ASIA HOUSE

## Dual Drive:

# How deeper ties in key markets can power the export competitiveness of made-in-China electric vehicles

Yaxin Guo

# Executive Summary

China has become a powerhouse in the burgeoning electric vehicle (EV) industry: a rise fuelled by a years-long strategic push to control all elements of the supply chain, from raw materials to finished product. But there are growing threats to its position. In a bid to protect domestic automakers, many large economies are slapping hefty tariffs on Chinese vehicles, which risk increasing costs, slowing sales growth and deterring investors who may be considering establishing EV manufacturing hubs in China.

This report examines what steps China can take to not only preserve but enhance its global competitiveness in the EV sector in the face of these headwinds, and evaluates Chinese EV producers' strengths, weaknesses and potential for success in Europe and the Gulf in particular. It also explores possible paths to future cooperation that could produce mutually beneficial outcomes for China and these high-potential export markets, such as establishing local production plants and encouraging investment in Chinese EV companies.

The key findings of the report are:

- **China has emerged as a dominant player in the global shift towards EVs.** Its sway over the industry is underpinned by strategic support from the government and a well-developed EV supply chain. China also accounted for around 60 per cent of global EV sales, positioning itself as a leader in the green transition.
  - China's established supply chain for EV components, government incentives and aggressive global expansion strategy have induced foreign brands to set up manufacturing facilities and export hubs in the country.
  - Meanwhile, homegrown EV manufacturers are increasingly focusing on international expansion to compensate for slowing sales and intensifying competition in the domestic market.
  - Europe and the Gulf have become key export destinations, both for foreign brands manufacturing in China and homegrown Chinese EV companies. In a bid to speed the transition to net zero, both these regions are offering various incentives and subsidies to promote EV adoption, though some of these are declining.

- **EV manufacturers in China are encountering rising tariffs, particularly in Western markets keen to protect domestic automakers.** The EU plans to impose duties of up to 36.3 per cent on EVs made in China, while the United States and Canada have gone further, with 100 per cent tariffs. It is possible more countries will follow suit in future. Such barriers to trade can push up costs, slow sales and create uncertainty for foreign investors considering manufacturing in China, making the country a less attractive destination for EV investment.

- **EV adoption in the Gulf has faced challenges.** The ambitious environmental goals of the Gulf have made the region a potentially pivotal market for EVs. There are however two important issues to consider when targeting growth in the region. First, Gulf countries have been slow to develop the charging infrastructure necessary for widespread adoption of EVs. Second, the extreme heat in the Gulf region can affect battery performance and efficiency, highlighting the need to design vehicles specifically for the region and to test them rigorously before release.

- **A cross-sectional regression analysis suggests that the strategy used by Japanese automakers in the 1980s could potentially help address challenges to China's EV exports.** Japanese automakers overcame export obstacles by establishing factories in target export markets, thereby creating jobs, transferring technology, deepening market knowledge and localising their brands.

- The results show a positive correlation between the establishment of local manufacturing facilities by Chinese EV companies and increased overall exports of China-built EVs.
- The findings suggest that localised production may increase export volumes for both Chinese and foreign EV manufacturers. Such a strategy could also enhance brand reputation and facilitate market entry for Chinese EV companies.

- **Establishing Chinese EV factories in Europe would yield benefits for both economies.** This strategy would allow China to address European concerns about EV over-capacity while fostering closer economic ties between the two economies.
  - By mitigating political and trade tensions, China could convince Europe to lower barriers for China-made EVs, thereby boosting exports and potentially encouraging more foreign brands to set up manufacturing in China, mirroring Tesla's 2018 move.
  - For Chinese EV companies, especially those that already have substantial sales in Europe, establishing local factories could yield additional benefits. Greater visibility in Europe would burnish the reputations of their vehicles – and that of other Chinese EV brands – around the world. The creation of local jobs would breed goodwill, stimulate local economies and offer strategically valuable insights into local markets.

- **Gulf nations are open to Chinese EV brands establishing local factories as part of their broader efforts to diversify their economies and geopolitical relationships.** In the context of rising US-China competition and the multipolar world order, China's role as a key partner in the Gulf energy transition and drive toward economic diversification would allow the region to balance its strategic relationships. Although beneficial geopolitically, however, building EVs in Gulf nations would face some economic challenges, such as high labour costs, incomplete supply chains and relatively small markets.
  - For foreign manufacturers with EV plants in China, improved trade relations between China and the Gulf could boost export opportunities to the region.
  - Chinese EV manufacturers, meanwhile, can strengthen their position in the Gulf by creating jobs in the local market and increasing brand recognition. The Gulf may also serve as a lower-tariff gateway to the EU under current conditions, though the future shape of trade restriction remains uncertain.

- **There are other pathways for cooperation between China and the Gulf.** These include strategic investment by Gulf countries in Chinese EV companies and replicating the "Belt and Road" model.
  - China could encourage Gulf countries to invest in Chinese EV companies,many of which are facing financial constraints, in order to gain valuable knowledge and technological expertise.
  - The collaboration model seen in infrastructure projects under China's Belt and Road Initiative could be applied to the EV industry.

- **Continued close collaboration between the Chinese government and Chinese EV companies is crucial for overcoming current and future export challenges.** State-led initiatives can play a central role in boosting EV exports from China by making it easier for Chinese EV companies to set up manufacturing in target markets such as Europe and the Gulf. This strategic approach could both solidify China's position as the leading global EV manufacturer and expand the international presence of Chinese EV companies.

# Table of contents

# List of Figures



# List of Tables

# Acknowledgement

I would like to extend my deepest gratitude to the Asia House team for their invaluable support and professional advice throughout this research. In particular, I would like to thank Chief Executive Michael Lawrence OBE, as well as my supervisors, Joanna Octavia and Zhouchen Mao, for their unwavering support, encouragement, guidance, and expert advice.

I am also grateful to Freddie Neve for providing insights on the Gulf region and to Matilda Buchan for her advice on tariffs and related topics.

Additionally, I would like to thank the experts who participated in my interviews. Lastly, I want to thank the other Asia House staff for inviting me to several events, which broadened my perspective and provided invaluable insights for my research. Special thanks to Sarah Edmonds for editing my report.

**Yaxin Guo**
Asia House Fellow 2023-24

Section One:

# Introduction

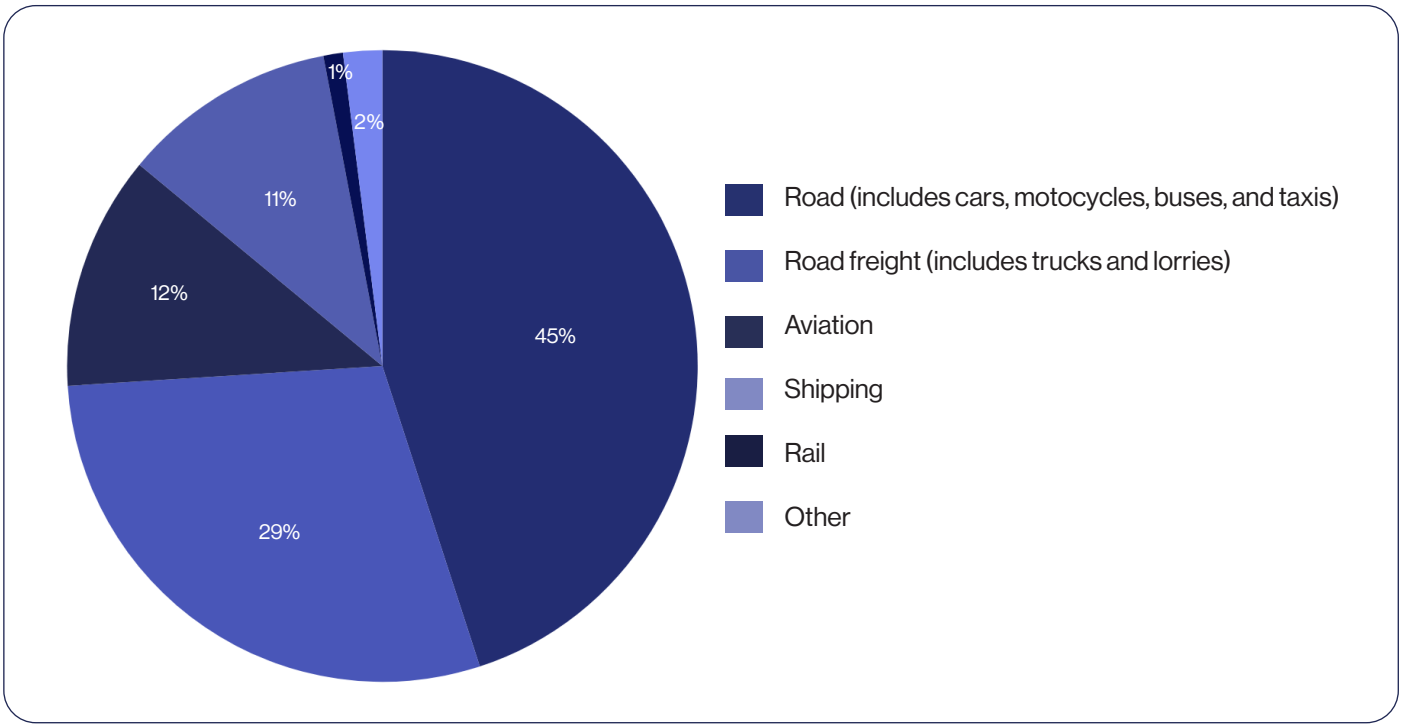
**In recent years, electric vehicles (EVs) have become a ubiquitous symbol of the global climate transition. From China, which has established itself as a leader in production and sales, to Europe, which has imposed stringent environmental regulations to accelerate the transition to net zero, and the Gulf states, which are diversifying their economies beyond oil, the rise of EVs signals a planet-wide commitment to sustainability.**

**"Green", "sustainable development", "pollution reduction", "net zero": these once obscure terms are pervasive today. This is because the world is waking up to the threat of climate warming, and the urgent need for solutions.** A 1.1 degrees Celsius increase in global temperatures since 1850 has caused unprecedented changes to the world climate systems: from rising sea levels and extreme weather events to the rapid loss of sea ice (Boehm & Schumer, 2023). For many governments, the widespread adoption of EVs represents a crucial strategy to mitigate climate change, reduce air pollution, promote renewable energy deployment and advance sustainable transport.

**The transport industry plays a significant role in climate change due to its substantial contribution to greenhouse gas emissions and other environmental impacts.** As shown in Figure 1, the sector accounted for 21 per cent of global emissions in 2018, with road transport responsible for three-quarters of transport related emissions. The widespread adoption of EVs, which emit fewer greenhouse gases than Internal Combustion Engine vehicles (ICEVs), is a key step toward reducing transport emissions, and is gaining widespread support from governments and customers alike. This surge in interest positions EV production as a sector poised for significant growth, one that is reshaping the automotive industry as a whole.

It is estimated that for the world to achieve its international climate goals – namely keeping global warming below 1.5 degrees Celsius (2.7 degrees Fahrenheit) – 95-100 per cent of all vehicles sold globally will need to be electric by 2030 (Climate Action Tracker, 2020).

Figure 1: Global carbon dioxide emissions from transport

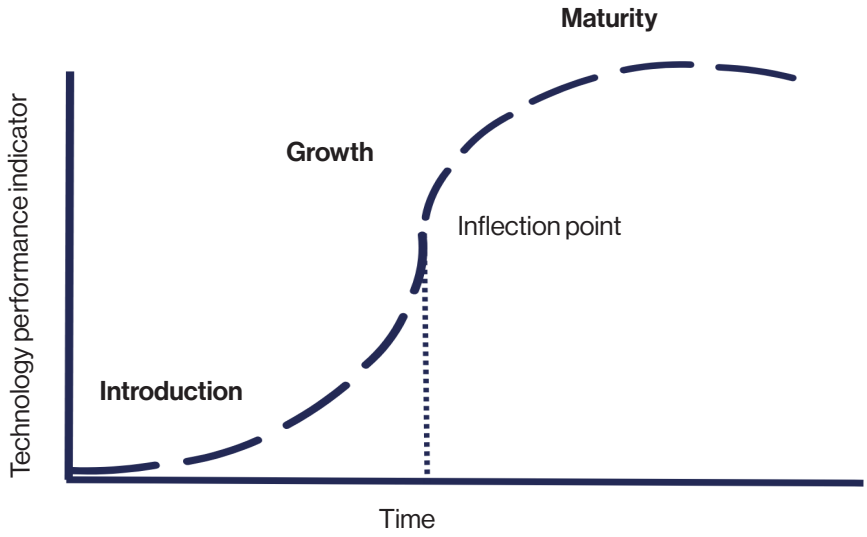



Source: (One World Data, 2020)

EV adoption is gaining momentum globally, with sales projected to reach some 17 million in 2024, a significant increase from the roughly 14 million sold in 2023 (IEA, 2024). In the next decade, EVs sales are expected to rise further, driven by increased government support and growing customer demand for cost-effective sustainable transport. Although the exact moment when EV sales begin to accelerate varies between countries, they all follow a similar S-shaped growth curve typical of the adoption of innovative technologies, as shown in Figure 2.

Once a technology reaches a tipping point –for example, when EVs becomes cheaper to buy than gasoline or diesel-powered cars – its growth trajectory bends upwards. Eventually, as the technology approaches 100 per cent saturation, the growth rate will gradually slow down. No country has yet reached this deceleration phase for EVs, which means growth should continue for the foreseeable future.

Figure 2: S-shaped growth curve illustrates the adoption of innovative technologies




Source: (Priestley et al., 2020)

**Policy support for EV adoption is crucial in accelerating the transition to sustainable passenger transport.** Governments worldwide are implementing a variety of measures to encourage the uptake of EVs, including financial incentives such as tax credits, subsidies and rebates for EV purchases. Currently, 16 countries, including Canada, Japan, and the United Kingdom, have implemented some form of policy aimed at achieving 100 per cent EV sales by 2035 or earlier (IEA, 2023). By fostering a favourable environment, or compulsion, for customers and manufacturers, policy support plays a key role in reducing carbon emissions and advancing technological innovation in the automotive industry.

**China, with its flourishing EV industry, is at the forefront of this transformation.** In 2023, more than one in three new car registrations in China was electric, compared to one in five in Europe and one in 10 in the United States (IEA, 2024). China also accounted for around 60 per cent of global EV sales (IEA, 2023). Exports of Chinese EVs, meanwhile, increased by a staggering 80 per cent between 2022 and 2023. Of four million vehicles exported by China in 2023, 1.2 million – or 30 per cent – were electric (IEA, 2024). Export growth is helping to offset a decline in domestic auto sales caused by an uncertain post- pandemic economy and reduced customer spending (Zhou, 2024).

**After rapid initial growth which saw fierce price wars depreciate EVs in an increasingly saturated market, domestic sales of EVs too have slowed.** This has pushed many Chinese EV manufacturers to focus more on foreign markets. Similarly, foreign companies that manufacture EVs in China – such as Tesla, BMW, General Motors, Nissan and Kia – are exporting the vehicles produced in their Chinese plants back to their home countries, as well as to major markets across the globe, including Southeast Asia, the Middle East, Latin America and Europe (Jung & Lee, 2024).

**Despite – or perhaps because of – their rapid growth, EV exports from China have faced unprecedented challenges, particularly in Western markets.** China has been accused by Western economies of overcapacity and of giving its producers an unfair advantage by subsidising EV production. As this paper will discuss later, this dispute echoes trade tensions that erupted between the United States and Japan in 1970s and 1980s, when Washington accused Japan of unfair trade practices (Wihardja & Kong, 2024). In an effort to protect their domestic automakers in the face of the rapid growth and competitive pricing of Chinese vehicles, the United States and the EU, among others, have imposed heavy tariffs on Chinese EV imports. This also affects foreign EV manufacturers such as Tesla using their facilities in China as export hubs (Yu, 2024) .

**Amid challenges in the West, both domestic and foreign companies producing EVs in China are targeting other growth markets.** These include other countries in Asia (27.1 percent), followed by Australia (7.2 per cent), Latin America (5.9 per cent), Africa and the Middle East (0.4 per cent) (Huang & Xia, 2024). Of all of these, the Gulf region is increasingly considered a strategic choice and a promising market amid rising trade barriers in the West. This push to increase exports to members of the Cooperation Council for the Arab States of the Gulf (GCC) is supported by a warming of trade relations between the region and China, the Gulf's growing commitment to decarbonisation and the largely untapped market opportunity (Raffoul & Keller, 2024).

Headwinds in the West, rising trade with the Gulf region and the immense and growing global demand for EVs, all add up to a complex trade landscape for EV producers in China. This study will evaluate how these complexities are affecting the industry's performance in Europe and the Gulf, examine how Chinese automakers can maintain their competitiveness and suggest potential pathways for future growth.

The structure of this report is as follows: Section two will discuss the main drivers behind China's EV market dominance. Section three will analyse, through cross-sectional regression and a comparison with the situation faced by the Japanese automobile industry in the 1980s, avenues that could allow China to solidify and enhance its status as the world's EV manufacturing hub while simultaneously supporting Chinese EV brands' competitiveness on global markets. Section four will examine the potential benefits of establishing local manufacturing facilities in Europe and the Gulf, while highlighting potential challenges and alternative pathways. Finally, section five will summarise the research findings and outline potential future trends in Chinese EV sales.

Section Two:

# China's global EV domination - and some challenges

**China has emerged as a leading force in the global shift towards environmentally friendly transport. Through ambitious government policies, significant investments and a strong automotive manufacturing infrastructure, China has rapidly grown its EV market, establishing itself as the world's largest market for, and manufacturer of, low-emissions vehicles. This focus on electric mobility is in line with China's broader goals of reducing air pollution, enhancing energy security and decarbonising its economy (United Nations, 2023).**

This section will outline the factors that fostered China leadership in the EV sector as well as the increasing challenges Chinese-made EVs are facing in key export markets such as Europe and the Gulf.

## 2.1 Drivers of China's strong competitive position in the EV market

**China's rise to dominance of the EV sector was driven by several factors, including its leadership in the EV battery market, access to critical battery materials, subsidies and robust manufacturing capabilities that have facilitated efficient economies of scale.** And yet despite these advantages, exports of China-made EVs face an increasing number of obstacles, from negative political sentiment to limited customer awareness and brand reputation issues. [1]

**Although China never managed to attain a strong position in the traditional automotive market, the core technologies of EVs gave it a unique opportunity to take the lead in a flourishing new vehicle industry.** Historically, China encountered significant barriers in trying to capture market share from established ICEV manufacturers, lagging behind the EU, Japan, the US and South Korea in the development of traditional vehicles. However, the adoption of EVs has marked a new chapter for exports of Chinese automotive brands. It is an opportunity that China has seized quickly and efficiently. Since 2008, the promotion of EVs has been central to China's economic policy, conferring a comprehensive vertical integration advantage in battery production and the development of specialised chemical expertise.

The government has long-range plans to nurture emerging tech-heavy industries that will help China pivot from the old economy to the new. It sees EVs as a key part of this strategy and has therefore supported the sector with measures designed to boost both supply and demand. The 2024 Third Plenum Communique of China's Central Committee, with usually sets the policy direction for significant economic and social reforms, placed a particular emphasis on carbon reduction, a clear indication of the depth of the government's commitment to tackling climate change (Ministry of Foreign Affairs of the People's Republic of China, 2024). By promoting the EV industry, China has not only taken steps toward addressing environmental concerns but has also positioned itself as a global leader in green technology.

This strategy is integral to the country's long-term goals of enhancing technological self-sufficiency, reducing reliance on fossil fuels and promoting sustainable economic growth. The emphasis on EVs also dovetails with China "Made in China 2025" initiative, which aims to upgrade the country's manufacturing capabilities and allow it to achieve a dominant role in high-tech industries globally (Kennedy, 2015).

**Various advantages of manufacturing EVs in China have led both foreign and joint-ventured automakers to set up production in China, alongside the country's homegrown manufacturers.** Since 2009, the Chinese government has been subsidising the production of EVs for public transport, taxis and the customer market. Additionally, EV buyers have benefited from government purchase subsidies. From 2009 to 2022, China spent more than 200 billion RMB (approximately US$28 billion) on subsidies and tax breaks aimed at promoting EV adoption across the country. The competitive edge of China EV industry is not solely derived from subsidies, however: it can also be attributed to its dominance of the battery supply chain, from the mining and processing of raw materials to the production of batteries themselves (IEA, 2022).

1 China-made EVs refers to all EVs manufactured in China, while Chinese EVs refers to EVs produced by companies that geographically originated in China.

### 2.1.1 Long-term strategy and early investment in battery systems

**China's strategic planning and early investments in the procurement and processing of battery raw materials have positioned it as a leader in the EV industry.** The country's limited crude oil production and short and difficult history with ICEVs prompted it to pour its resources into the development of alternative energies and technologies. Since 2001, the government took aggressive steps to promote the development of battery systems, with a special focus on the automotive industry.

Build Your Dreams (BYD), China's largest EV company, began focusing on electric buses and motorcycles back in 2009. Because the former require high-power batteries to meet the demands of long operational times, the company started developing battery-related technologies as far back as 15 years ago (Lin, 2024). Geely, another major EV manufacturer, poured its research efforts into electric motorcycles, seeking to produce batteries that were small and lightweight enough to power these nimble vehicles without being cumbersome.

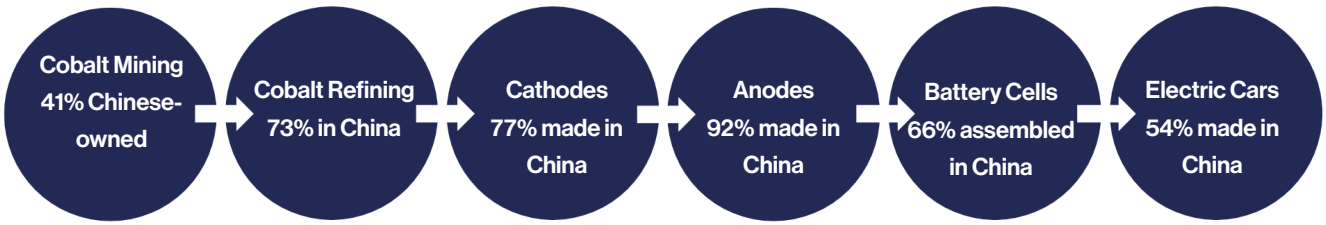
As a result, it has become a leading manufacturer of electric motorcycle batteries (Lin, 2024).

Both large buses and small motorcycles have more complex requirements in terms of size and durability than do passenger cars. By using innovation and research to find ways to meet these demands, Geely and BYD have mastered the most critical technology in EV production and, in consequence, made themselves into giants in the Chinese EV market.

### 2.1.2 Control of raw materials in EV batteries

China now controls every step of lithium-ion battery production. From extracting the raw materials to manufacturing the cars, China's control of raw materials of EV batteries has made it a critical player in the global EV supply chain, as shown in Figure 3.

Figure 3: The processing of electric vehicle batteries




Source: (Chang & Bradsher, 2023)

**China's dominant place in the EV market was achieved through a multipronged strategy that focused on controlling the supply chain from end to end.** First, the country has taken a deliberate and strategic approach to acquiring mineral resources from resource-rich neighbours. Starting as early as 1999, Chinese Communist Party (CCP) leaders began encouraging Chinese companies to invest overseas and supported these "national champions" in aggressively expanding abroad after their domestic markets for certain goods and services had matured (Murphy, 2022).

The government implemented a series of strategic initiatives designed to ensure control over the raw materials needed to nurture its fledgling EV industry. The China Development Bank provided significant funding for the acquisition of strategic resources for EV production by funding numerous projects in Africa, Latin America and Southeast Asia (Vassallo, 2023). In 2014, a Chinese company established a nickel smelting plant in Indonesia (Huber, 2021). The following year, another secured the rights to a lithium clay deposit in Chile (Matich, 2015).

In 2016, a Chinese firm purchased the largest cobalt mine in the Democratic Republic of the Congo from an American mining group (Niarchos, 2021). Finally, in 2019, a Chinese company obtained the mining rights to a lithium deposit in Chile (Vassallo, 2023). China often succeeds in acquiring such strategic assets, some of which have been sold by American owners, in part because it often outbids Western competitors (Vassallo, 2023). As shown in Table 1, this accumulation of strategic commodities has been a crucial prerequisite for China's dominant position in the EV export field today.

The raw materials produced by Chinese state-owned mines are essential for manufacturing industrial equipment, machine tools and advanced batteries, the foundation of China's EV manufacturing. According to the EU, more than half of the raw materials needed to produce EVs are currently supplied by China (Vassallo, 2023). This accumulation of strategic resources has enabled China to establish a robust and self-sufficient supply chain for EV manufacturing.

Table 1: Accumulation of strategic commodities by China

| Raw materials | Refining of raw materials | Producing components | Producing cathodes |
|---|---|---|---|
| Manganese: 5 per cent | Nickel: 63 per cent | Separators: 74 per cent | Lithium nickel manganese cobalt oxide (NMC) cathodes: 73 per cent |
| Lithium: 67 per cent | Lithium: 67 per cent | Cathodes: 77 per cent | Lithium iron phosphate: 99 per cent |
| Lithium: 28 per cent | Graphite: 70 per cent | Anodes: 92 per cent | |
| Cobalt: 41 per cent | Cobalt: 73 per cent | | |
| Graphite: 78 per cent | Manganese: 95 per cent | | |

Data Source: (Chang & Bradsher, 2023)

### 2.1.3 Refining of raw materials

**China's advanced and cost-effective raw material refining capabilities ensure a stable supply of high-quality components needed for battery production.** Regardless of where the necessary ores are mined, almost all are sent to China for refining into battery-grade materials. Although the United States is seeking to ramp up its raw material processing capability to compete with China, it currently has minimal capacity. The first reason the United States and other countries lag behind China in this area now is that developing processing infrastructure is time-consuming and resource-intensive, and operations typically take two to five years to become operational. The second is that ore extraction and refining usually generate significant waste and consume significant energy. With government-subsidised support for both land and energy, Chinese companies can refine minerals on a large scale at lower costs than competitors, leading to the closure of refineries elsewhere (Chang & Bradsher, 2023).

### 2.1.4 Producing battery components

**China has become one of the world's largest battery producers, in part due to its development of efficient and low-cost methods for manufacturing battery components.** The most critical of these is the cathode, which forms the positive terminal of a battery. Manufacturing the cathode is the most challenging and energy-intensive part of battery production.

Until recently, the most common cathode material was a combination of nickel, cobalt and manganese (NMC) (Martins, et al., 2021). This formulation allows a battery to store a significant amount of energy in a limited space, thereby extending the range of an EV (Elgendy, 2024). China invested considerable resources in developing a cheaper alternative material. This material, lithium iron phosphate (LFP), proved so popular it is now used in half of the world's cathodes. LFP's popularity rests in the fact that it uses widely available iron and phosphate instead of harder-to-find nickel, manganese and cobalt. LFP, nearly all of which is now produced in China, provides Western countries with an opportunity to bypass mineral supply bottlenecks (LeVine, 2024).

The United States, which exclusively produces NMC cathodes, currently manufactures roughly 1 per cent of the global supply of cathode materials. Although American companies are interested in LFP cathodes, they would need to partner with Chinese companies to gain the necessary expertise in LFP production (Chang & Bradsher, 2023). Chinese dominance is not confined to cathodes. Its companies lead the production of various other battery components, such as anode materials and battery separators. The production of electrolytes, mainly made up of lithium salts and conductive solvents, is dominated by the world's four major electrolyte manufacturers, all of which are headquartered in China.

China's ascendency in battery production makes it a key player in the global EV market. The world's reliance on Chinese manufacturing presents supply chain challenges for other countries, compelling them to either cooperate with China or develop alternative sources. For China, this dominance offers a cost and technological advantage in the global market, and gives it increased negotiating power in international collaborations.

### 2.1.5 Batteries and cars

**China's sway over global battery production ensures its EV producers have access to a stable and cost-effective supply of batteries, a critical component of EVs.** China has the world's largest number of EVs – almost all of which use batteries made in China. China's strong domestic battery production has benefited from government support and a long history in the industry. Battery assembly is a complex and expensive process that involves carefully layering and rolling materials in very clean and dry conditions. Despite high capital costs and slim margins, Chinese companies were able to gain an early advantage through years of state funding and accumulated experience.

China's competitive advantage in EV batteries is also driven by cost competitiveness. It costs half as much to build a battery factory in China than in either North America or Europe, primarily due to lower labour costs and the greater availability of local equipment manufacturers (Chang & Bradsher, 2023).

Ready access to EV batteries is a compelling reason for foreign EV manufacturers to base themselves in China. Take Tesla, for example. By basing its Gigafactory in Shanghai, Tesla has benefited from being able to source batteries and components locally. And by partnering with Chinese battery suppliers like CATL, it has reduced its reliance on imported batteries, cut down on transport costs and minimised the risk of supply chain disruptions (Manthey, 2022).This local sourcing is crucial for EV manufacturers to maintain cost efficiency and ensure a steady supply of critical components.

### 2.1.6 Economies of scale

**In addition to mastery over battery technology, China offers lower production costs due to economies of scale.** China's advanced manufacturing technology enables foreign companies such as Tesla to produce EVs at a larger scale than in many other regions by spreading fixed costs over a large number of vehicles and reducing the per-unit production cost. Since the cost of producing a single EVs decreases as production volume increases, it is cheaper for EV manufacturers to produce EVs in China than in many other regions.

**These economies of scale also allow Chinese manufacturers to offer a wide variety of EV models at low prices for both domestic and international markets.** This makes Chinese EVs highly suitable for mass adoption, particularly in emerging markets. The massive sales volumes in China's vast domestic market and other emerging countries have created economies of scale, further enhancing their cost advantage at home and abroad. Despite recent moves by some countries to impose tariffs on Chinese EVs, they still maintain a clear price advantage over competitors in key export markets. For instance, the average price of a European EV is roughly US$52,300, while a similar vehicle made by China's BYD costs about US$32,000 (Financetwitter, 2024; Winton, 2024). Even with the higher possible EU tariff of 36 per cent they would still be more affordable than their European counterparts (da Silva, 2024).

In summary, China's early strategic planning has given it significant advantages in core technology and manufacturing costs, cementing its strong position in battery production. Interviews with industry experts suggest that most EV brands globally regard China as very competitive in EV production. This competitiveness primarily stems from a long history and experience in EV manufacturing, robust support from the government and the entire EV ecosystem and deep institutional knowledge within both EV and battery suppliers. China's advantages in mastering core battery technology and reducing production costs make it an exceptionally attractive location for EV manufacturers to establish and scale their operations. Companies that manufacture EVs in China, such as BYD and Tesla, benefit from vertical integration that allows them to control the entire value chain, from the sourcing of raw materials to the production of finished goods.

For Chinese EV companies more specifically, this foundation supports the overseas expansion efforts, as do their broad range of brands, competitive pricing and model diversity.

## 2.2 Challenges in export markets: Europe and the Gulf

Despite all the advantages set out above, however, Chinese EVs still face numerous obstacles in their drive to penetrate growth markets such as Europe and the Gulf. For "pure" Chinese EV brands such as BYD, Nio and XPeng, these challenges include political sentiment, limited customer awareness and brand reputation issues. Foreign manufacturers such as Tesla, meanwhile, are affected by negative sentiment chiefly related to the fact that they are using China as an export hub to other markets.

### 2.2.1 Political sentiment

**China is facing growing mistrust for what foreign governments regard as its "over-capacity" for EV production. This has prompted the EU, the United States and other economies to impose tariffs on China-made EV products.** These affect not only Chinese EV brands but also foreign companies manufacturing in China. In July 2024, the EU imposed tariffs of up to 37.6 per cent (since lowered to 36.3 per cent), with varying duties imposed on each Chinese brand commensurate to how well they cooperated with investigations (Blenkinsop & Campenhout, 2024). The United States and Canada have imposed 100 per cent duties, siding with allies against what they perceive as a heavily subsidised industry (Ljunggren & Shakil, 2024). While duties are primarily aimed at Chinese EV companies, they have significant implications for foreign companies with Chinese operations, such as Tesla, BMW and Volkswagen. [2]

These tariffs, along with a broader unfavourable perception of China, have significantly contributed to customer scepticism about Chinese EVs, further exacerbated by national security concerns about both Chinese technology and data privacy. Media reports and political rhetoric highlighting China"s perceived unfair subsidy policies, trade practices, intellectual property violations and foreign policy have amplified these negative perceptions among customers. In Belgium, for example, such doubts have been cited as a key barrier to Chinese EV adoption, with 47 per cent of customers expressing distrust of the country in general (GFK, 2023).

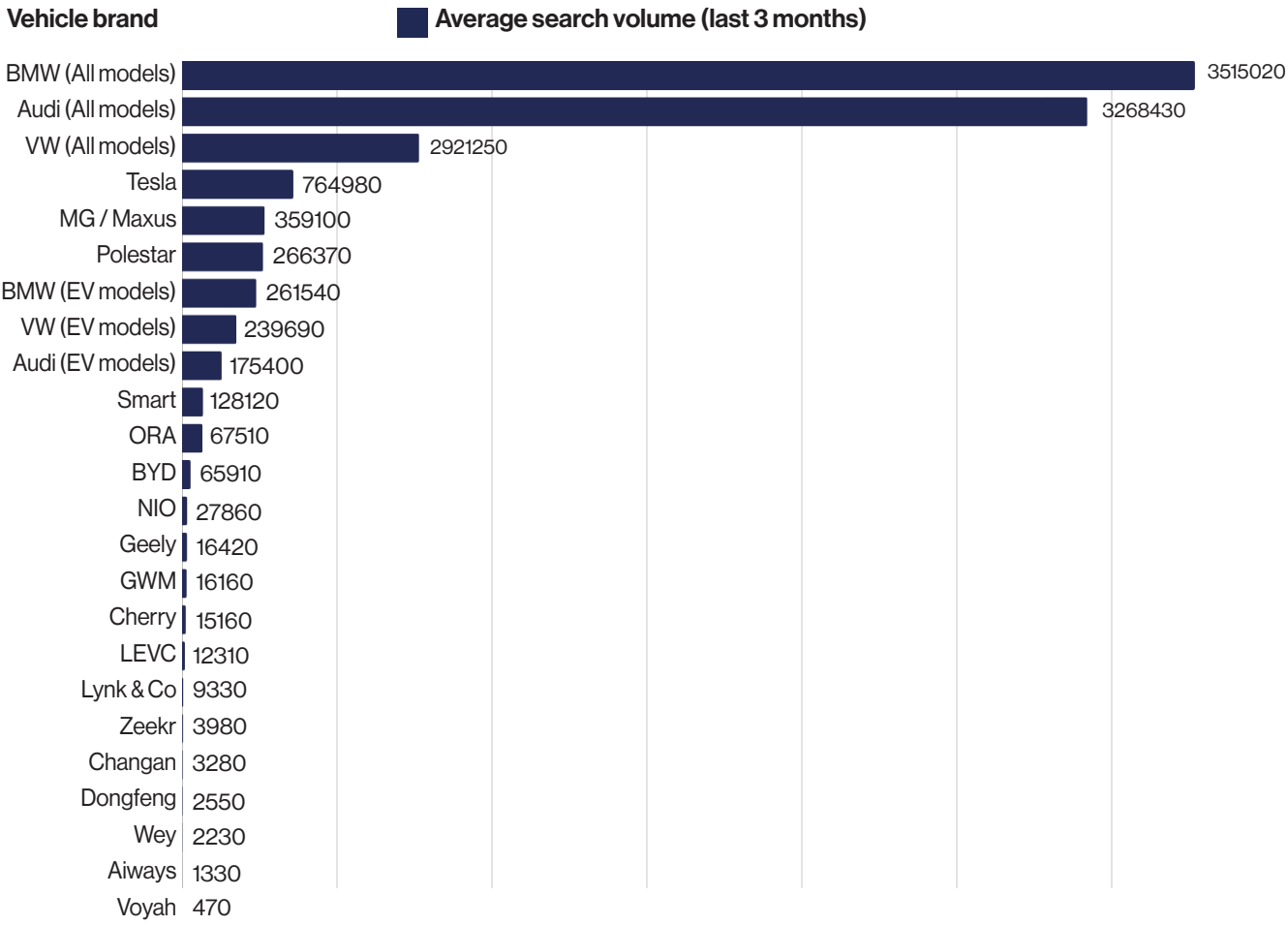
### 2.2.2 Customer awareness

**Customer awareness of Chinese EV brands at the global level remains low, underscoring the need for manufacturers to ramp up brand promotion efforts.** Awareness is a vital component of a successful vehicle launch and higher levels of awareness are essential if Chinese EV exports are to increase further. If they are to consider buying a vehicle, customers must be aware of a brand's existence and how its features and benefits compare to alternatives.

Chinese EV brands such as BYD are relatively unfamiliar in Europe and the Gulf, especially when compared to BMW, Audi, Tesla and other well-established brands (Sebastian, Barkin, and Kratz, 2024). Figure 4 demonstrates that Chinese brands continue to suffer from a lack of significant brand recognition, as reflected by the global volume of Google searches between November 2023 and January 2024.

2 As of 20 August 2024, Tesla now faces duties of 9 per cent on imports to the EU, down from an anticipated rate of 20.8 per cent (Ziady, 2024).

Figure 4: Google search volume for vehicle brands in November 2023




Source: (Petersen, 2024)

The low level of awareness among potential buyers may be attributed to Chinese manufacturers' lack of in-depth knowledge about European markets. This lack of detailed understanding of the local market dynamic means Chinese producers may struggle to tailor their products to meet the specific preferences, needs and expectations of European customers. Misaligned products and marketing strategies may in turn make it difficult for Chinese producers to compete with established European brands. For Europe, with its diverse regulations and cultural preferences, a tailored approach is particularly important. Without it, Chinese brands may fail to resonate with local customer expectations, affecting market penetration and sales.

China's EV manufacturers also face similar challenges in the Gulf, compounded by a lack of awareness in the region about EVs in general.

An understanding of the relative advantages EVs have over traditional ICEVs is essential to attracting customers in less mature markets, such as those in Gulf countries. Currently, almost all major Chinese EV manufacturers have plans to enter the Gulf market (Ye, 2024). However, they are likely to face many challenges there, in part due to customers' "range anxiety", the fear that EVs have insufficient battery capacity to cover long distances. Other concerns relate to a lack of charging infrastructure and after-sales service (CGTN , 2024; Sircar & Times, 2024). The arduous process of obtaining GCC certification, which is needed to demonstrate that vehicles can withstand the region's harsh weather conditions, was an early obstacle to Chinese EVs' growth in the Gulf (Liao, 2023). Furthermore, small and medium-sized EVs tend to be less popular with customers in Saudi Arabia, since these do not suit the needs of large Saudi families (AFP, 2024).

### 2.2.3 Reputation

**Public perceptions of the quality of Chinese EVs are often negative, especially in Western markets (GFK, 2024).** These views are based on customers' past experiences with China-made products and lingering questions over quality and reliability. Crash test failures by Chinese carmakers in Europe in 2006 and 2007 created the perception that cars from China were unsafe (DW, 2007; Carey, 2022). In addition, they are often perceived as cheaply made and inferior. In Belgium, for instance, 37 per cent of customers surveyed said they believed China produces low-quality vehicles (GFK, 2023).

European customers generally believe that European firms offer better products. While Chinese EV makers offer competitive pricing, they must find ways to convince customers that affordability does not mean a compromise on quality.

### 2.2.4 External factors

External factors may significantly impact the adoption of all EVs – not just those produced in China – in key export markets, with charging infrastructure being one of the most critical. The lack of a widespread and reliable charging network in a market can deter potential buyers who fear running out of charge without a nearby station.

**The Gulf's infrastructure for EVs, including charging stations, is still limited, which can impact the attractiveness of EVs.** The current infrastructure gap remains a significant barrier to the widespread acceptance of EVs in the region. Charging sufficiency is mixed across GCC states. The UAE has the most public charge points but a relatively low charging sufficiency, given that it has far more EVs on its roads than neighbouring Saudi Arabia and Qatar (Hammond, 2024). While the region is making strides in developing a network of charging stations, availability remains limited compared to more mature markets, such as Europe.

Gulf countries such as the UAE and Saudi Arabia have enacted EV-specific regulations to support the development of charging infrastructure. However, these are relatively new and piecemeal, involving complex regulatory frameworks that present a challenge for compliance and the efficient installation and operation of EV infrastructure in the region (Watson Farley & Williams, 2024).

In summary, China's position as the global manufacturing hub for EV exports is increasingly coming under threat due to a combination of factors. Geopolitical tensions and trade disputes are creating uncertainty for China-based manufacturers. Rising tariffs and the growing possibility that Western countries could also impose export restrictions or sanctions risk pushing up costs, which would make China-made EVs less competitive on global markets. China's homegrown brands also face additional challenges, such as a lack of customer awareness and negative perception of quality and reliability.

The next section will examine the experiences of Japanese automakers, which overcame similar challenges in the 1980s by investing heavily in establishing production bases in the United States. It will then assess whether the same strategy could be used by China's burgeoning EV industry to strengthen its competitive position.

Section Three:

# Correlation analysis between export volumes of China-made EVs and the establishment of Chinese EV manufacturing facilities abroad

**There are many broad similarities between the difficulties China-made EVs face today and those the Japanese automobile industry was forced to contend with in the 1980s. The section argues that China can replicate the strategy used by Japanese automakers to overcome these by encouraging its EV manufacturers to establish factories in the countries where their vehicles are sold. This viewpoint is strongly supported by a cross-sectional regression analysis outlined below.**

## 3.1 Similarities between the experience of China-made EVs and the Japanese automobile industry

**Japanese automakers' experience in international markets can offer valuable insights to their Chinese counterparts.** In the 1980s, Japanese automakers had to deal with many of the same challenges China-made EVs face now. In the 1990s, however, Japan gradually but decisively turned the situation around, and became the automotive powerhouse it is today. The success of this turnaround holds vital lessons for China.

The following table highlights the parallels between the challenges faced by Japanese car manufacturers in the past and those currently experienced by EV manufacturers in China.

Table 2: Comparison of challenges faced by Japanese automakers (1980s) and EVs manufactured in China (2020s)

| Similarity | Japanese car brands | EVs manufactured in China |
|---|---|---|
| **International reputation** | Foreign buyers, particularly in America, found it hard to forgive Japan's involvement in World War II, particularly its attack on Pearl Harbour. | China's position on various geopolitical issues often attracts international scrutiny and influences sentiment. |
| **Tariffs in the importing markets** | The US imposed a wide range of trade restrictions on Japan in the 1980s. The voluntary export restraints (VER) on Japanese autos equated to a tariff rate exceeding 60 per cent (Goldberg, 1995). | EVs manufactured in China are now facing tariffs in the EU, the US and Canada. |
| **Customer loyalty** | Existing customers of brands like BMW, Porsche, Ferrari and Ford were local to the incumbents. | Chinese EV manufacturers are relatively new and largely unknown in key markets and need to build a long-term track record of brand reliability. For example, China's first homegrown EV car, BYD F3DM, was only launched in 2008 (Norihiko, 2008). |
| **Lack of buyer confidence** | At the time, products from Japan were good but seemed to lack the refinement, design and lifespan of similar Western products. | Chinese EVs struggle with the lingering perception of having the outdated brand image of traditional Chinese cars. |

Source: (Petersen, 2024)

**China is now the world's second-largest economy, a rank held by Japan in the 1980s, when challenges to its auto industry were at their peak.** China's growing economic might and its position on various geopolitical issues have together increased international scrutiny and impacted its global reputation. Western markets are taking steps aimed at reducing their trade deficits with China. These mirror measures taken against Japan during the administration of US President Ronald Reagan designed to limit its car exports to the United States. Among these was the implementation of Voluntary Export Restraints (VER) in 1981, which restricted Japan's imports to the United States to 1.68 million cars a year (Benjamin, 1999; Cohen, 1981). Today's equivalent is the tariffs imposed on Chinese EVs by the US, the EU and Canada. Additional obstacles faced by Chinese EV manufacturers – among them a lack of both customer loyalty and buyer confidence – have historical parallels with those that Japanese automakers had to overcome.

**To surmount the roadblocks to growth erected by the Reagan administration, Japanese automakers opted to invest heavily in establishing production bases in the United States allied with their factories in Japan.** Honda alone employed more than 31,000 people in the US. Other Japanese brands such as Nissan, Toyota and Subaru also set up factories across the country (Jozuka, 2019). Local production gave Japanese automakers a deeper understanding of the American market, helped them to tailor designs to local preferences and turned them into respected and influential investors and employers in the markets where they sold vehicles (Fackler, 2006). This remains the case today. According to the Japan Automobile Manufacturers Association, Japanese automakers created 1.6 million jobs in the United States in 2018 alone. Establishing overseas factories proved to be a winning strategy for Japanese automakers. As Japanese automakers were gradually integrated into American society, relations between the two countries warmed, the reputation of Japanese vehicles improved and customer loyalty increased.

## 3.2 Cross-sectional regression

Japanese automakers' success in expanding their global presence through strategic local investments provides a foundation for surmising that EV manufacturers in China – both foreign and Chinese-owned – that adopt a similar strategy might experience similar benefits.

These include:

1. Stronger political relationships and influence over trade policies, reducing the likelihood of tariffs and trade conflicts (Sebastian, 2021).
2. Improved trade relations that could help to also encourage more foreign EV manufacturers to set up production bases in China, thereby boosting the export of China-made EVs.
3. A strong local presence and a reputation as a job-creator, which would help make Chinese EV companies more competitive abroad. Local production would also enhance brand awareness, stimulate customer interest and goodwill, contribute technology to the local economy and elevate the reputation of Chinese EVs. Ultimately, this would improve the international standing of Chinese brands and bolster their global exports.

This historical parallels between Japanese automakers and Chinese EV producers provides a compelling rationale for investigating the correlation between local manufacturing and export volumes from China through a cross-sectional regression analysis. It should be noted, however, that there is one significant difference between the two situations: in 1980s Japan, foreign automakers were not setting up factories at the pace they have in China in recent decades, while EV exports from China to other countries also include EV brands made by foreign producers. From January 2023 to March 2024, the American EV brand Tesla accounted for approximately 30 per cent of EV exports from China, well ahead of "pure" Chinese brands, including BYD, which accounted for 28 per cent, and SAIC, which accounted for 23 per cent (Huang & Xia, 2024).

This paper analysed data collected from various countries at a single point in time to determine if there is a statistically significant relationship between the presence of Chinese EV manufacturing facilities abroad and the volume of EV exports from China to those local markets. The detailed process of regression is in Appendix 1.

The cross-sectional regression results indicate that **the quantity of total exports is positively correlated with the establishment of manufacturing facilities in each country.** This provides empirical evidence that, when Chinese EV manufacturers establish a factory in a certain location, the volume of EV exports to that location is likely higher compared to when there is no factory (including foreign brands produced in China). This suggests that building production facilities abroad may enhance overall export potential, thus supporting the strategic importance of overseas manufacturing investments.

It might intuitively be supposed that building local manufacturing facilities might negatively correlate with exports since some portion of production may shift from China to the local market. Additionally, in the automotive industry, achieving a return on investment on a factory can take up to 12 years: the average lifecycle of an automotive platform (Gu et al., 2023). Indeed, for Chinese EV manufacturers, setting up factories overseas presents a significant financial challenge. The cost of building in foreign markets can be high and comes with substantial risks. In areas such as Europe, higher prices for labour, land and manufacturing costs will increase operational costs for Chinese EV companies (Gu, et al., 2023).

However, as both the example of Japan and expert interviews suggest, establishing EV manufacturing facilities abroad is about more than producing vehicles: it is a strategic move made for the following reasons:

**1. The easing of trade tensions can create a more favourable environment for all EV exports from China.** Governments of importing countries may offer incentives and create favourable policies to support the local manufacturing of "pure" Chinese EV brands. These policies can eventually create a more favourable environment for all EV exports from China, including those of foreign brands such as BMW and Tesla, which would benefit from reduced tariffs and improved trade agreements.

A favourable export environment for EV exports would in turn encourage more foreign brands to use China as a production hub, given its technology and cost advantages, thereby boosting China's overall export volume.

**2. For "pure" Chinese EV brands more specifically, it makes strategic sense to build up manufacturing in countries where they are experiencing substantial sales growth.** By establishing local production in key markets, these brands can support their large sales volumes and speed delivery. Expert interviews suggested that investing in domestic production in importing countries could accelerate Chinese EV exports into those markets and expand their market presence.

The results from the cross-sectional regression show a positive correlation between the number of local manufacturing facilities and the size of exports to a particular country. However, the analysis does not provide evidence of a causal relationship, meaning it is unclear whether local manufacturing is directly responsible for an increase in exports. It is also unclear what mechanisms trigger the export rise. As discussed above, however, expert interviews identified several potential mechanisms. Further studies and empirical evidence are needed to pinpoint the exact reasons establishing EV manufacturing facilities enhances exports for Chinese EVs, as more time and data become available. It is also important to note that Chinese EV company activity in key export markets has materialised gradually. Take for example Chinese EV manufacturer BYD's investment in Latin America, which evolved over time from supplying electric buses and other commercial vehicles, to exporting EV cars, to ultimately localising both production and research and development (Myers, 2024).

The next section will build on the conclusions drawn above by delving into the potential impact of establishing manufacturing facilities for Chinese EVs in Europe and the Gulf specifically. It will examine how local production in these regions could enable Chinese companies to bypass trade barriers and enhance their global competitiveness. The section will also analyse the broader impact of this strategy on China's position as a global leader in EV manufacturing.

Section Four:

# China's EV expansion and localised production in Europe and the Gulf

**This section aims to build on the findings of the previous section by taking a closer look at the impact of Chinese EV development on two regions experiencing a rapid influx of China-produced EVs: Europe and the Gulf. Europe's car sales market is well-established and has historically been dominated by traditional automotive brands, while the Gulf, a region famous for its vast reserves of oil and natural gas, is currently pursuing economic diversification by growing its own manufacturing capacity.**

Drawing on data gathered primarily through interviews with policy and EV industry experts, detailed in Appendix 2, the section discusses the implications of localising Chinese EV production in Europe and the Gulf. It also explores how state-led initiatives and collaboration between the Chinese government and Chinese EV companies can support the EV sector's future growth and anticipate – and help overcome – future challenges in global markets.

## 4.1 Europe

**Europe is the currently the main destination for China's EV exports.** The world's second-largest EV market after China, Europe took 54 per cent of China's total EV exports in 2023 (Huang & Xia, 2024). The region also provides an excellent springboard for global growth in Chinese EV brands for three reasons. The first of these is the EU's ambitious goal for a transition to green passenger transport vehicles, which will require all new cars and vans registered in the EU to be zero-emission by 2035 (European Commission, 2022). Second, many European countries currently offer substantial (but declining in many areas) subsidies for EV purchases, and the momentum to phase out ICEV vehicles is growing (Randall, 2024). Additionally, Europe boasts the world's most advanced charging infrastructure outside of China (Sebastian, 2021).

**However, the influx of affordable China-made EVs presents significant challenges to the European automotive industry.** The EU has noticed the sharp increase in the market share of Chinese EV brands, which grew from less than 1 per cent in 2019 to 8 per cent in recent years, with projections suggesting that it could reach 15 per cent by 2025 (Blenkinsop, 2024). Unease about the rapid rise in Chinese EV imports has extended to foreign companies operating in China.

EU officials have said that the Tesla Gigafactory in Shanghai has unfairly benefited from Chinese state subsidies, which has allowed it access to below-cost batteries, as well as cheap land and grants for exporters (Rankin & O'Carroll, 2024). The negative sentiment in the EU is fuelled by frustrations among European carmakers at losing market share to Chinese counterparts.

This section will discuss the significance of the European automotive industry to the EU economy and how this explains the bloc's decision to impose EU tariffs on Chinese EV brands. It will also examine the implications of these tariffs for China's EV exports. It will then draw on the findings of the previous section to explore potential new pathways toward improved China-Europe relations.

### 4.1.1 Protective measures by the EU

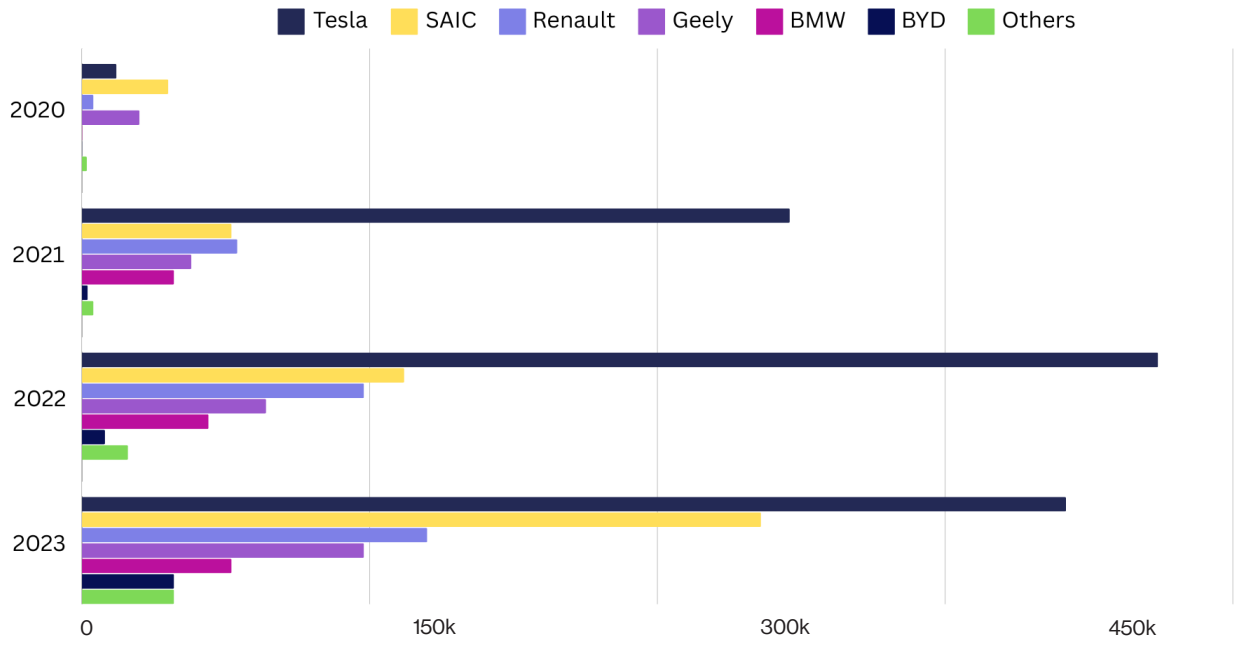
**The European automotive industry is a cornerstone of the EU economy, providing millions of jobs and driving technological innovation.** The rising presence of Chinese EVs has raised concerns among policymakers and industry stakeholders about the future of the domestic automotive sector. China's unprecedented challenge to European producers is aided by its 30 per cent share of global manufacturing, relatively low wages, advanced technological capabilities and substantial state support. At the same time, EU trade policy has evolved in recent years from prioritising free trade agreements (FTAs) and economic efficiency to focusing on creating a level playing field (Henig, 2024).

**Faced with this challenge, Europe has taken proactive measures. In October 2023, the bloc initiated an anti-subsidy investigation against all EVs from China (European Commission, 2023a).** This investigation was launched to address concerns about subsidies received by Chinese EV manufacturers, which the EU contends allow them to enter the EU market at artificially low prices. Unusually, however, the probe was launched without a formal complaint from the industry and caused a split within the EU. German carmakers, heavily dependent on access to the Chinese market, opposed the investigation out of fear that Beijing could retaliate, while French counterparts, with far less exposure to China, supported it.

After months of rising tensions between the two governments, the EU decided to provisionally impose additional tariffs on all EV imports from China – in addition to the existing 10 per cent duty on imports of EVs – while discussions between the two countries about the issue continue (European Commission, 2024). These tariffs represent the most high-profile action against China since an investigation into Chinese solar panels a decade ago. As it turned out, Germany was right: the tariffs prompted China to retaliate with its own investigations, increasing the potential for a tit-for-tat trade war that affects other sectors, such as alcohol and agricultural products, and exacerbating global economic tensions (Buchan, 2024).

**However, a significant portion of EV imports in Europe from China are foreign brands.** Figure 5 shows Tesla leading the surge in Europe's import of EVs from China between 2020 to 2023 (Valero & Trudell, 2024). In addition, European automakers such as BMW and Renault also import EVs made in China into the bloc. This raises questions about how European countries should handle EVs produced by American and European companies in China for export to the EU.

Figure 5: Tesla led the increase in Europe's import of EVs from China




Source: (Valero & Trudell, 2024)

**It is important to note that Chinese manufacturers have the option to circumvent duties by turning to third-country markets, which can render EU tariffs ineffective.** By building new factories in other countries, Chinese EV producers could bypass higher tariffs. BYD, Great Wall and Haojue have announced plans to establish EV factories in Thailand (Setboonsarng, 2024). In addition, BYD has recently opened a factory in Turkey, where Turkish-made cars benefit from advantageous access to the EU through a customs union established in 1995 (AFP, 2024). In these third-country markets, tariffs imposed by both the EU and China are ineffective, allowing subsidised Chinese products to retain their price advantage. Europe has yet to respond to this challenge effectively. Tariff circumvention tactics in the EV industry could set a precedent for other industries, broadly undermining the effectiveness of traditional tariff measures.

In summary, while the tariffs were aimed at protecting the EU's EV industry, they may have unintended consequences beyond immediate increased costs for customers, making them counterproductive. These include complexities involved in dealing with Western Original Equipment Manufacturer (OEM) imports. Tactical moves by Chinese manufacturers to circumvent tariffs further complicate the situation.

### 4.1.2 Establishing Chinese EV factories in Europe could reduce trade tensions and improve China's global reputation

Although provisional EU tariffs were imposed in July 2024, on 20 August the European Commission published its draft decision of new tariff levels on EVs imported from China. The 27-member bloc is scheduled to vote in October 2024 on whether to implement additional tariffs, which would be added to its existing 10 per cent duty on imported EVs (Eddy and Gross, 2024).

Based on the analysis in section three, this report proposes a new strategy that could benefit both China and the EU: the construction by Chinese companies of EV **manufacturing facilities in Europe.**

As discussed in section 3, this would lead to job creation and reduce trade tensions, which would help all EV companies – both foreign and Chinese – and improve China's global reputation as an EV supply chain hub. **If they result in reduced trade barriers, the easing of trade tensions could also help encourage more foreign brands to produce in China.** A favourable export environment would induce more foreign brands to use China as a production hub, particularly given all the advantages it offers, including a well-established infrastructure, a skilled labour force and a robust supply network. Foreign brands could benefit from lower production costs and streamlined export processes, making it easier to export to global markets from China. More foreign-built factories would reinforce China's position as a leading global manufacturer.

**Setting up European manufacturing facilities would help improve the reputation of Chinese EVs there and would allow producers to better understand local preferences.** These insights can help manufacturers make their EVs more appealing, boosting demand and consequently exports. In addition, locally produced Chinese EVs will be perceived as domestic products responsible for creating jobs and boosting local economies. Their attractiveness to European customers will be further enhanced by the perception that, because of stringent regulatory standards and customer protection laws, products made in the EU, including vehicles, are safer (European Commission, 2023b). Various EV industry experts have corroborated this potential benefit, emphasising that safety and quality are very important considerations for European customers (Carey, 2022). Moreover, local production will raise customer awareness, especially when coupled with other existing initiatives, such as sponsorship of high-profile sporting events (e.g. the UEFA European Football Championship, which BYD sponsored in 2024) (BYD, 2024). Widespread acceptance in developed markets can also positively impact Chinese EVs global competitiveness.

From an EU perspective, tariffs could hasten the growth of Chinese EV manufacturing facilities in Europe. This process has already begun, with countries such as Hungary benefiting from investments by Chinese EV producers.

Hungary received 44 per cent of all Chinese FDI into Europe in 2023 and leading Chinese EV maker BYD is building a factory in the Hungarian city of Szeged, its first in Europe. Chinese battery companies are also investing in Hungary, including CATL (Martuscelli, et al., 2024).

The further expansion of Chinese EV manufacturing in Europe would create jobs, stimulate the economy, provide technological advances, accelerate Europe's green transition and provide more affordable options for customers benefits similar to those Japanese production offered to the United States.

Table 3 lists major Chinese EV brands; their tariff levels based on estimates of how much state aid they received and their willingness to cooperate with the EU probe; their responses to the tariffs; and plans for opening plants in Europe – a clear illustration of this trend (da Silva, 2024).

Table 3: Tariffs on major Chinese EV brands and their plans to open manufacturing plants in Europe

| Chinese EV brand | Tariff level (based on draft decision published in August 2024) [3] | Response to EU tariff | Plans to open manufacturing facilities in Europe |
|---|---|---|---|
| BYD | 17 per cent | BYD cooperated with the EU and thus faces a lower tariff rate than other Chinese EV makers. | The world's largest EV maker, BYD announced in late 2023 that it will build its first European EV production base in Hungary. The plant will produce EVs and plug-in hybrids for the European market and is set to start operating in three years (Reuters, 2023a). |
| Geely | 19.3 per cent | Geely issued a statement saying it is greatly disappointed in the European Commission's decision, and that the tariffs are "not constructive" and "may potentially hinder EU-China economic and trade relations" (Geely, 2024). | In 2022, a government-backed plan to build a factory in Poland was halted due to the ongoing war on Ukraine and subsequent disruptions (Strzelecki & Badohal, 2024). Geely is actively proceeding with localisation work in Europe and is looking to use parent company's existing Europe plants (Lew & Low, 2024). |
| Nio | 21.3 per cent | Nio said it will maintain prices for cars sold into Europe for the moment, but that price adjustments at a later stage "cannot be ruled out" as a result of these tariffs being imposed (Reuters, 2024). | In May 24 interview with Pandaily, Nio CEO Li Bin said he is considering collaborating with European local companies to establish factories in Europe. Li Bin said, "In Europe, establishing production facilities will be a natural outcome". (Pandaily, 2024). |

3 Data is based on the draft decision published by the European Commission on 20 August 2024.

| | | | |
|---|---|---|---|
| XPeng | 21.3 per cent | A spokesperson for XPeng said that customers who are awaiting deliveries of cars, or who place new orders before the tariffs take effect, will be "protected from any price increases" (Kharpal, 2024) | As of August 2024, XPeng is in the initial stages of selecting a manufacturing site with relatively low labour risks in the EU. The company also plans to establish a large-scale data centre in Europe (Bloomberg News, 2024). |
| Chery | 21.3 per cent | Chery has stated that having local production in Europe would help it to mitigate some of the impact of duties (Reuters, 2024b). | Chery is expected to start EV production at its recently acquired factory in Barcelona, Spain, by the end of 2024 (Reuters, 2024a) |
| SAIC Motor | 36.3 per cent | SAIC Motor said it will formally ask the European Commission to hold a hearing on duties to further exercise its rights of defence (Ren, 2024). Labelled as uncooperative by the EU, SAIC Motor said that the EU had requested sensitive business information during its probe (Bloomberg News, 2024). | SAIC Motor is actively seeking locations for prospective EV production plants in Europe. It established its first European innovation and R&D centre in Amsterdam and plans to open a second operation (Guillaume, 2024). |

Source: (Petersen, 2024)

**It is important to note that setting up manufacturing facilities in the EU involves high investment costs and a long return period, which will affect Chinese EV manufacturers differently.** For Chinese brands already well-established in the European market, such as BYD, this strategy is worthwhile due to the high potential for sales growth in the region. By establishing manufacturing facilities, these brands can support their large sales in the EU. This perspective is supported by an interview with an EV industry expert, who suggested that such investments could accelerate Chinese EV exports to Europe. Cross-sectional regression results in the third section also indicate that local manufacturing positively correlates with export volumes. Conversely, for lesser-known Chinese brands that lack an established market presence or are struggling to increase sales in the EU, building manufacturing facilities may not be a viable strategy.

## 4.2 The Gulf

**Chinese EV companies that set up manufacturing facilities in the Gulf would stand not only to gain market access but also to strengthen diplomatic and economic ties.** Such alliances can yield substantial long-term benefits beyond immediate economic returns. Although the Gulf is considered a high-potential market for EV manufacturers in China, the current penetration rate for all brands of EVs is still relatively low in this region. In 2023, the EV sales penetration rate in the UAE was 5 per cent, while Qatar's and Saudi Arabia's were just 1.2 per cent and 0.2 per cent respectively (CJ & Castillo, 2024). As a result, establishing a production facility there would more likely be driven more by geopolitical strategy than by purely economic factors.

The Gulf has emerged as a strategic key market for several reasons, including the region's ambitious environmental goals, the unique significance of China to Gulf nations in the context of increasing multipolarity and intensifying US-China competition and the warm diplomatic relationship between China and the Gulf nations.

### 4.2.1 Gulf nations' ambitious environmental goals

**Gulf nations are emerging as a pivotal EV market due to their ambitious environmental goals.** Gulf nations have launched efforts to decarbonise and, as part of a push to diversify their economies away from oil and gas, to carve out international leadership roles in the new energy future (Al-Sulayman and Alterman, 2023). Table 4 shows the transport decarbonisation goals of assorted Gulf countries.

As in other nations, the transformation of the transport sector is a critical element in both their green transition and their economic diversification. Thus, the shift from traditional fuel vehicles to EVs is inevitable. At the same time, Gulf countries have a strong car culture and a high demand for vehicles. While the transition may take time, the Gulf presents a growing market opportunity for EV manufacturers.

Table 4: Gulf countries' transport decarbonisation goals

| Country | Transport decarbonisation goals |
|---|---|
| United Arab Emirates | UAE aims to have half of all vehicle sales to be EVs and hybrids by 2050 (PwC, 2024). |
| Saudi Arabia | Saudi Arabia wants 30 per cent of vehicles in Riyadh to be EVs by 2030 (Hassan, 2024). |
| Qatar | Qatar has set a target of 35 per cent of its fleet and 100 per cent of public transport buses to become electric by 2030 (Gemechu, 2023). |

Source: created by the author based on different sources listed in the table

**Gulf countries have initiated several measures to develop their EV sector.** In Saudi Arabia, the Public Investment Fund (PIF) launched the Saudi EV brand Ceer in 2022, a key element of the Kingdom's Vision 2030 masterplan to diversify its economy (ZAWYA, 2024). PIF also owns 60 per cent stake in the Californian EV maker Lucid Motors, which plans to produce vehicles at a new factory currently under construction in Saudi Arabia (Morris, 2024). The UAE, particularly Dubai, has been proactive in developing EV charging infrastructure and has introduced government incentives such as free registration, free parking and reduced charging and toll fees to promote EV adoption (PwC, 2024). Meanwhile, Qatar has introduced its first EV brand, Vim, manufactured under an exclusive intellectual property rights deal with partners, including China-based Beijing Automotive Works (Sambidge, 2023). These initiatives align with the Gulf nations' broader strategies to diversify their economies and reduce dependence on fossil fuels.

### 4.2.2 Establishing Chinese EV factories in the Gulf as a strategic move to diversify geopolitical alliances and enhance trade relations

**The Gulf region is open to the presence of Chinese EV factories as part of its broader efforts to diversify geopolitical relationships.** China, which provides the Gulf with significant leverage in both energy and geopolitics, is seen as an emerging and significant partner in the Gulf's efforts to diversify its global relations. China is already deeply involved in projects aimed at creating a sustainable economy for the Gulf region and is playing a crucial role in supporting this transformation. This support goes beyond EVs to include renewable energy more broadly, as the Gulf countries aim to transition away from oil-based power generation toward solar energy, some hydropower and nuclear energy, all of which are part of this plan. China's involvement is vital.

In terms of their overall positioning, within the context of a multipolar world, the Gulf nations remain strongly committed to being part of the Western security architecture. They are still dedicated to maintaining close security partnerships with the United States, while viewing their relationships with the two major powers – the United States and China – as serving two different objectives: partnership with the United States bolsters security while partnership with China offers economic benefits. In today's multipolar global context, China, like many other countries, offers the Gulf nations a wealth of strategic resources and flexibility. The Gulf region benefits in many ways from this multipolarity, which allows them to continue their alliance with the United States while maintaining very close ties with China.

**A strategic decision to build factories in the Gulf should not hinge solely on economic factors, such as cost efficiency, but rather on longer-range goals, such as the establishment of stronger diplomatic relations.** Factors such as low EV penetration rates, high labour costs, an incomplete supply chain and a relatively small customer market actually make the Gulf a less attractive proposition for investment when viewed from a purely financial standpoint. The absence of local suppliers of many EV components, particularly batteries, means that even if one part of the local supply chain is well-developed other parts may not be able to keep up. This lack of maturity across different stages of EV production can lead to increased costs and friction in the manufacturing process. The challenges associated with gaps in the Gulf's EV supply chains are further exacerbated by the region's high labour costs.

Instead, investments in localising production in the Gulf would be largely motivated by a desire to deepen geopolitical ties. By setting up manufacturing in the Gulf, Chinese EV companies – and by extension the Chinese government – can build stronger relationships with Gulf states, helping to advance broader strategic goals such as securing long-term energy partnerships and enhancing China's presence in the region.

**Foreign-brand EVs made in China would benefit from a stronger relationship between China and the Gulf.** For foreign manufacturers, robust diplomatic – and thus economic – ties between China and the Gulf could broaden export opportunities to the region.

The finalisation of a free trade agreement between the GCC and China – under negotiation since 2004 – would in particular provide EV manufacturers operating in China with greater access to the Gulf market. The fact that Tesla currently exports cars made in its Shanghai Gigafactory to the Middle East demonstrates how foreign manufacturers can leverage China's production capabilities to penetrate the Gulf market (Reuters, 2023b). A rise in the volume of China-made EVs to the region would also encourage other international EV companies to consider China as a strategic hub for exporting to the Gulf.

**For Chinese EV brands, establishing local factories and creating jobs could strengthen their position in the Gulf.** Although China's relationship with the Gulf region is warming, it is still in its early stages. Deeper cooperation in various fields could strengthen this relationship, with EVs playing a key role. From the Chinese EV company perspective, building factories in the Gulf could also bolster sales in the region. Again, local production would allow them to create jobs in the local market, tailor their vehicles' size and performance to customer preferences and the unique climate conditions of the region and strengthen brand recognition. Producing EVs locally also addresses concerns expressed by certain Gulf countries, such as Saudi Arabia, about the risk of cheap Chinese imports undermining the Kingdom's ambitions to become an industrial powerhouse (Barhouma, 2024).

Furthermore, interviews with experts indicated that local manufacturing facilities may serve as a gateway to the EU, allowing producers to bypass current tariff conditions, as BYD is doing with its factory in Turkey. However, the benefits of this approach remain uncertain due to potential future changes in trade policies, regulatory challenges and evolving market dynamics. It should also be noted that, while the GCC and EU have strong trade relations, they currently have no free trade agreement.

### 4.2.3 Alternative pathways for greater synergy between China and the Gulf

**There are other pathways that offer China a way to deepen ties with the Gulf beyond local manufacturing, such as inviting investments and joint ventures.** Gulf countries have the opportunity to invest in Chinese EV companies, many of which are facing financial constraints, in order to gain valuable expertise and technological knowledge. Startups such as HiPhi, WM Motor (supported by Baidu), and Aiways (backed by Tencent) are running low on funds and struggling to maintain operations (Zhou, 2024). Investments by Gulf countries in Chinese EV technology (e.g. the Abu Dhabi government's recent move to take a US$1 billion stake in Nio) offer a strategic path to acquiring crucial knowledge (Flannery, 2023). Despite their cost and technological advantages, Chinese EV companies require substantial capital, which well-funded Gulf countries can provide. Given that Gulf nations are already collaborating with established automotive brands, it seems likely that the future will hold more of such investments and collaborations with Chinese EV brands.

**Another pathway is the collaboration model seen in infrastructure projects under China's Belt and Road Initiative, which could be applied to the EV industry.** Chinese state-owned enterprises and the Chinese government have faced liquidity and cash flow difficulties in some infrastructure projects modelled after the Silk Road Economic Belt and 21st-Century Maritime Silk Road Development Strategy (a.k.a. China's Belt and Road Initiative), particularly in Central Asia and Africa. Gulf nations have stepped in and acquired stakes in some of these struggling projects, such as those in Uzbekistan (Al-Sulayman & Alterman, 2023). This is a win-win situation, because while Gulf countries may have deep pockets, they do not have deep economic ties with Central Asian nations, whereas China clearly does. Therefore, by leveraging its capital to intervene, the Gulf region can rapidly develop economic relationships with some Global South countries that are crucial to China's EV supply chain, using the blueprint established by the Belt and Road Initiative. This model could potentially be replicated in the EV sector to achieve mutually beneficial outcomes.

## 4.3 Collaboration between Chinese government and Chinese EV companies

**The collaboration between the Chinese government and Chinese EV companies is crucial for overcoming export challenges faced by both foreign and homegrown producers of EVs in China.** Historically, similar efforts have been instrumental in propelling China's manufacturing and technology sectors onto the global stage. For instance, during the early 2000s, China's "going global" strategy provided state-owned enterprises with substantial financial backing, including export tax rebates and low-interest loans. These initiatives were designed to promote the international expansion of Chinese companies, helping them to navigate foreign markets, acquire advanced technologies and secure the raw materials needed for production. Companies such as Haier and Lenovo benefited from such support, which enabled them to establish a global presence. Lenovo's acquisition of IBM's personal computer division in 2005 was a direct result of the government's strategic support, combining capital and state-facilitated international partnerships to secure both technology and market share (Salidjanova, 2011).

The Chinese government has employed a similar approach in the automotive sector, encouraging domestic manufacturers to acquire foreign brands and technology. Nanjing Automotive's acquisition of MG Rover in 2005 and Geely's purchase of Volvo in 2010 were emblematic of China's effort to boost its automotive industry globally. These deals were backed by state financing and diplomatic efforts to open new markets, reinforcing the companies' technological advances and competitiveness (Salidjanova, 2011).

Government support is particularly necessary at this juncture. As was mentioned above, the payback period for establishing production facilities in Europe is 12 years. Currently, however, Chinese EV brands lack funding. EV producer Nio, for instance, has welcomed investment from the Gulf. Through state-led support models, the Chinese government and Chinese EV companies may together be able to overcome the current challenges faced by China-made EVs in the global market.

**In addition, the Chinese government should actively work with Chinese EV companies to anticipate and address future challenges that could hamper the industry's global expansion.**

For example, the data privacy debate is likely to significantly influence the future of Chinese EVs, especially in Western markets. Today's EVs are not just modes of transport. They are computers on wheels, data-collecting devices designed to train artificial intelligence in autonomous driving. Finding ways to address concerns over how this data is managed, stored and shared will be paramount, in particular given the stringent privacy regulations in regions such as Europe and North America. Furthermore, the topic of Chinese EVs has political implications in countries like the US and the EU, where discussions around technology from China often have a geopolitical dimension.

To navigate such hurdles effectively, on February 7, 2024, the Ministry of Commerce issued its "Guiding Opinion on the Healthy Development of Trade and Cooperation on New Electric Vehicles", outlining several measures to promote the international expansion of China's EV sector. [4] It is crucial for the Chinese government and EV companies to follow and implement these proactive strategies and work together to enhance the global influence of Chinese EVs.

## Guiding Opinion on the Healthy Development of Trade and Cooperation on New Electric Vehicles

Issued by China's Ministry of Commerce on February 7, 2024

The measures include:

1. Supporting companies to establish overseas R&D centres.
2. Leveraging global innovation resources, and actively forming strategic partnerships with foreign research institutions and industrial clusters to enhance design, R&D, and technological innovation capabilities.
3. Encouraging companies to improve their overseas compliance management, with a focus on training in market access, environmental protection, data protection, and intellectual property rights, thereby boosting their international operational capabilities.
4. Supporting the development of international after-sales service networks for EVs, including setting up service points and maintenance centres abroad, promoting partnerships with component suppliers and utilising digital technologies to enhance the quality and efficiency of after-sales services.

In terms of financial and trade promotion, the guidance emphasises:

1. Optimising credit support mechanisms and expanding the role of export credit insurance to help companies better manage exchange rate risks in international markets and facilitate cross-border RMB settlements.
2. Supporting companies in expanding their global presence through international exhibitions and brand promotion activities, aiming to build globally recognised brands. To foster a favourable international trade environment, the guidance calls for advancing the international standardisation of EVs and batteries and promoting mutual recognition of conformity assessments.
3. Leveraging the benefits of free trade agreements and regulating EV import and export activities.
4. Utilising bilateral and multilateral mechanisms to ensure a stable international trade environment and to assist companies in addressing foreign trade restrictions. These comprehensive measures cover various aspects such as technology, market access, finance, and logistics, all aimed at driving high-quality development in China & EV industry and strengthening its competitiveness in the global market.

Source: The Central People's Government of the People's Republic of China (2024)

4 Please refer to the website of the Central People's Government of the People's Republic of China: https://www.gov.cn/zhengce zhengceku/202402/content_6931276.htm

In conclusion, the expansion of Chinese EV sales in Europe and the Gulf region will require companies to adopt a multifaceted approach, to include economic, geopolitical and strategic considerations. In Europe, the rapid influx of Chinese EVs has disrupted the local automotive industry, prompting the bloc to implement protective measures such as tariffs. However, the establishment of local production facilities by Chinese EV companies presents a promising solution. Through localised production, Chinese EV brands can not only circumvent trade barriers but also create jobs, strengthen technological cooperation and align more closely with Europe's ambitious green energy goals. This strategy would also enable Chinese companies to better understand and cater to European customer preferences, potentially improving the reputation and market perception of their vehicles, while simultaneously promoting the export of EVs manufactured within China and cementing China's position as a global EV manufacturing hub.

In the Gulf, the rationale for setting up Chinese EV production facilities extends beyond immediate economic returns.

Building factories in the Gulf would constitute a carefully considered move aimed at strengthening diplomatic relations, deepening economic partnerships and supporting the region's transition towards sustainability and economic diversification. The Gulf's ambitious environmental goals, coupled with a growing interest in developing new industrial sectors, provide fertile ground for long-term collaboration. By aligning with the region's strategic vision, Chinese EV manufacturers would not only gain access to a developing market but would help reinforce China's position as a global leader in green technology.

By combining state support with strategic investments and localised production, China's EV industry can put itself in a strong position to tackle present and future challenges, enhance global competitiveness, boost sales and exports and foster mutually beneficial relationships in these key regions.

The next section will offer a summary of key research findings and sketch out the likely future growth of Chinese EVs in the global market.

Section Five:

# The future of China-made EVs in the global market

**Research conducted for this report indicates that localising Chinese EV production in key export markets, such as Europe and the Gulf, would significantly enhance the overall export performance of all China made EVs, along with the sales of Chinese EVs manufactured in these markets. This strategy would not only strengthen China's position as a leading global EV manufacturer, but also facilitate the international expansion of Chinese EV brands.**

China's long-range strategic planning and early investments in the EV sector have afforded the country a first-mover advantage and a notable degree of international influence. Nevertheless, both foreign EV brands and "pure" Chinese EV brands with production bases in China face substantial challenges in export markets, primarily as a result of tariffs imposed by the United States, the EU and Canada, along with the potential risk that others will enact similar measures. Chinese EV brands face further obstacles to growth arising from lingering reputational issues, their knowledge of local tastes and their limited international experience. They also face price competition from brands produced in other countries, such as Vietnam, and the risk of being outpaced by established competitors, particularly in Europe.

To address these challenges and strengthen their global competitiveness, Chinese automakers must consider how they can positively contribute to the local economies in which they operate, especially those where they are forced to compete with regional brands. Given that the automotive sector is a critical source of employment in many countries, any perception that China's expansion could prompt significant job losses will strengthen opposition to Chinese EVs. If Chinese EV producers can mitigate the potential negative impacts of their entry into markets while continuing to offer competitive pricing, high quality and designs that resonate with local preferences, they can position themselves for sustained growth and a stronger presence in global markets.

For Europe, although the development of China made EVs has had a negative impact on its important automotive industry, there may be more beneficial path than tariffs worth exploring. Tariffs not only increase the burden on customers but may also hinder Europe's green transition goals. By instead encouraging Chinese EV companies to establish local production facilities, not only can the EU ease trade friction, but it can also achieve environmental and economic benefits. One need only look at the 1980s, when Japanese automakers created thousands of jobs in the United States by setting up manufacturing plants there, ultimately achieving a win-win situation for both countries. Encouraging Chinese EV producers to manufacture locally would allow Europe to reap similar economic rewards while furthering its environmental goals.

For Gulf countries, cooperation with China in the EV industry can help speed the process of economic diversification while strengthening a key geopolitical partnership and enhancing the region's bargaining power in international negotiations. Collaboration between China and the Gulf in the EV sector would allow both nations to strengthen trade relations, foster mutual benefits and promote sustainable development.

The benefits for China would be enormous, as outlined above. Above all, taking the initiative to promote such cooperation would solidify its leadership position in the global EV market and help promote the development of the green economy globally.

Collaboration between the Chinese government and Chinese EV companies must be central to these efforts. State-led initiatives that would support this strategy could include state- sponsored financing to provide Chinese EV companies with the capital necessary to establish production facilities abroad, while diplomatic efforts to establish strong relationships with other countries could facilitate easier entry for Chinese EVs into new markets. The government and Chinese EV manufacturers will also need to work together to address emerging concerns surrounding data and information security, which could be exacerbated by evolving geopolitical conditions. All these efforts would eventually benefit the overall export performance of all EVs made in China, whether by homegrown or foreign producers, thereby increasing the country's manufacturing output.

Finally, it should be noted that the availability of affordable EVs made in China benefits both global customers and the overall green transition. Chinese EV producers offer affordable, high-quality options that could prove popular with markets and demographics that have traditionally been priced out of the EV market. This mirrors the global impact of affordable Chinese phones and laptop brands, which have made technology more accessible to a broader population. Offering cost-competitive EVs can help stimulate their adoption more widely, thus making green transition more attainable.

Export challenges such as those faced by China today risk slowing the global shift to sustainable transport at a critical point in the fight against climate change. Addressing them is crucial for ensuring the steady adoption of sustainable technologies and the achievement of greener future.

# Bibliography


AFP (2024), "China's BYD signs deal to open $1 billion electric car plant in Turkey".
Available at: *https://gulfnews.com/business/retail/chinas-byd-signs-deal-to-open-1-billion-electric-car-plant-in-turkey-1.1720520002787*
(Accessed: July 15, 2024).

AFP (2024), "In fuel-guzzling Saudi Arabia, electric cars pique interest". Available at:
*https://www.france24.com/en/live-news/20240724-in-fuel-guzzling-saudi-arabia- electric-cars-pique-interest*
(Accessed: July 25, 2024).

Al-Sulayman, F., & Alterman, J. B. (2023), "China's Essential Role in the Gulf States'
Energy Transitions", Center for Strategic and International Studies. Available at: *https://www.csis.org/analysis/chinas-essential-role-gulf-states-energy-transitions*
(Accessed: Feb 15, 2024).

Azusa, K. (2024), "Nissan, Honda eye EV battery passports in Europe by 2027", Nikkei.
Available at: https://asia.nikkei.com/Business/Automobiles/Electric-vehicles/Nissan-Honda-eye-EV-battery-passports-in-Europe-by-2027
(Accessed: July 25, 2024).

Barhouma, M. (2024), "Potential GCC-China Free Trade Agreement: Cementing Partnership
'Beyond Oil'". Available at: *https://epc.ae/en/details/brief/potential-gcc-china-free-trade-agreement-cementing-partnership-beyond-oil-#:~:text=According%20to%20a%20report%20by,kingdom%20into%20an%20industrial%20powerhouse*
(Accessed: Jun 12, 2024).

Benjamin, D. (1999), "Voluntary Export Restraints on Automobiles". Available at:
*https://www.perc.org/1999/09/01/voluntary-export-restraints-on-automobiles/*
(Accessed: Feb 15, 2024).

Blenkinsop, P. (2024) ,"EU hits Chinese EVs with tariffs, drawing rebuke from Beijing",
Reuters. Available at: *https://www.reuters.com/business/autos-transportation/eu-impose-multi-billion-euro-tariffs-chinese-evs-ft-reports-2024-06-12/*
(Accessed: Jun 22, 2024).



Blenkinsop, P. (2024) ,"EU hits Chinese EVs with tariffs, drawing rebuke from Beijing", Reuters. Available at:
*https://www.reuters.com/business/autos-transportation/eu- impose-multi-billion-euro-tariffs-chinese-evs-ft-reports-2024-06-12/*
(Accessed: Jun 22, 2024).



Blenkinsop, P., & Campenhout, C. V. (2024), "China-built EVs hit with duties in biggest EU trade case yet", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/eu-imposes-duties-china-built-evs-leaving-four-months-talks-2024-07-04/*
(Accessed: July 15, 2024).

Bloomberg News (2024), "China's Xpeng Aims to Expand With Entry Cars, Europe Production". Available at: *https://www.bloomberg.com/news/articles/2024-08-26/china-s-xpeng-aims-to-manufacture-evs-in-europe-to-blunt-tariffs*
(Accessed: Aug 30, 2024).

Bloomberg News (2024), "China EV Maker's Tepid Reply to EU Proves Costly in Tariff Spat". Available at: *https://www.bloomberg.com/news/articles/2024-08-25/china-ev-maker-s-tepid-reply-to-eu-proves-costly-in-tariff-spat*
(Accessed: Aug 30, 2024).

Boehm, S., & Schumer, C. (2023), "10 Big Findings from the 2023 IPCC Report on Climate Change", World Resources Institute. Available at: *https://www.wri.org/insights/2023-ipcc-ar6-synthesis-report-climate-change-findings*
(Accessed: December 17, 2023).

Buchan, M. (2024), "EU tariffs on Chinese EVs could fuel trade tensions in the alcohol
sector", Asia House. Available at: *https://asiahouse.org/research_posts/eu-tariffs-on-chinese-evs-could-fuel-trade-tensions-in-the-alcohol-sector/*
(Accessed: July 10, 2024).

Butts, D., & Cheng, E. (2024), "China's BYD pushes into emerging markets amid policy uncertainty in the U.S., Europe", CNBC. Available at:
*https://www.cnbc.com/2024/03/19/tesla-rival-byd-pushes-into-emerging-markets-amid-western-uncertainty.html#:~:text=Tech-,China%27s%20BYD%20pushes%20into%20emerging%20markets,uncertainty%20in%20the%20U.S.%2C%20Europe&text=Given%20policy%20uncertainty%20aro*
*(Accessed: Aug 02, 2024).*

BYD (2024), "It's finally starting: EURO 2024 and BYD are ready for a big football celebration". Available at: *https://www.byd.com/eu/blog/euro-2024-and-byd-are- ready-for-a-big-football-celebration.html#:~:text=EURO%202024%20kicks%20off%20today%20and%20BYD%2C%20the,of%20the%20UEFA%20European%20Football%20Championship%202024%20TM* Accessed: Jun 20, 2024).

Carey, N. (2022), "Focus: Chinese carmakers target more European sales with five-star EVs", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/chinese-carmakers-target-more-european-sales-with-five-star-evs-2022-11-21/* (Accessed: Mar 19, 2024).

CGTN. (2024), "Middle East insights: How Chinese EV makers are tapping into UAE". Available at: *https://news.cgtn.com/news/2024-03-14/Middle-East-insights-How-Chinese-EV-makers-are-tapping-into-UAE-1rXF3s2BloA/p.html* (Accessed: May 05, 2024).

Chang, A., & Bradsher, K. (2023), "Can the World Make an Electric Car Battery Without China". Available at: *https://www.nytimes.com/interactive/2023/05/16/business/china-ev-battery.html* (Accessed: Feb 27, 2024).

Chu, M. M., & Cash, J. (2024), "China may take provisional anti-dumping steps against EU pork imports", Reuters. Available at: *https://www.reuters.com/markets/china-may-take-anti-dumping-measures-against-eu-pork-imports-official-says-2024-06-20/* (Accessed: July 27, 2024).

CJ, A., & Castillo, S. (2024), "EV Charging Index: Expert insight from the GCC region". Available at: *https://www.rolandberger.com/en/Insights/Publications/EV-Charging-Index-Expert-insight-from-the-GCC-region.html#:~:text=The%20UAE%20aims%20for%20at,of%20just%200.2%25%20in%202023* (Accessed: Aug 10, 2024).

Climate Action Tracker (2020), "Methods Report Elaborating the decarbonisation roadmap", Climate Action Tracker Paris Agreement Compatible Sectoral Benchmarks. Available at: https://climateactiontracker.org/documents/753/CAT_2020-07-10_ParisAgreementBenchmarks_FullReport.pdf. Climate Action Tracker Paris Agreement Compatible Sectoral Benchmarks

Cohen, S. D. (1981), "The Route to Japan's Voluntary Export Restraints on Automobiles", Working Paper No. 20, George Washington University.

Cornwell, A. (2024), "China-Gulf free trade talks stall on Saudi industrial agenda, sources say", Reuters. Available at: *https://www.reuters.com/world/china-gulf-free-trade-talks-stall-saudi-industrial-agenda-sources-say-2024-05-14/#:~:text=DUBAI%2C%20May%2014%20%28Reuters%29%20-%20Negotiations%20between%20China,the%20kingdom%20into%20an%20industrial%20powerhouse%2C%20sourc* (Accessed: July 05, 2024).

Craig, A. W., Bonelli, D. M., & Stosz, M. J. (2024), "Biden Administration Imposes Tariffs on Electric Vehicles, Key EV Components from the People's Republic of China". Available at: *https://www.venable.com/insights/publications/2024/06/biden-admin-imposes-tariffs-on-electric-vehicles* (Accessed: July 18, 2024).

Dempsey, H. (2024), "World& biggest lithium producer urges state help to compete with China". Available at: *https://www.ft.com/content/d20a42be-c5f8-4bcb-a93a-8272df4b56d0 (Accessed: Aug 17, 2024).*

Deutsche Welle (2007), "Chinese Car Crumples". Available at: *https://www.dw.com/en/chinese-made-sedan-fails-european-crash-test/a-2619351* (Accessed: May 25, 2024).

Eddy, M., & Gross, J. (2024), "Europe Slashes Tariffs for Tesla Vehicles Made in China". Available at: *https://www.nytimes.com/2024/08/20/business/tesla-electric-vehicle-tariffs-china.html* (Accessed: Sep 02, 2024).

Elgendy, M. (2024).,"Exploring The Role of Manganese in Lithium-Ion Battery Technology".
Available at: *https://www.azom.com/article.aspx?ArticleID=23388#:~:text=NMC%20batteries%20offer%20a%20relatively,overheating%20during%20charging%20and%20discharging*
(Accessed: July 13, 2024).

European Commission (2022), "Zero emission vehicles: first 'Fit for 55' deal will end the sale of new CO2 emitting cars in Europe by 2035". Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6462* (Accessed: Jan 21, 2024).

European Commission (2023a), "Commission launches investigation on subsidised electric cars from China". Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4752*
(Accessed: Jan 21, 2024).

European Commission (2023b), "Stronger EU product safety rules enter into force today". Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3190*
(Accessed: July 21, 2024).

European Commission (2024a), "Commission imposes provisional countervailing duties on imports of battery electric vehicles from China while discussions with China continue". Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_24_36302*
(Accessed: July 21, 2024).

European Commission (2024b), "Commission discloses to interested parties draft definitive findings of anti-subsidy investigation into imports of battery electric vehicles from China". Available at: *https://ec.europa.eu/commission/presscorner/detail/en/ip_24_4301*
*Accessed: Aug 30, 2024).*

*Fackler, M. (2006), "Japan Makes More Cars Elsewhere", New York Times. Available at: https://www.nytimes.com/2006/08/01/business/worldbusiness/01cars.html*
(Accessed: Mar 02, 2024).

Finamore, B., Dudenhöffer, F., & Mazzocco, I. (2021), "Ask the Experts: Is China winning the Electric Vehicle Race?", London School of Economics and Political Science blog Available at: *https://blogs.lse.ac.uk/cff/2021/09/13/ask-the-experts-is-china-winning-the-electric-vehicle-race/*
(Accessed: April 13, 2024).

financetwitter (2024), "BYD Beats Tesla Again – How The U.S. Carmaker Lost Its Crown As World's Top Electric Vehicles Manufacturer". Available at: *http://www.financetwitter.com/2024/01/byd-beats-tesla-again-how-united-states-carmaker-lost-its-crown-as-world-top-electric-vehicles-manufacturer.html*
(Accessed: May 16, 2024).

Flannery, R. (2023), "Abu Dhabi Fund's $1 Billion Stake In EV Maker NIO Highlights Growing Arab-China Ties", Forbes. Available at: *https://www.forbes.com/sites/russellflannery/2023/06/24/abu-dhabi-funds-1-billion-stake-in-ev-maker-nio-highlights-growing-arab-china-ties/#:~:text=An%20agreement%20this%20week%20by,oil%2Drich%20Middle%20East%20nations*
(Accessed: July 21, 2024).

Gao, P., Zhang, Z., & Mo, Y. (2024), "Beyond Tariffs: Unveiling the Geopolitics of Electric Vehicles Through Supply Chains", The Diplomat. Available at: *https://thediplomat.com/2024/08/beyond-tariffs-unveiling-the-geopolitics-of-electric- vehicles-through-supply-chains/*
(Accessed: Aug 21, 2024).

Geely (2024), "Geely Holding Group Statement on Provisional Countervailing Duties Disclosed by the European Commission". Available at: *https://zgh.com/media-center/news/2024-06-13/?lang=en*
*(*Accessed: July 03, 2024).

Gemechu, N. (2023), "Qatar to drive up electric vehicle sales by 2030", Doha News. Available at: *https://dohanews.co/qatar-to-drive-up-electric-vehicle-sales-by-2030/*
*(Accessed: Apr 03, 2024).*

GFK (2023), "Dragon on wheels: How Chinese car brands are disrupting the EV landscape".
Available at: *https://www.gfk.com/insights/dragon-on-wheels-how-chinese-car-brands-are-disrupting-the-ev-landscape*
(Accessed: Aug 05, 2024).

GFK (2024), "Turning the wheel: China's bold inroads into European and globa automotive". Available at: *https://www.gfk.com/insights/turning-the-wheel#:~:text=Affordability%20and%20technological%20innovation%20are,%2C%20and%20post%2Dsales%20support*
Accessed: Aug 05, 2024).

Goldberg, P. (1995), "Product Differentiation and Oligopoly in International Markets: The Case of the U.S. Automobile Industry". Available at: *https://econpapers.repec.org/article/ecmemetrp/v_3a63_3ay_3a1995_3ai_3a4_3ap_3a891-951.htm*
(Accessed: May 29, 2024).

Gu, Y., Belussi, F., & Narula, R. (2023), "Entering European Countries: Advantages and Diificulties for Chinese Electric Vehicle Firms", Marco Fanno Working Papers, 2024. Guillaume, G. (2024), "SAIC's MG to open second Europe parts centre by the summer", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/saics-mg-open-second-europe-parts-centre-by-summer-2024-03-14/*
(Accessed: July 23, 2024).

Hall, C., Craymer, L., & Chu, M. M. (2024), "European dairy, pork producers wary of Chinese retaliation for EV tariffs", Reuters. Available at: *https://www.reuters.com/markets/commodities/european-dairy-pork-producers-wary-chinese-retaliation-ev-tariffs-2024-06-13/ (Accessed: July 21, 2024).*

Hammond, A. (2024), "EV imports rise in Saudi Arabia, but only to 779 cars". Retrieved 2024, from *https://www.agbi.com/manufacturing/2024/04/ev-imports-saudi-arabia-2023/ (Accessed: July 21, 2024).*

Hassan, N. (2024), "Saudi Arabia leads EV surge, driving sustainable mobility revolution in Mideast", Arab News. Available at: *https://www.arabnews.com/node/2492926/business-economy*
(Accessed: July 21, 2024).

Henig, D. (2024), "Perspectives: Five years that transformed EU trade policy". Available at: *https://borderlex.net/2024/04/26/perspectives-five-years-that-transformed-eu-trade-policy/*
(Accessed: July 15, 2024).

Huang , B., & Xia, L. (2024), "China | EV sector: forging ahead amid intensifying headwinds", BBVA Research.

Huber, I. (2021), "Indonesia's Nickel Industrial Strategy", Center for International and Strategic Studies. Available at: *https://www.csis.org/analysis/indonesias-nickel-industrial-strategy (*Accessed: June 13, 2024).

IEA (2022), "Global Supply Chains of EV Batteries -- Analysis". IEA. Available at: *https://www.iea.org/reports/global-supply-chains-of-ev-batteries (*Accessed: Mar 13, 2024).

IEA (2023), "Global EV Outlook 2023". Available at: *https://www.iea.org/reports/global-ev-outlook-2023 (*Accessed: Mar 22, 2024).

IEA (2023), "Global EV Outlook 2023". Available at: *https://www.iea.org/reports/global-ev-outlook-2023/executive-summary*
(Accessed: Aug 22, 2024).

IEA (2024), "Global EV Outlook 2024". Available at: *https://www.iea.org/reports/global-ev-outlook-2024/executive-summary (*Accessed: July 23, 2024).

IEA (2023), "Global EV Outlook 2023: Catching up with climate ambitions". Available at: *https://iea.blob.core.windows.net/assets/dacf14d2-eabc-498a-8263-9f97fd5dc327/GEVO2023.pdf*
(Accessed: July 25, 2024).

Intergovernmental Panel on Climate Change (2023), "Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change". Geneva: IPCC.

Jaeger , J. (2023, September), "These Countries Are Adopting Electric Vehicles the Fastest". Available at: *https://www.wri.org/insights/countries-adopting-electric-vehicles-fastest*
(Accessed: Apr 13, 2024).

Japan Automobile Manufacturers Association (2019), "JAMA In America: An Enduring Partnership". Available at: *https://www.jama.org/wp-content/uploads/2019/05/final-report-standard.pdf* (Accessed: Feb 17, 2024).

Jozuka, E. (2019), "How Honda survived a trade war with the US and won over Americans", CNN. Available at: *https://www.cnn.com/2019/06/26/business/japan-american-honda-hnk-intl/index.html* (Accessed: Mar 12, 2024).

Jungbluth, C., & Petersen, T. (2023), "Why the EU Shouldn't Impose Anti-Dumping Duties on EVs From China". Available at: *https://globaleurope.eu/globalization/why-the-eu-shouldnt-impose-anti-dumping-duties-on-evs-from-china/*
(Accessed: June 21, 2024).

Kawakami, A. (2024), "Nissan, Honda eye EV battery passports in Europe by 2027", Nikkei.
Available at: *https://asia.nikkei.com/Business/Automobiles/Electric-vehicles/Nissan-Honda-eye-EV-battery-passports-in-Europe-by-2027*
(Accessed: Aug 17, 2024).

Kennedy, S. (2015), "Made in China 2025", Center for International and Strategic Studies.
Available at: *https://www.csis.org/analysis/made-china-2025*
(Accessed: Mar 02, 2024).

Kharpal, A. (2024), "China-built EVs hit with EU tariffs; Nio says it may have to raise prices in Europe", CNBC.
Available at: *https://www.cnbc.com/2024/07/04/china-evs-hit-with-eu-tariffs-nio-says-it-may-have-to-raise-prices.html*
(Accessed: July 12, 2024).

LeVine, S. (2024), "The Electric: How China's Massive Over-Production of Cathodes is Driving Down Battery Costs". Available at:
*https://www.theinformation.com/articles/the-electric-how-chinas-massive-over-production-of-cathodes-is-driving-down-battery-costs*
(Accessed: Mar 28, 2024).

Lew, L., & Low, M. (2024), "Geely's Zeekr Mulls Building EVs in Europe to Avoid Tariffs", Bloomberg. Available at: *https://www.bloomberg.com/news/articles/2024-07- 19/geely-s-zeekr-considers-building-evs-in-europe-to-avoid-tariffs*
(Accessed: Aug 30, 2024).

Liao, R. (2023), "Chinese EVs have yet to succeed in Europe; the Middle East could be different". Available at: *https://techcrunch.com/2023/07/04/chinese-evs-turn-to-middlle-east-after-europe/?guccounter=1*
(Accessed: May 15, 2024).

Lin, C. (2024), "3 Drivers of China's Booming Electric Vehicle Market", Harvard Business Review.

Ljunggren, D., & Shakil, I. (2024), "Canada, inspired by EU and US, considers imposing import tariffs on Chinese EVs", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/canada-says-it-might-impose-import-tariffs-chinese-evs-2024-06-24/*
(Accessed: Aug 30, 2024).

Magid, P. (2024), "Riyadh's multi-billion EV dream risks crashing into reality", Japan Times. Available at: *https://www.japantimesco.jpbusiness/2024/01/28/tech/riyadh-ev-dream-reality/*
(Accessed: July 03, 2024).

Martins, L., Guimaraes, L., Junior, A., Tenório , J., & Espinosa, D. (2021), "Electric car battery: An overview on global demand, recycling and future approaches towards sustainability". Journal of Environmental Management, 295(1).

Martuscelli, C., Gijs, C., &Haeck, P. (2024), "Hungary is flirting with China — at what cost to the EU?" Available at: *https://www.politico.eu/article/hungary-flirt-china-cost-eu-trade-foreign-direct-investment/*
(Accessed: July 12, 2024).

Matich, T. (2015), "Rare Earths in Chile: The Next Big Thing?" Available at:
*https://investingne ws.com/daily/resource-investing/critical-metals-investing/rare-earth-investing/rare-earths-chile-biolantanidos-mineria-activa/*
(Accessed: May 25, 2024).

Maulia, E. (2024), "Cost is key for Southeast Asia to attract EV investment, BCG says"
Nikkei. Available at: *https://asia.nikkei.com/Spotlight/Supply-Chain/Cost-is-key-for-Southeast-Asia-to-attract-EV-investment-BCG-says*
(Accessed: Aug 17, 2024).

Ministry of Foreign Affairs, The PRC (2024). Available at: *https://www.mfa.gov.cn/eng/*
(Accessed: July 23, 2024).

Morris, S. (2024), "EV maker Lucid receives further $1.5bn in Saudi funding ahead of SUV
Launch", Financial Times. Available at: *https://www.ft.com/content/49d9cf40-858b-4325-8ccd-97f484bc5924*
(Accessed: Aug 30, 2024).

Myers, M. (2024), "China's EV drive accelerates in Latin America". Available at:
*https://eastasiaforum.org/2024/06/21/chinas-ev-drive-accelerates-in-latin-america/*
(Accessed: June 28, 2024).

Murphy, D. C. (2022), "China's Rise in the Global South The Middle East, Africa, and Beijing's Alternative World Order". Stanford: Stanford University Press.

Myers, M. (2024), "China's EV drive accelerates in Latin America". Available at:
*https://eastasiaforum.org/2024/06/21/chinas-ev-drive-accelerates-in-latin-america/*
(Accessed: June 28, 2024).

Niarchos, N. (2021), "The Dark Side of Congo's Cobalt Rush", New Yorker. Available at:
*https://www.newyorker.com/magazine/2021/05/31/the-dark-side-of-congos-cobalt-rush*
(Accessed: July 25, 2024).

Norihiko, S. (2008), "BYD to Introduce China's First Electric Car", Wall Street Journal.
Available at: *https://www.wsj.com/articles SB122928340145004821*
(Accessed: June 18, 2024).

One World Data (2020), "Cars, planes, trains: where do CO2 emissions from transport come from?" Available at:
*https://ourworldindata.org/co2-emissions-from-transport*
(Accessed: Feb 02, 2024).

Pandaily (2024), "NIO CEO Li Bin Considers Collaborating with European Local Companies to Establish Factories". Available at: *https://pandaily.com/nio-ceo-li-bin-considers-collaborating-with-european-local-companies-to-establish-factories/*
(Accessed: June 16, 2024)

Petersen, M. (2024), "Is reputation an unbreakable barrier for Chinese EV brands entering the
European market?" Available at:
*https://stayrelevant.globant.com/en/technology/create/chinese-ev-brands-europe-reputation-barrier-market-entry/*
(Accessed: May 17, 2024).

Priestley, M., Sluckin, T. J., &; Tiropanis, T. (2020), "Innovation on the Web: the end of the S-curve?", Internet Histories, 4.

PwC (2024), "eMobility Outlook 2024". Available at:
*https://www.pwc.com/m1/en/publications documents/2024/emobility-outlook-2024-uae-edition.pdf*
(Accessed: Aug 12, 2024).

Raffoul, A., & Keller, K. (2024), "As China-Gulf relations deepen, here are 3 key sectors for growth". Retrieved May 2024, from *https://www.weforum.org/agenda/2024/04/3-key-sectors-poised-for-explosive-growth-as-china-gcc-cooperation-deepens/* (Accessed: July 21, 2024).

Randall, C. (2024), "Nine European nations call for EU combustion phase-out". Available at:
*https://www.electrive.com/2021/03/11/nine-european-nations-call-for-eu-combustion-phase-out/*
(Accessed: Feb 23, 2024).

Rankin, J., & O'Carroll, L. (2024), "Tesla faces lowest duty on Chinese-made cars exportedto EU", The Guardian.
Available at:
*https://www.theguardian.com/technology/article/2024/aug/20/tesla-faces-lowest-duty-on-chinese-made-cars-exported-to-eu*
(Accessed: Aug 31, 2024).

Ren, D. (2024), "SAIC Motor, hit with highest EU tariff rate on Chinese EV exports, requests hearing to explain its case", South China Morning Post. Available at: *https://www.scmp.com/business/china-business/article/3269441/saic-motor-hit-highest-eu-tariff-rate-chinese-ev-exports-requests-hearing-explain-its-case#* (Accessed: Aug 02, 2024).

Reuters (2023a), "China's BYD to build new energy vehicle production base in Hungary". Available at: *https://www.reuters.com/business/autos-transportation/chinas-byd-build-new-energy-vehicle-production-base-hungary-2023-12-22/* (Accessed: May 12,2024).

Reuters (2023b), "Telsa [sic: Tesla] to export China-made Model 3 sedan to Middle East". Available at: *https://www.agbi.com/article/telsa-to-export-china-made-model-3-sedan-to-middle-east/* (Accessed: June 02, 2024).

Reuters (2024a), "China's Chery Auto: EU factory will help mitigate EV tariffs". Available at: *https://www.reuters.com/business/autos-transportation/chinas-chery-auto-eu-factory-will-help-mitigate-ev-tariffs-2024-06-13/* (Accessed: July 23, 2024).

Reuters (2024b), "Reactions to EU duties on China-built EVs". Available at: *https://www.reuters.com/business/autos-transportation/reaction-eu-duties-china-built-evs-2024-07-04/* (Accessed: July 23, 2024).

Ritchie, H. (2020), "Cars, planes, trains: where do CO2 emissions from transport come from?" Available at: *https://ourworldindata.org/co2-emissions-from-transport* (Accessed: May 03, 2024).

Sambidge, A. (2023), "Qatar's EV ambitions grow with Vim brand launch". Available at: *https://www.agbi.com/transport/2023/06/qatars-ev-ambitions-grow-with-vim-brand-launch/* (Accessed: Aug 30, 2024).

Salidjanova, N. (2011), "Going Out: An Overview of China's Outward Foreign Direct Investment". U.S.-China Economic & Security Review Commission.

Sebastian , G. (2021), "In the driver's seat: China's electric vehicle makers target Europe". Available at: *https://merics.org/en/report/drivers-seat-chinas-electric-vehicle-makers-target-europe* (Accessed: May 13, 2024).

Sebastian, G., Barkin, N., & Kratz, A. (2024), "Ain't No Duty High Enough". Available at: *https://rhg.com/research/aint-no-duty-high-enough/* (Accessed: August 3, 2024).

Setboonsarng, C. (2024), "China's BYD opens EV factory in Thailand, first in Southeast Asia", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/chinas-byd-opens-ev-factory-thailand-first-southeast-asia-2024-07-04/* (Accessed: May 23, 2024).

Silva, J. d. (2024), "EU hits Chinese electric cars with new tariffs". Available at: *https://www.bbc.com/news/articles/cy99z53qypko#* (Accessed: July 25, 2024).

Sircar, N., & Times, K. (2024), Range anxiety, rushing to malls to charge cars: EV owners in UAE list challenges". Available at: *https://www.zawya.com/en/life/range-anxiety-rushing-to-malls-to-charge-cars-ev-owners-in-uae-list-challenges-yee76rdq* (Accessed: Feb 23, 2024).

Strzelecki, M., & Badohal, K. (2024), "Poland to decide by summer if European funds will support EV plant", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/poland-decide-by-summer-if-european-funds-will-support-ev-plant-2024-04-15/* (Accessed: June 21, 2024).

Take, S. (2024), "Nissan and Honda to jointly develop tech-savvy cars, share EV parts", Nikkei. Available at: *https://asia.nikkei.com/Business/Automobiles/Nissan-and-Honda-to-jointly-develop-tech-savvy-cars-share-EV-parts#:~:text=TOKYO%20%2D%2D%20Nissan%20Motor%20and,an%20increasingly%20competitive%20automotive%20market* (Accessed: Aug 17, 2024).

Teng, T. (2024), "EU cuts planned tarriff on China-made Tesla vehicles: What does it mean for prices?". Available at: *https://www.euronews.com/business/2024/08/21/eu-cuts-planned-tariff-on-china-made-telsa-vehicles-to-9* (Accessed: Aug 30, 2024).

The Central People's Government of the People's Republic of China (2024). 商务部等9单位关于支持新能源汽车贸易合作健康发展的意见". Available at: *https://www.gov.cn/zhengce/zhengceku/202402/content_6931276.htm* (Accessed: Sep 01, 2024).

United Nations (2023), "China's Policy Strategies for Green Low-Carbon Development: Perspective from South-South Cooperation". Geneva: United Nations.

Valero, J., & Trudell, C. (2024), "Tesla Presses EU for Lower Tariff on EVs Shipped in From China", Bloomberg. Available at: *https://www.bloomberg.com/news/articles/2024-06-12/tesla-presses-eu-for-lower-tariff-on-evs-shipped-in-from-china* (Accessed: July 13, 2024).

Vassallo, C. (2023), "China's EV Export Boom Is Bringing Southeast Asia Into Beijing's Orbit", The Diplomat. Available at: https://thediplomat.com/2023/08/chinas-ev-export-boom-is-bringing-southeast-asia-into-beijings-orbit/ (Accessed: Apr 21, 2024).

Wakasugi, T. (2024), "China's Zeekr to bring luxury EVs to Japan in 2025", Nikkei. Available at: *https://asia.nikkei.com/Business/Automobiles/Electric-vehicles/China-s-Zeekr-to-bring-luxury-EVs-to-Japan-in-2025* (Accessed: Aug 16, 2024).

Wakefield, M., & Kumar, A. (2024), "Consumer interest in electric vehicles diverges globally: China surges and U.S. stagnates". Available at: *https://www.alixpartners.com/newsroom/alixpartners-2024-international-electric-vehicle-consumer-sentiment-survey-launch/* Accessed: May 16, 2024).

Watson Farley & Williams (2024), "The Future of EV Charging: Spotlight on the UAE and Saudi Arabia". Available at: *https://www.wfw.com/articles/the-future-of-ev-charging-spotlight-on-the-uae-and-saudi-arabia/* (Accessed: July 03, 2024).

Wihardja, M. M., & Kong, S. T. (2024), "China's Overcapacity and Southeast Asian Economies: A Blessing Despite Concerns". Available at: *https://fulcrum.sg/chinas-overcapacity-and-southeast-asian-economies-a-blessing-despite-concerns/* Accessed: Aug 25, 2024).

Winton, N. (2024, January), "BYD Overtakes Tesla, With Other Chinese EV Makers Close Behind", Forbes. Available at: *https://www.forbes.com/sites/neilwinton/2024/01/03/byd-overtakes-tesla-with-other-chinese-ev-makers-close-behind/?sh=22ef30976772* (Accessed: Apr 05, 2024).

World Economic Forum (2022), "The 1.5°C global warming limit is still within grasp – here's how we can reach it". Available at: *https://www.weforum.org/agenda/2022/12/1-5-degrees-global-warming-limit-climate-change-cop-27/* (Accessed: Mar 25, 2024).

Wu, S. (2024), "XPeng may consider overseas production due to Europe regulatory scrutiny", Reuters. Available at: *https://www.reuters.com/business/autos-transportation/xpeng-ceo-says-its-software-ai-upgrades-enter-super-fast-cycle-2024-04-25/* (Accessed: June21, 2024).

Ye, Z. (2024), "Navigating New Roads: China's EV Giants and the GCC's Economic Shift", The Diplomat. Available at: *https://thediplomat.com/2024/04/navigating-new-roads-chinas-ev-giants-and-the-gccs-economic-shift/#:~:text=GCC%20countries%20have%20plans%20to,export%2Doriented%20EV%20manufacturing%20capabilities* (Accessed: June 05, 2024).

Yu, B. (2023), "Life after subsidies for China's EVs". Available at: https://dialogue.earth/en/business/life-after-subsidies-for-chinas-evs/ (Accessed: Jan 12, 2024).

Yu, Y. (2024), "Tesla's main export hub in Shanghai reels from EU tariffs, weak EV demand", Nikkei. Available at: *https://asia.nikkei.com/Business/Automobiles/Electric-vehicles/Tesla-s-main-export-hub-in-Shanghai-reels-from-EU-tariffs-weak-EV-demand* (Accessed: July 29, 2024).

ZAWYA (2024), "PIE-backed Ceer to develop $1.3bln EV manufacturing facility in Saudi Arabia". Available at: *https://www.zawya.com/en/business/manufacturing/pif-backed-ceer-to-develop-13bln-ev-manufacturing-facility-in-saudi-arabia-i827gkoz* (Accessed: Aug 30, 2024).

Zhou, V. (2024), “China’s EV price war is killing brands and infuriating consumers”.
Available at: *https://restofworldorg/2024china-ev-industry-slowdown/?utmsource=Rest+of+World+Newsletter&utm_campaign=159064d969-EMAIL_CAMPAIGN_2024_03_25_06_16&utm_medium=email&utm_term=0_b91e039431-159064d969-%5BLIST_EMAIL_ID%5D%20%20%20%20 https://www.forbes.com/si*
(Accessed: May 21, 2024).

Zhou, V. (2024), “Chinese factory owners are becoming TikTok comedians to find new business partners”.
Available at: https://restofworld.org/2024/chinese-factory-tiktok-b2b-sales/
(Accessed: Aug 13, 2024).

Ziady, H. (2024), “Europe just slashed tariffs on cars made by Tesla in China”, CNN. Available at: *https://edition.cnn.com/2024/08/20/cars/tesla-europe-ev-tariffs/index.html*
(Accessed: Aug 29, 2024).

# Appendix 1: Details of cross-sectional regression analyses

This table shows the details of dependent and independent variables used in the cross- sectional regression analysis. A total of 186 samples were collected, and after cleaning for missing values, 92 samples remained

| Definitions of the variables | | |
|---|---|---|
| **Variable** | **Definition** | **Variable type** |
| | **Dependent Variable** | |
| Log of Number of Chinese Made EV in 2023 | This data is from Stardata360.[5] Stardata 360 collected the total quantity of EVs made in China that exports to each country regardless of the origin of EV brands. | Continous |
| | **Main explanatory variable** | |
| Whether Chinese EV established manufacturer facilities in local market | This data is collected from news articles that summarise whether Chinese brands established manufacturing facilities in each country. Denoted as 1, otherwise 0.[6] | Dummy |
| | **Control variables** | |
| Log of GDP per capita in 2023 | GDP per capita data is from the International Monetary Fund.[7] Adding this variable as control variable because intuitively, the country has more well-known car brands, meaning less dependency on Chinese EV exports. | Continous |
| Competition intensity.in each market | The competition intensity in each country is measured by identifying whether individual countries own one or more of the top 40 car brands. Countries with one or more top 40 car brands are classified as high competition intensity for Chinese EVs and denoted as 1, otherwise 0.[8] | Dummy |
| Log of population in 2023 | Total population data for each country is from the World Bank's Databank[9]. | Continous |

5 https://www.stardata360.com

6 https://www.asiafinancial.com/many-chinese-carmakers-opening-factories-abroad-despite-rows

7 https://www.imf.org/external/datamapper/PPPPC@WEO/OEMDC/ADVEC/WEOWORLD

8 https://eftm.com/2024/04/worlds-top-40-car-brands-in-2023-244605

9 https://databank.worldbank.org/

| | | |
|---|---|---|
| Log of average export price to each country in 2023 | Stardata360 collected the total value in US dollars of EVs made in China that are exported to each country, regardless of the origin of EV brands. The total export value of EVs made in China was divided by the quantity of exported EVs made in China to obtain the average export price to each country. | Continous |
| Carbon dioxide (emissions per capita in 2023 | This variable represents the $CO_2$ emissions by each country in 2023. The amount of $CO_2$ emissions signifies each individual's awareness of the green transition. The amount of pollution may be negatively correlated with the exports of EVs. [10] | Continous |
| Country classification | Countries are classified into developed and developing economies based on the United Nations (UN) country classification.[11] Developed country denotes as 1, otherwise 0. | Dummy |
| Batteries production capacity in 2021 | China dominated world (79.0 per cent) in Li-ion manufacturing capacity. Larger battery production capacity may have less dependency on the export ofChinese EVs. Countries with above 0.1 per cent battery production will be considered as countries with battery production; otherwise, they will be considered as having very weak battery production capacity [12] | Dummy |

Source: created by the author

The regression model is specified as follows:

$$Log(EV_{Exports_i}) = \beta_0 + \beta_1 \text{Local}\_Manufacturing_i + \beta_2 Log(GDP\_per\_Capita_i) + \beta_3 Competition\_Intensity_i + \beta_4 Log(Population_i) + \beta_5 Log(Export\_Price_i) + \beta_6 CO_2\_Emissions_i + \beta_7 Country\_Classfication_i + \beta_8 Battery\_Capacity_i + \varepsilon_i$$

Where:

- $Log(EV_{Exports_i})$= is the dependent variable representing the natural logarithm of the quantity of EV exports from China to country i.
- $\beta_0$ is the constant.
- $\beta_1$ is main explanatory variables that whether Chinese EV established manufacturer facilities in local market.
- $\beta_2$ *to* $\beta_8$ are the coefficients for the respective control variables.
- $\varepsilon_i$ is the error term.

10 https://wisevoter.com/country-rankings/co2-emissions-by-country/

11 https://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

12 https://www.visualcapitalist.com/sp/mapped-ev-battery-manufacturing-capacity-by-region/

| Cross-Sectional Regression Result | | |
|---|---|---|
| **Dependent Variable: Quantity of Total Exports of EVs Made in China to Each Country.** | **(1) Model A** | **(2) Model B** |
| Whether Chinese EV established manufacturer facilities in local market | 2.5419***<br>(0.9347) | 1.5499*<br>(0.9042) |
| Average EV Export Price in 2023 in US Dollars (logs) | | 0.3278<br>(0.2598) |
| Carbon Emission in 2023 (tonnes per person) | | --0.0041<br>(0.0032) |
| Competition Intensity in Each Country (Dummy) | | 1.0560<br>(0.8847) |
| Batteries Production Capacity (Dummy) | | 0.8230<br>(0.9678) |
| Population (logs) | | 0.5228***<br>(0.1921) |
| Country Classification (Dummy) | | 0.9291*<br>(0.5484) |
| Constant | 7.4085***<br>(1.170) | -4.8949<br>(4.6009) |
| | 0.0752 | 0.3254 |
| Number of Observations | 92 | 92 |

Note: The values in parentheses are standard errors.
*** significant at 1per cent; ** significant at 5per cent; * significant at 10per cent

# Appendix 2: Expert interviews

Expert interviews were conducted concurrently with regression analysis as part of a mixed methods approach. Six semi-structured interviews were held with global policy and EV industry experts from Asia, Europe and the Gulf, each specialising in areas relevant to the research. These specialisations included macroeconomics, geopolitics, trade policy, EV business, state-led energy transitions, and clean energy technology.

Each interview lasted around 20-30 minutes and was conducted remotely via Zoom or Microsoft Teams. The sessions were recorded, and notes were taken to ensure accurate documentation and analysis of the participants' responses.

The patterns identified in the regression analysis were used to guide the interviews. Different questions were tailored to each expert according to their expertise. Key questions or topics were prepared in advance, but the interviews allowed flexibility to adjust the questions and explore certain topics further based on the responses of the interviewees. This approach provided a structured framework to maintain the research focus while enabling the discovery of new insights and ideas, making the research process more exploratory and open-ended.

The interview data were then thematically analysed and compared to the findings of the regression analysis. This process allowed the qualitative insights from these expert discussions to be effectively integrated with the quantitative findings from the regression analysis, providing a more comprehensive understanding of the research topic. Ongoing policy and market developments in the EV industry were consistently monitored to ensure that the overall analysis remained current and relevant.

# Appendix 3: Latest developments in the electric vehicle market at the time of publication

### Chinese EVs' expansion into other regions

- **Japan:** Chinese electric vehicle manufacturer Zeekr plans to launch its premium EV in the Japanese market by 2025. Zeekr is working to meet Japan's safety standards and is planning to establish showrooms in the Tokyo and Osaka areas (Wakasugi, 2024).
- **Southeast Asia:** Thailand and Indonesia, due to their automotive manufacturing industries and resource advantages, are drawing the attention of Chinese automakers and suppliers. The Thai government's subsidies for Chinese EVs have led to a surge in EVs entering the market, triggering a price war that has affected traditional internal combustion engine car manufacturers. This had forced some to reduce production or close factories. Despite this, the Thai government continues to encourage Chinese EV manufacturers to invest in Thailand (Maulia, 2024).

### Intensifying competition in EV technology

- Nissan and Honda have announced plans to collaborate on the development of smart vehicles and share electric vehicle components. They will jointly work on software-defined vehicles and explore using the same batteries and other key EV components. The two companies will also cooperate on key technologies such as chips and data platforms, with plans to launch related products by 2030. Additionally, they plan to share battery technology and other EV components in North America (Take, 2024).

### Pushback on China's domination of the EV supply chain

- Albemarle, the world's largest lithium producer, has called for government intervention to address China's dominance in the critical mineral market for EV batteries. Faced with plummeting lithium prices and a slowdown in global EV sales, Albemarle has been forced to scale back its expansion plans and is urging Western countries to take action to establish supply chains independent of China (Dempsey, 2024).
- Japanese automakers, including Nissan and Honda, plan to introduce a "battery passport" system in Europe by 2027 to comply with the EU's upcoming EV battery regulations. This digital tracking system will record information such as the recyclable metal content, origin and production history of batteries to promote recycling and reduce dependence on the Chinese supply chain. The EU's new regulations require that by 2027, 50 per cent of lithium from used batteries must be recycled, with penalties in place for automakers that fail to meet these requirements (Kawakami, 2024).

# List of Acronyms

| | |
|---|---|
| BYD | Build Your Dreams |
| CATL | Contemporary Amperex Technology Co. Limited |
| EU | European Union |
| EV | Electric Vehicles |
| FTA | Free Trade Agreements |
| GCC | The Cooperation Council for the Arab States of the Gulf |
| ICEV | Internal Combustion Engine Vehicles |
| NMC | Nickel, Cobalt, and Manganese |
| OEM | Original Equipment Manufacturer |
| PIF | Public Investment Fund |
| LFP | Lithium Iron Phosphate |