



## **Asia's Electric Vehicle Industry:** **China's dominance clouded by over-investment and geopolitics**

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- ▶ **Where does China stand?**
- ▶ **EV and batteries: China leads from first mover advantage, but the rest of Asia see opportunities from diversification**
- ▶ **The cloud of geopolitics and overcapacity, and the implications on Asia**

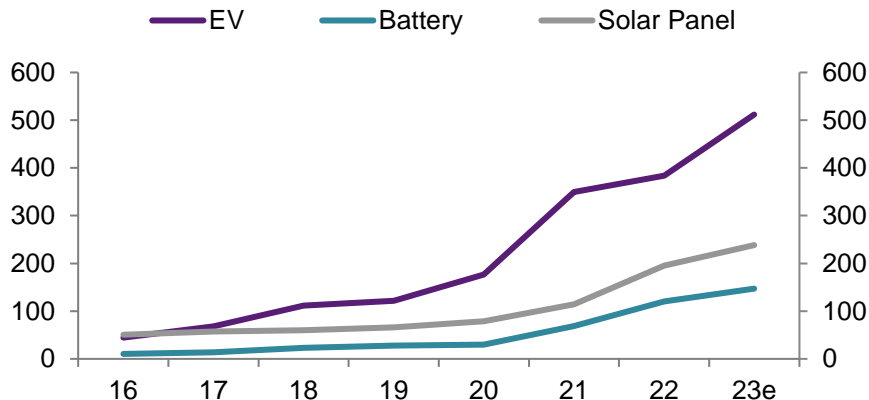


# Where does China stand?

# The “New Three Sectors”

China emerges as the biggest winner in goods for the green transition, namely electric vehicles, batteries and solar panels

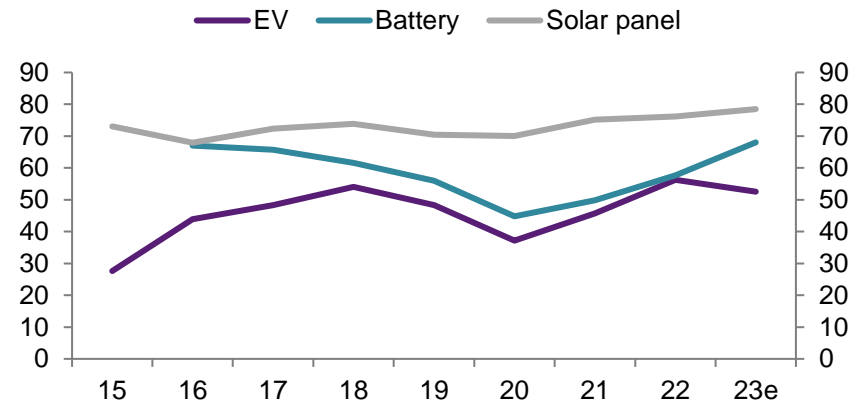
### Global Market Size (USD bn)



N.B. 2023 data is estimated value.

Source: Natixis, Financial statements, Statista Mobility Market Outlook, Bloomberg

### China's Share of Global Production (%)



Source: Natixis, China Association of Automobile Manufacturers, SNE Research, China Photovoltaic Industry Association, CEIC

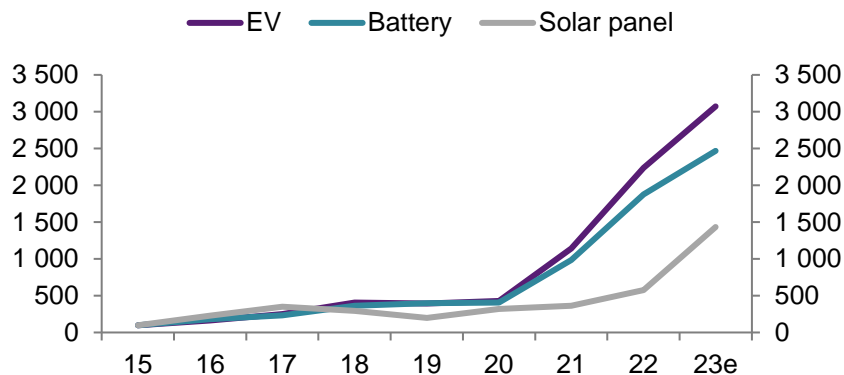
## Why is “Wind” not included in the “New Three”?

- High share of global production (>60%), but low share in non-China market (<20%)
- Stricter installation, operation and maintenance requirements limit overseas development

## Domestic demand

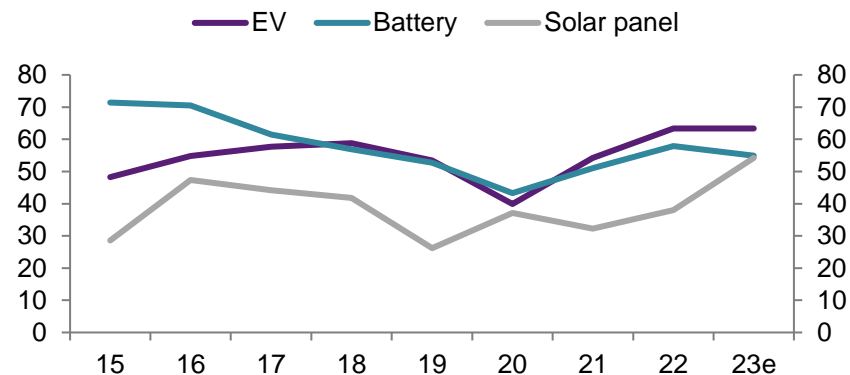
China's comparative advantages come from the first move advantage and strong government support, which include tax incentives and subsidies

### Domestic Demand of "New Three" (2015=100)



Source: Natixis, China Association of Automobile Manufacturers, SNE Research, China Photovoltaic Industry Association, CEIC

### China's Demand as Share of Global (%)

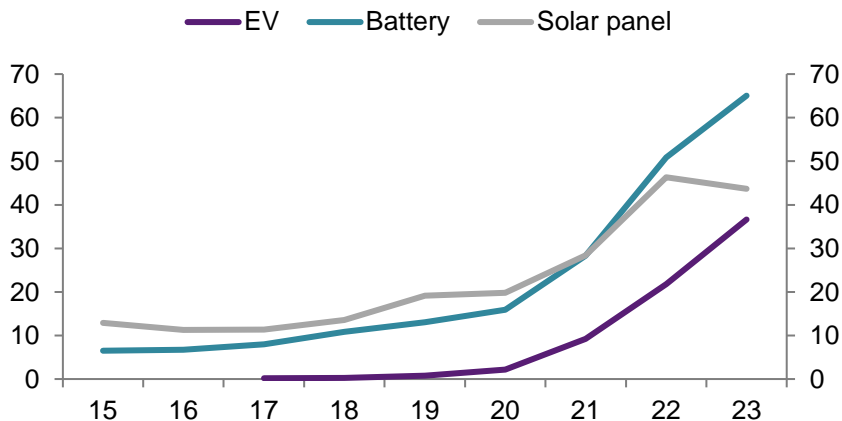


Source: Natixis, China Association of Automobile Manufacturers, SNE Research, China Photovoltaic Industry Association, CEIC

## External demand

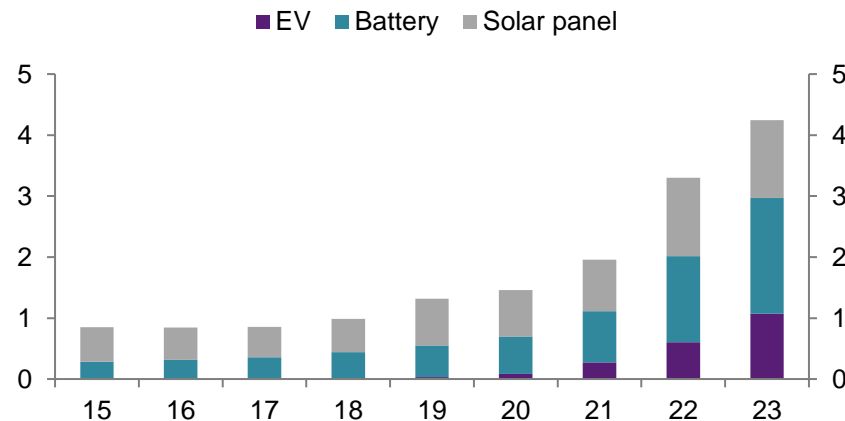
Chinese firms begin to export with cost advantages, and the “New Three Sectors” now forms 4.2% of total exports in 2023

### Export Value (USD bn)



Source: Natixis, China General Administration of Customs, CEIC

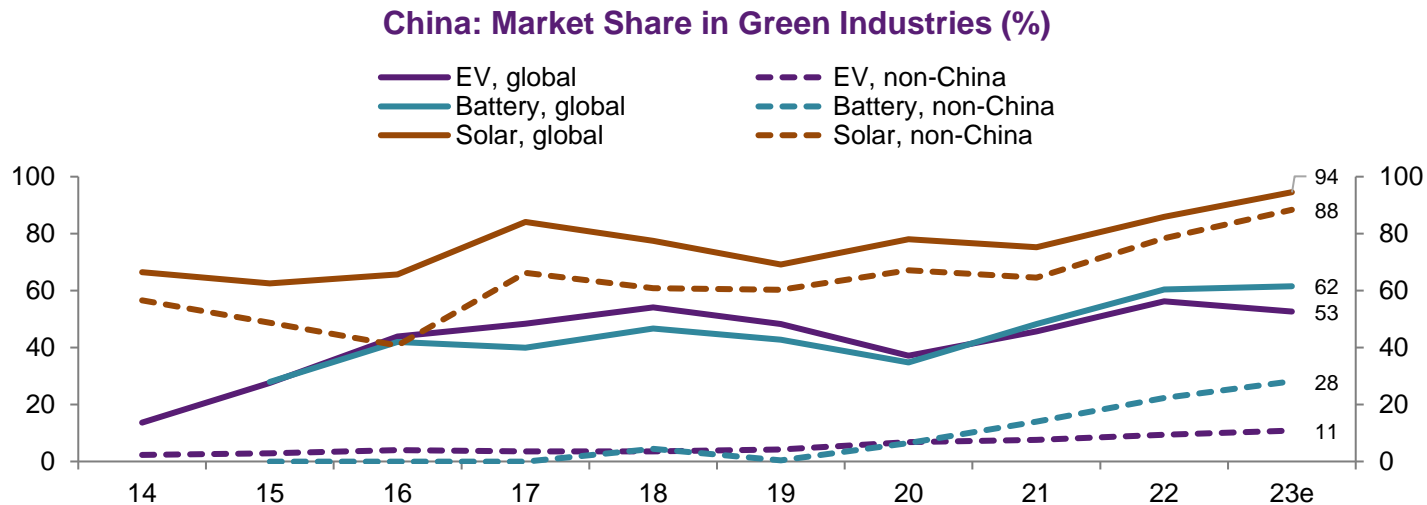
### Share of Total Exports (%)



Source: Natixis, China General Administration of Customs, CEIC

# Market share

China's expansion to overseas markets has led to growing market share

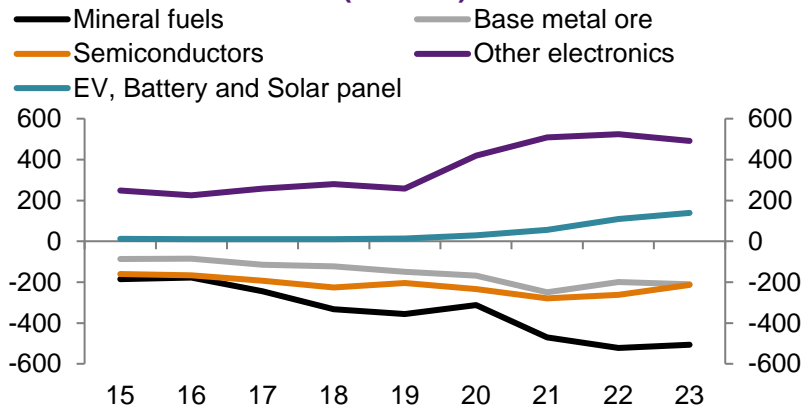


Source: Natixis, MarkLines, BloombergNEF, SNE Research, authors' calculation

## Global competition

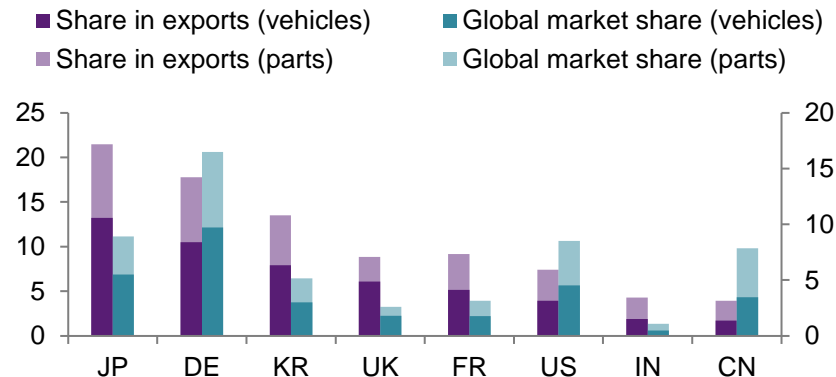
The greater role of China will affect existing leaders in automobile industry, such as Germany, Japan and the US

### China's Trade Balance of Major Items (USDbn)



Source: Natixis, China General Administration of Customs,

### Key Producers of Automobiles (%)



N.B. Data as of 2022. Share in exports is automobiles as a share of country's total exports. Global market share is country's automobile exports as a share of the world's. Source: Natixis, UNCTAD





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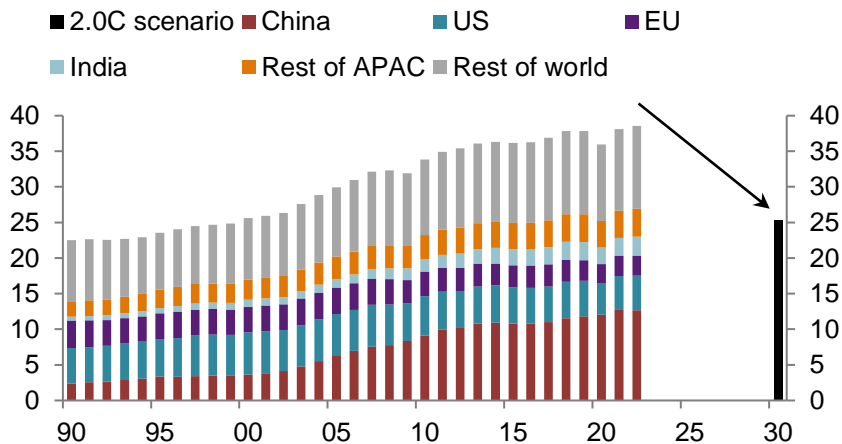
## **EVs and batteries**

**China leads from first mover advantage,  
but the rest of Asia see opportunities from  
diversification**

# Green transition and mobility

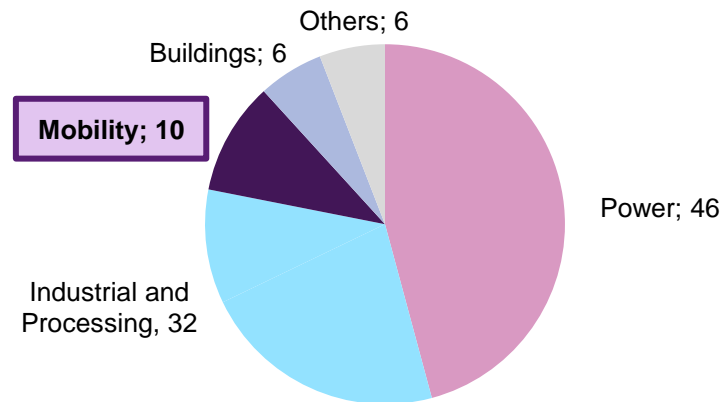
The sad reality of a lack of progress, but mobility has the fastest green transition

### Global Carbon Emissions (Gigaton)



Source: Natixis, EU Emissions Database for Global Atmosphere Research

### Global Carbon Emissions by Source (% 2022)



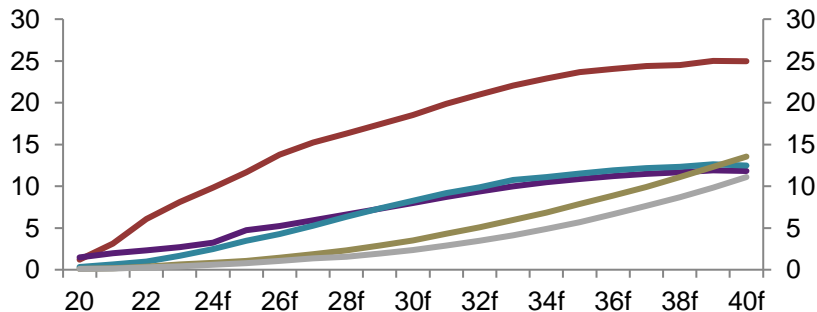
Source: Natixis, EU Emissions Database for Global Atmosphere Research

# A China dominated story

## China is now the biggest EV consumers and makers

### Global Electric Vehicle Sales by Region (Million Units)

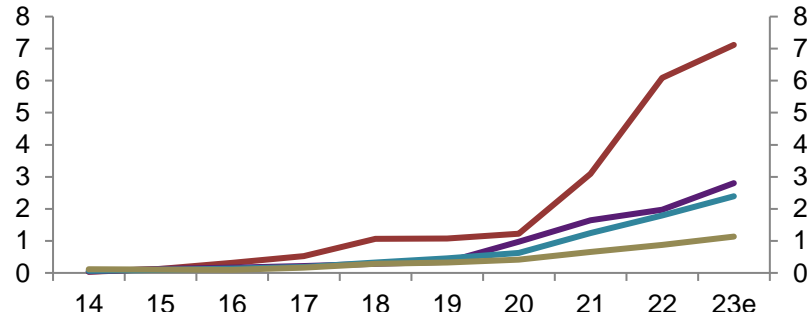
China Europe US Asia (ex.China) Rest of World



N.B. Included both BEV and PHEV.  
Source: Natixis, MarkLines, BNEF

### Global Electric Vehicle Sales by Origin of Firms (Million Units)

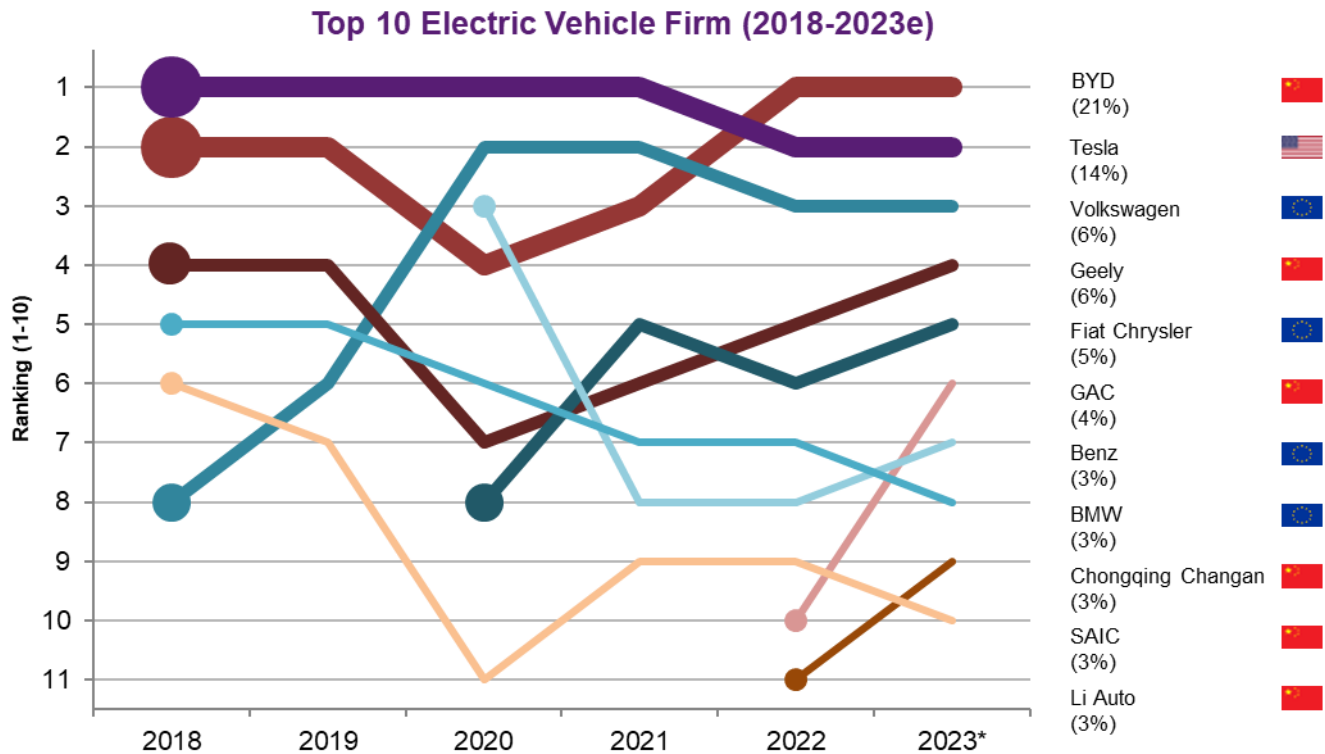
China Europe US Asia (ex China)



N.B. Joint ventures are reclassified by the origin of owners. Included both BEV and PHEV. Source: Natixis, MarkLines, BNEF

# Comparative advantages in prices and supply chains

## BYD overtaking Tesla as the biggest global EV maker

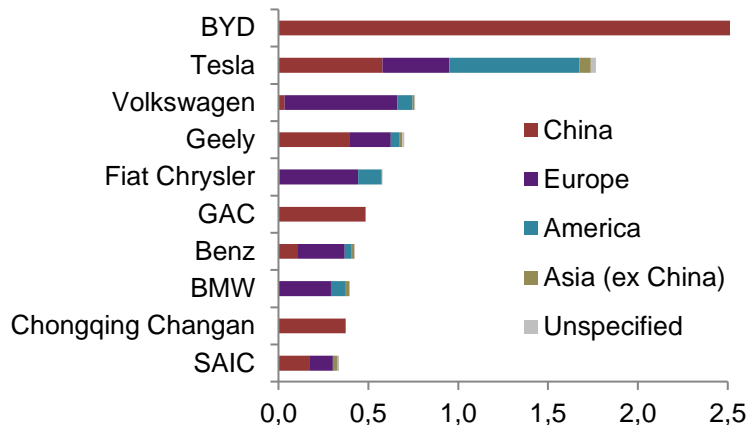


N.B. Ranking data of 2023 is estimated.  
 Source: Natixis, MarkLines, BNEF

# ...but only one model from BYD makes it to top 15 overseas

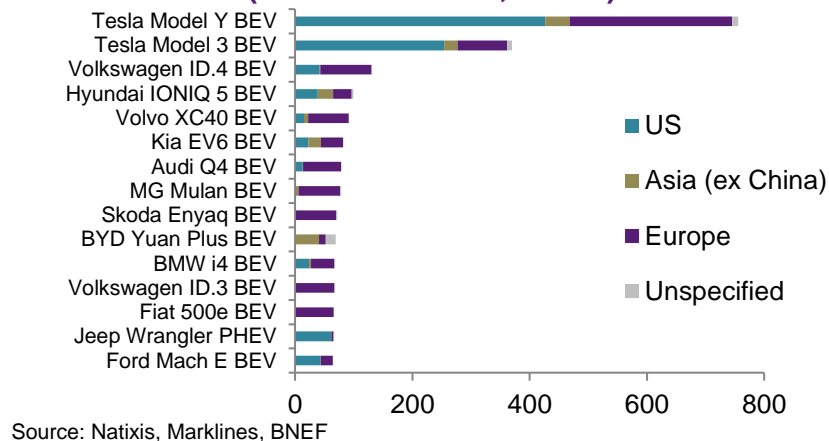
The US remains competitive, and other players will see opportunities from friend-shoring and industrial policies

**Global Electric Vehicle Sales By Firm  
(Million Units, 2023e)**



Source: Natixis, MarkLines, BNEF

**Non-China Market: Top 15 Electric Vehicle  
Sales by Model and Market  
(Thousand Units, 2023e)**

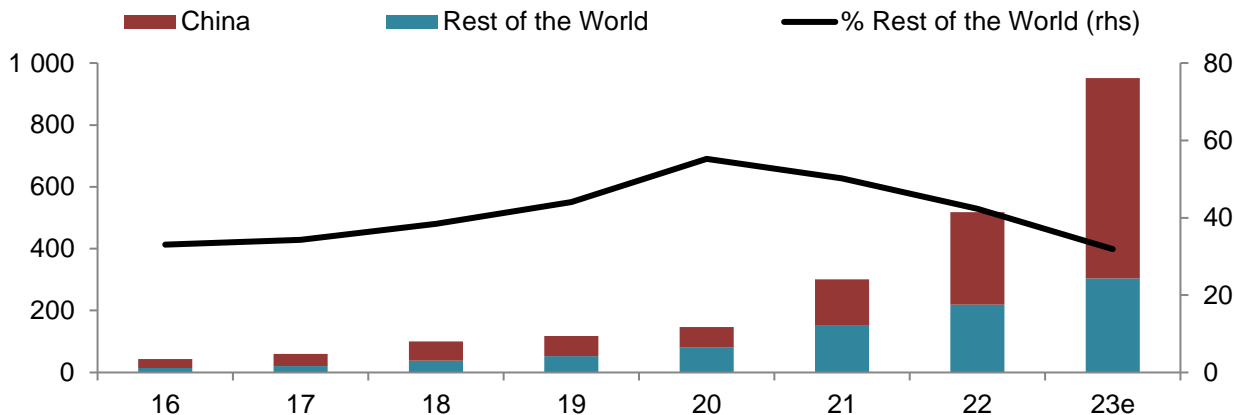


Source: Natixis, Marklines, BNEF

# China consumes two-third of EV batteries globally

Demand in batteries grow together with EVs, but it may change if global green transition in mobility accelerates from a low base

### Sales of Lithium-ion Battery for Electric Vehicles per Market (GWh)

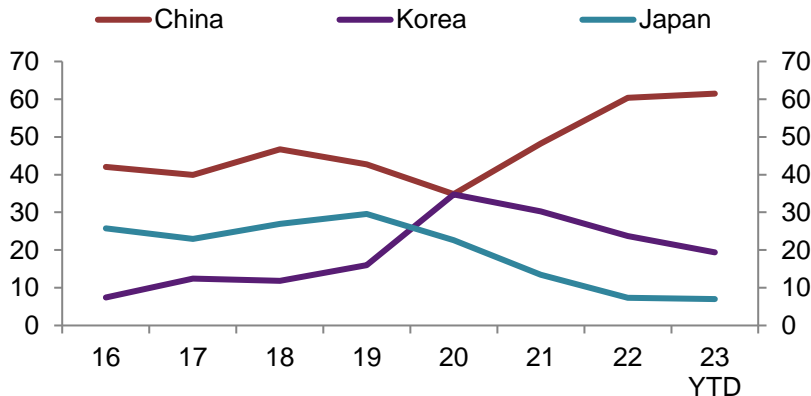


Source: Natixis, SNE Research

## Opportunities for Korea and Japan

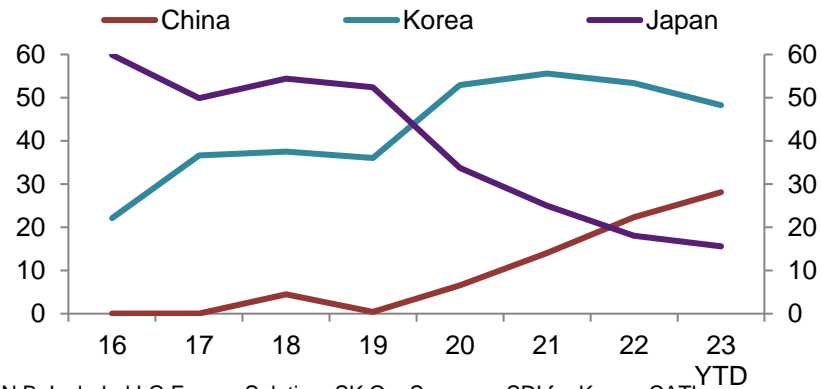
While China is rapidly expanding overseas, Korea and to a less extent Japan will still see opportunities in non-China markets

### Market Share of Lithium-ion Battery for Electric Vehicles by Country (%)



N.B. Included top 10 players for each year. Data as of September 2023.  
Source: Natixis, SNE Research















### Non-China Market Share of Lithium-ion Battery for Electric Vehicles by Country (%)



N.B. Included LG Energy Solution, SK On, Samsung SDI for Korea, CATL for China and Panasonic for Japan. Data as of September 2023.  
Source: Natixis, SNE Research

# The same is true for ASEAN and India

Strong government policies to attract investment, but with hard geopolitical choice in balancing between the US and China

Fiscal incentive for attracting investment in EV industry				Successful case	
	Tax		Tariff		
Thailand	 Reduce excise tax for up to 10% until 2027		Up to 40% reduction for 2024-2025		
Indonesia	 Reduction of corporate income tax up to 100% for 5 to 20 years		Exemption for machinery and raw materials		
Malaysia	 Full excise tax and sales tax exemption for locally assembled EV until 2027		Duty exemptions for locally assembled EV components until 2027		
Philippines	 Reduced income tax, VAT, Excise locally assembled autos		Reduction of the Most-Favored Nation (MFN) tariff rates on certain EVs and their parts and components for five years.		
Vietnam	 (Potential) Exempt VAT for the first 5 years, reduce 50% for the next 5 years		(Potential) exemption for EV components		
India	 -		(Potential) 40% tax cuts on the imports of completely-built units from current 70%-100% for 5 years		

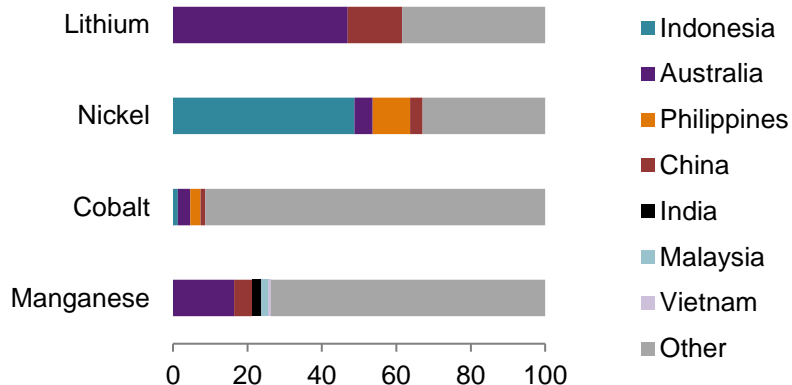
Source: Natixis, Official release



## Critical raw materials

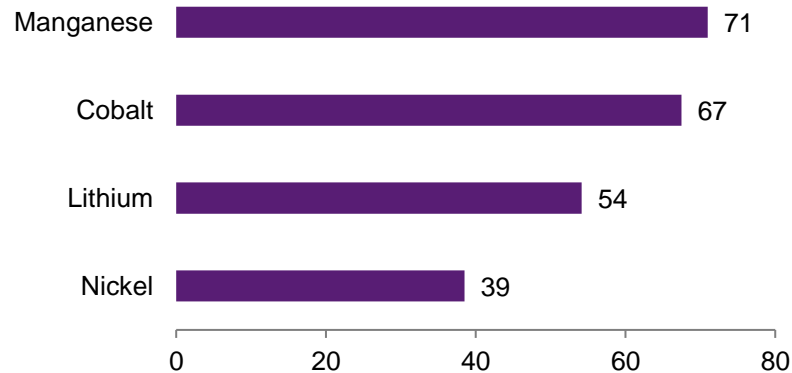
Australia and Indonesia have potential in upstream materials, while China is dominant in refining

### Production Share of Key Minerals for EV (%)



Source: Natixis, United States Geological Survey. All as of 2022 estimates except for cobalt which is as of 2021 estimate.

### China's Forecast Share in Global Refining, 2025 (%)

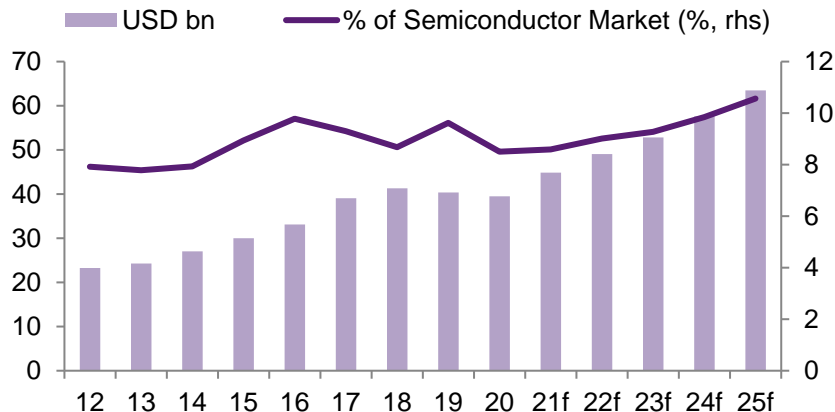


Source: Natixis, BNEF

## Car chips

The emergence of advanced driver-assistance systems (ADAS), in-vehicle infotainment (IVI) and sensors will require more sophisticated chips

### Market of Automotive Chips



Source: Natixis, International Data Corporation, Bloomberg

### Automotive chips have higher requirement than consumer electronics

	Automotive	Consumer Electronics
Temperature	-40°C to +150°C*	0°C to +35°C*
Tolerated Failure Rate	0%	<1,000 parts per million
Operating Lifetime	15 years (200,000 km)	3 - 5 years
Longevity	Yes (30 years)	No

\* Automotive standard based on AEC-Q100/200.

Consumer electronics standard based on Apple.

Source: Natixis, United States International Trade Commission



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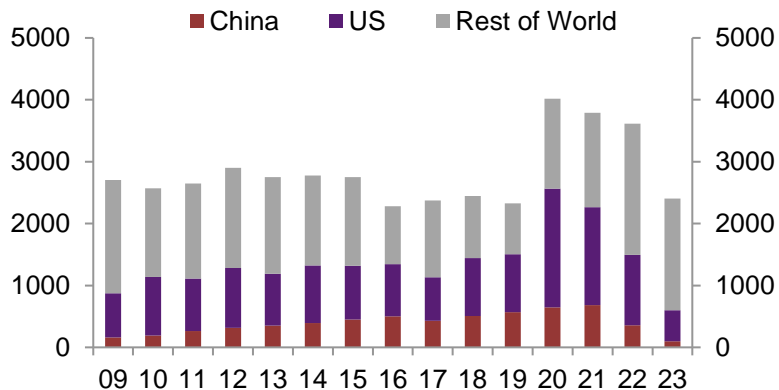
**What are the risks?**

**Geopolitics and overcapacity (investment)**

# Geopolitical tensions may arise

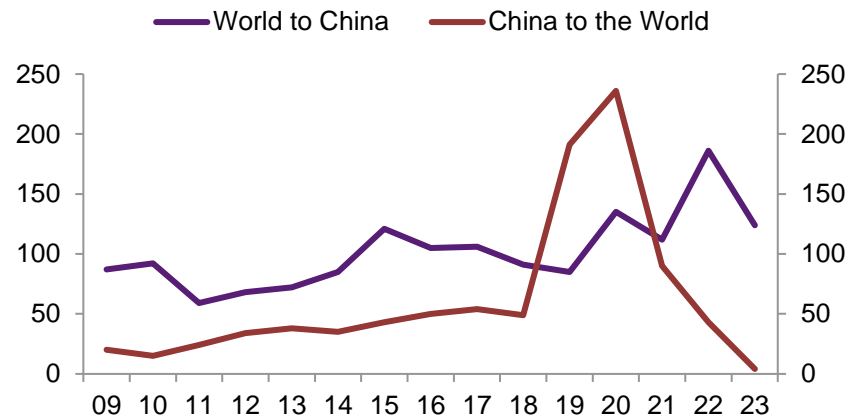
Harmful interventions in trade has grown in recent years, and the auto sector is one of the main targets

### Global: Number of Harmful Intervention on Trade in Goods



Source: Natixis, Global Trade Alert







### Harmful Trade Intervention to Auto Sector



Source: Natixis, Global Trade Alert

## Protectionism and industrial policies

It is not only the West but with growing concerns in other countries, e.g. India, Turkey and Brazil

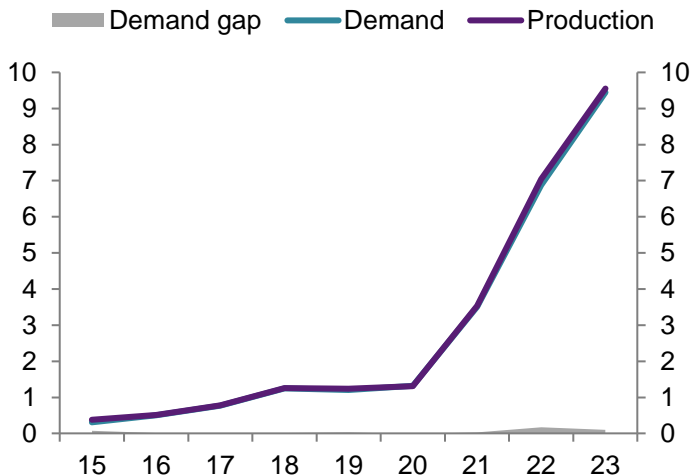
Country		Policy	Targeted products	Remarks
US		Inflation Reduction Act	EV, lithium battery	EV contains battery component from China will not be eligible for the credit since 2024
EU		Net Zero Industry Act	Solar panel, lithium battery	Cut dependency on China or any single country under 65% for strategic raw material by 2030
EU		Anti-subsidy investigation	EV	Plan to increase extra 10% tariffs on imports of Chinese electric vehicle
India		-	Solar panel and cells	A customs duty of 40% on solar modules and 25% on solar cells on imports from China since 2022
Turkey		-	EV	A 40% additional tariff on import of EV from China since 2023
Brazil		Green Mobility and Innovation Program	EV	Brazil will end a tax exemption for importing electric vehicles, gradually raising the duty to 35% over three years since 2024

Source: Natixis, Official release

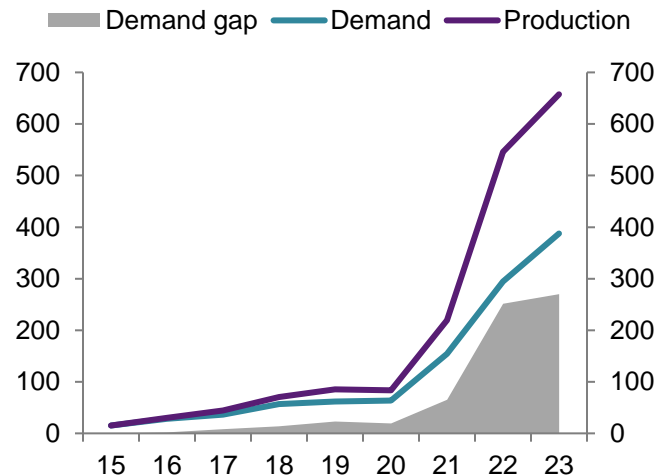
## Potential overcapacity

Slower domestic demand growth means China may export more overseas for batteries, and to a less extent for EVs for now

### EV (Million units)



### Battery (GWh)

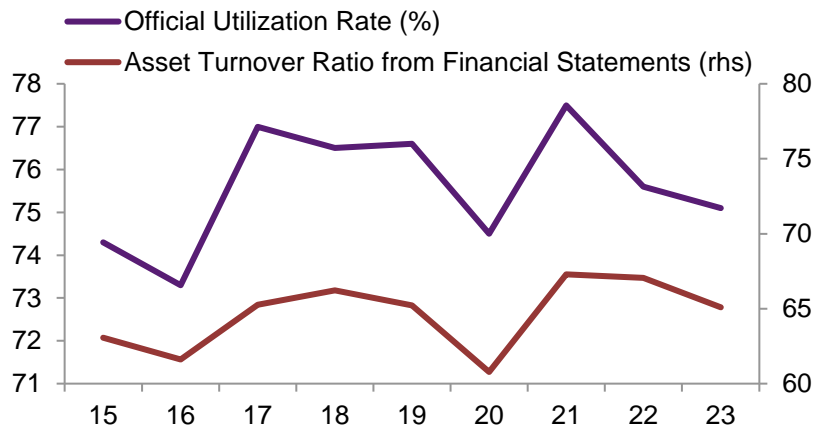


N.B. Overcapacity defines as more capacity than sales in China, and global demand is beyond the scope.  
Source: Natixis

# Heavy investment

Huge amount of capex may drag utilization rate (or asset turnover ratio) eventually, despite the improvement driven by strong demand in last two years

China: Utilization Rate



Source: Natixis, China National Bureau of Statistics, Financial Statements, Bloomberg

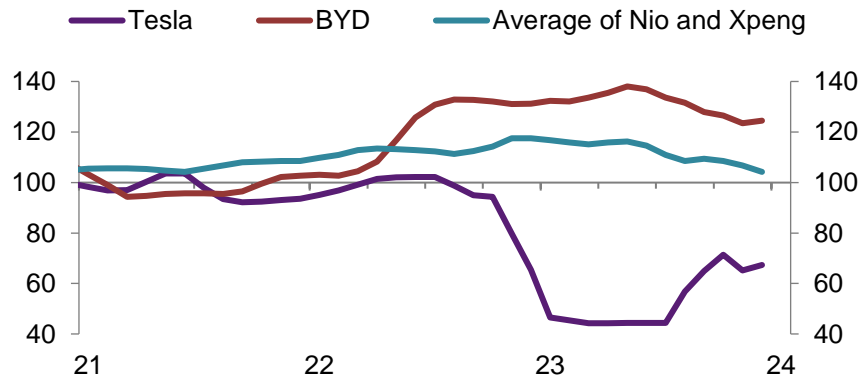
	Difference in Asset Turnover Ratio (2023 Q3 - average 17-19)	Difference in Capex (2023 Q3 - average 17-19)
Retail - Discretionary	-36	-34
Home & Office Products	-17	44
Food	-17	33
<b>Electric Vehicles</b>	-15	211
Apparel & Textile Products	-13	219
Internet Media & Services	-12	27
Semiconductors	-9	170
Construction Materials	-9	158
Technology Hardware	-8	2
Biotech & Pharma	-8	62
Transportation Equipment	-7	14
Health Care Facilities & Svcs	-7	30
Software & Tech Services	-7	47
Transportation & Logistics	-6	19
Chemicals	-4	83
Engineering & Construction	-3	62
Machinery	-2	93
Real Estate	-1	32
Automotive	0	44
<b>Electrical Equipment</b>	2	100
<b>Battery</b>	3	376
E-Commerce Discretionary	4	-20
Telecommunications	4	14
Utilities	4	75
Steel	8	13
Oil & Gas	9	20
Renewable Energy	11	86
<b>Metals &amp; Mining</b>	16	121
<b>Solar</b>	16	376
Wholesale - Discretionary	39	95

Source: Natixis, Bloomberg

## Price war is on the radar

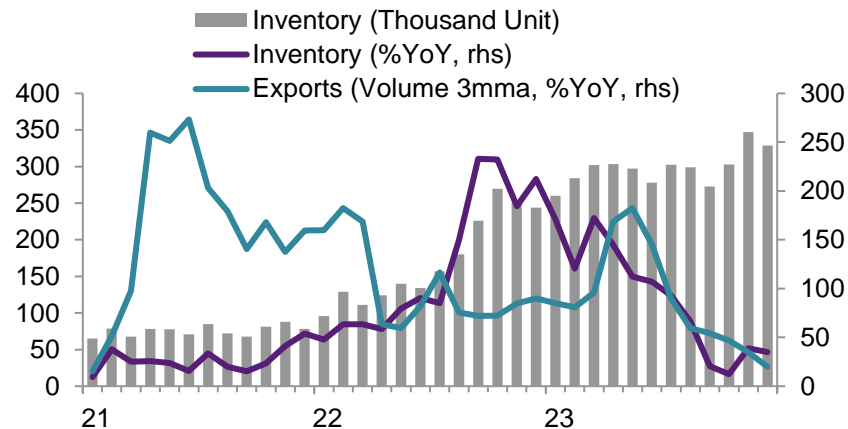
EV prices in China have generally declined after Tesla cut prices in Q4 2022, and China has exported more to the world after the pile-up of inventories (higher domestic production than demand)

**Average Car Price by Brand**  
(Q1 2020 = 100, 3mma)



N.B. Data as of December 2023.  
Source: Natixis, China Auto Market, Bloomberg

**China: EV Inventory**



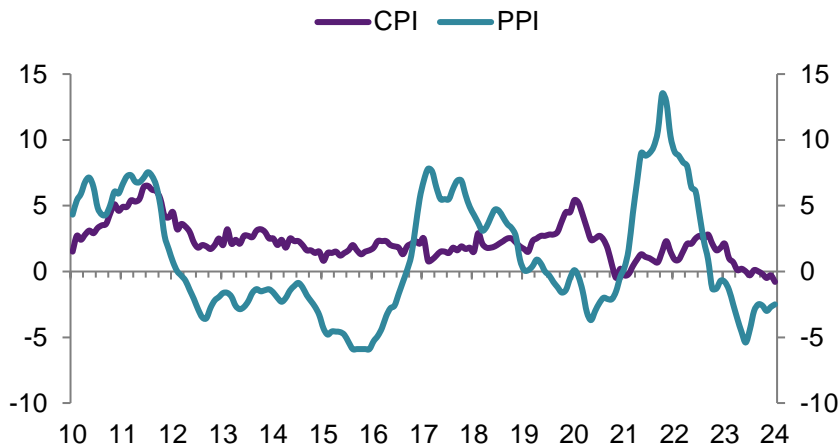
N.B. Inventory is estimated based on production and sales data.  
Source: Natixis, China Association of Automobile Manufacturers, CEIC



## Cheaper EVs from China to the world

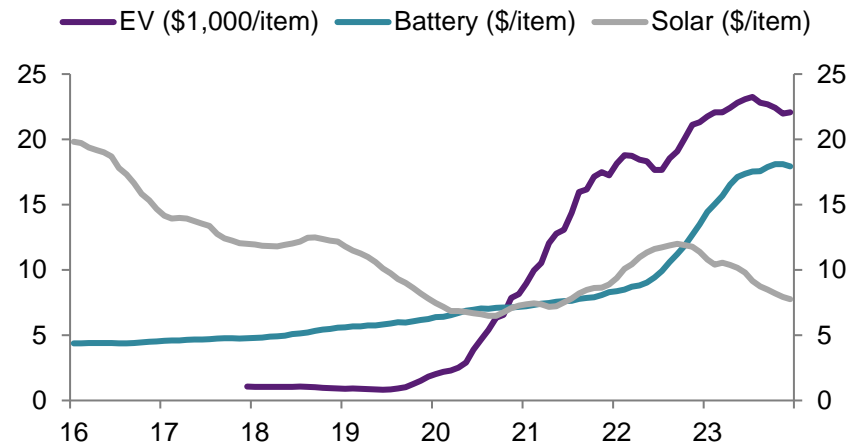
Changing demand-supply balance and disinflation will also lead to lower export prices, meaning competition will be higher globally

### China Inflation (%YoY)



Source: Natixis, National Bureau of Statistics, CEIC

### China Average Export Price (12mma)



Source: Natixis, China General Administration of Customs

## Conclusion

### More challenges in balancing geopolitics and opportunities

- China is the key winner in manufacturing goods for green transition with comparative advantages and integrated supply chains in electric vehicles, batteries and solar panels (53%, 62% and 94% of global production). The first mover advantages is built on huge domestic demand from government support, including the necessary infrastructure, tax incentives and subsidies.
- As domestic demand will strong but with decelerating growth, more Chinese firms will start exporting more to the world. The “New Three Sectors” now forms 4.2% of China’s exports, becoming an emerging engine of China’s current account surplus.
- However, China will begin to face more challenges with geopolitics and overcapacity. China’s dominance will be challenged by industrial policies and tariffs globally, which does not only come from the West but also other countries, such as India and Turkey. Korea can be a relative winners in non-China market in EVs in batteries. The rapid investment and the disinflation in China may fuel more competition, meaning a price war with greater quantity is increasingly likely. The world will face a question on balancing cost-effective green transition goods from China and supply chain security.
- For the rest of Asia, Indonesia and Australia will also benefit from exporting critical materials for green transition. ASEAN and India are proactive in attracting global investment, and in a tight rope in balancing the interest of China and US-allies.

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