

# Light Vehicle Demand Outlook

ECG Conference 2023

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Forecasts

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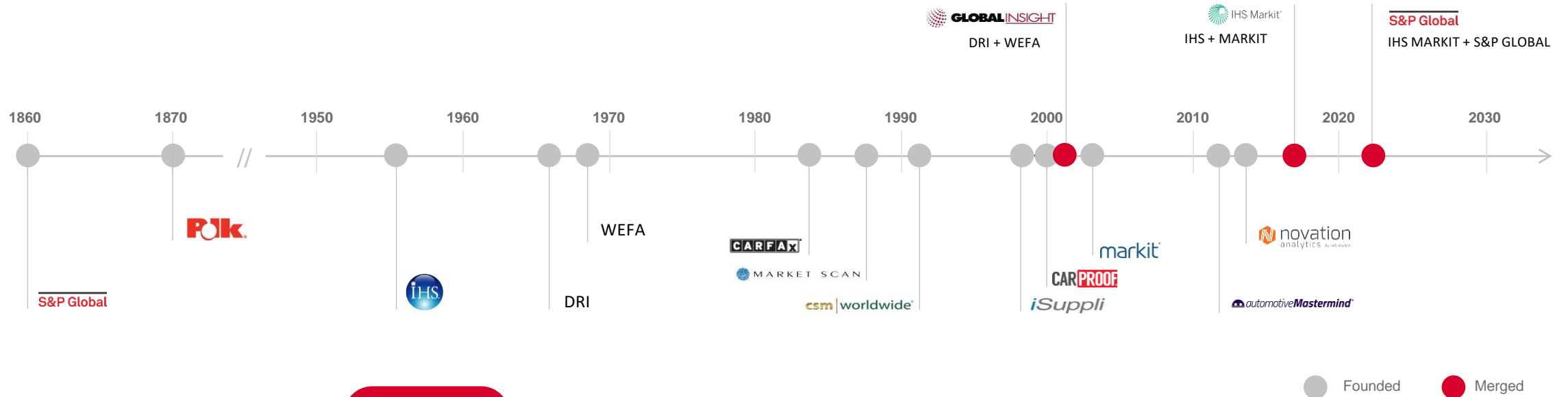
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Commodity Insights

# S&P Global Mobility: Over 100 years of experience coupled with new insights



## RL Polk

Founded in 1860 and acquired by IHS in 2013.

Vehicle registration and vehicles-in-operation data. US audience targeting.

## CARFAX

Founded in 1984 and acquired by Polk in 1999.

Vehicle history reports in the United States.

## Market Scan

Founded in 1988 and acquired by S&P Global Mobility in 2023.

Automotive pricing and incentive intelligence.

## CSM Worldwide

Founded in 1991 and acquired by IHS in 2010.

Deep insights on vehicle production and components.

## iSuppli

Founded in 1999 and acquired by IHS in 2010.

Technology insights: autonomous driving electrification, and connectivity.

## Global Insight

Founded in 2001 through the merger of DRI and WEFA and acquired by IHS in 2008.

Macroeconomic and industry analysis and forecasting.

## CarProof

Founded in 2000 and acquired by IHS in 2015.

Vehicle history reports in Canada. Now known as CARFAX Canada

## automotiveMastermind

Founded in 2012 and acquired by IHS Markit in 2017.

Predicts future buyers from their loyal, service-not-sold, and conquest portfolio.

## Novation Analytics

Founded in 2014 and acquired by IHS Markit in 2019.

Vehicle energy efficiency and greenhouse gas emissions analysis.

Newest acquisition

# S&P Global Mobility Offering Overview

## Vehicle Production



Alternative Propulsion Forecast (LV)



MHCV Engine Forecast (MH)



Vehicle Performance & Compliance (LV)



EV Engineering Standards (LV & MH)

## Vehicle Sales



(US) Predictive Audiences (LV)



New Registrations/Sales (LV & MH)

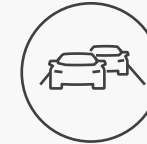


Powertrain Sales Forecast (LV)



Long-term Trends (LV & MH)

## Vehicles in Operation



Vehicles In Operation (LV & MH)



VIO Forecasts (LV)



Aftermarket Solutions (LV & MH)

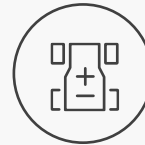
## Components & Technologies



E-Mobility Reports, Supplier Profiles, News (LV)



Mobility Insights, Forecasts, and New BEV Entrants (LV)



Component Level Forecasts

High voltage battery  
E-Motors & Power Electronics  
Vehicle-side charging technology



Electronic Parts Sourcing



Battery Materials

## Charging Infrastructure



Vehicle-side charging technology Forecast (LV)

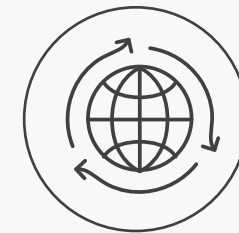


Sub-national charging infrastructure forecast (Coming in 2024)



EV Charging Infrastructure Location Planning

## Advisory



Through an unparalleled depth of understanding, S&P Global Mobility Automotive Advisory brings together best-in-class data assets, experts and insights to support the needs of our clients, driving critical decisions with speed and confidence.

Our consultants cover a range of key topics across the electrification landscape designed specifically for your unique challenges.

# Global economic challenges: similar issues – different approaches

## Economic growth

- Average growth of 2.6% in 2023, but some countries in recession.
- Consumer income constraints remain key but weakness in leading indicators has been spreading.

## Inflation

- Tighten monetary policy and energy-related base effects resulted in downward trend in consumer price index.
- However, short-term inflation remains high, especially in Europe and the US, resulting in prolonged monetary tightening policy.

## Financial conditions

- Monetary policy prospects are becoming more divergent. US Fed to deliver at least one policy rate increase before the end of the year, European Central Bank (ECB) most likely not anymore.
- Interest rate cuts in some emerging countries already underway.

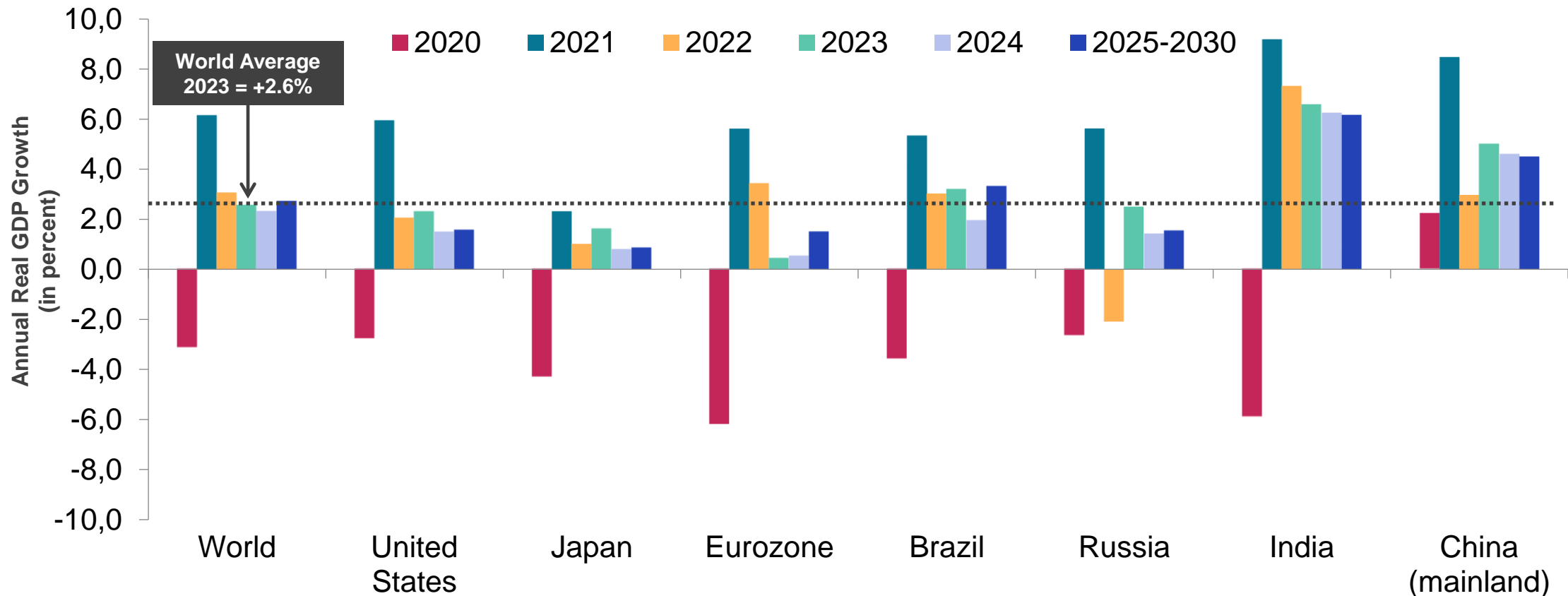
## Risks to monitor

- Natural resources price evolution, especially natural gas in Europe.
- Exchange rate implications in emerging markets.
- Possible implications of future potential geopolitical tensions.



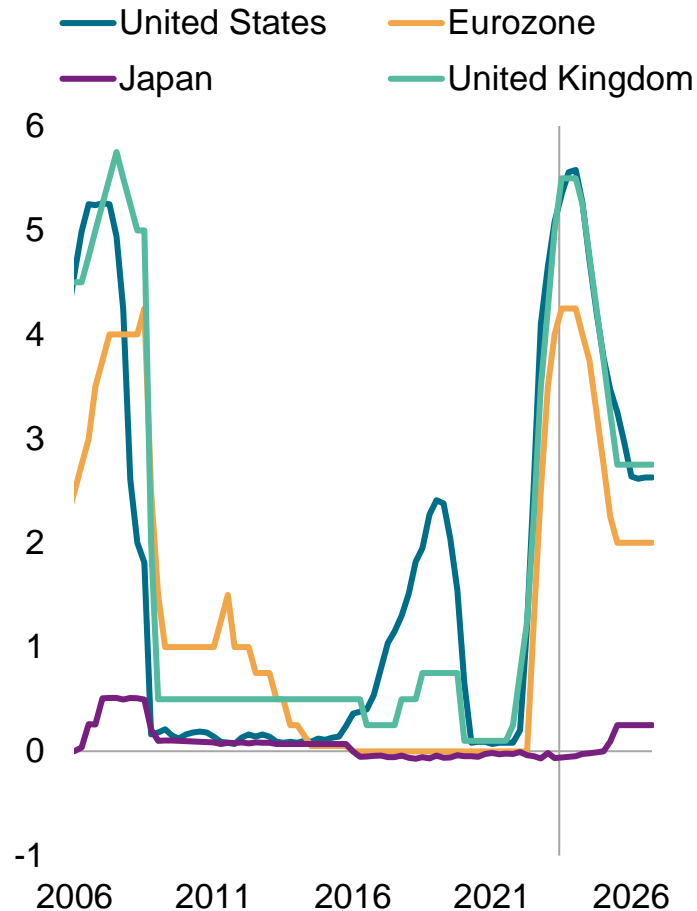
# World Economic Growth – Developed Economics vs. Emerging Markets

Could the world economy achieve a “soft landing” as outlooks for the US and select other markets improve?

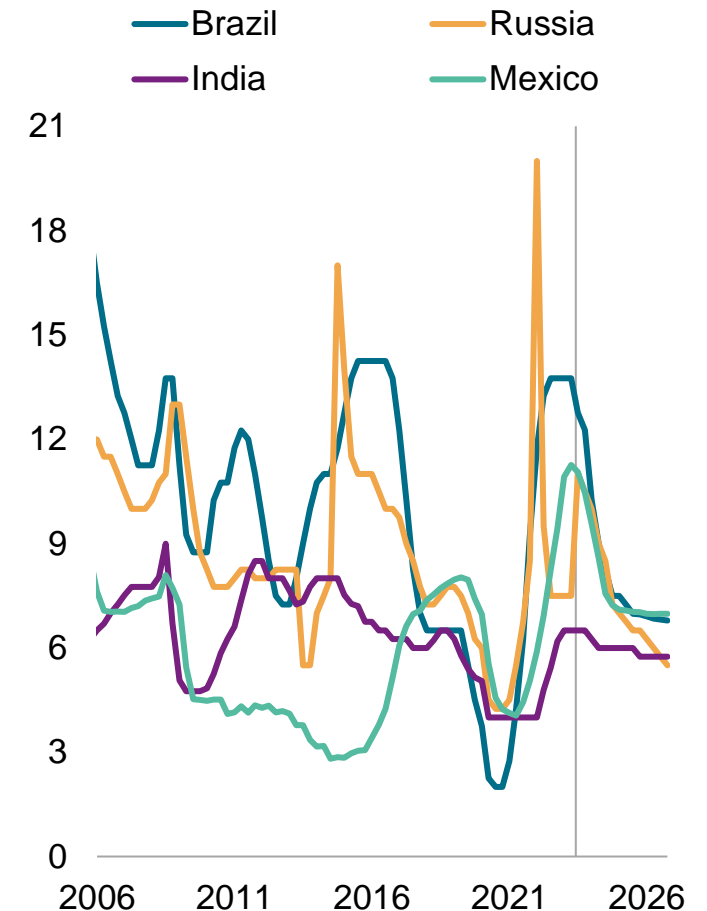


Data compiled September 15, 2023.  
Source: S&P Global

# Policy interest rates by country (%)



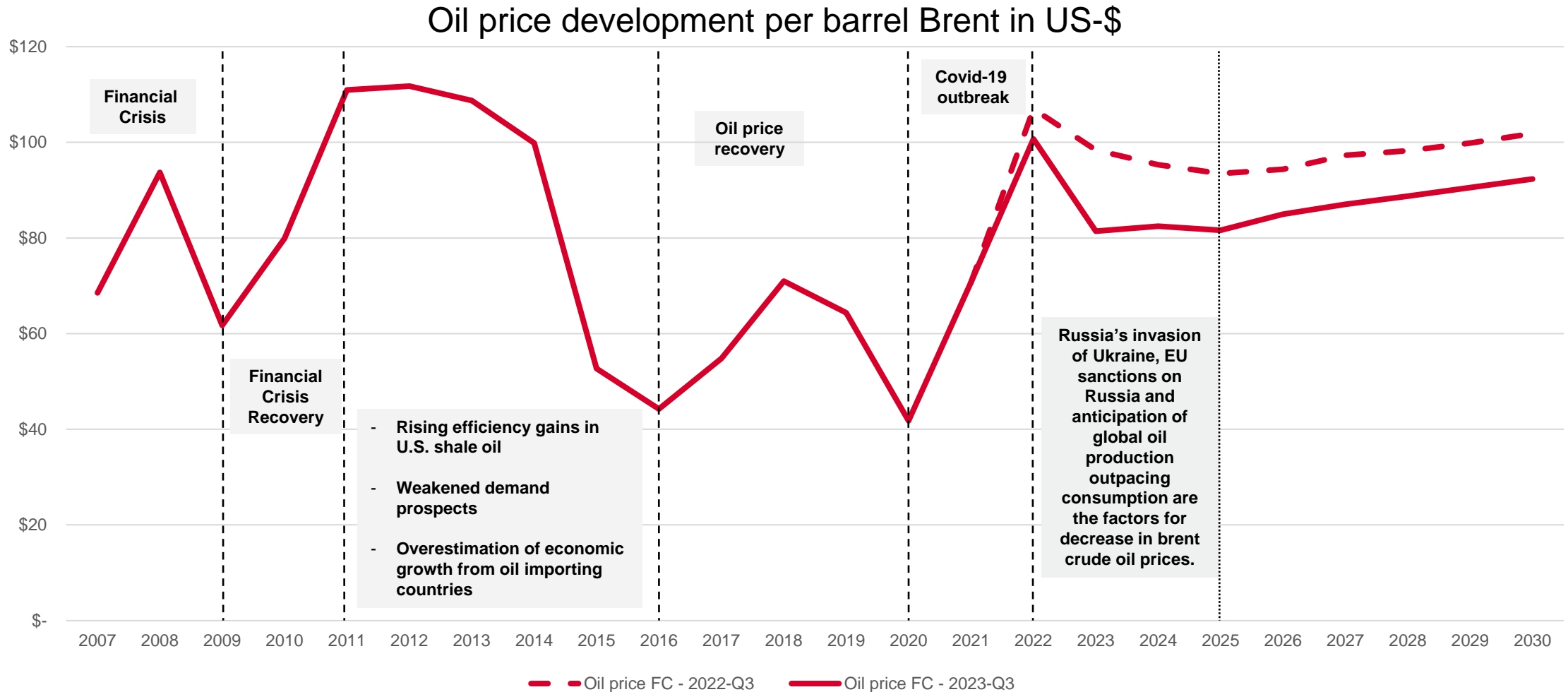
- At least one additional 25-basis-point policy rate rise is forecast by the US Federal Reserve during the second half of 2023.
- July’s European Central Bank rate hike is expected to be the last of the current cycle, although another in September cannot be ruled out.
- Policy rate cuts in advanced economies are generally expected only from mid-2024, with core inflation still elevated and labor markets generally tight.
- Where central bank responses to high inflation were swifter and more substantial, rate cuts are forecast to begin earlier. These have already begun in parts of Latin America, as predicted.



Data compiled Aug. 15, 2023.  
Source: S&P Global Market Intelligence.

# Oil Price Development

Recent price levels unlikely to be reached again by end of this decade





# Major global automotive challenges: Vehicle markets in transition

## Total TIV

- Strong pressure from decreased incomes and increased vehicle prices.
- Less affordable vehicles in regulated markets, especially in B-Segment.

## Segment Structure

- Decarbonization is a threat for small and simple (=affordable) vehicles, e.g., in Europe — A-Segment declined already, entry B-Segment suffering — is a come-back with electric vehicles possible?
- High demand for D-Segment SUV from solvent buyers, mainly families right now, but for how long?

## Powertrain Structure

- Mainly driven by the CO2 regulation in advanced markets — strong shift toward xEV globally
- Hybrids mainly a transition technology on the way to battery-electric vehicles (BEVs), especially. in regulated markets (e.g. EU).
- Variety domestic market regulations within forecasting horizon (Euro7, IRA/EPA)

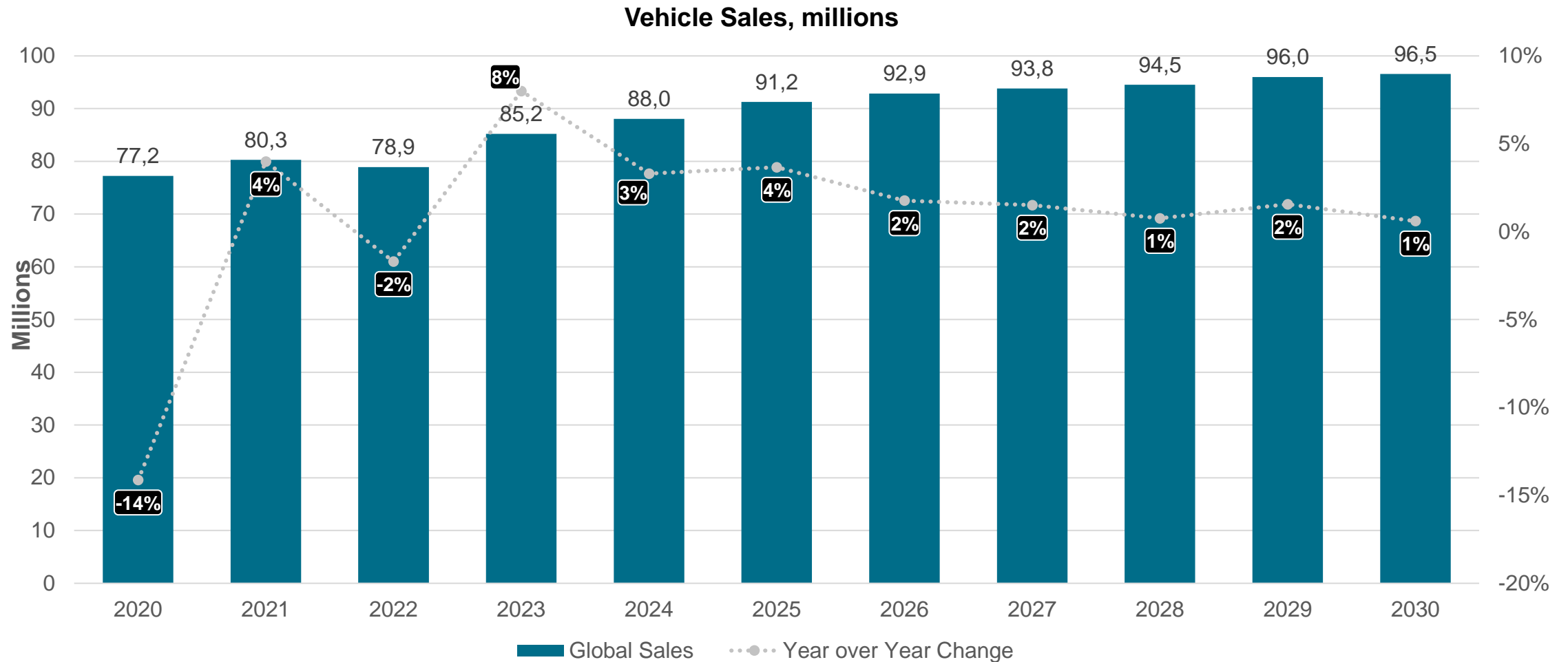
## OEM Structure

- Established OEMs struggling to defend their market positions, especially in regulated markets.
- New brands with alternative business models affect market structures across the world, e.g., Tesla.
- Mainland Chinese OEMs expected to increase their presence globally and reach high market share with their BEVs in the med-and long terms.

TIV = Total Industry Volume indicates the sum of all vehicles registered in a country within a year.

# Global sales overview

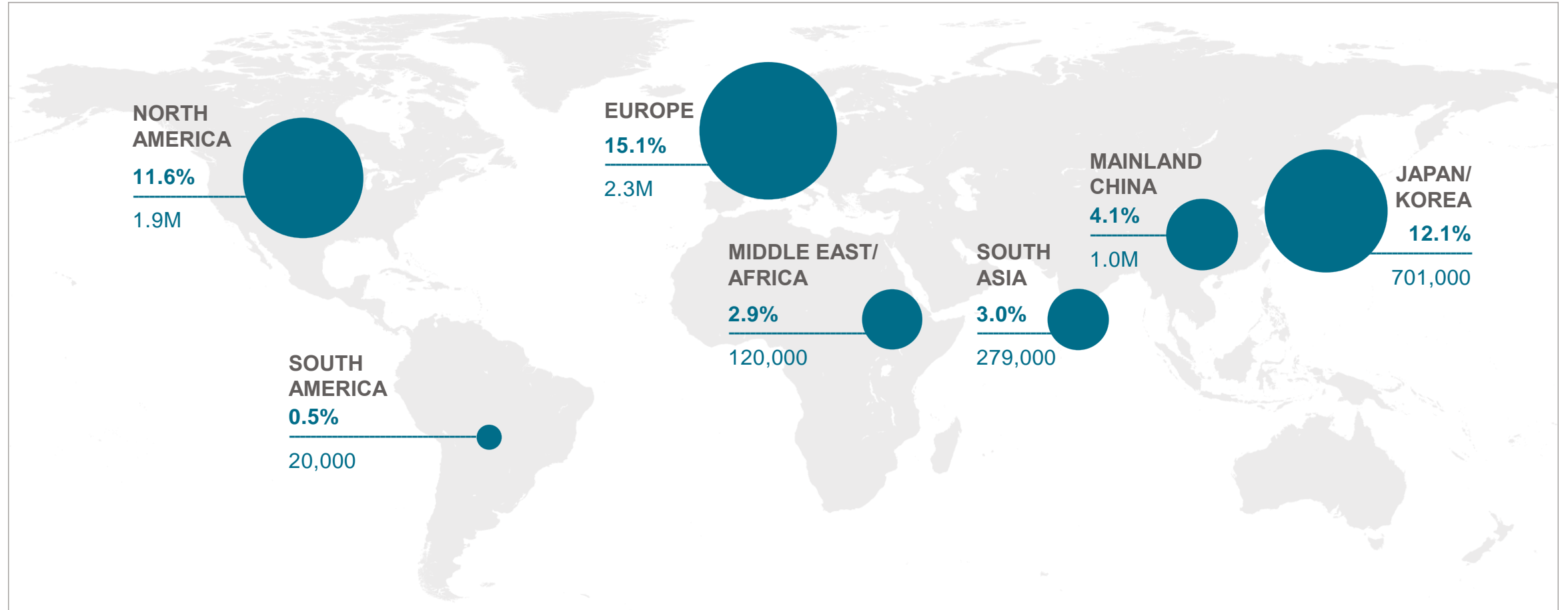
September forecast helped by stronger production recovery—esp. US & Europe—alongside Russia upgrade on booming Chinese imports



Data compiled September 2023.  
Source: S&P Global Mobility

# Global sales overview

**2023 recovery well on track: Global increase of new-vehicle sales by 8.0% over 2022 levels (+6.3M units)**



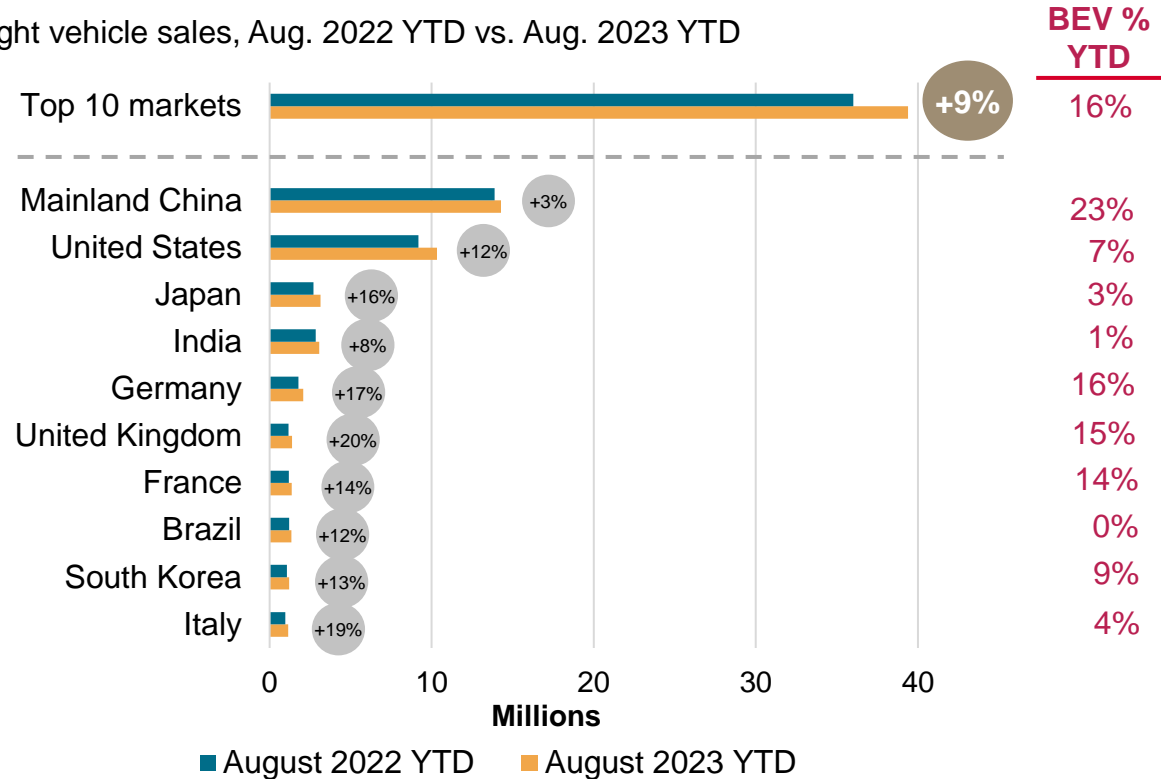
Date compiled September 2023.  
Source: S&P Global Mobility

# Total industry sales volume | China's weakness offset by recovery elsewhere

## Modest mainland China sales offset by demand improvement elsewhere — Top-10 market sales up 9%

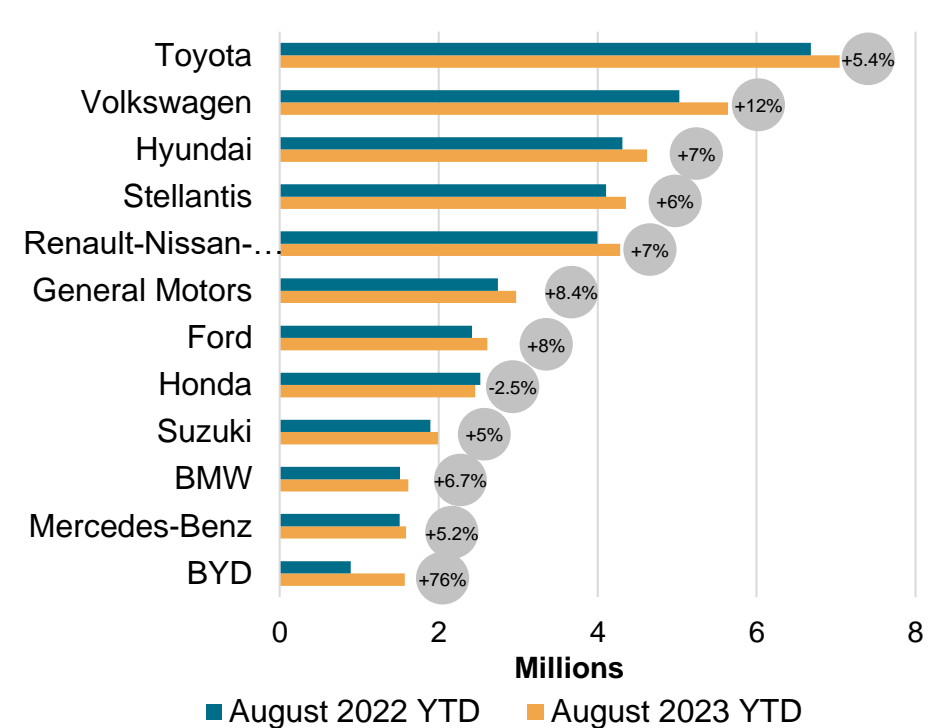
### Global light vehicle sales: Key markets' YTD\*

Light vehicle sales, Aug. 2022 YTD vs. Aug. 2023 YTD



### Global light vehicle sales: Key OEMs' YTD\*

Light vehicle sales, Aug. 2022 YTD vs. Aug. 2023 YTD

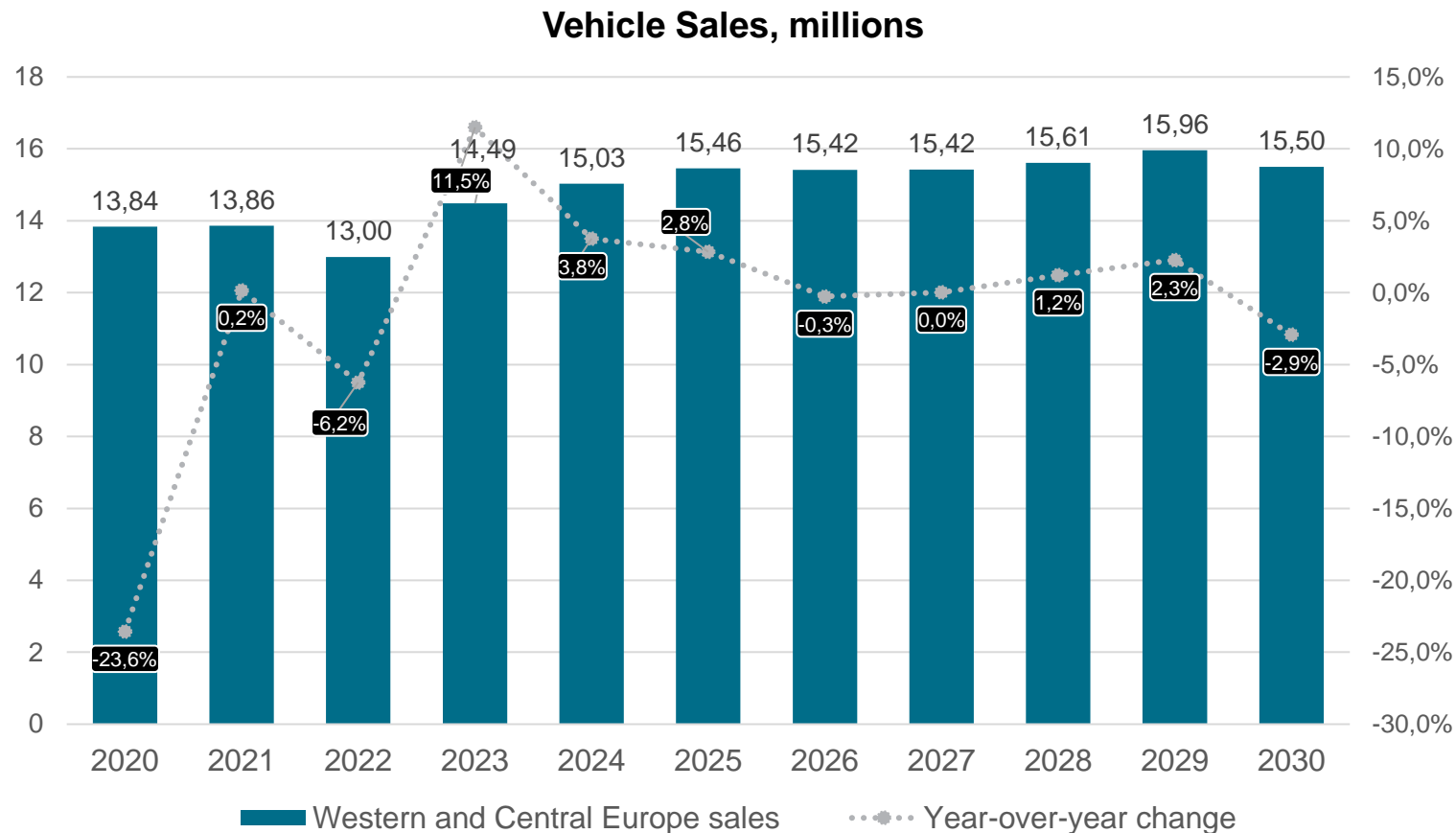


Data compiled September 2023.  
 \*Year to date (YTD) refers to August 2022/2023 (includes forecast data).  
 Source: S&P Global Mobility Global Auto Tracker.

Data compiled September 2023.  
 \*Year to date (YTD) refers to August 2022/2023 (includes forecast data). OEM refers to sales parent.  
 Source: S&P Global Mobility Global Auto Tracker.

# Western and Central Europe sales overview

Solid short-term performance — but some challenging years ahead



Data compiled: September 2023.  
Source: S&P Global Mobility

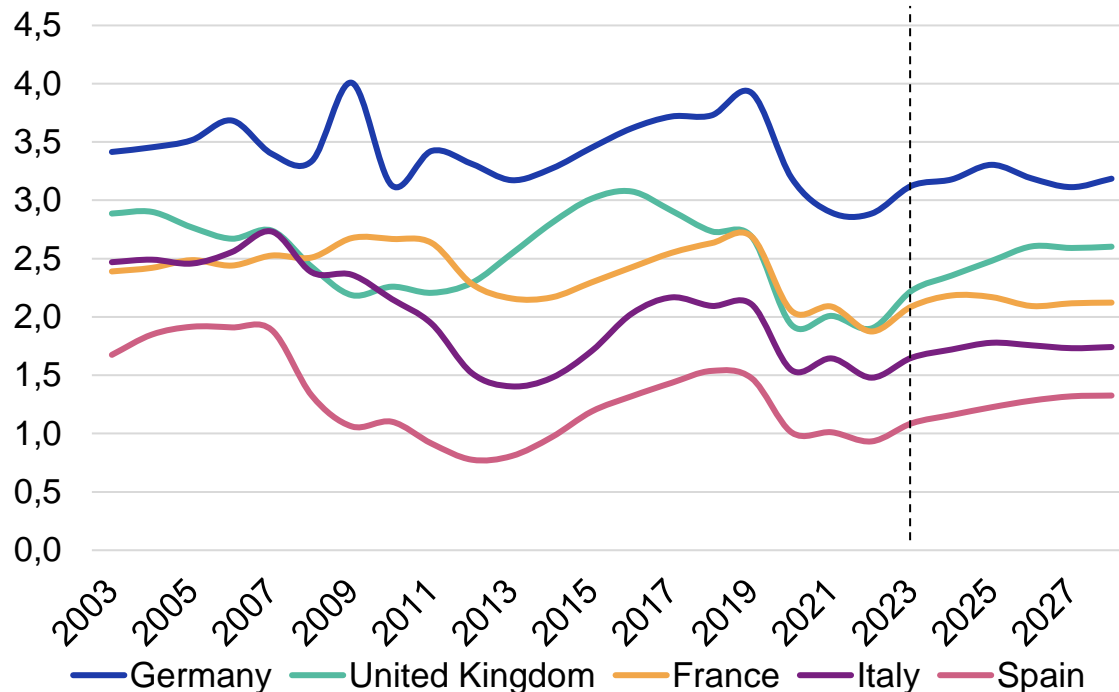
- ▲ Given lower energy-related risks and recent improvements in leading indicators, we have revised up our near-term real GDP forecasts.
- ▲ High pent-up demand and orders will support the recovery process.
- ▲ Attractive deals/tax reliefs for customers and xEV push to the market — better CO<sub>2</sub>.
- ▲ Launch of mainland Chinese brands, including BYD and MG, lower the entry prices for BEVs and increase competition and price pressure on traditional OEMs.
- ▼ Domestic demand conditions will remain weak.
- ▼ The current sales running rate is far below pre-pandemic levels in all the major European markets.
- ▼ Semiconductor disruption extended through 2023 and even high stocks draining (longer waiting periods starving demand recovery).
- ▼ Stricter CO<sub>2</sub> regulations pressuring purchase prices
- ▼ Demand drop is expected when incentive programs expire (vary by market).

# European “Big 5” demand outlook

Recovery in progress on recovering supply chains; market increasingly demand-led

Europe: 2024 outlook shifts to sustaining recovery cycle. Major challenges include weak economic momentum, ongoing Russia-Ukraine war, sticky inflation, car prices, Euro7 timing, CO<sub>2</sub> targets, ZEV mandate; key risk if consumers reluctant for EVs

## Europe “Big” 5 light vehicle sales forecast (millions)



- **Germany:** Ongoing order fulfillment fuels recovery path as shortages improve in 2023–24. Auto incentives phasing out (PHEVs out/BEVs reducing). Concerns on incoming orders
- **UK:** Recovery as vehicle availability improves. Caution on 2024–25: recession fears and “economic scarring” (COVID and Brexit). Offset recovery cycle reflects replacement “echo”. Net zero push-back means “ICE ban” now 2035 (previously 2030/2035)
- **France:** Reducing order backlog helps 2023—order intake risk for 2024. EV bonus incentives phasing down (BEV €5k / PHEV €0). Govt. support for low-end car buyers delayed to 2024. New BEV bonus for 2024 including CO<sub>2</sub> impact of BEVs (mainland China)
- **Italy:** Weak recovery profile with keen buyer response to government ICE incentives but poor uptake for BEV incentives. BEVs remain a hard sell in Italy. Maybe mainland Chinese OEMs can do better?
- **Spain:** Solid demand so far in 2023, helped by rental rebound as tourism further recovers. Modest BEV demand in price-sensitive market (HEVs outselling BEVs 5:1)

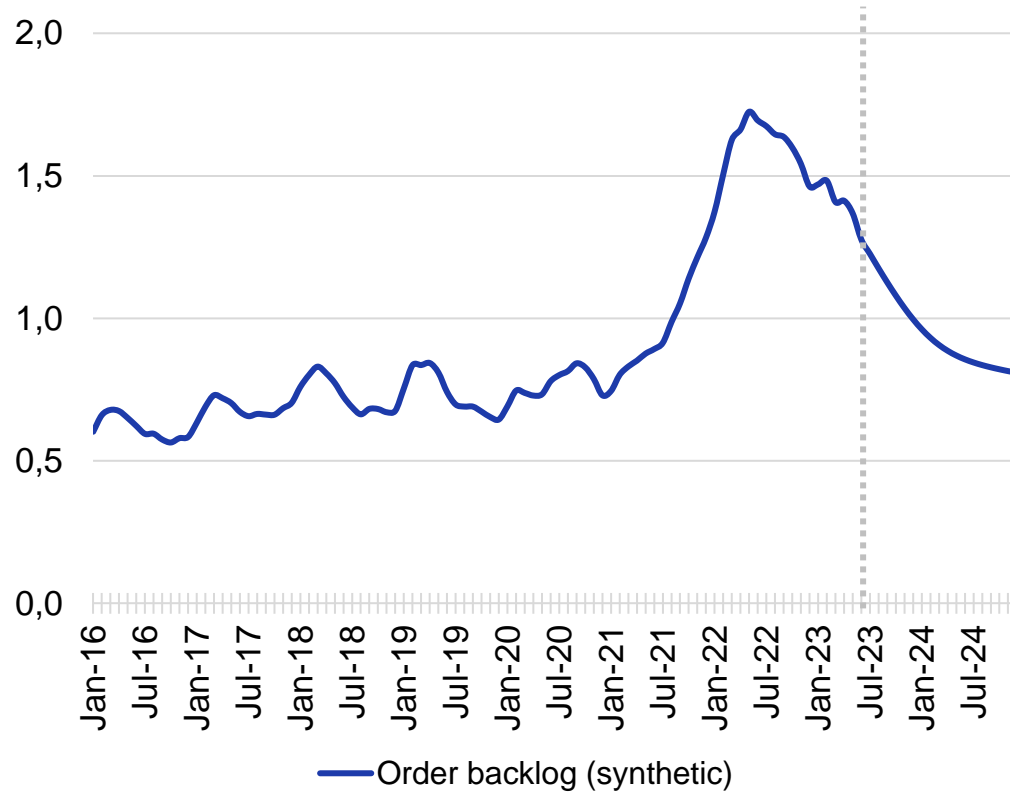
Data compiled September 2023.  
Source: S&P Global Mobility Light Vehicle Sales Forecast.



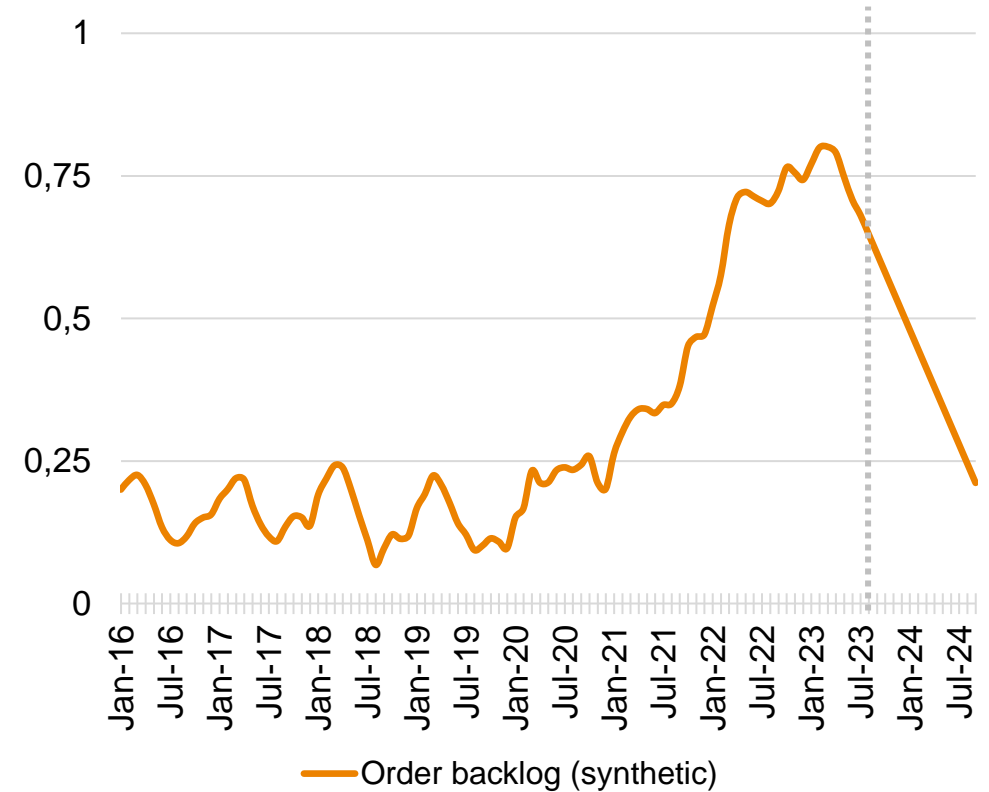
# European passenger vehicle order backlog

Ongoing order fulfillment and stronger production reducing order back logs — orderly winding down of pent-up demand or new cause for concern about near-term forecast?

**Germany: Ongoing order fulfillment fuels recovery path but concerns on incoming orders (millions)**



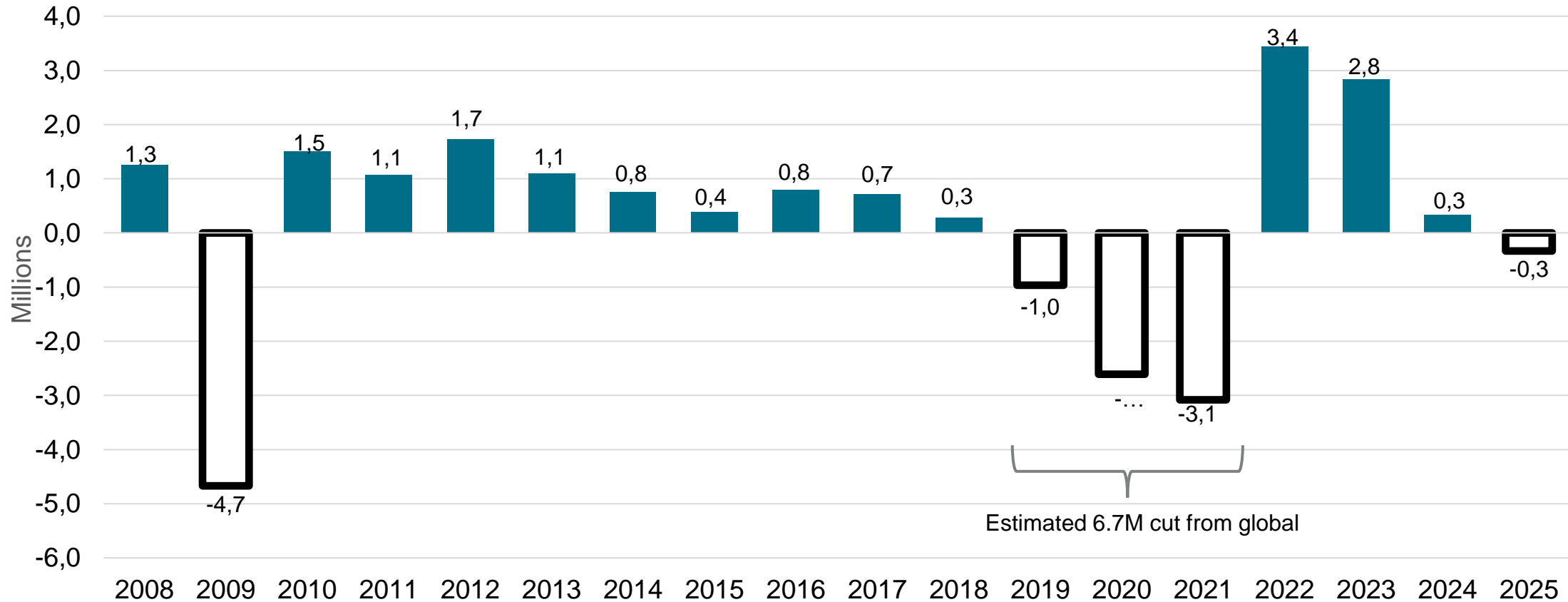
**France: Order backlog reducing helping 2023 with order intake risk for 2024–25 (millions)**



Data compiled September 2023.  
Source: S&P Global Mobility Light Vehicle Sales Forecast.

# Inventory rebuild has already begun to slow

Change in global production levels versus global sales (Proxy for global inventory levels)



Data compiled August 15, 2023.  
Source: S&P Global Mobility

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# Mainland Chinese OEMs in Europe — opportunities and challenges

Short-term electrification opportunities in terms of raw materials, battery, connectivity, cost and quality; challenges in brand awareness, distribution/services networks; long-term EU CBAM and geopolitical risk

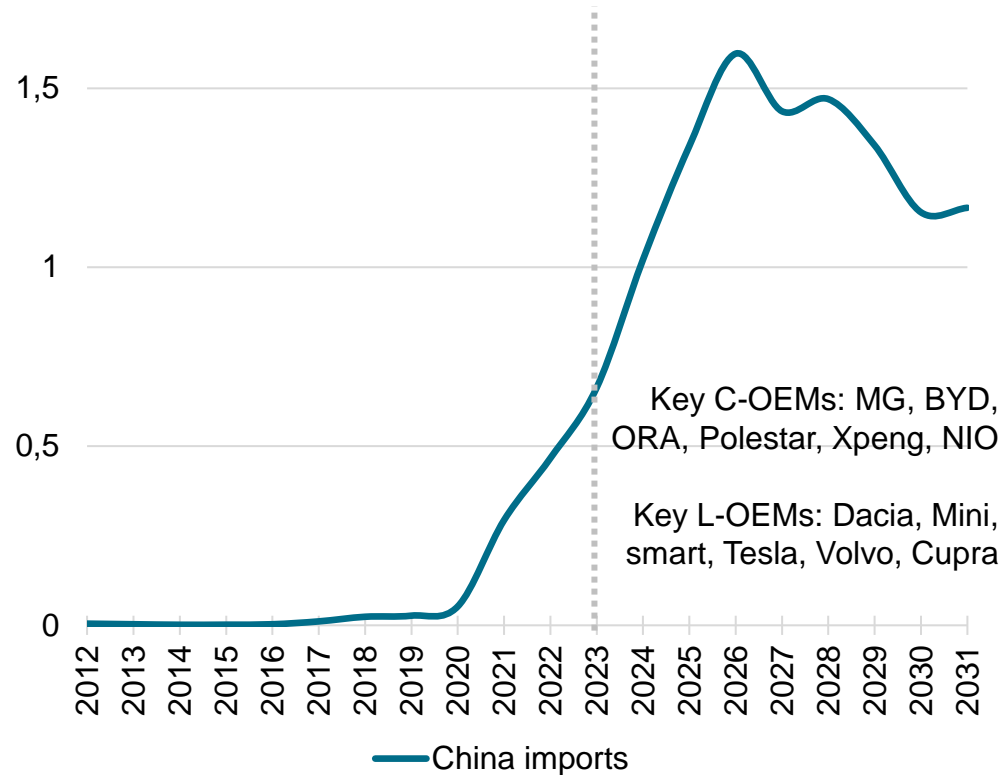


CBAM - Carbon Border Adjustment Mechanism, BATT2 – EU Battery Regulation 2023.  
Source: S&P Global Mobility.

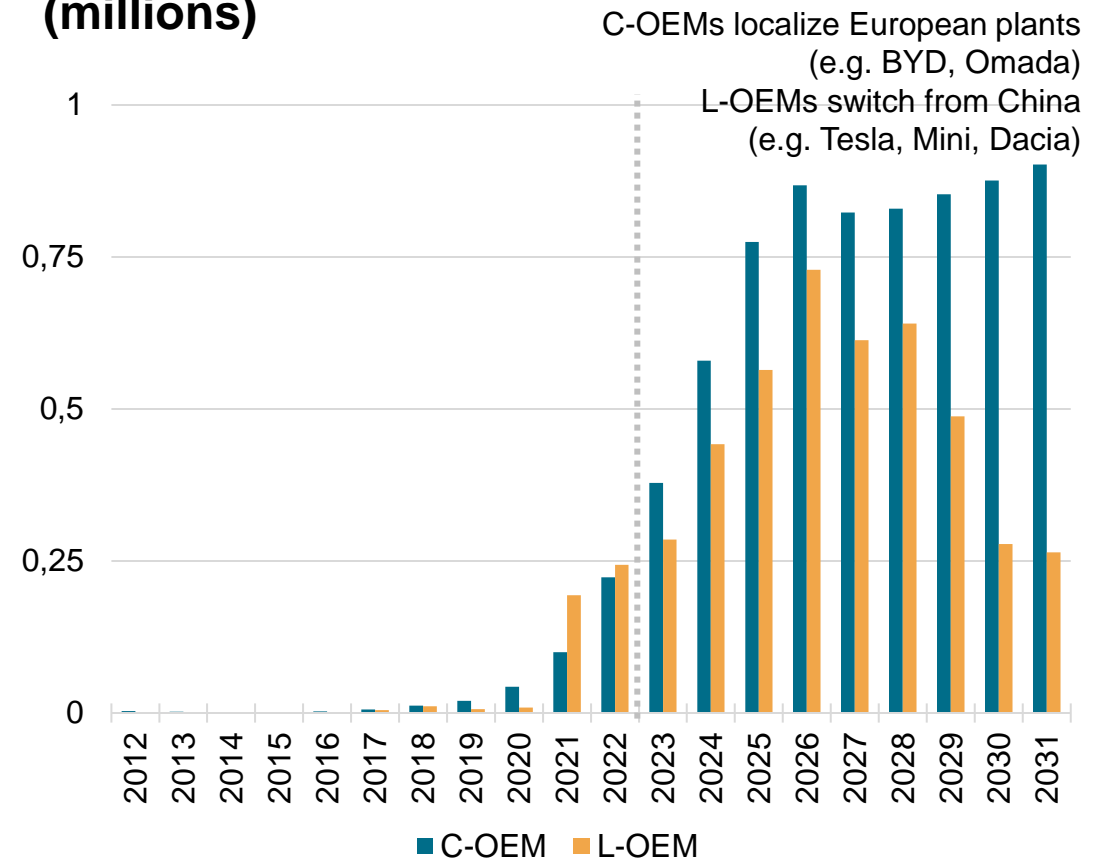
# European imports from mainland China — Legacy OEMs vs Chinese OEMs

Mainland Chinese imports expected to rise significantly — blend of re-sourcing and new player market entries

**Mainland Chinese import growth 0–1 million units in ~5 years (millions)**



**Tricky for regulators to target C-OEMs (millions)**



Data compiled September 2023.

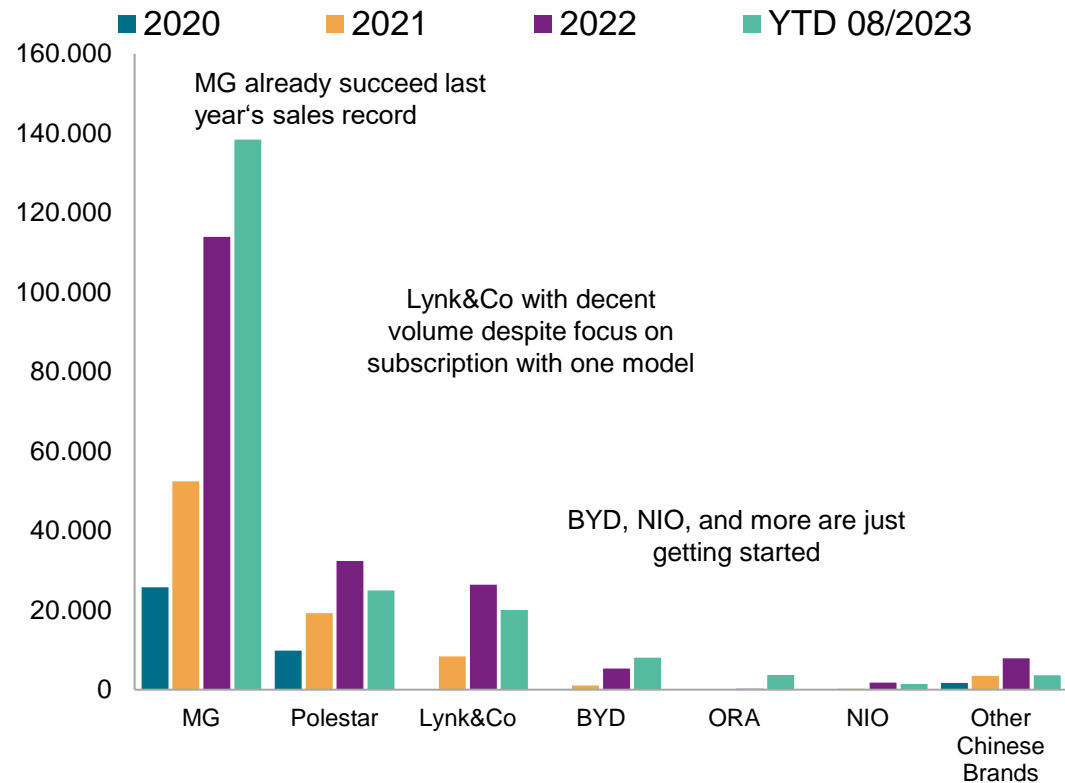
Forecast shows mainland Chinese-built Light Vehicles sourced into Central/Western Europe

Source: S&P Global Mobility Light Vehicle Sales Forecast.

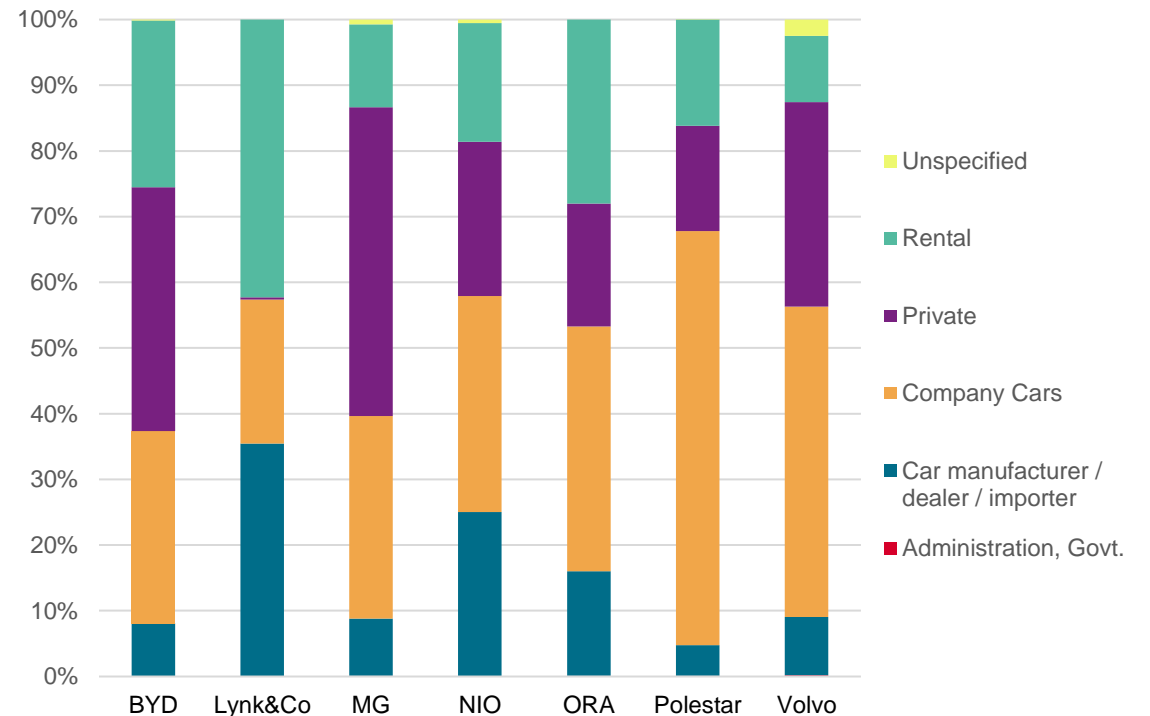
# Mainland Chinese OEMs | Year to date Performance in Europe

Significant increase, still huge potential for Chinese newcomers in company cars business, cooperation with rental and third-party new mobility service

## Chinese OEMs Sales in Europe



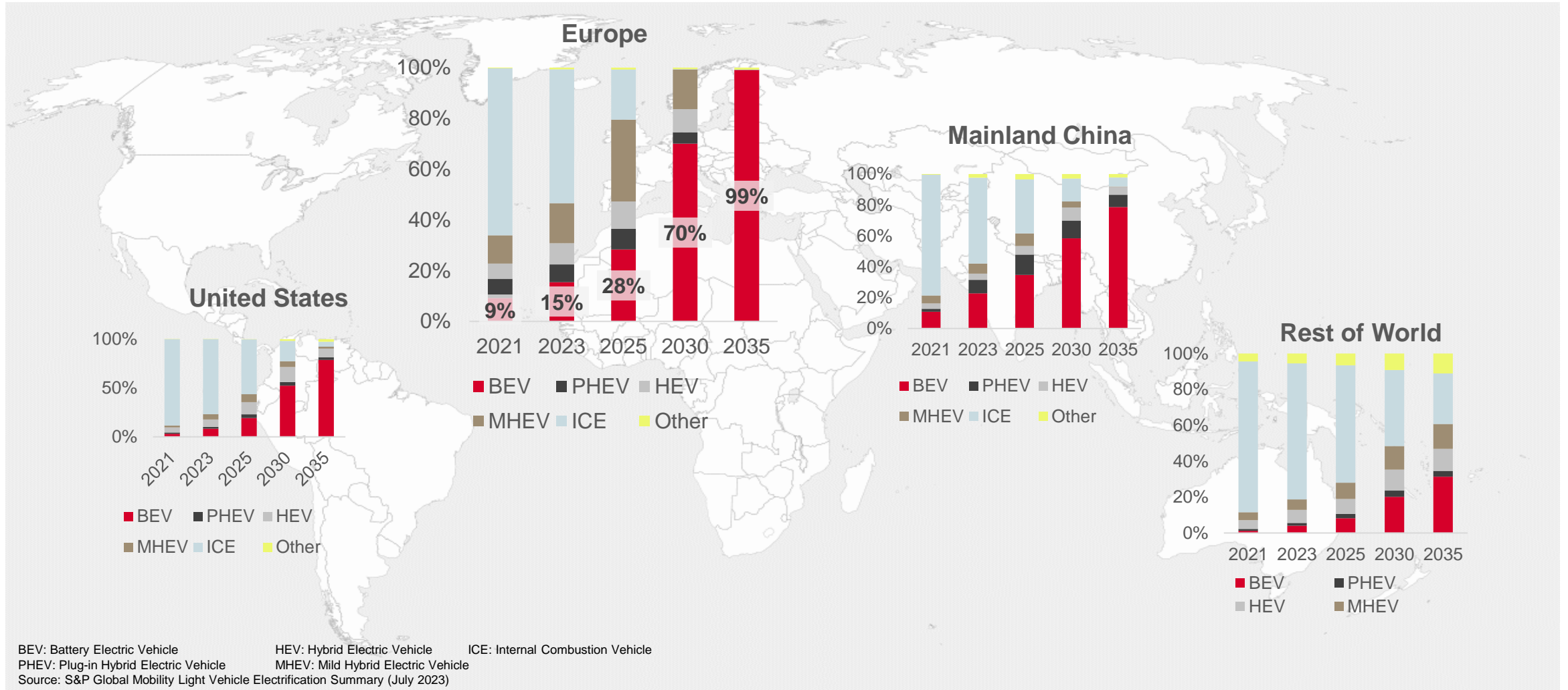
## Chinese (related) Brands Reg YTD 08/2023 in WE by Ownership



Data compiled: September 2023.  
Source: S&P Global Mobility New Registrations

# Light Vehicle Electrification Trends by Region | Activity Accelerates 2025 and Beyond

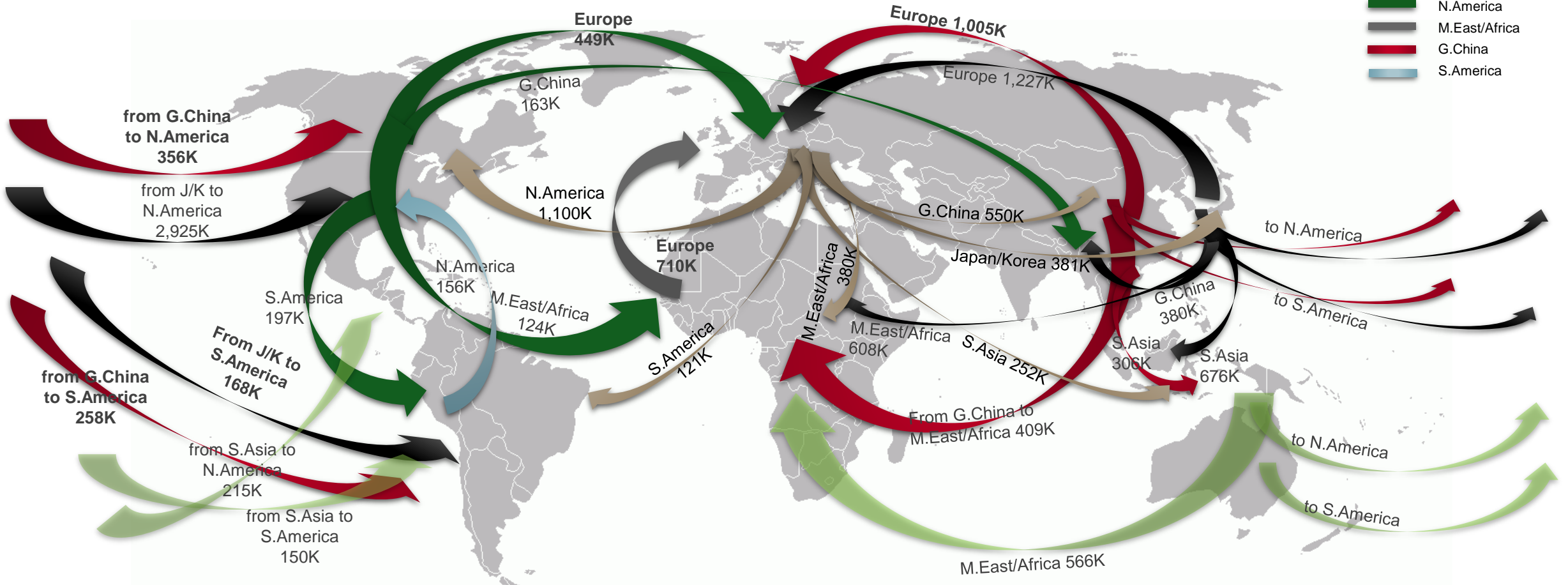
Regional preferences and incentives result in a varied propulsion mix; Watch the model count!





# New Vehicle Flows 2023

>100,000 units, sold exported vehicles in the full year 2023



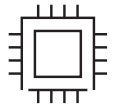
Data compiled October, 2023.  
Source: S&P Global Mobility

Total Exports	N.America	S.America	M. East/Africa	Europe	G.China	Japan/Korea	S. Asia
20.3m	2.06m	0.36m	1.08m	4.28m	3.84m	3.83m	1.81m

# Vehicle sales overview summary | What to watch in 2024



**Post-COVID-19 recovery cycle:** World entered 2023 fully open for business; some residual hangover effects



**Supply chains restored:** Residual supply squeeze (esp. chips); market evolving to demand-led cycle



**Affordability:** New-car prices might not fall back as the market mix normalizes with the easing of the chip crisis (electrification “on top” factor for some regions especially Europe, mainland China EV price war on watchlist)



**Ongoing pent-up demand:** Mixed outlook for 2024 on slow economics and consumer cost-of-living fatigue



**Regions vary:** mainland China uncertain comeback, US strike, Europe’s recovery remix limits midterm outlook



**Key forecast risks:** Big questions on major issues especially energy security, geopolitics, climate policy (esp. net zero), auto regulations, path of electrification

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