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How Europe can take back the wheel in the global auto sector

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Allianz Research

Content

Executive Summary

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- **2024 was a reality check for the global automotive market and 2025 does not look much better.** After recording almost +10% growth in 2023, the automative sector saw a modest +1.7% increase of new registrations in 2024, hit by lower demand; higher rates, which translated into higher loan costs coupled with tighter lending conditions, and a line-up from some carmakers that failed to match consumer expectations while legacy auto makers announced hundreds of new models over 2023-2024. We expect the overall car market to grow by about +2%, still driven by China (+4%) and the US (+2.5%), while Europe is likely to trail behind (+1.5%) as tariff tensions could be an additional major hurdle for the industry, especially in Germany. When it comes to the shift to electric vehicles (EV), while China leads the electrification drive, with EV sales up +40% and internal combustion engine (ICE) sales down -17%, Europe was the only major market to experience a contraction of EV sales in 2024. The US could follow suit in 2025 as the tide turns against EV adoption under the new administration. The hybrid segment was the only bright spot for the European auto market as sales grew by over +20% over 2024, though this benefited Asian automakers rather than European ones. Looking ahead, the EV segment should grow steadily in 2025 in Europe as CO2 regulations have been tightened and will force carmakers to reduce their carbon footprints.

- **The European auto industry in particular is facing three structural roadblocks:**
  1. Auto makers need to make up for the missed innovation shift towards electrification. European automakers chose to stick with their vested interests in legacy assets rather than switching to electric technologies, notably onboard digital technology. Over the past decade, European carmakers spent two times less on capital expenditure (~6% of revenue on average in Germany) than the two biggest Chinese manufacturers (BYD & Geely) or Tesla. Consequently, European cars are too expensive and falling behind the competition in term of innovation. European sedans and SUVS are still 15-30% more expensive than Chinese ones, even with the fall 2024 tariffs..
  2. Reliance on China is now a weak spot. China is strongly dominating the battery market, supplying around two-thirds of the global industry. Trying to catch up on the technology gap has not succeeded (e.g. the failure of the Northvolt) and Chinese brands are also increasing their market share in Europe (~7-8% in 2024) with EVs that are cheaper, reliable and fully equipped with top-notch tech. Moreover, Europe cannot afford to get into a trade war on auto with China as potential retaliatory measures would only intensify the decline of European brands' market share in China, (German market share down to 18% in 2024 vs. 25% in 2019).

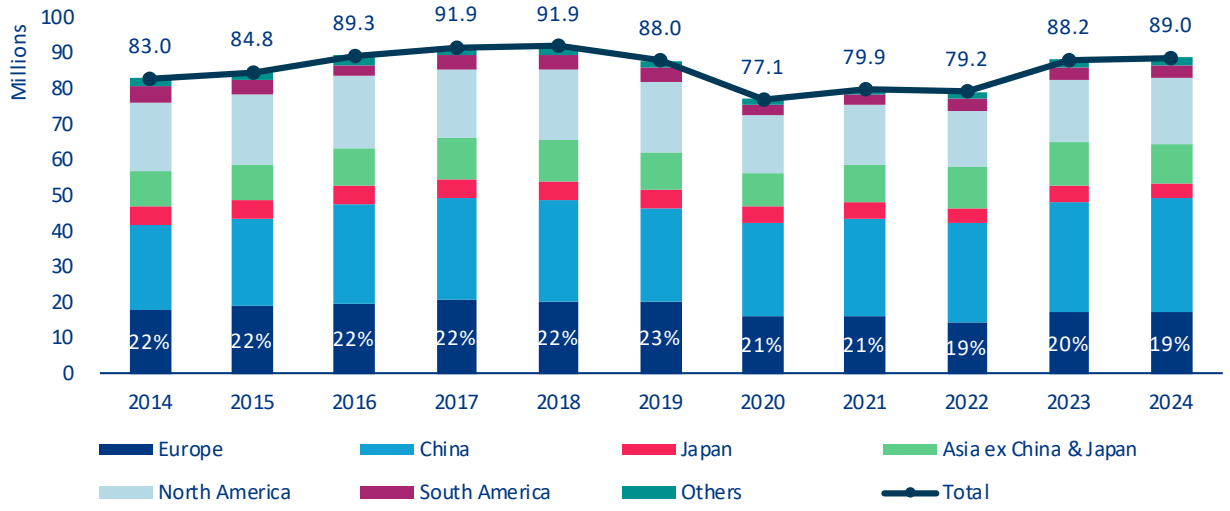
3. There is a disconnect between policy ambitions and policy making in Europe. Just as the EV market is slowing in Europe, the EU is about to impose stringent CO2 targets that could hurt the sector, with more than EUR10bn in fines looming. Meanwhile, the bloc also needs to solve its energy crisis: at EUR1.5 per liter of gasoline, charging an EV becomes uneconomical when electricity prices are above 37 cents per kWh.

- **Europe should follow a 10-step plan to restore its competitive edge. Blueprints for success include China's ambitious three-spoke industrial stimulus policy that combined consumer incentive measures with fiscal easing action for manufacturers and R&D funding; Norway's balanced demand support and rapid electric infrastructure development and Tesla's small line up and focus on tech.** China invested USD231bn between 2009 and 2023 to propel its EV industry, fostering champions across the full supply chain and promoting vertically integrated models. Meanwhile, Norway managed to become an almost fully electric car market in 2024 through a balanced carrot and stick policy and a comprehensive charging infrastructure plan. Finally, Tesla's small line-up and focus on tech allowed it to become an above USD1trn company in the space of 20 years. To make auto great again in Europe, we outline five recommendations for industry leaders: (i) reducing the line-up to five or six models, of which half should be offered in both hybrid and electric versions, but also reducing the large range of options that inflates selling price and keeping a tight pipeline of new models; (ii) deepening vertical integration and investments into customized charging solutions; (iii) aiming for at least 10% capex in tech, R&D and customer services; (iv) exploring new markets such as India, Vietnam, Indonesia and South America where car ownership is low (between 5% and 20%) and international competition still weak and (v) increasing intra- and extra-sector cooperation by favoring joint ventures and collective projects to make economies of scale while fostering a learning curve. Initiatives that policymakers should consider include: (i) implementing a 40-50% tariff on cars whose components and manufacturing costs (excluding battery) have a European sourcing ratio inferior to 75% – this could bring EUR2bn in receipts for the EU in 2025, (ii) axing the land tax rate and offering a 5% subsidy (out of total investment) to new JVs involving a non-European company with a project of building up new output capacities in Europe and allocating EUR20bn for this policy (~5% of available NGEU funds); (iii) allocating a 15% trade-in rebate on EV purchases of below EUR45,000 for consumers, conditional on a 75% European sourcing ratio – this could be financed partly with tariffs receipts and an incremental target for corporate fleet renewal (from 50% to 100% of new purchases allocated to EVs by 2035); (iv) investing between EUR150-200bn into charging infrastructure to support the rise of the EV fleet that is expected to reach 15-20% by 2030, and (v) devoting 5% of the EU Horizon program (~EUR5bn) to foster projects focused on batteries, autonomous driving technology, AI-driven software and recycling.

Running out of gas: a stalling market in 2024

The global automotive industry faced a challenging environment in 2024, with sales growth stagnating despite early optimism, and the outlook for 2025 does not look much brighter. The year saw only a modest increase of approximately +1.7% y/y, bringing total light vehicle sales to about 88mn units. This sluggish growth stems from the combination of high interest rates, wanning consumer confidence and an increasingly competitive electrification landscape. The initial post-pandemic recovery momentum slowed as inflationary pressures and fluctuating energy costs weighed on both manufacturers and consumers. The outlook should remain cloudy for the global industry in 2025, notably in Europe where we expect a mild +1.5% growth of new registrations as new carbon regulations, a slow EV transition, elevated trade tensions, household cautiousness and stiff external competition should weigh on car demand. The US should hardly perform better (+2%) as likely reduced federal aid for the EV segment coupled with tariff risks with historic partners (Canada, Mexico) would be a hurdle. China should continue to outperform but at a slower pace than last year (+4%) as rising protectionism measures are expected to puncture external demand even though domestic demand should remain robust.

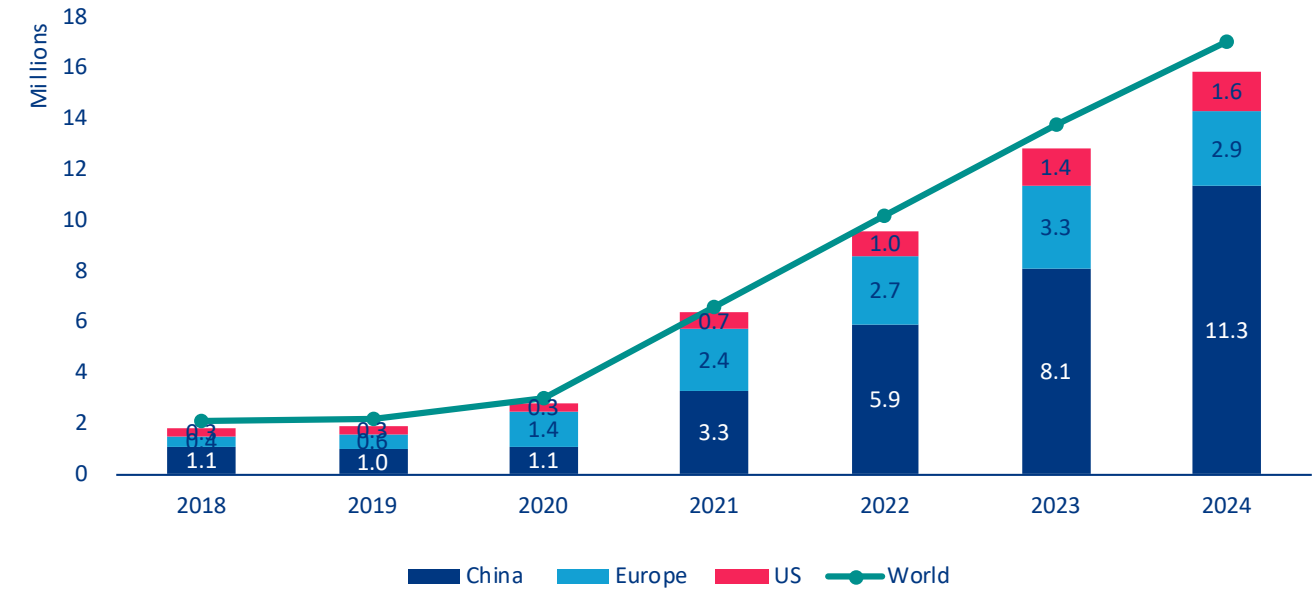
Figure 1: Global auto sales by geography (Mn units)



Sources: Wards, Allianz Research

China is driving the electrification of the global car fleet. While electric vehicles (EVs) continued to grow globally, this growth was disproportionately concentrated in China. The world's largest auto market maintained its lead in EV adoption, bolstered by strong government support, advanced charging infrastructure and the rise of ever more competitive domestic brands such as BYD. In 2024, EV sales increased by over +40% in China while traditional internal combustion engine (ICE) car sales decreased by -17%. This dominance was further reinforced by aggressive price wars among automakers, making EVs more affordable to Chinese consumers compared to their counterparts in Europe and North America. China dominates the global Battery Electric Vehicle (BEV) market, accounting for around two-thirds of new energy vehicle sales worldwide last year. This leadership is driven by strong domestic demand, government incentives and a robust supply chain for electric vehicle components, especially batteries, where China is leading. Strong public support on demand but also on the supply side, via state and local loans provided for R&D purposes, enabled the emergence of several pure-player start-ups (NIO, Aito, Zeekr) that have increased competition in that segment – driving the final selling price lower as a result – and offered consumers a broad variety of models mixing advanced technology and attractive design at a fair price. The country also leads in EV infrastructure development, with an extensive network of charging stations. Additionally, China's growing focus on environmental sustainability and the transition to clean energy further strengthens its dominant position in the BEV market.

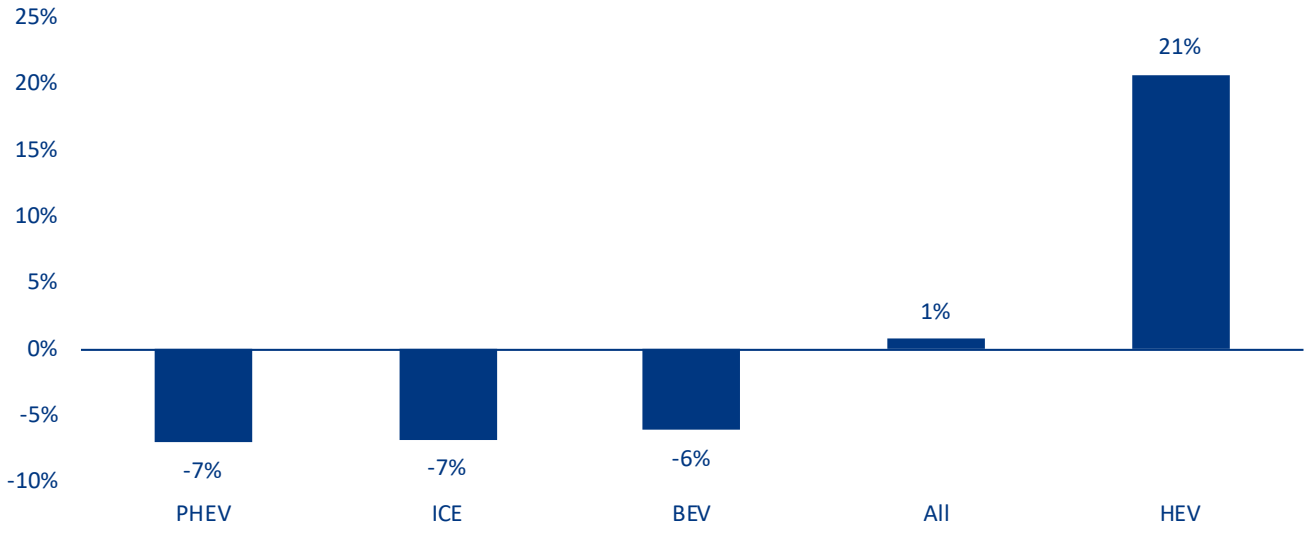
Figure 2: Sales of battery-electric and plug-in hybrid electric vehicles (Mn units)



Sources: Rho Motion, Allianz Research

A strong rebound in hybrid sales in Europe. In contrast, EV adoption in Europe and the US struggled to keep pace with China. Despite earlier forecasts of rapid electrification, both regions faced challenges that hindered widespread consumer adoption. In particular, the phasing out of government incentives in some European countries reduced the affordability of EVs, pushing consumers toward alternative powertrain options. To add to this, depressed consumer confidence and still-high interest rates are weighing on the market. However, hybrid electric vehicles (HEVs) and plug-in hybrid electric vehicles (PHEVs) emerged as bright spots in the European market. HEV gained almost 21pps of market share in 2024 in the EU (Figure 3). Unlike BEVs, which require an extensive charging network, hybrids offer a more flexible and familiar driving experience for consumers transitioning away from traditional internal combustion engines.

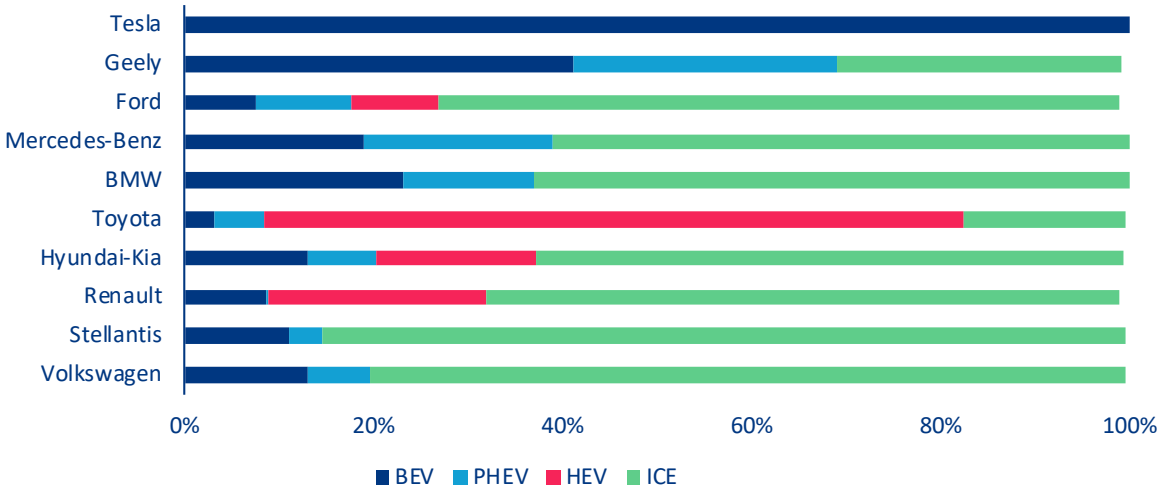
Figure 3: Growth of new EU registrations per engine (y/y%, 2024)



Sources: ACEA, Allianz Research

However, European automakers have not been able to capitalize on this trend. Their hybrid lineups remain limited compared to their Asian competition. Hybrids only account for 20% of Mercedes' sales, 14% of BMW's, 7% of VW's and 23% of Renault's compared to 78% for Toyota (Figure 4). Positioning HEVs and PHEVs as a bridge technology in the continent's slow but inevitable shift toward electrification could be key going forward for the region's manufacturers. Nevertheless, in the short run, the EV segment should rebound and grow in Europe as CO2 targets are going to be enforced in 2025 and automakers will most likely steer their commercial strategies towards increasing EV sales.

Figure 4: Breakdown of sales by engine-type (%, 2024)



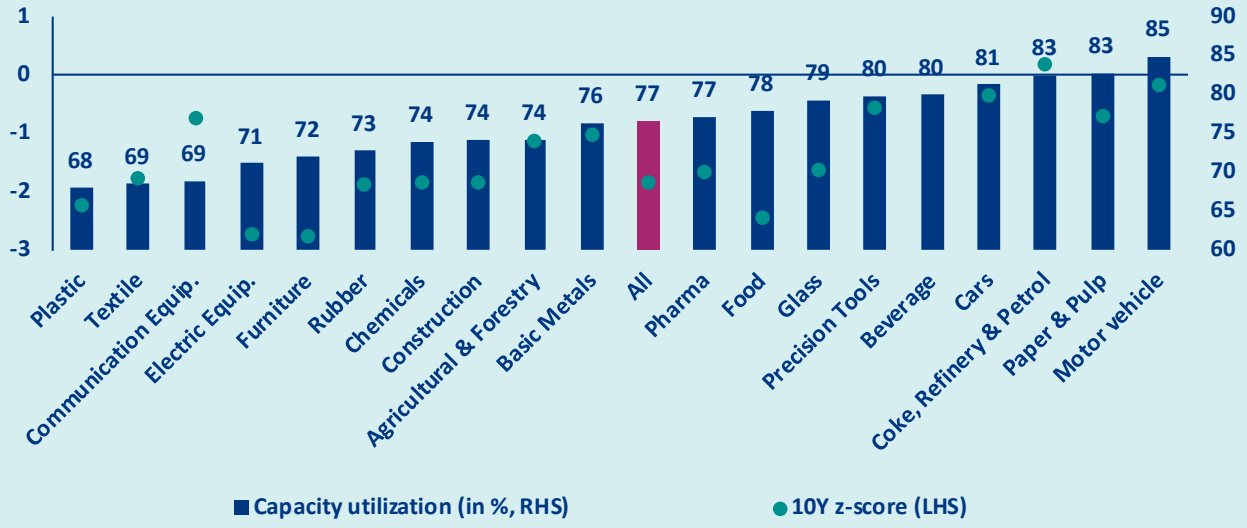
Sources: JATO, Allianz Research

US automakers faced their own set of challenges amid sluggish sales. High interest rates made auto financing more expensive and, at the same time, the average vehicle price in the US has increased by +32% since 2018, leading to record-high monthly car payments for many buyers. This contributed to slowing overall market growth. Although some automakers introduced incentives and discounts to offset affordability concerns, the high cost of borrowing continued to be a major deterrent for middle-class consumers. The US federal government is also pulling back support for EVs. The previous goal of 50% EV sales by 2030, along with tailpipe regulations mandating 20-56% EV adoption by 2032, has been revoked. Purchase subsidies of up to USD7,500 are also likely to be discontinued. With fewer EVs qualifying for subsidies and Chinese EVs effectively banned in the country, the removal of further support – including charging infrastructure – will lead to slower EV market growth in 2025. However, urbanized states may continue to promote EV adoption through regional policies, such as excise duties. Automakers such as Ford and GM have pre-emptively scaled back their EV production expansion in response to market slowdowns.

The German patient

An overcapacity issue. Germany's auto industry is grappling with a significant overcapacity issue, where production output far exceeds the shrinking demand for vehicles. Historically, German automakers maintained high production levels, but the market is now seeing declining sales due to factors such as lingering inflation effects, low traction from consumers toward electric vehicles, economic and trade uncertainties and a tightening of environmental regulations. This mismatch is leading to excess inventory, underutilized factories and increased operational costs. The imbalance is further complicated by the strong influence of labor unions, which make it difficult for companies to implement cost-cutting measures or adjust workforce levels without facing significant opposition. As a result, in 2024, some plants in Germany continued to run at a high pace despite muted demand, resulting in the abnormal situation of thousands of cars being parked for months with no customers to buy them.

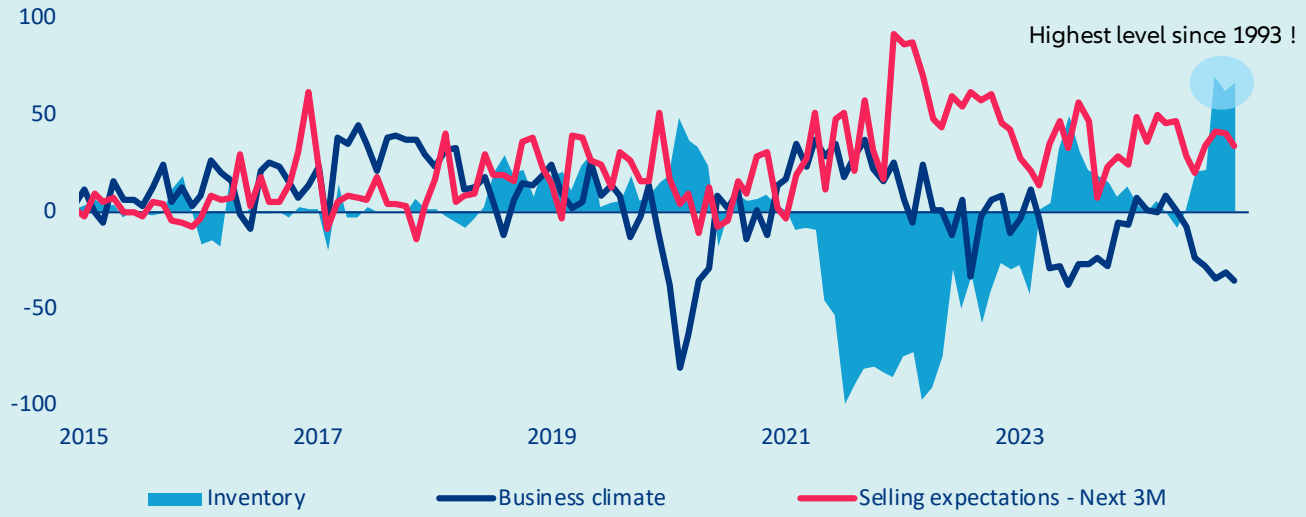
Figure 5: German auto manufacturers keep producing at high pace despite a blurry outlook for auto (manufacturing capacity utilization in %)



Sources: IfO, Allianz Research.

Facing a new world. With slower growth in Europe and the broader shift toward electric vehicles, demand for traditional internal combustion engine cars has significantly decreased. The green transition is prompting automakers to invest heavily in new, cleaner technologies, but many German factories are still optimized for older, more labor-intensive production models. At the same time, the industry is moving toward a more digital, automated approach, requiring fewer human resources. As a result, large manufacturing capacities are underutilized, leading to rising inventory costs and further straining corporate margins. This mismatch between capacity and demand is forcing companies to reconsider their production strategies to remain competitive and profitable in a rapidly evolving market.

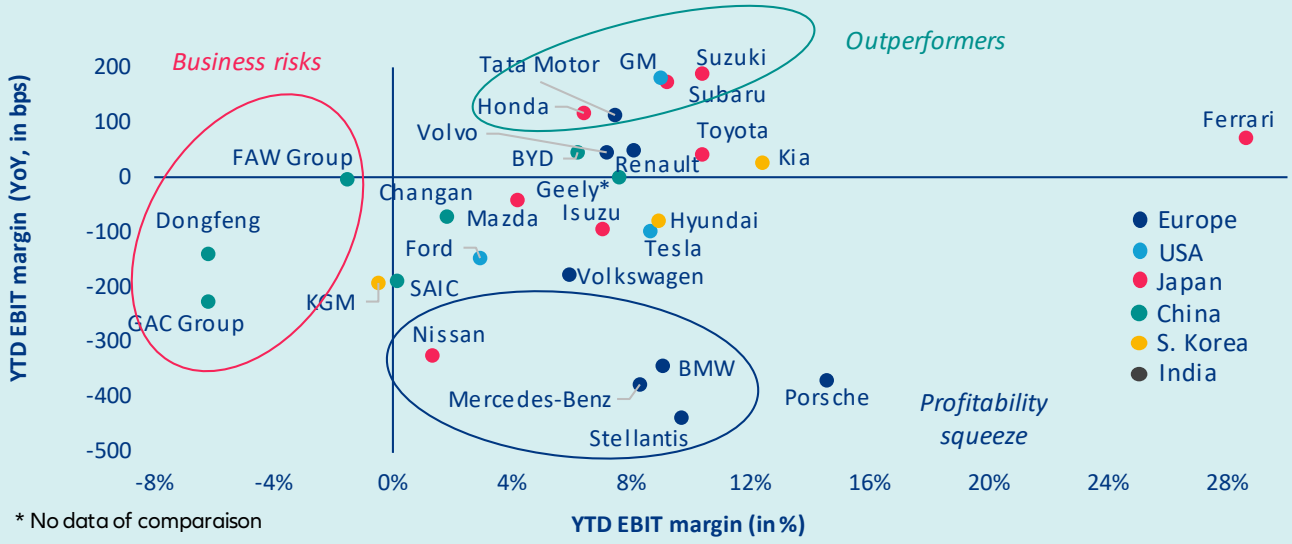
Figure 6: Excessive inventory costs from German carmakers is weighing on margins



Sources: IfO, Allianz Research

A tough 2024 for German OEMs. After recording double-digit margins in 2023, albeit mostly due to inflation effects that artificially lifted them, German carmakers witnessed a substantial decrease in profits in 2024. Only very premium brands were able to dodge the decline. Debt levels remain quite steady and companies maintain high cash levels that protect against any solvency issues in the short and medium term. But declining margins should have some negative snowball effects on operating decisions and their business structures, with some substantial cost-cutting measures likely, involving direct or indirect layoffs but also some plants being shut down. Moreover, we expect increasing bankruptcies amid suppliers whose solvency profiles have already been downgraded dramatically due dropping volumes and margins under the pressure of stricter price policy from carmakers.

Figure 7: A sharp drop of profits among main German carmakers in 2024 (cumulated results over the Q1-Q3 period)

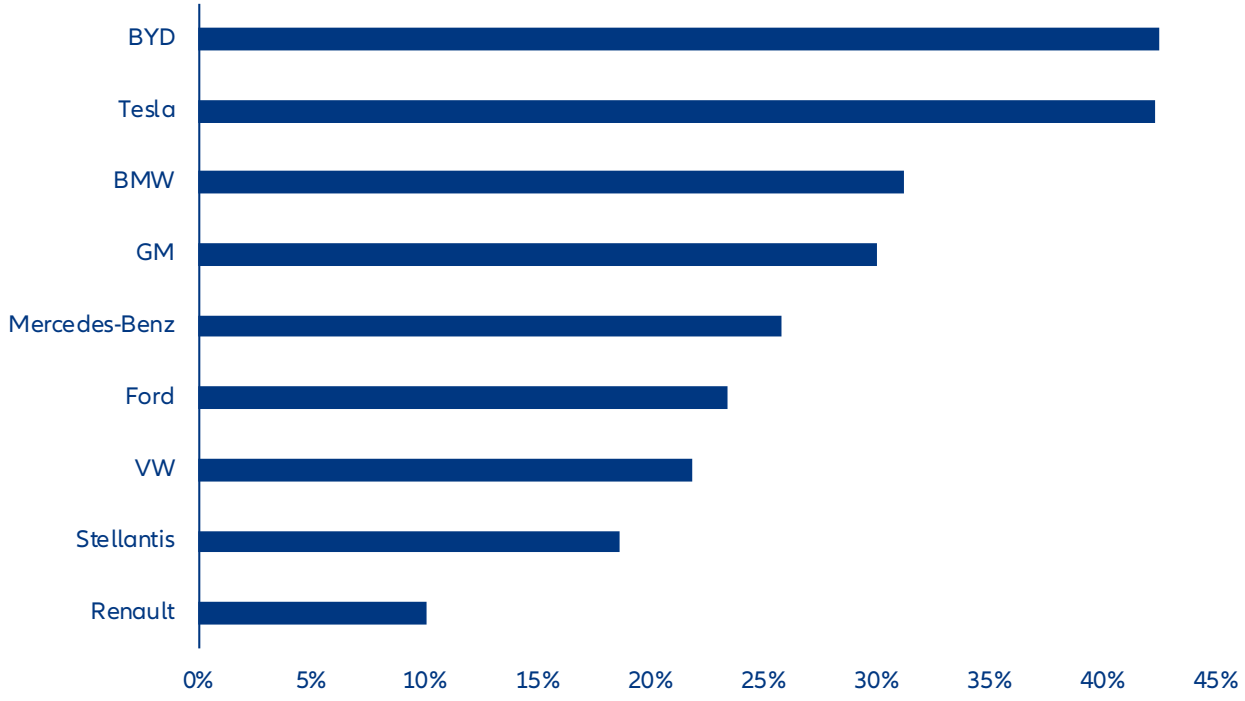


Sources: Datastream, Allianz Research

Challenge #1 – European auto missed the innovation shift and needs to bridge the gap

European automakers have faced significant challenges in transitioning to EVs due to vested interests and the need to amortize existing assets. The substantial investments in ICE technologies and manufacturing infrastructures have created a reluctance to pivot swiftly toward electrification. This hesitation is rooted in the desire to maximize returns on existing assets and avoid the financial write-offs associated with abandoning ICE production facilities. The capital-intensive nature of the automotive industry means that European companies have billions invested in factories, machinery and technologies tailored for ICE vehicles that we will need another decade or two to be fully amortized. Shifting to EV production necessitates not only new investments in electric drivetrains and battery technologies but also the potential decommissioning or repurposing of existing plants. This transition poses a financial dilemma: accelerating EV adoption could lead to underutilized ICE assets, resulting in significant depreciation costs and impacting overall profitability. Unsurprisingly, new entrants positioned on EVs such as BYD or Tesla have relatively more tangible assets related to production capacity than legacy manufacturers (Figure 8) Moreover, the established supply chains and partnerships built around ICE components present another layer of complexity for European automakers. Transitioning to EVs would disrupt these networks, requiring the development of new partnerships and the establishment of supply chains for batteries and electric components. This shift not only demands substantial effort but also risks alienating existing suppliers and stakeholders invested in the ICE ecosystem.

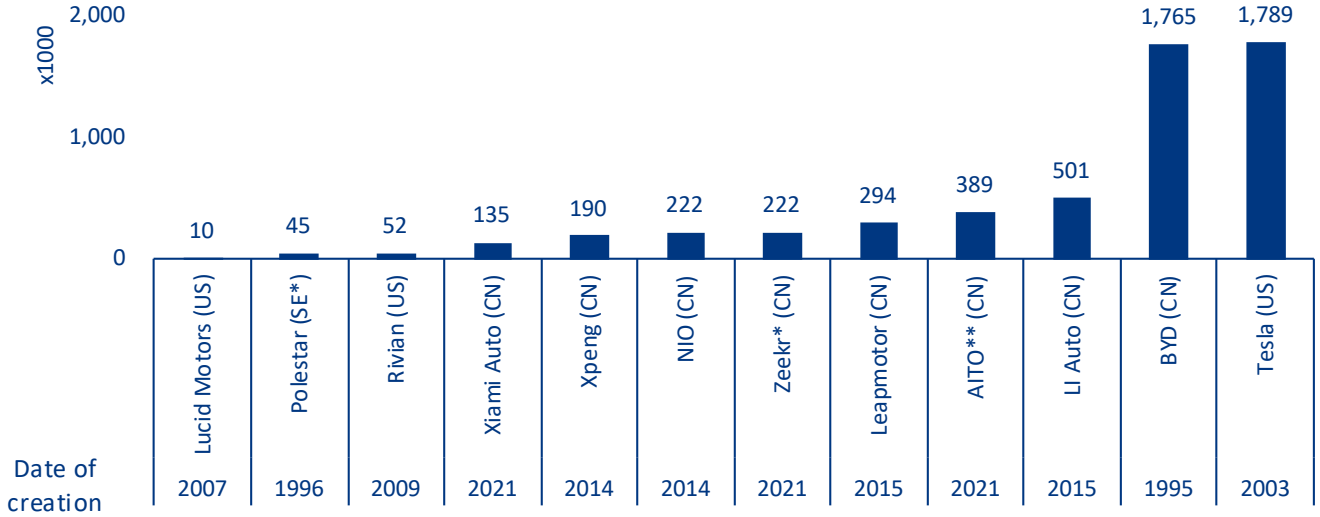
Figure 8: Weight of property, plant and equipment in total assets (%, FY2023)



Sources: LSEG Refinitiv, Allianz Research

The absence of a major EV pure player emerging in Europe is also a revealing signal. Unlike in China or the US, where companies such as Tesla and BYD have been able to grow rapidly, European automakers have been deeply entrenched in legacy structures that prioritize ICE vehicles. This legacy includes vast industrial ecosystems, regulatory ties and a corporate and financial culture that has not fostered disruptive startups. One key challenge is capital and investment constraints. Developing a new automaker from scratch requires billions in R&D, battery production and manufacturing facilities. European investors have traditionally been more conservative than their US and Chinese counterparts, preferring to back established players rather than risky newcomers. Additionally, Europe's regulatory environment, while promoting EV adoption, has been more favorable to transitioning legacy automakers rather than enabling new disruptors. As a result, there is no European EV-only manufacturer to scale and compete on a global level (Figure 9).

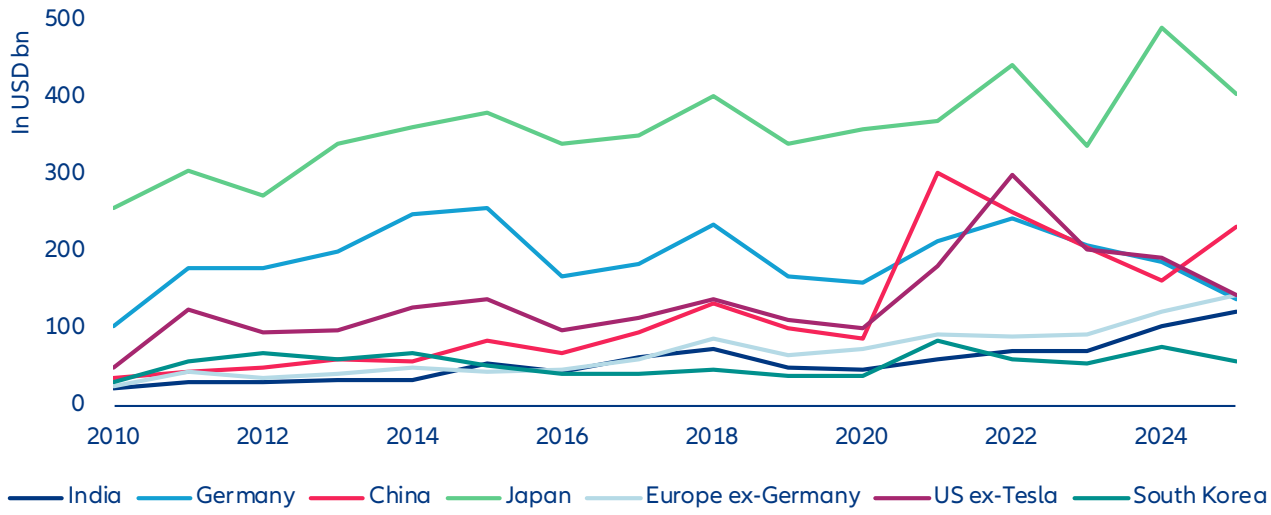
Figure 9: Recent EV pure players car production (thousand units)



Sources: Corporate filings, Allianz Research

The EV era presents a new, stiffer kind of competition that European car makers are simply not used to. The increasing importance of technology in vehicles has paved the way for new players, such as tech giants, to play an increasingly significant role. The rapid growth Tesla or BYD, two companies whose initial core expertise was not manufacturing cars, illustrate well how deeply the industry is transforming. The arrival of new players naturally brings in a different business environment and challenges the recipe that was historically successful for legacy OEMs. New entrants are leveraging their expertise in software, artificial intelligence and connectivity to create vehicles with enhanced digital features, reducing the reliance on traditional automotive manufacturers. As a result, the competitive landscape is becoming more diverse, forcing established brands to innovate and adapt quickly to stay relevant. The modernization of the industry and its technology-driven transformation is reflected across the evolution of the market capitalization of major carmakers. The lower valuation of German OEMs signals (i) lower investor confidence in their ability to scale-up rapidly advanced solutions in the supply chain and (ii) the lower potential of traditional markets like Europe or the US. Inversely, betting on Chinese, Japanese and Indian carmakers confirms that growth potential is believed to lie in Asia and other emerging markets such as the Middle East.

Figure 10: Cumulative market capitalization of automakers per region (USD Bn)

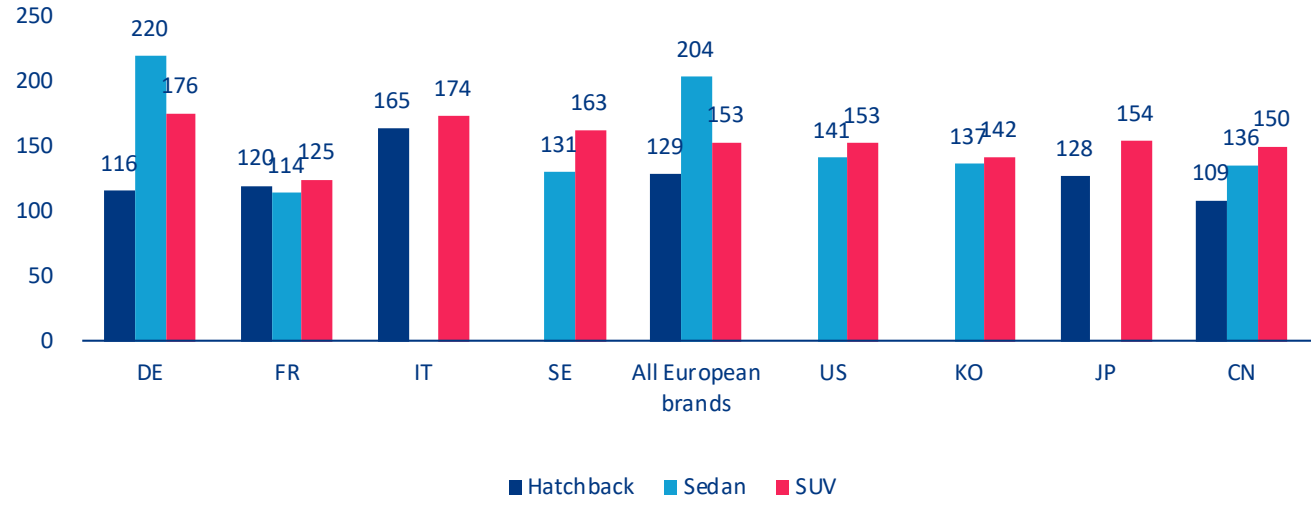


Sources: LSEG Datastream, Allianz Research

Paying the price of the snowball effects of the technology gap. Switching rapidly into a new activity that requires mastering completely new manufacturing processes, different supply chains and suppliers comes with high risks for legacy auto makers. Understanding battery technology, keeping the cost structure in check, diving into autonomous driving software, incorporating integrated sensors etc. is not straightforward. Legacy carmakers fear putting out a flawed product tarnishing their reputations by not being able to quickly bring out solutions to fix it. In fact, the perception of reliability associated with European cars has deteriorated in recent years, largely due to an increasing number of recalls, mostly tied to technological issues, such as software malfunctions, electrical system problems and autonomous driving features. As automotive technology becomes more complex, particularly with the rise of electric and semi-autonomous vehicles, these tech-related failures are becoming more prevalent, eroding consumer trust in the long-term reliability of European brands. While brand awareness remains a crucial factor for consumers when choosing a car, and many still associate European brands with premium quality, the growing frequency of recalls has made consumers more cautious, and some are starting to prioritize reliability over brand prestige. As a result, European automakers face pressure to restore their reputations for dependability amidst these evolving challenges.

EV pricing is perceived as an "unfair" premium, even more so for German EVs. Among the factors that continue to hamper the penetration of EVs in Europe is consumer skepticism about EV technology, particularly concerns over battery reliability, lifespan and potential risks, such as overheating or degradation over time. This lack of confidence is compounded by the perception that the technological advancements in EVs have not yet justified their higher price premium compared to traditional vehicles. Many consumers see limited benefits in terms of performance improvements or features that would justify the additional cost, especially when hybrids offer a more reliable and familiar alternative. The price gap between EVs and hybrids has also narrowed, making hybrids an attractive option, as they still provide fuel efficiency and lower environmental impact without the same level of risk or the need for extensive charging infrastructure. Furthermore, German-branded EVs are the most expensive on the market, which is clearly an obstacle for adoption in the region.

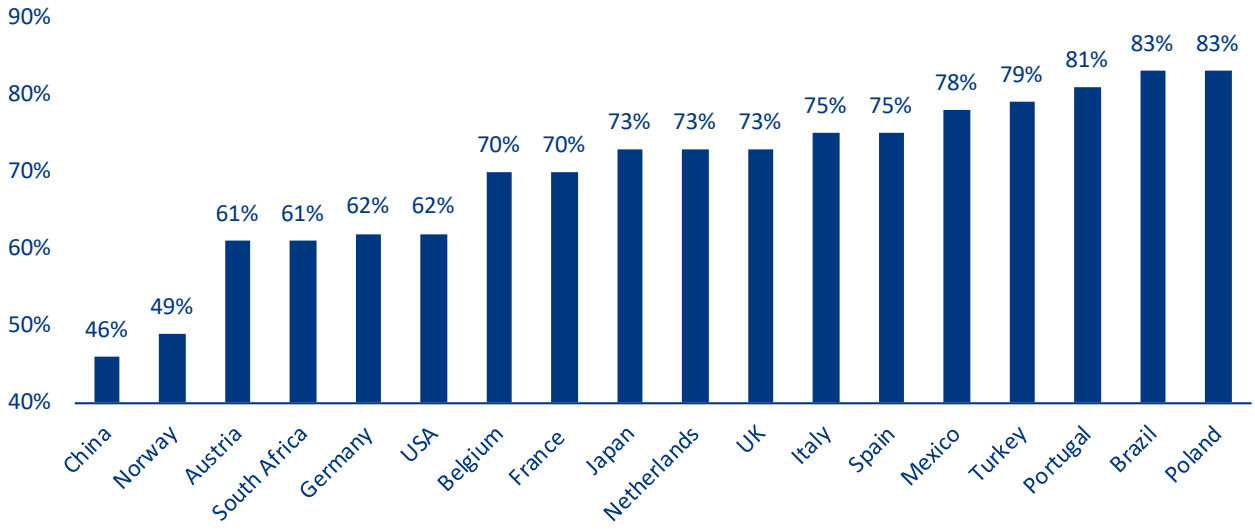
Figure 11: Average retail price in EUR/km range of currently available EV (Feb. 2025)



Based on German retail prices of available vehicles on market (February 2025).
Sources: EV-database.org, Allianz Research

Pricing is a major hurdle for consumers. The high upfront cost of EVs remains a significant hurdle for many European consumers (see Figure 12). While prices have been gradually decreasing, EVs are still generally more expensive than traditional ICE vehicles, primarily due to the high cost of batteries, which can account for a substantial portion of the total price. Although incentives like government subsidies and tax breaks can help alleviate some of the financial burden, they often do not fully bridge the gap for lower-income buyers. This is even more true in Europe where the shift toward fiscal consolidation has pushed states to sharply downsize their incentive programs for new EV purchases.

Figure 12: Share of consumers that find EVs to be too expensive (%)

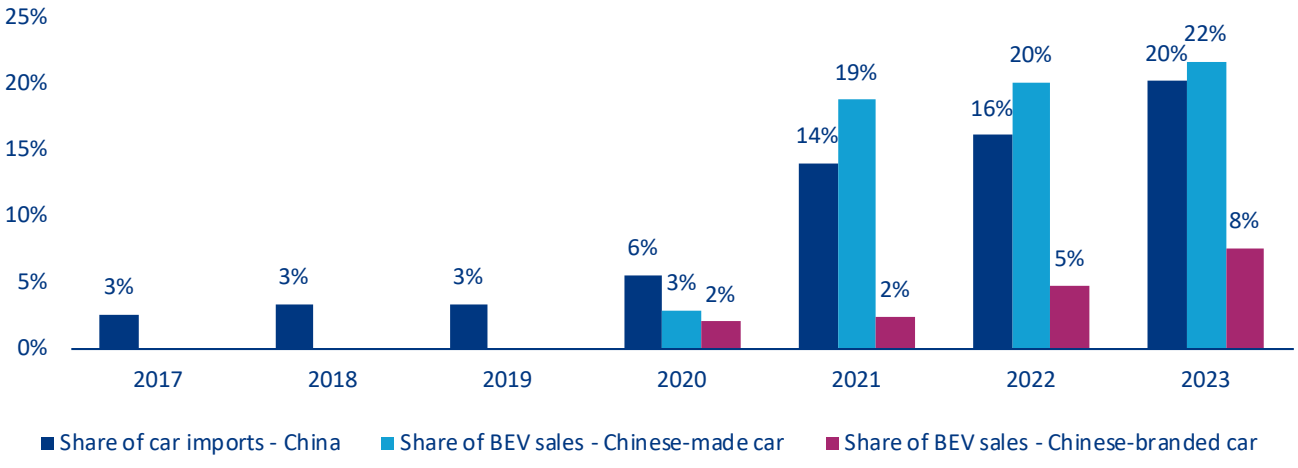


Sources: Observatoire Cetelem, Allianz Research

Challenge #2 – Strong dependency on China

The double whammy from China: higher imports... In the post-Covid period, China's influence over the European car market has increased through surging exports and a higher penetration of Chinese-branded cars. In 2023, the EU imported almost 700,000 new vehicles from China, +40% increase from 2022, with a trade value approaching EUR13bn. The import value of new cars from China has more than doubled in over two years, making China the biggest supplier of the region (from rank 6 in 2021), ahead of Turkey and Japan.

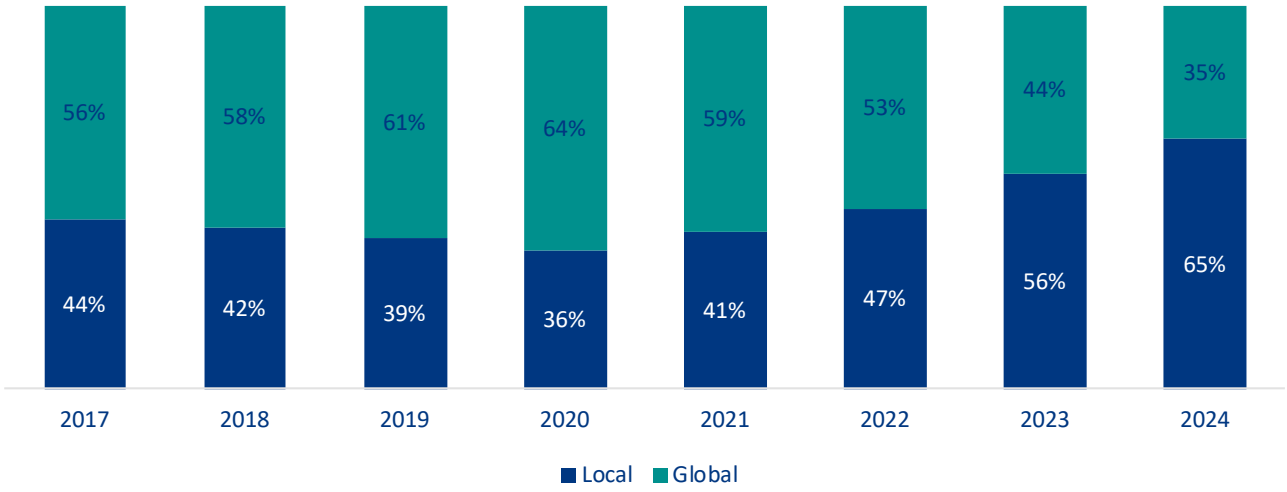
Figure 13: The BEV supply chain is highly dependent on China



Sources: ACEA, Allianz Research

...and lower exports for European automakers. At the same time, in recent years, consumer behavior in China has shifted significantly, with an increasing preference for domestic brands over foreign ones. BYD overtaking Volkswagen as the top car seller in China is a major indicator of this transformation, largely been driven by improvements in the quality, technology and design of Chinese automakers, particularly in the EV segment. Chinese consumers now view domestic brands as more aligned with their needs and preferences, offering high-tech, affordable options. Moreover, government policies supporting domestic manufacturers have further boosted the appeal of local brands. As a result, established foreign automakers face increased competition and pressure to adapt. A milestone of this shift in preferences is symbolized by BYD overtaking Volkswagen as the top car seller in China.

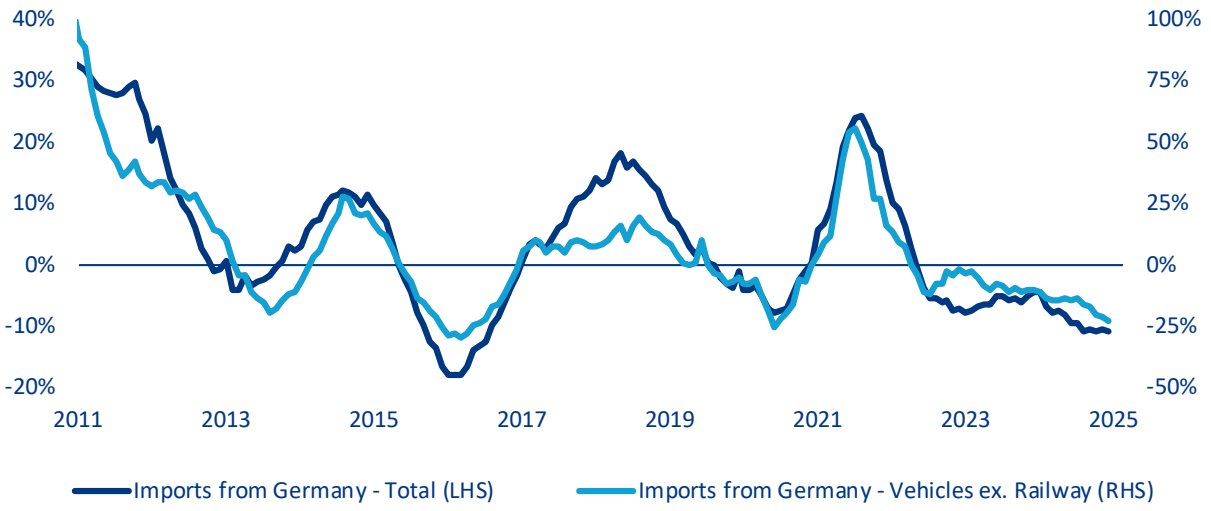
Figure 14: Market share of new passenger vehicle registration in China per origin (%)



Sources: CPCA, Allianz Research

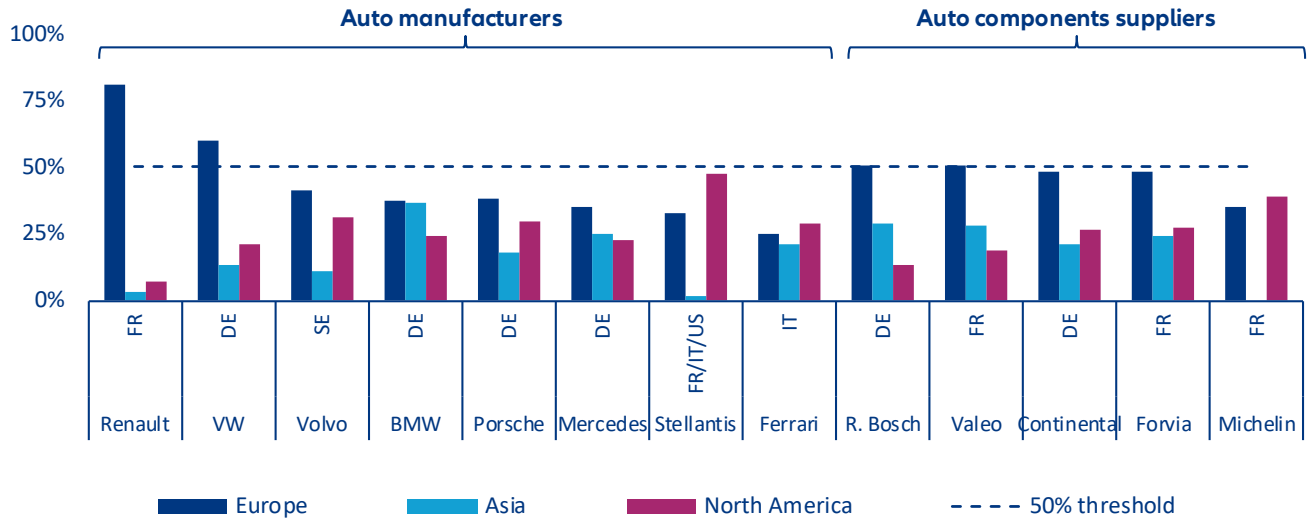
German automakers are on the frontlines. The declining appetite of Chinese consumers for foreign brands has had notable repercussions on Germany's automotive sector. As the world's largest car market, China plays a crucial role in the sales of German automakers such as Volkswagen, BMW and Mercedes-Benz that used to generate a substantial share of their revenues in China (between 15% to 30%). In 2024, sales of German automakers in China dropped by double digits, contributing to a slowdown in overall revenue. Overall, Chinese imports of motor vehicles from Germany contracted for the third consecutive year (-23% y/y in 2024 and -35% cumulatively since 2022) and fell to their lowest level since 2010 (about USD18bn). Decreased demand has had ripple effects across other sectors reliant on the auto industry, such as parts suppliers, manufacturing and technology. This shift challenges Germany's traditional ICE and export focus, forcing companies to rethink their strategies and investment policy in China .

Figure 15: Chinese imports from Germany (12-month cumulative, y/y%)



Sources: China customs, Allianz Research

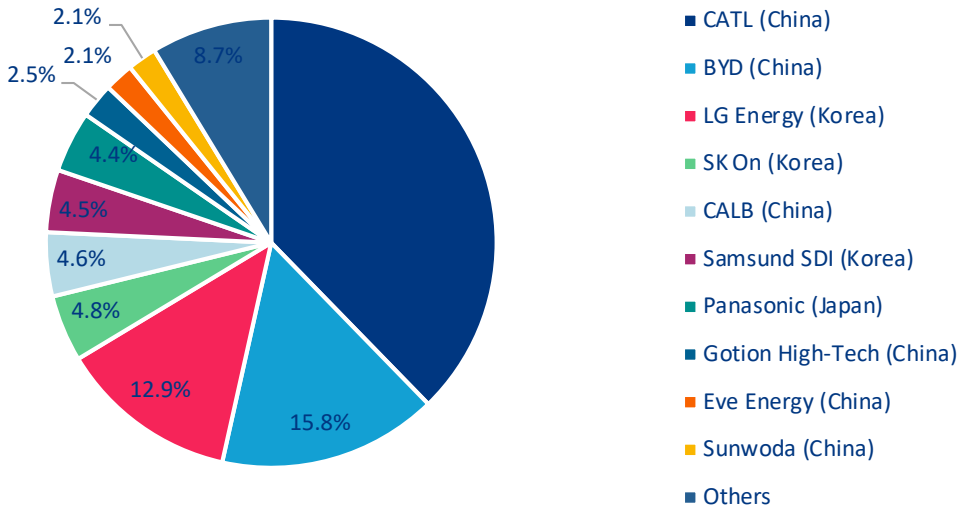
Figure 16: Revenue from certain key manufacturers and suppliers are heavily dependent on China



Sources: Datastream, Allianz Research

China has become a key battery supplier for the global auto industry. China holds a dominant position in EV battery manufacturing, which is crucial to produce EVs in Europe. Batteries account for up to 40% of the final selling price of an EV, making them a key factor in determining both cost competitiveness and performance. China's control over battery production, particularly in raw materials and manufacturing capacity, has given it a significant edge in the global market. Despite Europe's aggressive push to develop its own battery supply chain, Chinese companies remain unmatched in scale and technological expertise, leaving Europe heavily reliant on Chinese battery producers. This gives China a strategic advantage at a decisive period when Europe intends to accelerate the electrification of its fleet to align with its bold goal to stop selling ICE models by 2035 and turn fully carbon neutral by 2050. This dependency also underscores the challenge European carmakers are coping with to produce competitive EV models without denting their profit margins.

Figure 17: China is the top manufacturer of auto batteries (market share in H1 2024)



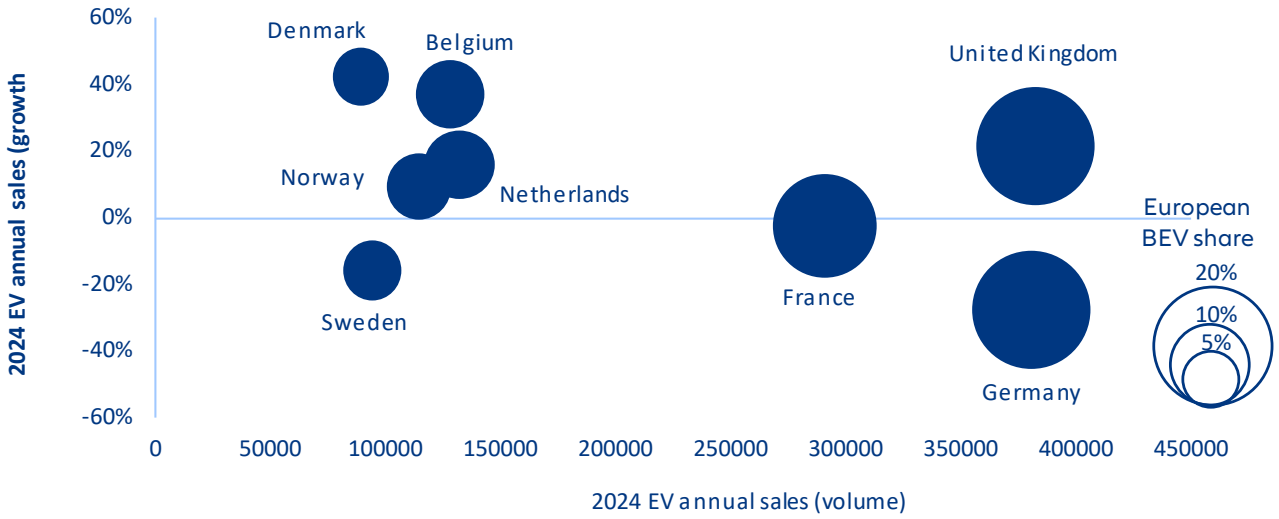
Sources: Statista, Allianz Research

Challenge #3 – The disconnect between policy ambition and policy making in Europe

A temporary pause or a structural issue? In 2024, demand for EVs in Europe showed signs of weaknesses, with the double-digit growth of previous years coming to an end. EU EV registrations fell by -6%, driven by a -7% contraction for PHEV and -6% for BEV, pushing down accordingly the market share of new energy vehicles from 22.3% to 20.7% (of which 13.6% for BEV and 7.1% for PHEV). The main factors are slower consumer adoption amid economic challenges but also a reduction of public incentives that have dramatically hurt demand. In Germany, the end of subsidies for purchasing a new EV resulted in a -27% fall of BEV sales last year.

At the same time, demand for hybrids surged, with new registrations bouncing by +21%, lifting the market share of HEV close to the petrol segment last year (30.9% vs. 33.3%). The situation in Europe contrasts with the robust expansion elsewhere, particularly in China, where government support and a broader consumer shift are driving stronger demand. This divergence is highlighting Europe's struggle to maintain momentum in a segment that is still not mature and desperately needs support to continue its expansion.

Figure 18: EV impulse lost momentum in top two markets (France & Germany) as incentive policy falters in Europe



Sources: ACEA, Allianz Research

A once-in-a-lifetime challenge. European OEMs also face significant challenges ahead due to the tightening of the environmental framework and the emission-reduction target effective since 01 January. For 2025, the average carbon emission threshold of newly registered cars has been lowered by -15% compared 2021 levels (from 95 g/CO2 to 81g/CO2) and firms that do not comply could face fines amounting to several hundreds of millions of euros. If that policy reflects the EU's great ambition to reach carbon neutrality by 2050, it also reveals a misalignment between public policy goals and business strategies. While the EU pushes for ambitious emission reductions and a rapid transition to electric vehicles, carmakers are struggling to meet these targets amid the short-term dynamics of market demand and production realities. The penalty threats for non-compliance could severely impact their finances, adding pressure on an already strained industry. This disconnect between long-term environmental goals and short-term industry challenges is exacerbated by the inefficiency of mandatory, target-driven policies, which fail to account for the pace of technological advancements and consumer adoption. The result is a growing tension between regulatory ambitions and the practicalities of meeting them, leaving OEMs in a precarious position. Failure to meet this target by the end of 2025 could result in severe penalties, further intensifying the pressure on manufacturers to ramp up EV production, or in the worst case reducing the production of high-margin ICE models to lower their carbon emittances or simply absorbing the penalties. The latter would result in a very costly transition that would imply severe financial repercussions for the whole industry.

Figure 19: Severe penalties are looming over European OEM in 2025 due to ambitious carbon targets

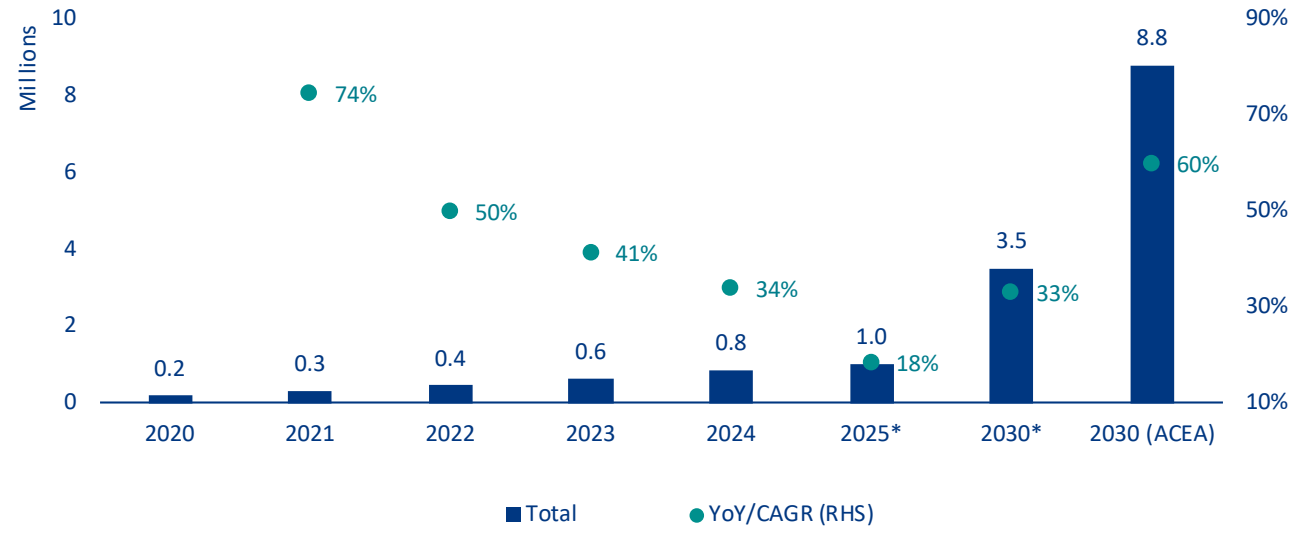
OEM	2023 CO2 emission average (g/km)	2025 CO2 mandatory targets (g/km)*	Delta	2023 car passenger registration (volume, x1000)	Market share	Provisional penalties (in EUR Mln)
Volkswagen	120	92	28	2765	26%	7.4
Ford	120	93	27	402	0%	1.0
Mercedes Benz	110	91	19	625	6%	1.1
Toyota-Suzuki-Subaru	110	94	16	919	9%	1.4
Renault-Nissan-Mitsubishi	110	95	15	1388	13%	2.0
Stellantis	107	97	10	1876	18%	1.8
Hyundai	107	93	14	436	4%	0.6
BMW	103	92	11	727	7%	0.8
Kia	102	97	5	444	4%	0.2
Volvo	67	90	-23	252	2%	-0.6
Tesla	0	94	-94	538	5%	-4.8
Net total				*10372*	*0%*	*10.9*

Sources: ICCT, T&E, Allianz Research

A stronger electrification looks inescapable, but it could be painful. The scale-up of electrification should inevitably accelerate over the coming years under the pressure of a more stringent legal framework. Despite multiple complaints by the automotive industry, European governments are showing unwavering commitment to green regulations, with no intention of backpedaling on their target to become carbon neutral by 2050. And the ban on petrol engines by 2035 is a crucial milestone to achieve it. There is, however, room for talks about easing somewhat the framework to allow OEMs to align with the new carbon target that was enforced on 1 January, with low to no major damage for their business, but it should in any case imply a change or a removal of this latter target. The 25% threshold for EV sales has become the critical benchmark for carmakers to remain compliant with carbon-emission targets.

Expanding charging infrastructure is key for EV expansion. The expansion of the EV industry in Europe heavily relies on the development and enhancement of charging infrastructure. While the transition is well underway, much more investment is needed to support the growing fleet. At the end of 2024, there were around 800,000 charging stations across the EU and a key milestone of 1mn is expected to be reached next year, according to projections from the European Commission. But to align with the European ambition to have no more ICE engine models sold by 2035, that number needs to increase much further, and at a faster pace. Based on different projections, the EU would need between 3.5mn to roughly 9mn charging points by 2030, a CAGR of +33% to +60% compared to the +18% growth expected in 2025. Without significant improvements in the charging network, the pace of EV expansion will be hindered, and consumers may remain hesitant to make the switch to electric, limiting the industry's potential in the long term. A robust, pan-European charging network is therefore crucial to underpin the success of the EV transition and drive widespread consumer confidence. While some solutions like home charging points can help alleviate the lack of public charging points, the difficulty of installing such infrastructure in collective housing or apartment buildings presents a significant hurdle.

Figure 20: Electric public charging points in Europe and forecasts

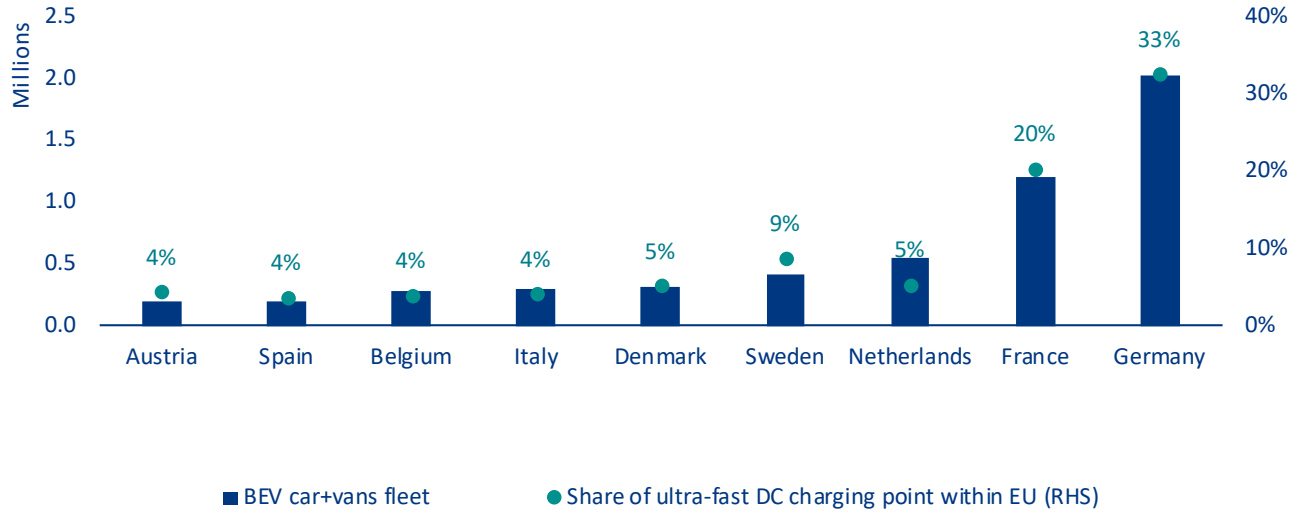


*European Commission targets.
Sources: European Alternative Fuels Observatory, European Commission, ACEA, Allianz Research

A very unbalanced network. Europe's charging infrastructure is highly unbalanced, with the majority of charging points concentrated in countries such as Germany, France and the Netherlands, leaving many regions underserved. This translated into a wide gap in electrification processes between countries. In large markets such as Italy and Spain, the BEV share is still inferior to 5% of new registrations while it is above 90% in Norway and 35% in Sweden and the Netherlands.

We also observe an uneven distribution at the national level, with more charging stations located in high-density areas, making it difficult for consumers in rural or less-populated regions to rely on EVs for long-distance travel. To further accelerate EV adoption, real-time solutions are needed that provide accurate, up-to-date information on charging station availability, preventing consumer frustration and making the charging experience more seamless.

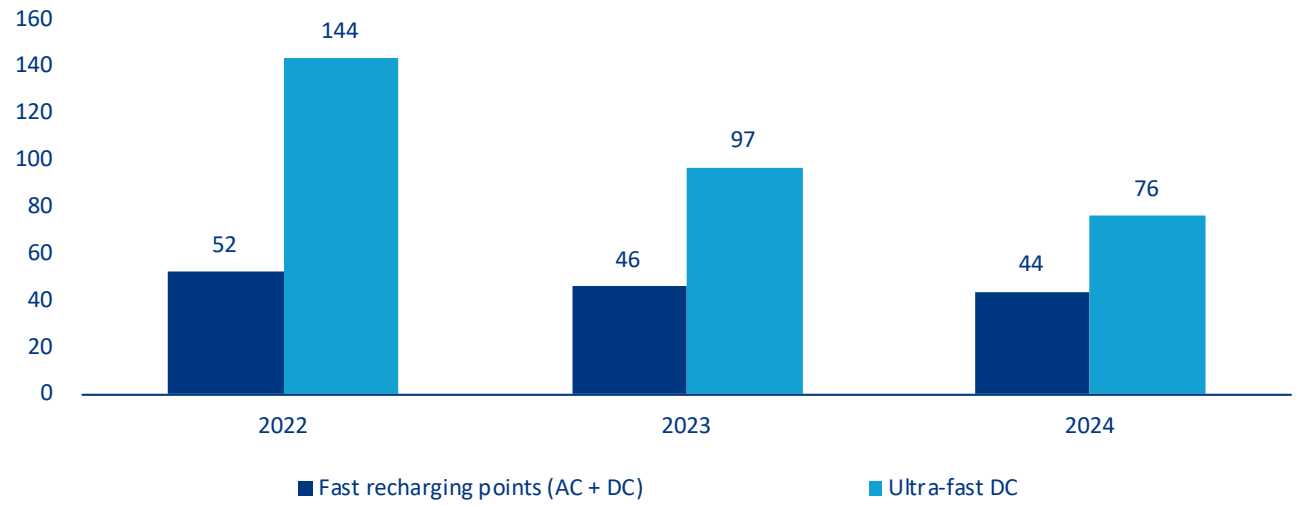
Figure 21: EV fleets and share of ultra-fast charging stations by country (2024)



Sources: European Alternative Fuels Observatory, Allianz Research

Europe needs to become "ultra-fast". Ultra-fast charging is pivotal for the expansion of EVs as it drastically reduces the charging time, addressing one of the key obstacles to broader adoption. While standard charging stations typically operate at 22kW, ultra-fast chargers can provide up to 350kW, allowing EVs to charge to 80% in under 30 minutes, compared to several hours with regular chargers. This technological gap, driven by advanced power electronics and faster energy delivery systems, makes long trips and daily use more feasible. However, the widespread implementation of ultra-fast charging stations across Europe faces challenges, including high infrastructure costs, grid capacity limitations and the complexity of installing high-power chargers in both urban and rural areas. Additionally, regulatory hurdles and the need for strategic placement further complicate the process. Despite these obstacles, expanding ultra-fast charging infrastructure is critical for reducing range anxiety and accelerating EV adoption across the continent. Today, Europe has only one ultra-fast direct current (DC) station for 76 battery electric vehicles and one for 131 new-energy vehicles if we include PHEV models.

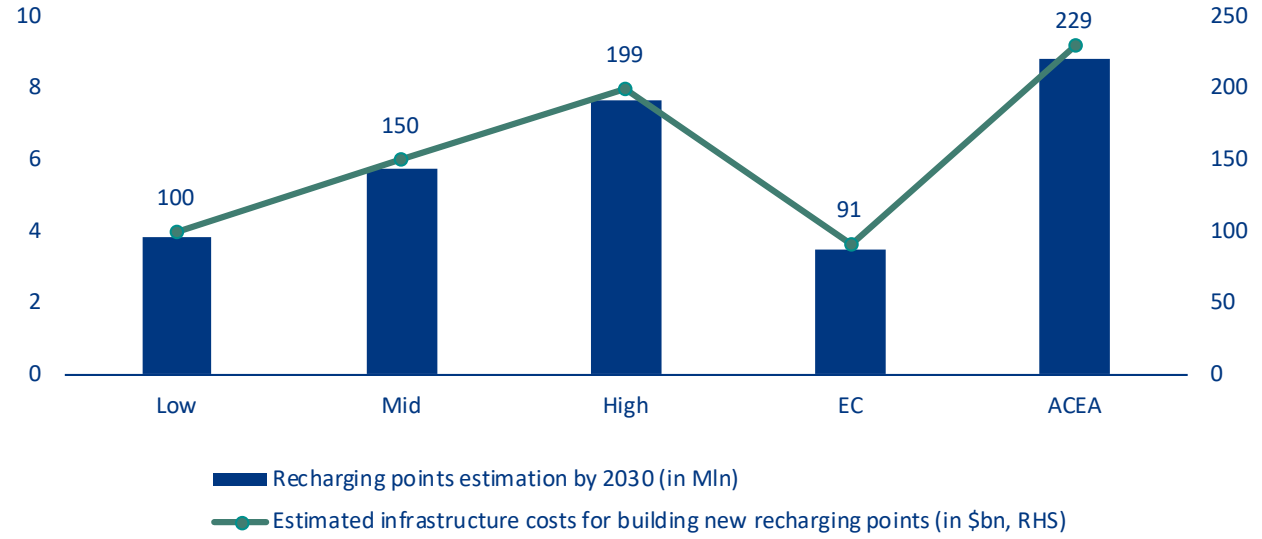
Figure 22: Ratio of fast and ultra-fast charging points per BEV fleet in EU



Source: European Alternative Fuels Observatory, Allianz Research

How much will it cost to expand Europe's charging infrastructure? We run three different scenarios for the evolution of the BEV fleet in Europe (10-15-20%) by 2030 to assess the costs to build up appropriate infrastructure to support the expansion of the segment. In our calculations, we also integrate a hypothesis of increasing the ratio of ultra-fast charging stations from 14% to 20% by 2030, and the total ratio of fast stations (fast AC + ultra-fast DC) from 16% to 27% as we consider the development of this infrastructure will automatically come with a bigger electrical fleet. We also consider the BEV/station ratio will remain steady over the timeline as it did not vary much over the past five years (around 7x). Based on our estimate, a middle scenario of 15% of BEVs in the total European car fleet by 2030 would require an investment of EUR150bn to build up new charging infrastructure, or approximatively 0.9% of 2023 EU GDP. Given the long-term economic and environmental benefits, this does appear to be too big a financial effort for the European administration.

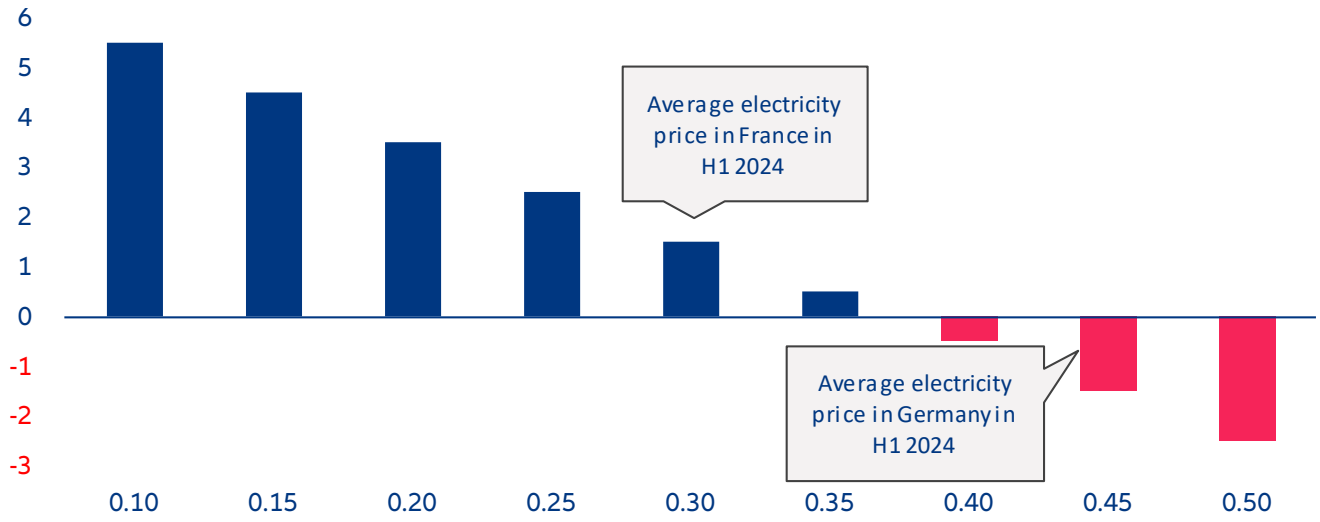
Figure 23: Europe needs to invest around EUR150bn in recharging infrastructure by 2030



Sources: ACEA, European Commission, Allianz Research

The elephant in the room: Europe needs to solve its energy crisis. The lingering energy crisis poses a significant threat to this objective of boosting EV use as surging electricity prices risk undermining the cost advantages of EVs over traditional ICE vehicles. Historically, charging an EV has been more economical than refueling a gasoline car. For instance, in 2019, charging costs were approximately 72-78% less than fueling with petrol in Europe. However, the recent energy crisis has led to unprecedented increases in electricity prices across Europe. If electricity prices exceed a certain level, charging an EV becomes more expensive than fueling a gasoline vehicle. Assuming an EV consumes approximately 20kWh per 100km and a gasoline car consumes five liters of fuel for the same distance, the cost-effectiveness depends on the relative prices of electricity and gasoline. If gasoline is priced at EUR1.50 per liter, the cost advantage vanishes if electricity prices exceed EUR0.375 per kWh (Figure 24). In Germany, retail electricity prices average EUR0.40 per kWh in H1 2024 while diesel prices ranged between EUR1.50 and EUR1.80 per liter. Elevated electricity costs not only deter potential EV buyers but also strain existing EV owners, particularly those without access to affordable home-charging options. Public charging infrastructure often comes with higher prices than charging at home, exacerbating the issue. Moreover, businesses operating EV fleets may reconsider their investments if operational costs become prohibitive. To address this challenge, the EU must implement comprehensive strategies to stabilize and reduce electricity prices.

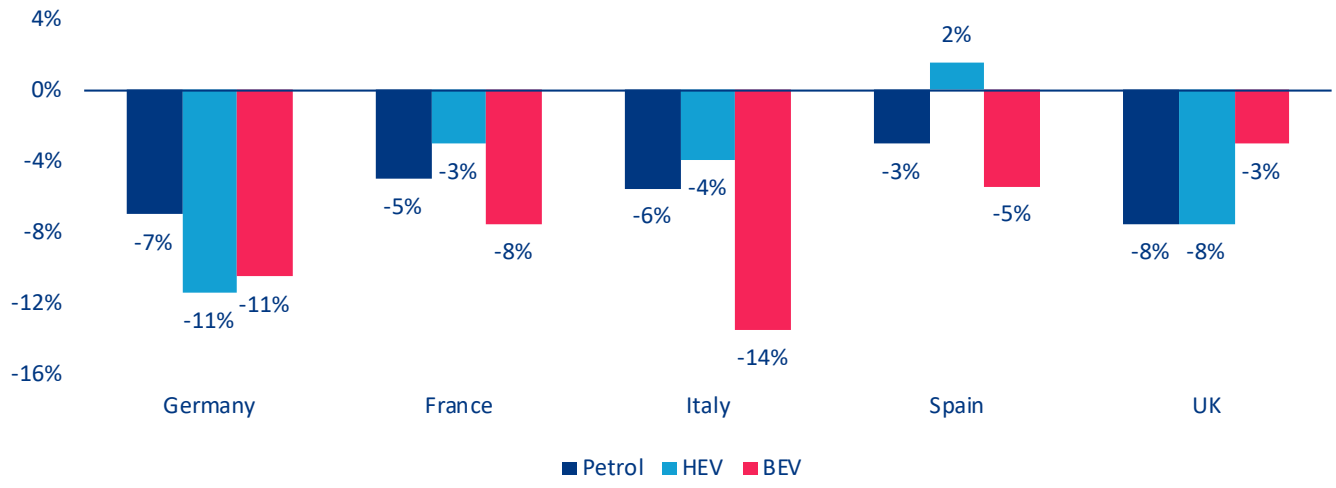
Figure 24: Potential savings in energy costs for an EV vs ICE (EUR saved per 100km)



Assuming 1.5 EUR/l for fuel, consumption of 5L per 100km for ICE and 20kwh per 100km for EV
Source: Allianz Research

Another problem is unstable demand in the second-hand market. In recent years, the residual value of BEVs in Europe has been lower compared to petrol and hybrid vehicles, largely due to concerns over battery degradation, limited range and rapid technological advancements. This depreciation has significantly hampered the demand for used EVs as consumers fear the potential loss in value and higher costs associated with battery replacements or upgrades. The uncertainty around BEV residual values, especially when compared to the more stable values of petrol and hybrid vehicles, has made buyers hesitant to invest in electric cars. This lower resale value has compounded the challenge of making EVs an attractive long-term investment. However, as battery technology improves, charging infrastructure expands and the second-hand market for EVs grows, the gap in residual values is expected to narrow, potentially boosting future demand for electric vehicles.

Figure 25: Annual growth of the residual value of second-hand vehicles* in December 2024



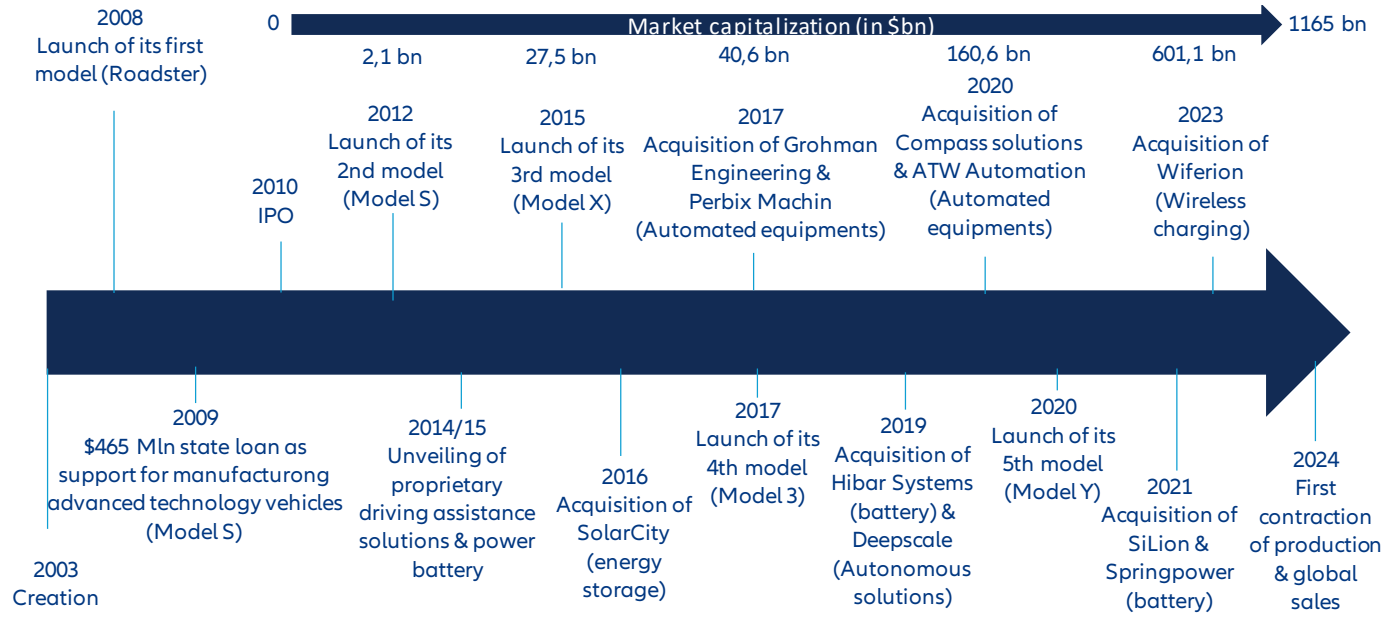
*Calculation made on vehicle aged of 36 months and 60000 km.
Source: Autovista, Allianz Research

Blueprints for success: China, Norway and Tesla

How Tesla turned into a USD1trn company by betting on an all-electric engine

A fast-track to success based on technology and a limited line-up. Over only 20 years, Tesla has established itself as a leader in the EV market, thanks to its specialization in electric powertrains and energy storage solutions. The company has consistently pushed the boundaries of advanced technology, notably with its early investment into its Autopilot system to develop semi-autonomous driving capabilities, but also in energy storage and automation solutions. Tesla's robust research and development (R&D) efforts have been instrumental in achieving significant advancements in battery technology, electric motors and self-driving software. Unlike major European OEMs, Tesla dedicates a large part of its revenue to innovation (19% capex ratio on average over the 2014-2023 period vs. 5% for Volkswagen and 12% for Toyota), which has helped it to build up a technological edge over peers, recognized by both investors and consumers. Besides its technological prowess, Tesla adopted a disruptive approach compared to traditional OEMs by proposing a limited vehicle lineup, focusing on models like the Roadster, Model S, Model 3, Model X, Model Y and the upcoming Cybertruck. This strategic approach allowed for concentrated innovation and quality control. A cornerstone of Tesla's success rests in its vertical integration as the company develops in-house manufacturing capacities for key high value-added components, including lithium batteries, autonomous driving software and ultra-fast charging machines. This control over its supply chain enhances efficiency, reduces costs and accelerates innovation, setting Tesla apart from many legacy automakers and their basic four-side model based on manufacturing-selling-financing-maintenance activities.

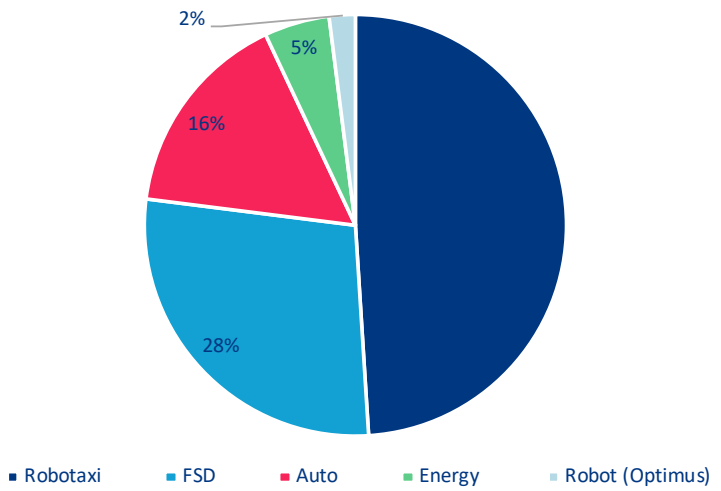
Figure 26: Case study (Tesla): how to build up an automative company with a market capitalization over 1trn



Sources: Datastream, Allianz Research

Investors reward innovation. Since 2020, the market value of Tesla has been multiplied by almost eight, the capitalization skyrocketing from USD160bn to almost USD1.3trn over this period. This stunning performance stands out when we look at the modest number of its cars sold worldwide (1.7mn in 2024 vs. over almost 11mn for the top seller Toyota) or even the slowdown of its revenue generation (almost x2 since 2021 but only +1% in 2024 at around USD100bn). The outstanding performance of Tesla's share price rests in the high conviction among investors that the company has a strong edge in early-stage segments with assumed high growth potential like Robotaxis and full self-driving vehicles (FSD). According to some studies, single automobile activity reflects only 1/6th of its current capitalization. At a time when the global economy is gradually shifting from a labor-intensive model to a digital, automated and AI-driven one, private and public investors do not hesitate to pay a high innovation premium while sanctioning other players that are trailing behind the trend. However, recent events also show that investors are sensitive to political newsflow and will not hesitate to retaliate (selling shares) against what they consider bad or toxic governance.

Figure 27: Around 75% of the market value of Tesla reflects expected earnings from the early-stage activity segment

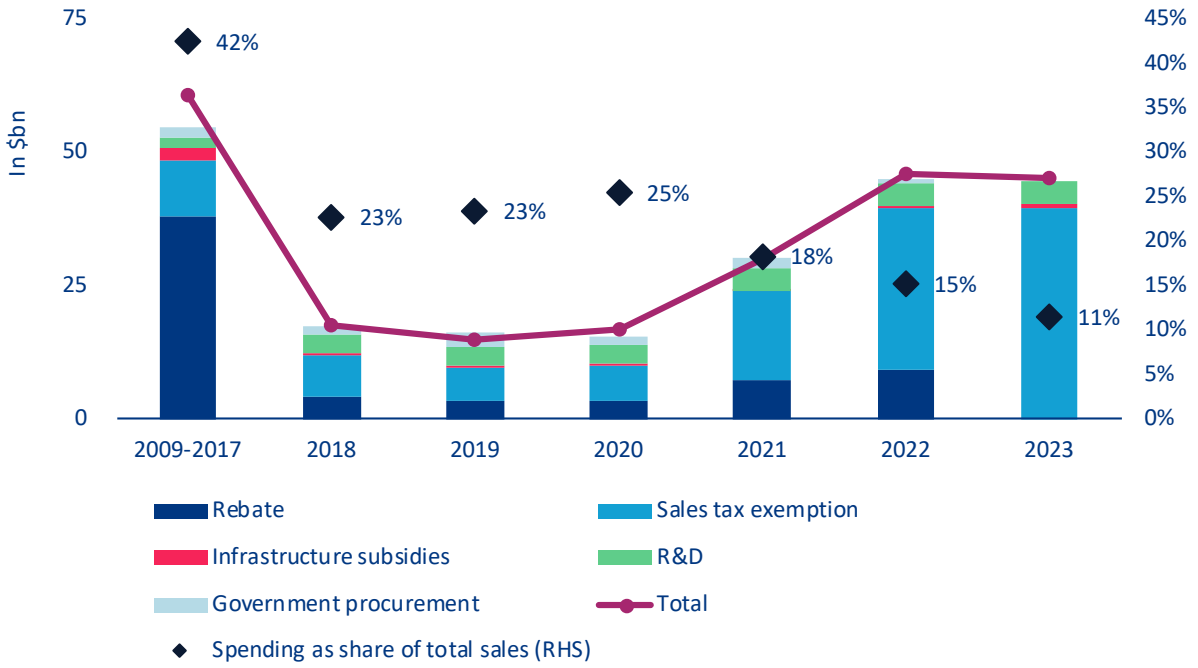


Sources: Bank of America, Allianz Research

How China became the global champion of the EV industry

China subsidized its way to the front of the EV race. China's EV industry has rapidly advanced, driven by substantial government support and strategic policies. Between 2009 and 2023, the Chinese government supported the sector with about USD231bn, according the CSIS. This encompasses consumer subsidies, research and development funding, government procurement and infrastructure development (Figure 28). The deployment of such subsidies helped lower the cost of vehicles for consumers. This was also combined with local government experimentation and support for producers. In cities like Shenzhen, municipal authorities aggressively promoted EV adoption by transitioning public transportation fleets to electric buses and taxis. As of 2024, Shenzhen's bus fleet is nearly 100% electric, reducing emissions and serving as a model for other regions. Similarly, Hangzhou has invested in battery-swapping technology for taxis, addressing range anxiety and minimizing downtime for drivers. Other cities offered free charging or parking for EV owners. In addition to these financial incentives, China has implemented regulatory measures to promote EV adoption. The „green license plate" policy offers benefits such as exemption from purchase restrictions and traffic limitations in major cities, making EVs more attractive to consumers. China has also prioritized support for the entire EV value chain, particularly battery production, to ensure global competitiveness. The government has incentivized domestic companies like CATL and BYD to lead in battery technology, also providing them with subsidies, tax breaks and research funding. CATL, now the world's largest battery manufacturer, benefited from a total of USD1.8bn in subsidies between 2018 and 2023. This allowed the company to significantly expand its production capacity and become a key supplier to automakers worldwide. The Chinese state has also invested heavily in securing raw materials for battery production, signing long-term agreements with lithium- and cobalt-rich countries in Africa and South America. Additionally, China has developed a comprehensive battery recycling infrastructure to maintain supply chain sustainability and reduce dependence on imported materials. Such concerted efforts have yielded significant results. Chinese EVs have benefited from massive industrial policy support, and their quality improved massively, making them attractive not only to domestic consumers but also to more and more overseas consumers. A new trade-in subsidy measure of up to ¥10,000 on NEV was launched in 2024 and extended in 2025 to speed up a large-scale equipment renewal and boost domestic consumption. These measures have positioned China as the world's largest market and manufacturer of electric vehicles, driving innovation and mass adoption. However, China's aggressive support for its EV industry has recently led to international trade tensions. In fall 2024, the US imposed a 100% tariff on Chinese EVs, and the EU followed suit by imposing tariffs of up to 36.3% on certain Chinese electric vehicles following the results of an investigation into Beijing's subsidies that implied unfair competition with European manufacturers.

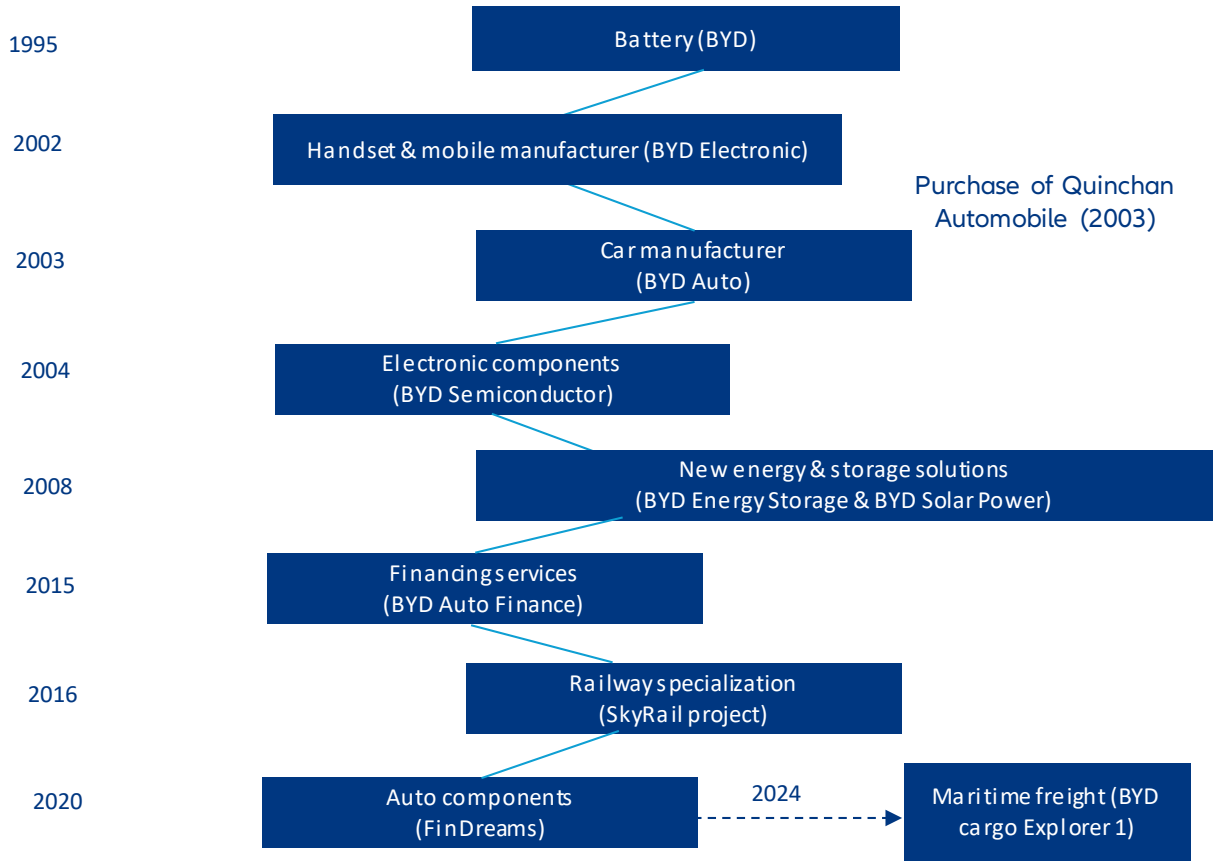
Figure 28: The Chinese government massively supported the BEV industry



Sources: CSIS, Allianz Research

A new vertical and holistic model to inspire. BYD is leading the BEV segment because of its unique integration of diverse activities across the entire value chain, from battery production to vehicle assembly. Unlike many competitors, BYD controls key components such as batteries, semiconductors and electric drive systems, allowing it to minimize reliance on external suppliers and mitigate supply-chain disruptions. This vertical integration not only enhances cost efficiency but also accelerates innovation. BYD's scale of operations, coupled with its ability to produce both vehicles and essential EV components in-house, gives it a competitive edge, enabling faster time-to-market and a more resilient supply chain. The launch last year of new large-scale cargo activity to distribute cars in Europe is another arrow in its quiver, allowing the company to accelerate its international development while keeping control over the distribution chain.

Figure 29: The Chinese EV leader is not just a single car manufacturer (overview of different subsidiaries of BYD group)



Source: Allianz Research

Norway: the global champion in EV adoption

Norway has emerged as a global leader in EV adoption. By the end of 2024, BEVs constituted almost 90% of new passenger cars sold that year, pushing the total share of electric vehicles to 27%. Norway's EV success lies partly in its incentive structure that combines both sticks and carrots. The Norwegian car tax system, based on the „polluter pays" principle, imposes high taxes on vehicles with significant CO_2 and NO_X emissions, calculated progressively based on weight and emission levels. This approach makes high-emission vehicles substantially more expensive, thereby encouraging consumers to opt for zero or low-emission alternatives. On the "carrot" side, EVs have historically been exempt from both the 25% Value Added Tax (VAT) and the substantial purchase taxes levied on conventional cars. However, since 2023, the VAT exemption applies only to the first NOK500,000 of the EV's price, and a purchase tax based on the vehicle's weight has been introduced as the country wishes to incentivize smaller EVs instead electric SUVs.

Beyond fiscal incentives, Norway has implemented several non-monetary benefits to promote EV adoption. These include allowing EVs to use bus lanes, offering reduced toll road charges and providing lower ferry fares. A national rule mandates that counties and municipalities cannot charge EVs more than 70% of the price applicable to fossil fuel cars on toll roads. Additionally, EVs pay a maximum of 50% of the total fare on ferries.

Infrastructure development has been another cornerstone of Norway's EV strategy. Recognizing the importance of accessible charging facilities, the

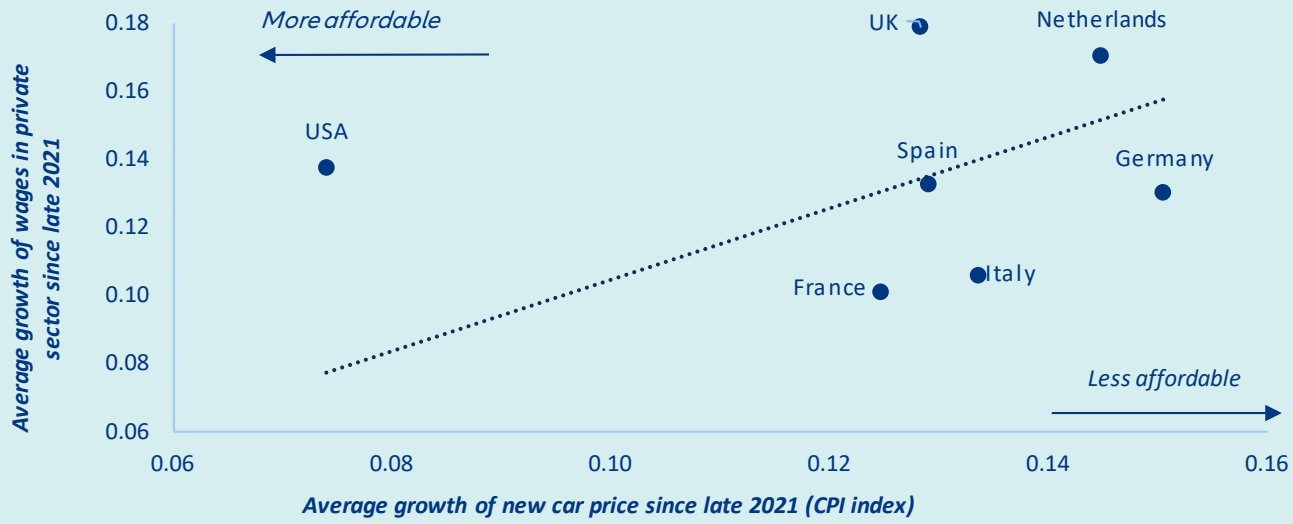
government has ensured the establishment of fast-charging stations along all main roads. As of the end of 2023, Norway had more than 7,800 fast-charging points, enabling a significant number of vehicles to charge simultaneously. Legislation introduced between 2017 and 2021 also established a „charging right" for residents in apartment buildings, ensuring that EV owners have the necessary facilities to charge their vehicles at home. These policies are consistent with its ambitious national goals: the Norwegian Parliament has set a target for all new cars sold by 2025 to be zero-emission vehicles, either electric or hydrogen-powered, and that target is in sight. Norway's experience demonstrates that a well-designed mix of financial incentives, supportive policies and infrastructure development can effectively drive the transition to electric mobility. The country's approach could serve as a model for other nations, especially in the EU.

Will trade tensions and potential tariffs pile more pressure on automakers?

A regular scapegoat. The automotive industry is increasingly caught in the crossfire of current trade tensions with the US, given the deep interconnections between global automakers and the US economy. The sector is particularly vulnerable as it is often viewed as labor-intensive and holds significant political weight domestically, with many workers forming a crucial electorate for policy makers. Potential tariffs could severely disrupt supply chains, raise costs and negatively affect the competitiveness of European automakers in the US market. Given the political sensitivity of the auto sector, both in Europe and the US, the ongoing trade tensions could have long-lasting implications for the industry's profitability and global strategy.

Tariffs would imply a bigger bill to foot for consumers. The threat of new tariffs on automobiles is another conundrum for consumers who are still highly price-sensitive, particularly as the purchasing-power squeeze continues to be a concern, with inflation and economic uncertainty impacting disposable income. If tariffs on imported vehicles or auto parts were to rise due to ongoing trade disputes, the cost of cars – especially foreign-made models – could increase, directly affecting consumers' ability to afford new vehicles. Such price hikes would hit low- and middle-income buyers hardest, further reducing consumer demand and slowing the transition to EVs, which already face higher upfront costs compared to traditional vehicles. Moreover, higher tariffs could disrupt the global supply chain, leading to delays in production and shortages, exacerbating price inflation. For consumers in Europe, where many automakers rely on global supply chains for both parts and vehicles, such developments would not only reverberate negatively on selling prices, but also potentially imply a lower variety of choices and longer waiting times. Scarcity would stir up the demand for second-hand vehicles and prices accordingly. All in all, the potential added costs would inevitably slow the recovery of the auto sector.

Figure 30: The automotive sector has suffered from the purchasing-power squeeze effects from Ukraine war

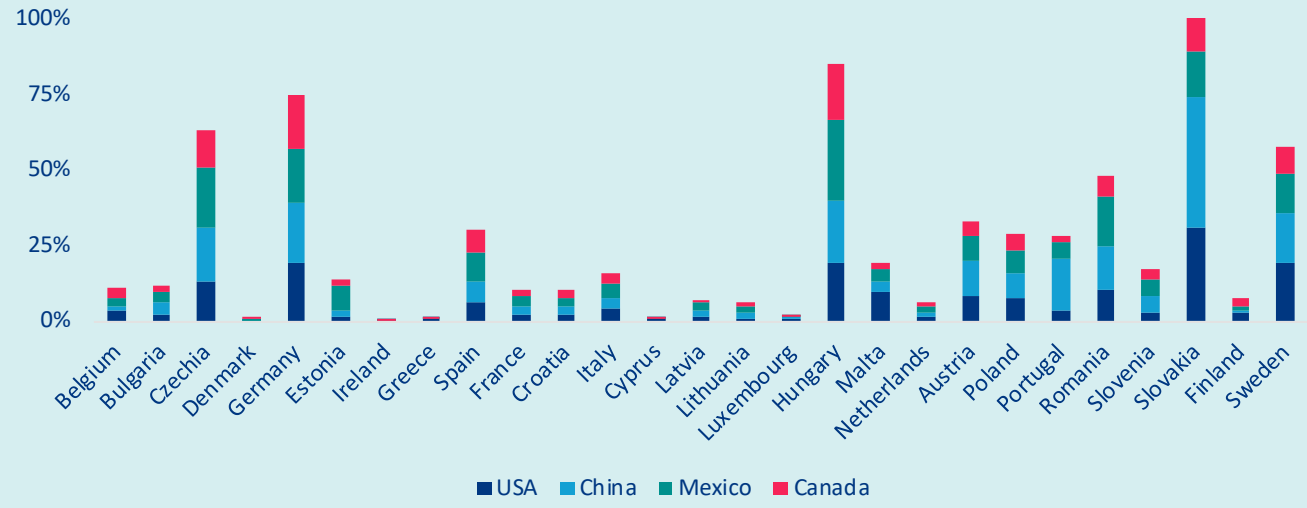


Sources: Datastream, European Commission, Allianz Research

An industry highly connected to the North America continent. The US is the second-largest export market for the EU automative industry, accounting for around 20% of total export value (USD60bn in 2023, 12% in terms of volume of cars). As a result, potential trade tensions between the US and Europe are a big cloud ahead for all members of the industry. At first sight, Germany looks to be, by nominal value, the most at risk of suffering from a potentially tighter trade framework, but if we weight the motor vehicle trade exposure to the US comparatively to overall added value generated by the European manufacturing sector at a country level, we observe a bigger sensitiveness in Sweden, Slovakia and Hungary. And while their exposure is smaller than that of Germany, the Czech Republic and Romania are also highly exposed to the US.

Moreover, European automakers are heavily integrated into North American supply chains, with parts and components being sourced from both Mexico and Canada. In fact, around 30% of European car exports to North America involve parts or assembly work carried out in these countries. Some European carmakers, notably German ones, also have plants located in Mexico, mostly to supply the US market but also South America and Europe. Excluding Volkswagen, other German carmakers exported more than 50% of their Mexican production in another location than the US, according to H1 2024 figures from AMIA. Any shifts in trade policies or disruptions in these supply chains could increase costs, slow production and jeopardize the competitiveness of European automakers in the region. The complexity of this interconnected supply chain makes the European auto industry particularly vulnerable to the geopolitical dynamics between the US, Canada and Mexico.

Figure 31: Trading exposure of motor vehicles industry to outside-EU partners (as % of total manufacturing added value generated with each trading partners)



Sources: Eurostat, European Commission, Allianz Research

The road ahead for industry leaders and policy makers

Europe's automotive business model needs a fundamental rethinking. To remain competitive, automakers must accelerate innovation, embrace cost-efficient production and align with new market realities, while policy makers must ensure that green ambitions do not stifle industrial competitiveness. Without urgent reforms, Europe risks falling behind further in a sector it once dominated.

While all of its issues cannot be solved at once, there are some levers that can be pulled to restore some of the industry's edge:

1. **A smaller (line-up) is better.** European automakers have an excessive number of vehicles in their catalogs, with multiple options to choose for each model (color, interior equipment and even engine powers). As a result, they are losing ground to competitors with much leaner catalogs. If a large portfolio was initially conceived as the ultimate strategy to mitigate risks against diverse demand and secure market share, it has now turned into a very expensive strategy that does not work in a muted market as volume effects cannot offset losses from low-margin production lines. Rationalizing the line-up will benefit companies financially and operationally, reducing oversized manufacturing capacities. Downsizing as well the range of options proposed to customers – cutting it or directly integrating some of them in the entry-level model – is also part of our profitability squeeze remedy for European OEMs. It would indeed allow them to rationalize costs while avoiding generating customer frustration toward substantial price gap between full and low-equipment vehicles. It will not automatically translate into massive layoffs but rather in an overhaul of the staff allocation, with potentially a smaller manufacturing workforce down the road, driven by deeper automation and digital integration, and more employees in R&D, design and customer services. Reducing the line-up five to six models, of which half of would be proposed in both hybrid and electric versions, and keeping a tight pipeline of new models seems like a reasonable pathway for European automakers.
2. **Accelerate vertical integration and invest in charging infrastructure.** With a reduced catalogue comes a leaner supply chain, which makes the case for increased vertical integration. Such integration would allow European manufacturers to better control costs but also quality. Investing in mining and battery supply chains is also a relevant strategy to shake off some the reliance on Chinese players. This strategy can yield better control, improved margins and competitiveness.

Figure 32: Main joint venture and business partnerships announced over the period 2022-2024

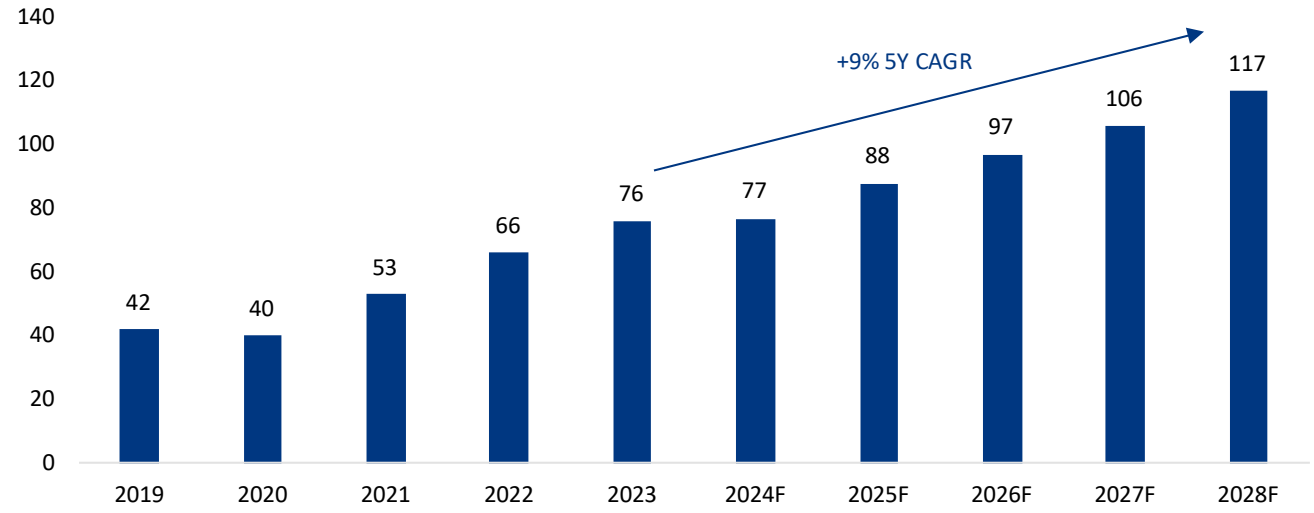
OEM	Nationality	Partner	Nationality	Industry	Activity
BMW	DE	SK Ecoplant	KO	Utilities	Battery recycling
BMW	DE	Tata Technologies	IN	IT services	Digital services for SDV
BMW	DE	Ford/Honda	US/JP	Auto manufacturer	Software for EV industry
BYD	CN	Huaihai	CN	Chemicals	Battery production
Ford	US	Changan	CN	Auto manufacturer	Auto manufacturing & Distribution
GM	US	Vianode	NO	Basic materials	Battery production
GM	US	Lithium America	US	Mining	Lithium mining exploration
GM	US	LG Energy Solutions	KO	Battery	LFP battery manufacturing
GM	US	Samsung SDI	KO	Battery	LFP battery manufacturing
GM	US	Honda	JP	Auto manufacturer	SDV
Honda	JP	Asahi Kasei	JP	Chemicals	LFP battery separators
Hyundai	KO	Nvidia	US	Semiconductor	AI-powered mobility innovation
Hyundai	KO	BAIC Motor	CN	Auto manufacturer	EV & Hybrid auto manufacturing
Nissan	JP	Mitsubishi	JP	Auto manufacturer	Autonomous vehicle & EV battery
Stellantis	US/IT	CATL	CN	Battery	LFP battery manufacturing
Stellantis	US/IT	Orano	FR	Nuclear	Battery recycling
Stellantis	US/IT	Mercedes/Total	DE/FR	Auto manufacturer/ Oil	Battery production
Stellantis	US/IT	Mistral	FR	AI technology	Automation & customer services
VW	DE	Rivian	US	Auto manufacturer	EV technology
VW	DE	Umicore	BE	Basic materials	Battery production

Source: Allianz Research

Some firms have already taken this road by acquiring mining assets or setting up joint ventures with battery manufacturers. Going slightly beyond integration, automakers should also look into investing in charging infrastructure by proposing more customized solutions directly integrated to their selling proposal. Developing also an universal-type charging plug at European level would also be a major breakthrough to help scaling up demand. This has been a key issue for potential EV buyers and can also act as differentiating factors (e.g. offering better rates and services) as well as an additional income stream. Charging solutions offered by carmakers will be complementary to public investment in electric infrastructure (see our policy recommendation #4) as it multiplies options for customers but also helps to alleviate potential tension on national grids.

3. **Invest in software development and develop research on autonomous driving.** Beyond hardware, automakers must pivot towards software-defined vehicles, offering features like over-the-air updates, subscription-based add-ons and connected services. This model, pioneered by Tesla, provides recurring revenue and enhances customer engagement. Furthermore, the next frontier in the auto industry lies in autonomous driving. Europe's car missed the electrification shift but it cannot afford to miss autonomation. Such an investment would also shield automakers from tech and chip-maker companies that could be on the hunt for a stake in the auto industry. The arrival of new players like the Chinese handset manufacturers Huawei and Xiaomi or the Japanese electronic specialist Sony in an industry which is always integrating more advanced electronical products and software is a serious threat to consider. We suggest to aim for at least 10% capex in tech, R&D and customer services to be in line with BYD, Geely and Tesla, which have been spearheading innovation in the sector.

Figure 33: Forecast of revenue of the automotive chip industry by 2028



Sources: Bloomberg Intelligence, ICCT, Allianz Research

4. **Explore and conquer new markets.** With increasing competition from Chinese EV makers amid a slowing domestic market, and stiff competition in China, European automakers must diversify their export strategy to sustain growth. They must expand into high-growth emerging markets, particularly Southeast Asia, Latin America and the Middle East, where increasing urbanization and rising incomes will underpin a strong increase of a currently weak ownership ratio in those regions. The absence of legal framework promoting a certain type of engine, nor strong local competitor is a clear opportunity for European carmakers to smooth the ongoing heavy EV transition costs by allocating their high margin ICE production to market with high growth potential. To offset declining market share in China, targeting India and its over 1.5bn market with a car ownership of only 7.5% looks an obvious target for carmakers. Big countries from the ASEAN bloc like Indonesia, Philippines, and Vietnam, but also some South America markets like Columbia and Peru should be considered. Such a strategy would allow also to reduce dependency toward Chinese market while keeping some flexibility at manufacturing level to protect margins. Additionally, Africa's automotive market, though still in its early stages, presents long-term opportunities, particularly in North African countries with established automotive assembly hubs..

5. **Increase cooperation and especially engage with policy makers with one clear voice.** The European auto industry must adopt a more unified and strategic approach when engaging with policymakers to secure its future. Unlike China, where the government actively supports domestic automakers, or the US, where there is a small number of very large players, European automakers are more numerous and often compete individually rather than coordinating on key industry challenges. This fragmented approach weakens their influence on trade policies, EV regulations and industrial strategies, making it harder to secure favorable conditions for investment, supply chains and global competitiveness. A more coordinated industry voice, aligned investment in battery and charging infrastructure and even shared R&D initiatives into recycling, energy storage, semiconductor, AI-dedicated software and automation would ensure that EU policies support both climate goals and foster industrial competitiveness by creating a robust and autonomous ecosystem with a reduced disruption risks for the industry supply-chain. Greater cooperation can also help in securing raw materials, negotiating fair trade agreements and countering aggressive non-European competition.

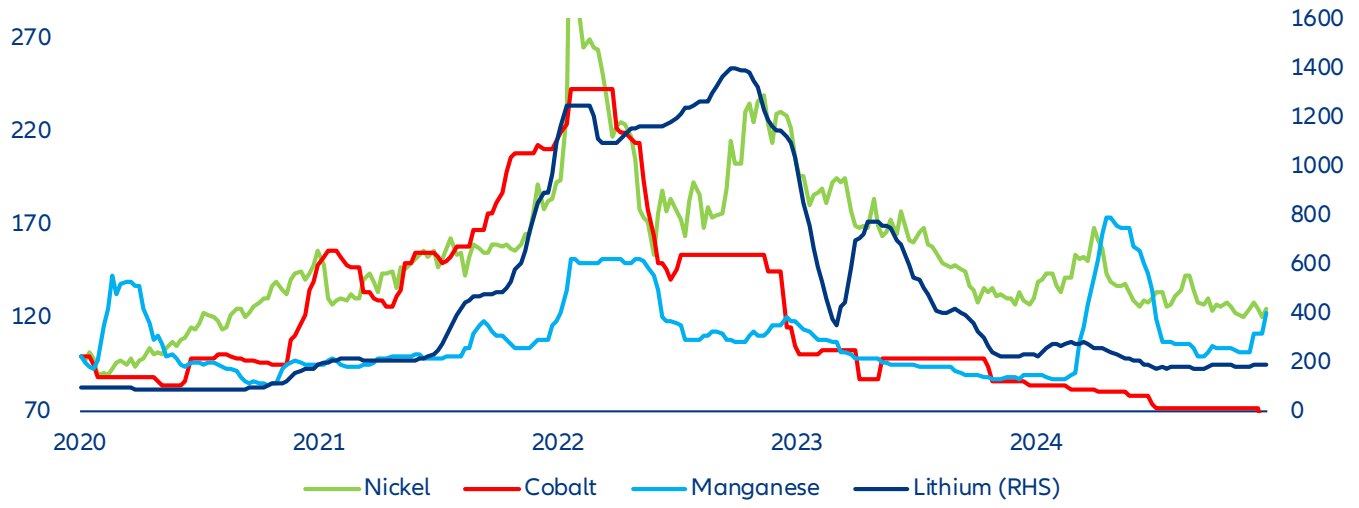
At the same time, European policymakers must redesign or adjust industrial and climate policies to ensure that the auto sector remains competitive while meeting net-zero targets. Current regulations, while ambitious, burden manufacturers with strict compliance costs without providing sufficient support to scale up EV production, battery supply chains and charging infrastructure. A balanced policy approach is needed, one that incentivizes innovation, ensures fair competition with global rivals and supports affordable EV adoption.

1. **Smart trade policies to ensure a level playing field in Europe.** The influx of heavily subsidized Chinese EVs threatens European manufacturers as they struggle with higher production costs and stricter regulations. The EU should impose fair-trade measures, such as anti-dumping tariffs (like the ones implemented in fall 2024) or increase a minimal threshold of local/regional content requirements similar to the current 75% rules within the USMCA trade bloc, to prevent market distortions while maintaining open trade for key materials. Strengthening trade alliances with India, Latin America and Africa can help European manufacturers diversify exports and reduce reliance on a saturated domestic market. A first look on knock-on effects from tariff on imported Chinese cars applied last autumn (up to 35%) suggest that such a protectionist policy partially work as it did not allow to catch up the price gap on large-size vehicles for which European brand remain still today between 15 to 30% more expensive than Chinese ones (on sedan and SUV models). Closing the European market to China won't help local carmakers to do their homework in term of productivity gains, instead pushing Chinese players to form joint-ventures and set-up plants in Europe would be more efficient for the industry in our view. Similar to the recent "Deepseek" episode in AI, European should not isolate from China but rather try to bank on their technological advance on both battery and

EV. This could allow all European players to benefit from a steep learning curve and try to rival or surpass the competition. Without explicitly targeting specific countries in the EU regarding the sourcing threshold policy could both help Europe avoid frontal trade conflicts and encourage in the meantime competitors to invest in Europe to get access to the whole retail and corporate market and leverage each country's relative competitive advantage within the region.

2. **Strengthened incentives to build a European EV supply chain.** The EU must scale up the auto supplier ecosystem to meet the requirements of an industry oriented towards EVs. Furthermore, domestic battery production or at least battery recycling capacities need to be developed to reduce dependence on China and other foreign suppliers. This could include expanding funding for European factories under the Important Projects of Common European Interest (IPCEI) framework; supporting trade deals to secure the supply of raw materials and setting up refining and recycling capabilities in the region. These initiatives need to be mindful of technological and cost realities to avoid mistakes such as the Northvolt gigafactory that did not streamline its production capacities to meet demand while also pursuing cash-burning investments. Europe needs to develop its own version of the US IRA policy by allocating substantial subsidies and/or grants to promote local investment and attract foreign direct investments (FDI). Axing land tax rate, allocating a 5% subsidy to new production capabilities project from new JV involving a foreign company and temporary sales tax freeze (over the first five fiscal year) are among fiscal tools that could be targeted by policymakers. Such policy could also be conditional on job creations and job quality to ensure stronger multiplier effect of fiscal spending. We suggest a sizing similar to the IRA and about EUR 20 bn dedicated to such incentives, this would represent about 5% of the NGEU funds available for payments.

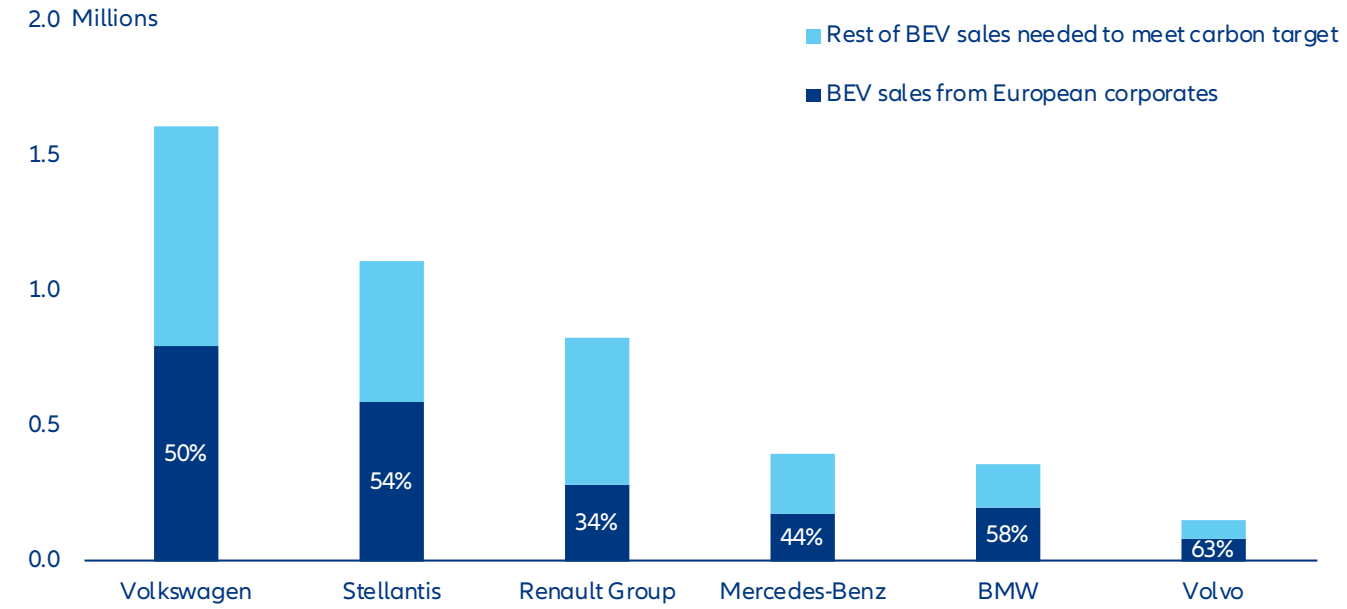
Figure 34: Price of key raw materials for EV batteries (USD/t)



Sources: Datastream, Allianz Research

3. **A balanced consumer incentive policy favoring locally produced EVs and a stronger electrification of the corporate fleet.** EEV adoption is hindered by high costs, particularly in the mass-market segment. Instead of broad blanket subsidies, policies should focus on income-based purchase incentives to ensure affordability for low- and middle-income buyers, as well as tax reductions on lower-cost EVs, while limiting incentives for luxury and SUV models. Scrappage schemes encouraging consumers to trade in older ICE vehicles for affordable EVs or hybrids are also key. Moreover, making all incentive schemes conditional on local manufacturing requirements will ensure they benefit European production. Companies currently account for roughly 60% of BEV sales in Europe in volume, so European officials should also implement measures to promote and support an further acceleration of the green corporate fleet. The current pace of electrification among corporates remains too slow, and even slower than the pace among private households in major countries such as France and Germany. Public aid in this segment would be a win-win, benefiting 1) corporates via a regular renewal of their fleets with premium cars and help to reduce their carbon footprint; 2) carmakers for whom corporate sales would absorb over half of the required volumes to reach their 2030 carbon thresholds and 3) European officials by offering them a clear and credible roadmap to achieve a smooth transition toward carbon neutrality. To achieve this, policy makers could allocate a 15% trade-in rebate on EV purchases of below EUR 45,000 for consumers, conditional on a 75% European sourcing ratio – this could be financed partly with tariff receipts and an incremental target for corporate fleet renewal (from 50% to 100% of new purchases allocated to EVs by 2035). The example of Norway where the near 90% EV ratio in new registration reached in 2024 have been conditioned to a large-scale and durable subsidy policy (no VAT and road insurance tax, rebates) or Germany where the scrap of the incentive scheme on new EV resulted last year to a -27% contraction of BEV sales tends to confirm a strong positive correlation between policy support and EV demand. Consistency in a demand-oriented policy is key to favor a deeper and faster electrification of the fleet, and trade-in option is in our view also a catalyst for reaching the EU climate's goals. The success of such policy also relies on the development of a large-scale ecosystem that includes notably appropriate infrastructure (see next recommendation), robust grid network and electricity prices, but also some perks that can be duplicated at local and national levels (no city toll, no road tax rates, dedicated parking) for EV holders.

Figure 35: Estimated BEV sales in Europe per automaker to reach 2030 carbon target



Estimations assume improvements in ICE efficiency and hybrid sales.
Sources: Transport & Environment, Allianz Research

4. Investments in energy and charging infrastructure. The lack of accessible, affordable charging stations is a major bottleneck for EV adoption. The EU should accelerate the deployment of public fast chargers, particularly in rural and underdeveloped areas. The bloc should encourage private-sector investment through tax incentives and co-financing models and strengthen and implement strong energy policy in the region to stabilize electricity prices (e.g. investing in renewable energy expansion, grid modernization etc.). We think that a EUR 150-200bn investment will be necessary to support the unavoidable rise of the EV fleet in Europe we expect could reach 15-20% by 2030.

5. Push for green innovation in the sector. Europe must lead in next-generation technologies, securing long-term competitiveness through increased R&D funding for solid-state next generation batteries and lightweight materials among others. The EU should foster closer collaboration between automakers, tech firms, universities and startups to develop AI-driven manufacturing and autonomous driving. Finally it should implement policies that reward sustainability, such as lower taxes for manufacturers meeting strict ESG criteria and carbon credits for green innovation. We propose to achieve this by devoting 5% of the EU Horizon program (~EUR 5bn) to foster projects into batteries, autonomous driving technology, AI-driven software and recycling.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