehicle segment.

1.2 EU investments in China: the significance of the German automotive sector

Despite the negative impact Covid-19 had on international capital movements and investors' confidence, Sino-German economic relations proved rather resilient. According to the [Financial Times](#), German businesses' FDI in China hit a record 10 billion EUR in the first half of 2022. In this framework, the flagship carmakers remain among the top EU investors that continue to massively invest in the country. Let us further assess the relative size of the German automotive sector in Europe.

¹ In particular, the Chinese strategy was directly linked to the [German 'Industrie 4.0' initiative](#) focused on the digitalisation of manufacturing, and considered Germany as a determining source for acquiring advanced technologies and production methods.

² When the visionary [Wan Gang](#) - an automotive engineer who had previously worked for Audi in Germany - became China's Minister of science and technology in 2007, he persuaded the State Council to go all-in on electric vehicles despite the risky nature of the (at that time) early-stage technology.

The [Rhodium group](#) - a US think-tank – has examined the composition of European FDI in China. Its findings display some relevant concentration trends over the past decade. As regards countries of origin, Germany is by far the largest investor, making up 43% of the total investments on average between 2019 and 2024, compared to 34% in the previous 10 years³. European investments have also become concentrated in a few sectors and, among them, the automotive industry stands out. German carmakers justify about one third of all European investments in China. Their FDI in the region increased by 65 per cent between 2015 and 2020 to a total of 33.6 billion EUR, according to the MERICS report “[The bumpy road ahead in China for Germany's carmakers](#)”. Beijing has consistently encouraged this trend and once the local producers were ready to benefit from international competition, the authorities relaxed the regime of investment inflows in the sector - thus permitting German carmakers to enter the Chinese market.

VW, BMW and Mercedes-Benz are thus doubling down on their already substantial presence in China. Moreover, as they have rapidly lost market shares in favour of the domestic electric vehicle companies and as China has become an EV innovation hub, the three carmakers’ investments pattern in the country is changing. If Germany wants to exploit the growth momentum of the Chinese EV market to get in on the next mobility evolution, the shifting focus on the local high-value-added processes constitutes a rational response. But the future of the German automotive sector in China and beyond would not just have national implications. Indeed, the industry is one of the cornerstones of Sino-EU economic relations and represents an important pillar of the European green transition. It is thus fundamental to align the particular interests of involved businesses and policymakers, preserving the profitability and global competitiveness of the sector.

2. German Automotive Investment Patterns in China

2.1 A demand-side analysis of the German automotive FDI in China

China remains a fundamental sales market for German carmakers. [Volkswagen](#), Germany’s largest automotive firm, relies on Chinese consumers for at least half of its annual profits, which reached 22 billion EUR in 2022. However, after having consolidated their position in the traditional car market, German companies have been falling behind in the fast-growing EV category. Volkswagen, BMW and Mercedes Benz, who have only developed their electric vehicle production relatively recently, are

³ That is because the long-standing bilateral partnership between the two countries relies, mostly, on growing capital-intensive industries (the automotive and chemical sectors), which require large investments.

struggling to compete with local Chinese producers. So far, BMW and Mercedes-Benz have sold less than 10,000 units each, in a market counting 3.3 million units. Volkswagen has comparatively achieved better results but its business in China is still negligible in a market largely dominated by domestic firms. According to [Automobility](#), nine of the top 10 EV carmakers in China in 2023 were indeed Chinese brands. BYD recorded a 84% sales growth in the first five months of 2023 compared to its 2022 performance over the same period, holding two-fifths of the total market. Volkswagen on the other hand sits in ninth place with a market share of just 2%, recording a negative trend. Almost two-thirds of the EV sales value in China goes to the top 5 companies (BYD, Tesla, GAC, SAIC-GM and Geely) and the numbers show a widening gap between them and their European competitor VW.

Regardless of their current situation, it is clear to German carmakers that they must remain close to the Chinese EV market. They have gained significant results in China and the country could become increasingly important for the industry's long-term profitability, given the growing interest for EVs. In agreement with data provided by [Statista](#), the sales of battery-powered vehicles in China is now more than double that of 2021 and revenue in the EV market is projected to reach 398 billion USD in 2028. Yet, China accounts for over half of all new electric cars sold worldwide and [its car market is almost five times bigger than that of Germany](#). For these reasons, challenging the domestic rival and stabilising their position in the Chinese market means safeguarding the value of past investments and grabbing the EV trend. Continuing to invest in China might also turn out to be strategically advantageous for German carmakers due to the following demand-side factors.

Firstly, **the fierce competition with Chinese companies is not bad in itself as it can, on the contrary, spur innovation.** As reported by the [German Chamber's Innovation Survey 2022](#), the increasing innovation capacities of competitors are the most significant innovation driver for 87% of German companies in China. In this sense, the competitive Chinese market represents an opportunity for releasing German carmakers' full innovative potential. **Secondly, the Chinese consumers' openness to new products and their positive attitude toward change.** The demand in China requires a continuous flow of innovation and, in particular, always new digital solutions for EVs and other products. Directly responding to the local customer's demands and dynamism enables German carmakers to improve their products in China as well as for other markets. These two main features, together with the internal technology capabilities, can partially explain the impressive China-speed innovation and the [wide variety of its portfolio](#). The Chinese market can already offer up to 300 different EV models, twice as many as in Germany.

2.2 A supply-side analysis of the German automotive FDI in China

China is, however, not just an important sales market for German carmakers. The Chinese automotive industry has become increasingly innovative and characterised by home-grown technological advances, turning the country into the world's EV epicentre. German companies are already looking beyond the current crisis. Despite the competitive disadvantage compared to Chinese competitors, VW, BMW and Mercedes-Benz are augmenting their investment footprint in the country to integrate their EV production and R&D processes into the local innovation networks. The German automotive sector attempts to further electrify its car production and retain competitiveness - in China as well as globally - by taking advantage of the following supply-side factors.

First, **China's centrality in the global EV manufacturing chain** as a result of its long-reaching industrial policy implemented in 2015 and other policy pushes. Through several supportive policies and massive state investments, the Chinese government has extended its control over the entire EV supply chain. China has become the dominant force in EV battery production – the crucial component that accounts for 40% of the vehicle's total price - managing over [three-quarters of the global manufacturing capacity](#). In addition, the country is the world leader in processing and separating the battery-related raw materials (lithium, cobalt, and graphite). China holds [70% percent of the global production for cathodes and 85% for anodes](#) – two of the three EV battery's main components. Finally, China has a well-known interest in extracting raw material in countries like Australia, Indonesia and Congo. The Chinese dominant position in the EV supply chain makes it extremely attractive for German carmakers to set up R&D centres in the country. Secondly, **the increased capacity for innovation of Chinese companies and the technological know-how developed in the country**. Specifically, for large car manufacturers like VW, BMW and Mercedes-Benz collaboration opportunities with local firms in China also provide access to their software expertise that generates smart solutions and accelerates the development cycles of the product.

China's rapid rise in EV technology is shaking up the German carmakers' FDI in the country. VW, BMW and Mercedes-Benz are affirming their presence in China by increasing equity stakes in their Chinese joint ventures. They are strengthening their partnerships with local companies, which may facilitate the establishment of a durable collaboration between the two country's industries, mainly based on the pooling of German hardware know-how with Chinese software skills expertise. In general, we are witnessing a dramatic change of German investment strategies in China. In order to avoid the transfer of technology to Chinese competitors, the R&D processes used to be carried out only in Munich, Stuttgart or Wolfsburg. Now, a larger quantity of capital is channelled into Chinese research and development centres.

Yet, China is becoming an emerging hub for global markets and German carmakers are moving away from an “in China, for China ” strategy to what for certain technologies could become an “in China, for the world” model. Especially for batteries and software solutions, some parts of the development process may in the future be moved from Europe to China, given the country’s comparative leadership in those technologies.

2.3 The VW case

In 2020, Volkswagen concluded a partnership with JAC Motor entirely focused on EV production and development, securing a controlling 75% stake. The move is consistent with the will to boost ownership in the world’s biggest car market. It also increases the decision-making power of the brand’s centres located in China.

In June 2023, Volkswagen 's Chinese joint venture with SAIC Motor – a Chinese state-owned company and the biggest automobile manufacturer in the country – agreed to convert the VW-SAIC’s main plant in Shanghai for production and R&D of electric vehicles. In the effort to challenge the Chinese rivals’ EV domination, Volkswagen expanded the existing cooperation between Audi – one of VW's brands - and SAIC. Strengthening the long-term commitment to SAIC allows the Group to step up the pace of the company’s electrification process within the framework of a technological alliance with China.

At the Shanghai auto show in April 2023 the company announced that it is investing around 1.1 billion USD in an electric car development and business centre in Hefei — a city near Shanghai that has become an automotive hub. By involving local suppliers at the early stage of product development and integrating Volkswagen’s three joint ventures in China (with SAIC, JAC and FAW), the new business centre can reduce product and tech development times by about 30%.

Furthermore, in 2022 CARIAD, Volkswagen’s software company, launched its subsidiary in Beijing one year after its own foundation. The company’s first non-European R&D hub underlines VW’s ties to the Chinese ecosystem and, most importantly, the strategic importance of its digital innovation potential. establishing a presence in China permits it to quickly respond to the dynamism of the local demand. The subsidiary will in fact develop, update and improve the production at China-speed based on local consumers' expectations of continuous innovation. With an explicit ‘from China to the world’ mission, it provides software-enabled mobility solutions to the Group’s models in other markets. The ultimate goal is to make the German carmaker’s vehicles more digitised and smarter in China and beyond.

Back in [July](#), Volkswagen bought 5% of Chinese electric vehicle maker Xpeng for 700 million USD and agreed to explore collaboration opportunities on future models, EV platforms, supply chain and software technologies. The objective of this strategic partnership is to [exploit each other's complementary strengths and forge a long-term win-win relationship](#). “We will share smart EV technologies (Xpeng) and world-class design and engineering capability (VW) with each other and learn from each other,” declared Xiaopeng He, CEO of Xpeng.

In the same way, [starting in 2023](#) Chinese battery maker Gotion High-Tech - of which VW controls a 30% stake - will jointly develop batteries with Volkswagen for new markets outside China, aligning its strategy with the German company's endeavour to reinforce the EV business globally. Gotion makes use of VW's trusted brand to succeed in overseas expansion while continuing to [supply the carmaker with cobalt-free, unified LFP battery cells outside China](#) (catering 80% of VW's global EV model).

3. The Chinese Opportunity in the EU Green Transition Framework

3.1 China-Germany cooperation beyond the political scepticism

For Gregor Sebastian of [MERICS](#) the ‘from China to the world’ strategy could be unable to bring back local-developed technologies to Germany, upgrading the Chinese industry without effectively benefiting the national productions. The EU could therefore be identified as the mediator able to mitigate this risk. Nevertheless, co-developing “in China, for the world” products means to exploit economies of scale. In areas where saving costs is essential, German carmakers in China should make the most out of collaborating with the domestic companies. Another national concern in Germany related to the increasing FDI is represented by the geopolitical exposure to China. Berlin's worries about a Chinese over-dependency explains the limited alignment of politics with the automotive industry's private interests. [In July 2023](#), Germany published its first-ever China Strategy with a main focus on [de-risking](#) measures. Annalena Baerbock - Germany's green Minister for Foreign Affairs - declared at the presentation of the document that companies would “have to bear more of the financial risk themselves” in their future relations with China. The move continues a process initiated in 2021, when Germany refused to provide Volkswagen with guarantees to cover new investments in China (because of concerns over human rights violations in Xinjiang).

As previously demonstrated, German businesses seem to be ignoring some of these warnings. BMW, Mercedes-Benz and Volkswagen have signed letters of intent with China's National Development and

Reform Commission (NDRC) during Chinese [Premier Li Qiang's recent visit to Berlin](#). The deals should promote a stable cooperation in EV research and development. “BMW's strong partnerships with China are a ‘win-win’ during the green transformation of our industry”, CEO Oliver Zipse [declared](#). Especially today, with the Economist defining Germany as [the sick man of Europe](#) - due to the inability to keep up with technological change - a renowned economic model looks necessary. Expanding learnings from the Chinese market (such as China’s faster development cycles, software and digital solutions) internationally could upgrade Germany’s first industry and prepare it for the future. Given the potential polarisation of the global economy and protectionist tendencies, stabilising the presence in China could also ensure German carmakers the access to its EV supply chain and expertise. Despite the political opposition, the collaboration between China and Germany remains widely beneficial for the German automotive sector’s global competitiveness beside the smart electrification of its productions.

3.2 EU green fragilities and risks for German carmakers

The priority for Germany’s Federal government may not be to find the right balance between the sector’s competitiveness and the risks related with its increasing economic dependence on China but simply to accept the business rationality behind it and to design a pragmatic industrial policy as a result. The same may apply for the EU. The European automotive industry was historically a global leader, representing a strong sector with attractive job opportunities as the growth engine of Europe’s economy. However, fundamental changes have taken place. The industry’s centre of gravity has been shifting towards China, with new players and disruptive megatrends that are modifying the sector’s technological paradigm. To stay ahead in this changing competitive landscape, the EU should favour its own automotive industry and maximise the return in its economic relationship with Beijing. The ultimate goal should be the involvement of German carmakers - and by enlargement of the European sector as a whole - in its green transition plan while preserving their competitiveness.

Yet, [Fit for 55](#) may not head sufficiently into this direction. The European Commission imposes all new cars registered in Europe to have a zero-emission by 2035, making it impossible to sell new fossil fuel-powered vehicles in the EU and its 27 Member States . This is one of the most drastic curbs on vehicle emissions worldwide, in the [attempt](#) to stimulate EV innovation and investments and make sustainable driving accessible to everyone. Instead, this “binding approach” risks to over-expose the EU market to Chinese companies, since European carmakers are not ready yet to compete in the production of affordable EVs. According to [JATO](#), the average EV price is nearly 55.000 EUR in Europe, compared with 30.000 EUR in China. Over recent years, European brands have in fact prioritised the selling of

premium vehicles - in order to maintain higher margins - losing ground on low-end products. As a consequence, BYD, Nio and Li Auto's cheaper cars are expected to see [surging demand](#) in Europe's EV market in the wake of the EU legislation, accounting for 15% of its electric vehicle market by 2025 (from a 10% quota in 2022)⁴. This process is already underway, with an [increase in sales](#) of nearly 55% to about 820.000 vehicles in the first semester of 2023. Chinese carmakers sense a [huge opportunity](#) in Europe and threaten to reshape its automotive landscape, forcing governments to choose between protecting their industries and embracing competition and consumer choice. In addition, it may reduce the European scale of investments in EV innovation. The [German car manufacturers](#) – as well as the other European champions - have been the technological leaders in making the most advanced and efficient petrol and diesel engines. This is why the development of e-car models in Europe is mainly financed by profits from the traditional business. The EU ban on new internal-combustion cars could therefore decimate the amount of revenues to reinvest in R&D and game-changer innovations, such as more efficient EV batteries.

The possibility for cost reduction technologies creates some room for German carmakers for a sudden reversal of fortunes in China and beyond. Europe should maybe try to do more to explore this opportunity and find potential ways for cooperation instead of limiting its potential. For example, building up its competitive EV supply chain could pave the way for disruptive innovations in the field. Again, the European Commission's priority seems to (over-)regulate the market rather than solving the problem at its roots. The EU has recently strengthened its rules for battery and battery waste to [make the entire life cycle more sustainable](#). While this is a necessary step in greening the process, it is however not clear how the legislation can address the lack of access to raw materials (necessary to produce batteries) and create an alternative to the Chinese EV supply chain's domination.

3.3 The European automotive strengths

In conclusion, the one question that naturally arises is how to reposition European and German carmakers in the global automotive future. One cannot blame Europe for not having its own 'Made in Europe 2025' plan. Since the Union lacks China's pervasive control of the economy, any hypothetical replication of the Chinese strategy would not be equal or equally effective. The EU needs to follow its own [path of success](#). The highly-specialised European automotive industry stretches across the EU, hosting several champions

⁴ In view of its green ambitions the EU must understand that 1) politics can regulate the market but purchasing decisions still belong to consumers (who might prefer 'Made in China' products) 2) the transition may only be realised if the electric alternatives are economically convenient and accessible to the largest part of the population.

in narrow market segments. Moreover, the presence of different people and connectivity systems allows it to offer a variety of mobility solutions. These strategic factors may transform the European automotive industry into an integrated and consumer-centric innovation hub. For instance, the joint development of locally-optimised products in Europe can be scaled globally, using the EU's well-established export networks across the world. Yet, the competitive advantage of the European sector lies in its human capital⁵. The EU workforce's design and engineering competencies is still fundamental for German carmakers as well as for Chinese companies⁶.

In principle, German carmakers can capitalise on the Internal market's strengths together with the internalisation of the Chinese EV expertise and technology. Collaboration with Chinese companies can be a winning strategy, and not just for German carmakers, since it contributes to the EU's green transition and enhances the global competitiveness of the entire industry. The European Union must therefore protect the EU industry's interests, minimising the risks while maximising the benefits in its automotive-related collaborations with China. Through this lens, the European Commission should guarantee a level playing field for German and European companies and their investments in China. The first step in this direction is the definition of a new agreement that replaces the stalled EU-China Comprehensive Agreement on Investment (CAI). In particular, **new rules for technology transfer** permit to effectively benefit the production in Germany with "Made in China" innovative solutions. In addition, by guaranteeing a **fair competition in China**, German carmakers would be positively motivated⁷ to maintain a continuous flow of innovation - applying the results at global scale.

The German integration into the Chinese innovative ecosystem represents a golden opportunity not just for Germany but also for the EU. Since the industry is the cornerstone of Sino-EU economic relations, the German carmakers' interests in collaborating with China could be a stepping stone towards a wider understanding and cooperation between the EU and China. Unfortunately, the recent [European Commission's announcement](#) to launch an anti-subsidy investigation into EVs coming from China –

⁵ In order to make use of the EU's strengths, one preliminary condition is represented by the labour force transition. Re-skilled and up-skilled employees are necessary to keep up with the changes in the industry and preserve European automotive's innovation capabilities.

⁶ During the growth phase of the Chinese automotive sector, the financial support provided by the government had helped keep unprofitable companies afloat. Now that the industry is mature and can finally stand on its own, China has significantly reduced subsidies for domestic EV firms. As a result, European potentialities will be crucial for Chinese brands to deal with the direct exposure to global competition and preserve its position at the forefront of the EV industry.

⁷ Remind the [German Chamber's Innovation Survey 2022's](#) findings and the Chinese consumers' expectation of always new digital solutions. Competition in China's dynamic EV market forces German carmakers to constantly innovate and, in this sense, represents a "non-voluntary cooperation mechanism".

because of concerns over Internal market distortions – does not move exactly into this direction: “Global markets are now flooded with cheaper Chinese electric cars... we do not accept this.”. Von der Leyen’s declaration represents the counterproductive tentative to politicise the industry’s difficulties and the current anti-China sentiment. This approach may overshadow the complex dynamics of the European automotive sector, just when it faces disruptive changes while struggling to comply with the EU green ambitions. In the end, the probe may backfire on German carmakers and their business in China.

The rational alternative is to align political objectives with the industry’s needs as part of an extensive and strategic vision for the European automotive industry. The German carmakers’ willingness to explore synergies with China and the EU’s strengths must be placed at the centre of a serious industrial policy. Only in this manner, the entire discussion about the sector’s competitiveness and transition can be presented in a framework that recognizes the economic nature of the problem. Europe should finally engage China in a long-term dialogue and relationship that benefits both parties. Economic pragmatism always comes before political scepticism and, prior to being a systemic rival, China still remains a strategic partner and a constructive competitor for the EU.

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