Economic watch

The rise of China’s EV sector and its implications for the world

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The surge of China’s EV market is reshaping the global market

The automotive industry is currently undergoing a significant transformation where the growth of electric vehicles (EVs) is playing a crucial role. The global trend of decarbonization and sustainability has prompted the governments and automotive manufacturers worldwide to reduce their carbon footprint. Consequentially, EVs emerge as a viable and attractive solution to the challenge of climate change. More and more countries have deployed policy initiatives to encourage the adoption of these vehicles.

According to the International Energy Agency (IEA), global EV sales keep growing rapidly in recent years, with approximately 6.6 million EVs sold in 2021, doubling the figure of the previous year. Bloomberg's New Energy Finance (BNEF) report also indicates that EV sales are set to increase to 56 million by 2040, representing approximately 58% of global passenger car sales.

China has emerged as a global leader in the EV market. Its domestic market is the largest one in the world. As reported by China Association of Automobile Manufacturers (CAAM), China sold approximately 6.9 million EVs in 2022. Its dominance in the market is in part due to a national strategy that prioritizes the development and adoption of EVs. The Chinese government has implemented policy initiatives to support the production and purchase of EVs, such as tax exemptions, subsidies, and investments in charging infrastructure. Additionally, foreign automakers, such as Tesla, have been allowed to build up their factories in China.

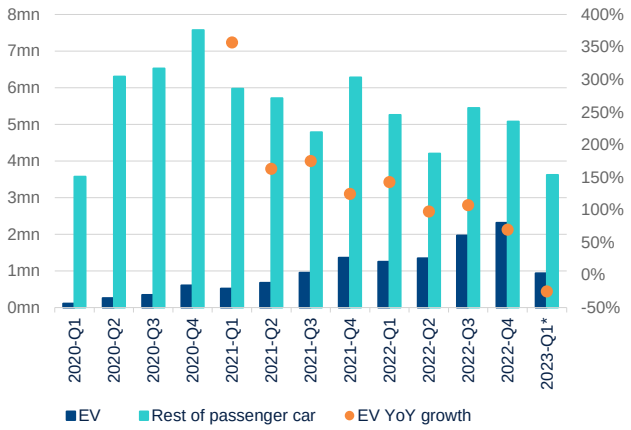
However, China's dominance in the sector is not limited to its domestic market. The country has also become a major exporter of EVs, with a significant market share in EV exports.

This report aims to provide an overview of China's EV market and draw its implications for the global automotive industry. Through the analysis of various data sources, including sales figures, market forecasts, and pricing trends, we will examine the key factors that have led to China's fast rise in the EV market.

Electric revolution in China’s domestic auto market

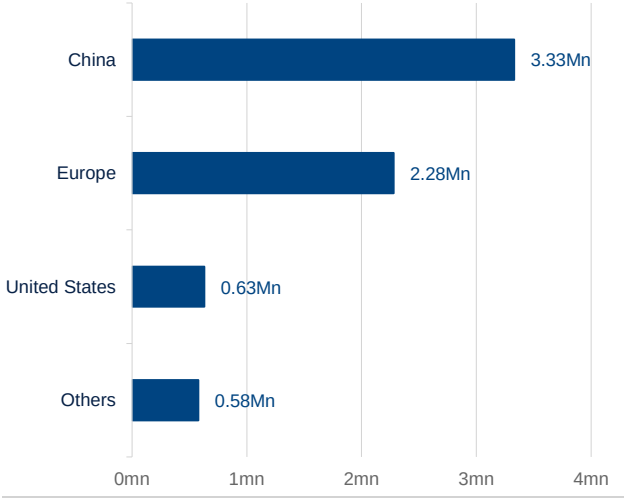
China’s domestic EV market grew exponentially since 2019, with sales increasing significantly in the following years. As reported by China Association of Automobile Manufacturers (CAAM), China sold approximately 6.9 million EVs in 2022, which represents a substantial increase from 2021, when China sold around 3.3 million EVs. In contrast, sales of non-EV passenger cars in China have been relatively stagnant in recent years, with sales hovering around 20 million units per year since 2019 (Figure 1 & 2). This rapid growth is expected to continue in the coming years, with the IEA and BNEF forecasting that China will account for around 40% of global EV sales by 2030.

Figure 1. **SIGNIFICANT INCREASE IN EV SALES IN RECENT YEARS IN CHINA**



Number of electric vehicles vs rest of vehicles sold, and EV sales growth (%).
Source: BBVA Research based on data from China Association of Automobile Manufacturers (CAAM)

Figure 2. **CHINA WAS THE COUNTRY THAT MOST EVs REGISTERED IN 2021**



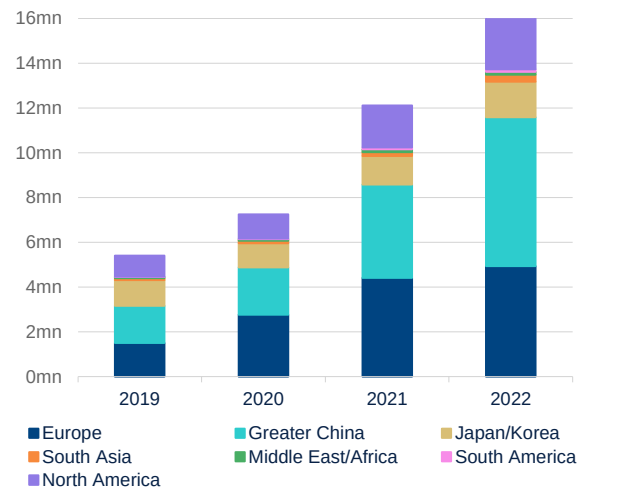
Number of electric car registrations in the world in 2021.
Source: BBVA Research based on data from International Energy Agency

China takes the lead in global EV market

The global electric vehicle market has witnessed a fast growth in recent years, in particular during the period of 2019-2022 (Figure 3). The global market is dominated by the Asia-Pacific region, which accounts for more than half of the total EV sales in the world; followed by Europe and North America.

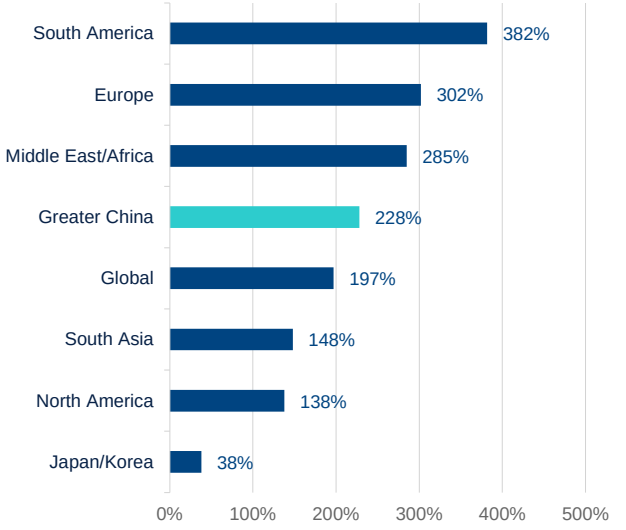
Over the same period China successfully expanded its market share in the global sales, increasing from less than 30% in 2019 to 41.5% in 2022. That being said, EV sales of China and Europe were 1.7 and 1.5 million in 2019 respectively. However, China´s EV sales increased to 6.9 million in 2022, compared to 4.9 million in Europe. In this area Japan and Korea lag far behind. Their combined EV sales in 2022 were still close to the 2019 level in China. 2.3 million EVs were sold in North America in 2022, representing a 148% growth from 2019 but still accounting for a smaller share of global EV market. (Figure 4)

Figure 3. **CHINA WAS THE GLOBAL EV TOP SELLER IN 2022**



EV sales in the world by region 2019-2022 (millions).
Source: BBVA Research based on data from S&P global vehicle demand tracker

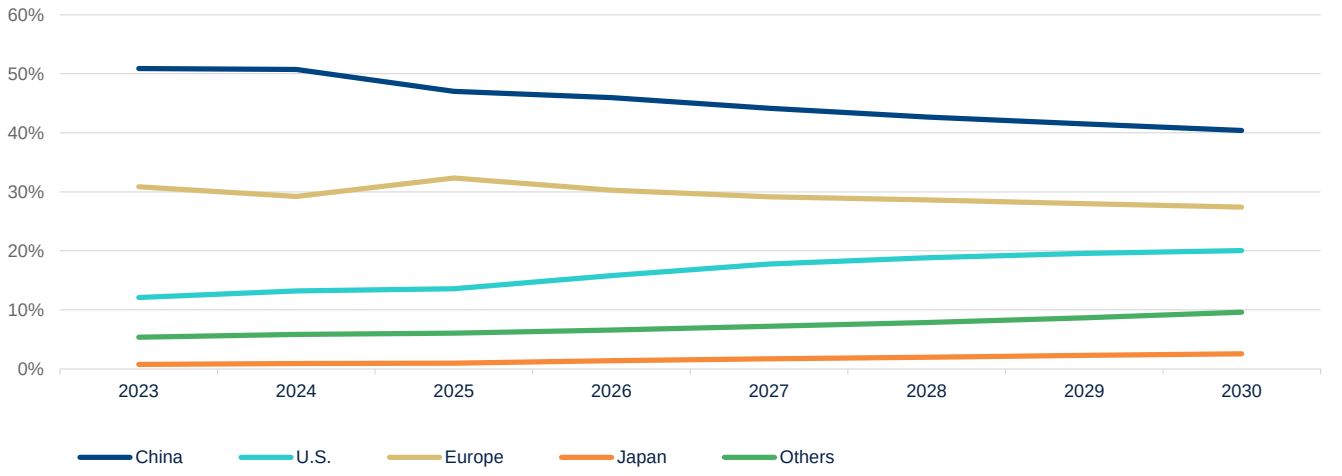
Figure 4. **CHINA'S INCREASE IN SALES WAS THE LARGEST AMONG MAIN PLAYERS**



EV sales growth between 2019 and 2022 (%).
Source: BBVA Research based on data from S&P global vehicle demand tracker

Apparently, the EV market is experiencing a faster growth in China than in other countries. Looking ahead, the market share of the US and other regions are expected to pick up in the coming years. However, China is expected to remain the top seller and is projected to sell 16 million units by 2030 (Figure 5). While Europe is also expected to increase its sales, the growth rate is anticipated to be lower, with sales surpassing 8 million units by 2030. The United States, which has thus far been lagging behind, is expected to experience a significant surge in sales and reach 6 million units in 2030, still significantly lower than the sales in China and Europe.

Figure 5. **CHINA IS POISED TO MAINTAIN ITS POSITION AS EVs MAIN SELLER, EVEN IF THE U.S. GAINS GROUND**



Global EV units' sale forecast (%).
Source: BBVA Research based on data from Bloomberg NEF

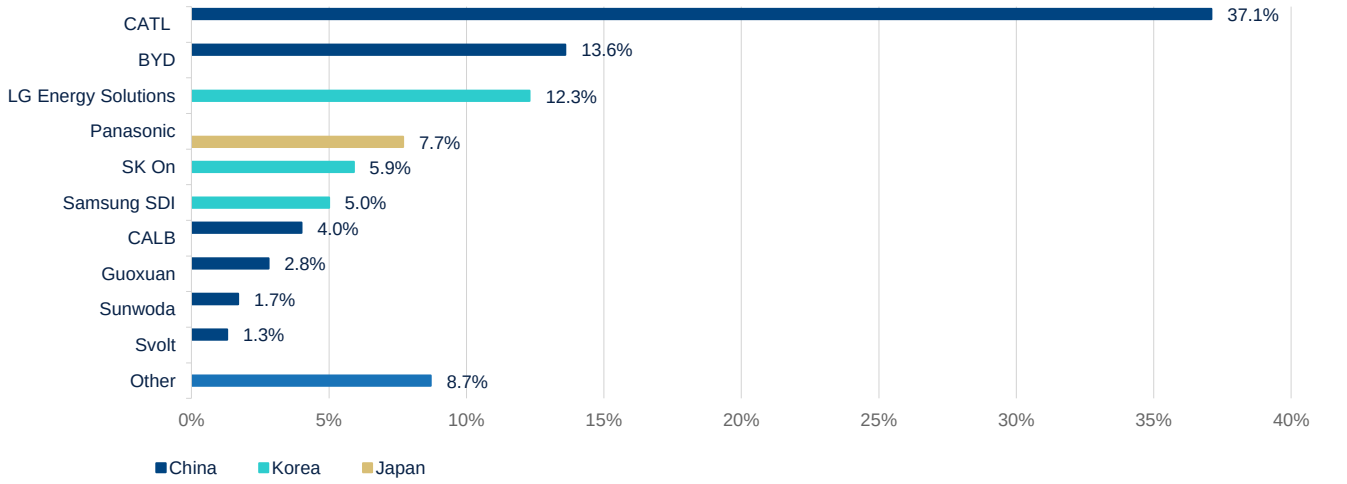
What's in China's formula of success

China's success can be attributable to a number of factors. First, the country has a national strategy to promote the development and use of EVs. The traditional automotive sector was already saturated by the time China began to make efforts to participate in it as early as in the 1990s. Although China still had a difficult time to catch up with other more established players in the market, such as the US, Japan, and Germany at the beginning stage, it saw an opportunity to gain a competitive advantage by focusing on the development of the EV market. Under the umbrella of this national strategy, the Chinese government implemented various policy tools including targeted subsidies, tax exemptions, as well as other incentives to promote EV adoption.

Second, China didn't make cars behind closed doors. The subsidies were initially targeted at Chinese manufacturers but were extended to foreign manufacturers in 2018, including Tesla, which established its Gigafactory in China. This modification was of great importance since it increased competition between both local and foreign manufacturers, driving the growth of EVs in China.

Last but not least, China's success in the EV market is also based on its technical breakthroughs in related areas, particularly the development of batteries. Chinese battery manufacturers are leading the global EV battery market now, with the lion's share of the market (Figure 6). In 2022 China sold 60% of batteries in the world. With the increasing demand for EVs, Chinese manufacturers have been investing heavily in the development of EV battery technology, resulting in significant cost reductions and improvements in battery performance.

Figure 6. **MORE THAN 60% OF GLOBAL EV BATTERY SALES ARE DOMINATED BY CHINESE COMPANIES**

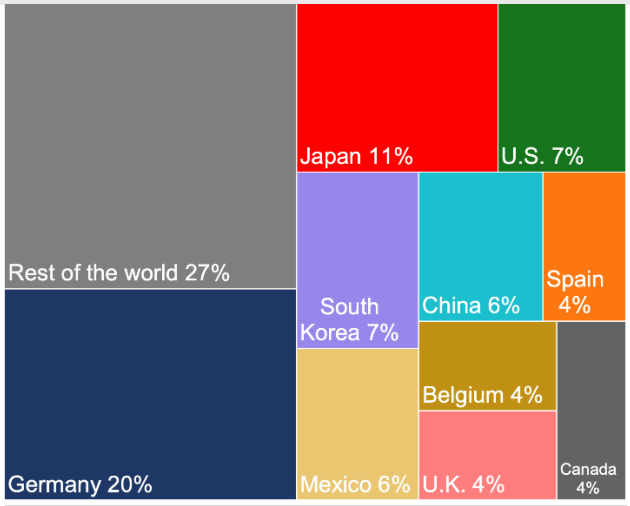


Global EV battery market share as of November 2022 YTD (%)
Source: BBVA Research based on data from Bloomberg

China is also a global EV export powerhouse

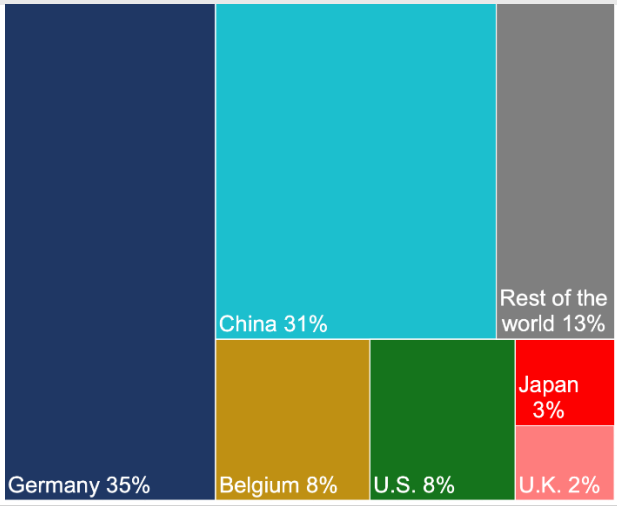
China's success in the EV market is not just confined to its domestic market. Now it has a significant presence in the global EV export market, reflecting China's strategy in the sector (Figure 7&8).

Figure 7. **CHINA'S SHARE IN GLOBAL PASSENGER CARS EXPORTS WAS MINIMAL IN 2022…**



Global exports value share: passenger cars (HS 8703) (%).
Source: BBVA Research based on data from Trademap

Figure 8. **HOWEVER, IN EV EXPORTS, IT LEADS ALONGSIDE GERMANY**

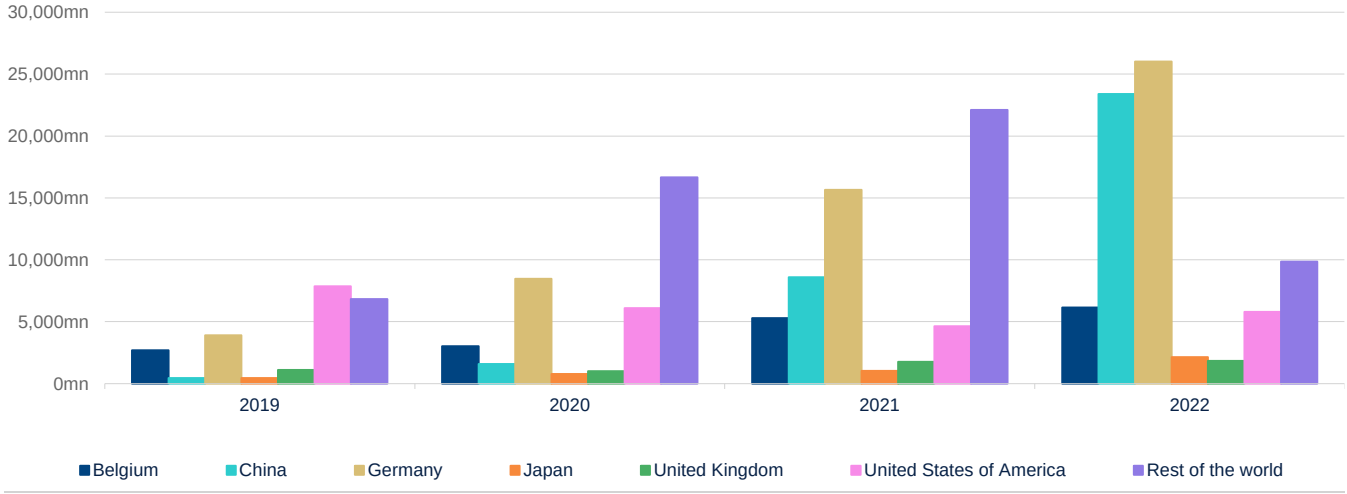


Global exports value share: EV (HS 870380) (%).
Source: BBVA Research based on data from Comtrade

In 2022, the total value of China's EV exports reached 24 million USD, making it the second largest exporter of EVs, just behind Germany whose exports amounted to 26 million USD. While Germany's exports grew at an average of 89% from 2019 to 2022, China´s growth achieved an average annual rate of 292% over the same period.

In this respect Tesla's Gigafactory in Shanghai contributed to a lot. Other foreign-brand joint ventures also played a significant role in boosting China's EV exports. Indeed, many international companies have established joint ventures with local Chinese manufacturers, allowing them to take advantage of China's extensive supply chain and competitive pricing to gain a foothold in the world's EV market. Looking ahead, China could even beat Germany to become the top EV exporter if such a fast pace is to be maintained.

Figure 9. **GERMANY HAS BEEN LEADING EV WORLD EXPORTS IN VALUE, CHINA SPIKED IN 2022**

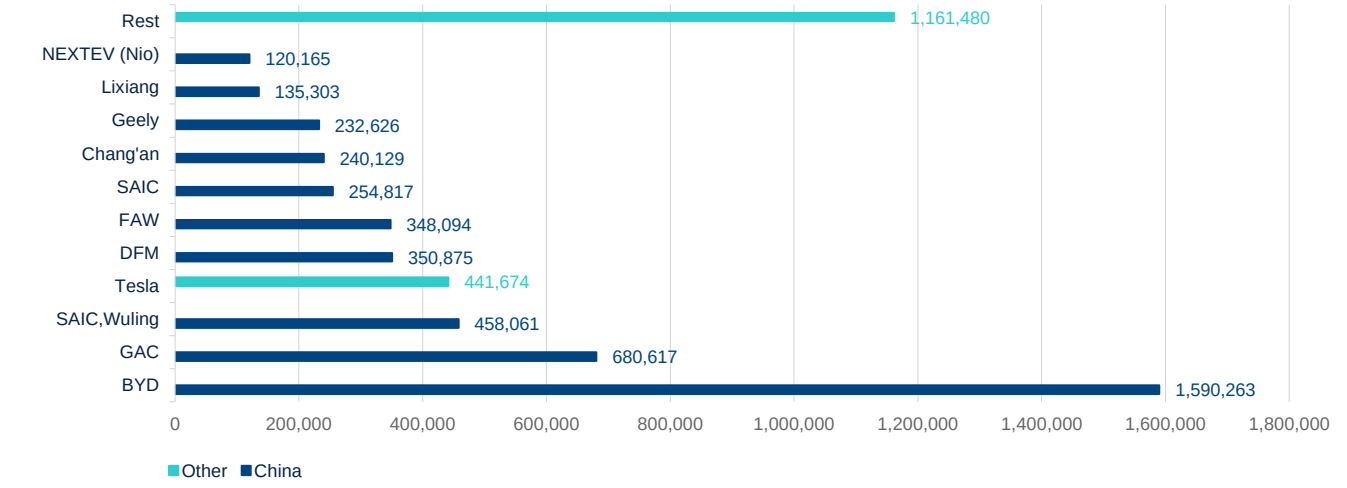


Global EV exports value (USD bn)
Source: BBVA Research based on data from Comtrade

Chinese state-owned carmakers dominate domestic EV market

China's EV market is dominated by a few Chinese key players, many of which are state-owned enterprises (SOE). BYD Auto, GAC (SOE) and SAIC Motor (SOE) are the top three EV manufacturers in China, followed by Tesla (Figure 10).

Figure 10. **CHINA IS BY FAR THE MAIN SUPPLIER FOR EV IN APAC**



Units of EV sales in APAC.
Source: Bloomberg NEF

1. Build Your Dreams (BYD) Auto Co. Ltd is a Chinese automaker that has gained significant traction in the EV market. It sold 1.6 million electric vehicles in the Asia-Pacific region in 2022. BYD started developing rechargeable batteries in 1995 and has a vertically integrated model creating most parts of the vehicle, which gives it an important advantage over other carmakers that need to buy batteries.
   BYD is now focusing in the external market. It has already headquarters and aftersales in Europe (Netherlands and UK), and built its first bus factory in Europe (Hungary) in 2017. It now considers to establish its first car factory in Europe, and shortlisted Germany, France, Spain, Poland and Hungary.
   The Chinese carmaker is also building its first EV production line in Southeast Asia, in Thailand.
   In Latin America it has already built an electric bus factory since 2015 in Brazil. It wants to move forward to build some car factories and battery production plants by taking advantage of Brazil's mineral resources.
2. GAC Motor is a Chinese automobile manufacturing company, whose parent company, Guangzhou Automobile Group Co. (GAC Group) is state-owned enterprise and produces cars for other carmakers as Mitsubishi, Toyota or Honda, among others. However, GAC Motor is not specialized in electric vehicles. Its EV arm, GAC Aion has been focused in China. The company has R&D centers in Milan, Los Angeles and Silicon Valley, to enhance proximity to the global market. Its combustion lines has wider penetration in Middle East and Latin America. GAC Motor has not announced any EV global sales objectives yet. Its oversea exports in 2022 were only 89,000 units, including both combustion and electric vehicles.
3. SAIC Motor Corporation is a state-owned enterprise and it is China's biggest carmaker. The company produces a wide range of vehicles, including electric vehicles, under various brands such as MG, Roewe, Maxus, IM Motors, Rising Auto and joint ventures such as SAIC GM's, Wuling or Volkswagen. In 2022, SAIC sold 713 thousand NEV of which 458 thousand units came from its joint venture SAIC-GM-Wuling, and the rest through its new NEV marques Rising Auto and IM, and SAIC-GM and Volkswagen joint venture.
   The corporation intends to sell 1.5 million new-energy vehicles across the world in 2023.

Other notable electric vehicle manufacturers in China include Tesla, which has a significant presence in the Chinese market and has been successful in EVs to Chinese consumers. Additionally, Chinese brands such as DongFeng, FAW[1], Geely or Chang'an all have the ambitions to leverage their expertise and supply chains to develop their own NEV products. For example, Chang'an set its own EV sales target of 1 million units by 2025.

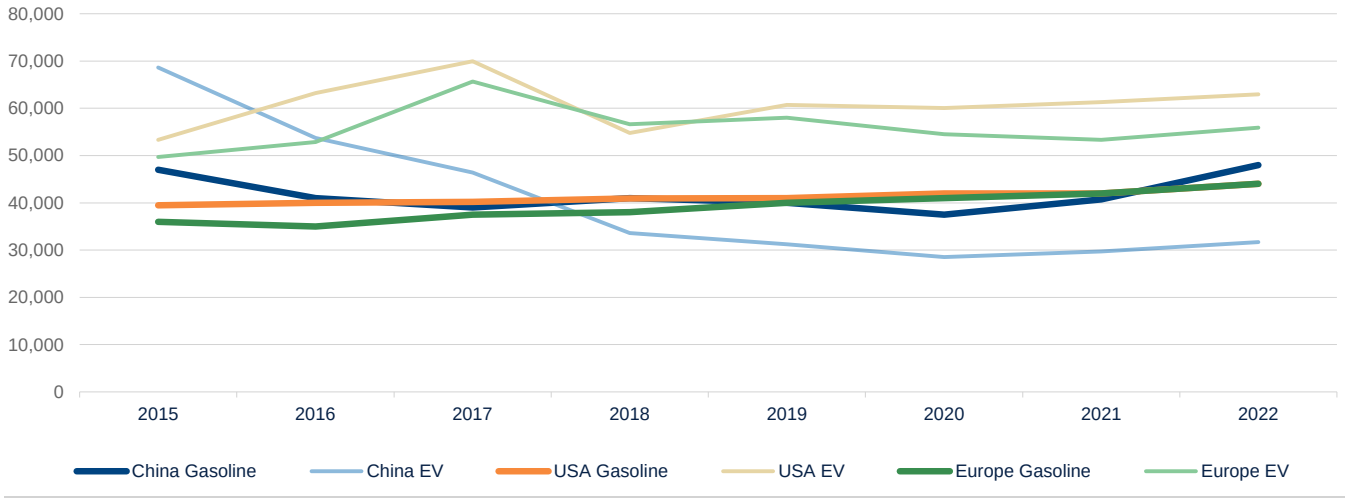
Fast changing EV cost enabling China to disrupt the market

One important driving factor of EV market growth is its cost relative to traditional gasoline cars. In general, the average prices of EVs and gasoline cars have been changing over time and vary by region.

In China, the gap between the average prices of EVs and gasoline cars narrowed from 2015 and was inverted in 2018 (Figure 11). The average price of EVs has been lower than the average price of gasoline cars in recent years. In 2022, the average price of a gasoline car in China was €23,805, while the average price of an EV was €22,830. This may be due in part to government subsidies for EVs in China, but also reflects the cost reduction of EVs. However, battery prices increased 7% in 2022, driven by rising costs for materials including cobalt, nickel and lithium. Surging battery demand has not been covered by new supply in minerals. The shift to lower-cost lithium iron phosphate (LFP) batteries, which contain no nickel or cobalt, could avoid the adverse impact of higher battery prices on EV prices.

1: FAW is the second of the "Big Four" state-owned car manufacturers of China, together with SAIC Motor, Dongfeng Motor Corporation and Changan Automobile.

Figure 11. **CHINESE EV AVERAGE PRICES ARE LOWER THAN OTHER REGIONS', AND LOWER THAN ITS GASOLINE CARS AVERAGE PRICES**



Average gasoline car and EV prices for China, USA and Europe (EUR).
Source: BBVA Research based on data from JATO dynamics

In the US, EVs have been more expensive than gasoline cars on average, but the gap has been narrowing in recent years. In 2015, the average price of a gasoline car in the US was €33,560, while the average price of an EV was €53,325. By 2022, the average price of a gasoline car had increased to €39,000, while the average price of an EV had increased to €62,920. This is likely due to a number of factors, including lack of government incentives for EV adoption and the higher cost of battery production in the US.

In Europe, the average price of EVs has increased from €49,680 in 2015 to €55,880 in 2022. This is partly due to the higher cost of EV production in Europe compared to other regions. However, the increasing popularity of EVs in Europe is expected to drive down prices in the coming years as more manufacturers enter the market and production costs decrease.

Given more competitive prices of Chinese EVs compared to those produced in Europe and the US and a more developed battery sector, we may see increased pressure on European and US automakers to lower their EV prices in order to remain competitive. BYD, SAIC, and GAC Motor are investing heavily in their battery businesses to increase their production capacity, improve battery technology, and reduce costs. Geely and NIO have set up their own battery subsidiaries with the same objectives. This will help them to better compete in the growing EV market and put even more pressure on prices as the supply of batteries increases.

China’s EV dominance facing challenges

The growth of global EV market is driven by a combination of factors, including government incentives, advances in battery technology, and increasing environmental concerns. In China, government policies and subsidies have played a significant role in driving EV market growth, making it the world's largest EV market.

China's domestic EV industry is well-developed, with many established manufacturers and an extensive supply chain. This has allowed Chinese companies to produce EVs at a competitive cost, making them attractive to consumers from other countries. Moreover, foreign-brand joint ventures and foreign brands manufacturing in China have also contributed to the growth of China’s EV exports. Tesla's Gigafactory in Shanghai is the best example in this respect.

Meanwhile, EV related challenges to China remain fraught. Rising battery costs driven by increasing costs of materials like cobalt, nickel, and lithium, could dampen consumers’ demand for EVs. The growing dominance of Chinese EV makers in the global market poses significant challenges for traditional automakers in the US and Europe. It has prompted their governments to unveil some protectionist policy initiatives to weak the EVs produced in China. As it is happening in the US, the authorities do not provide tax incentives to the EVs that are not made in the US, including their batteries. The US government is also seeking to block tax credits for an EV battery factory that Ford wants to establish by use of Chinese CATL’s technology.

All in all, we believe that China will continue to be one of the top players in global EV market, thanks to its super-sized domestic market and well-established technological competitiveness. China’s commitment to achieve its net-zero-target by 2060 will give new impetus to the ongoing electric revolution of the country’s automotive industry.

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