

# Newsletter

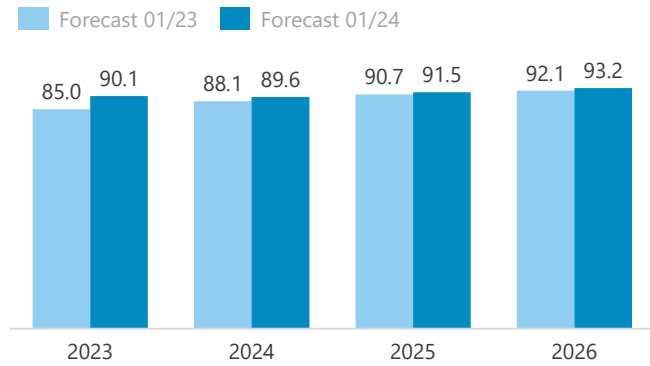
## Automotive Industry



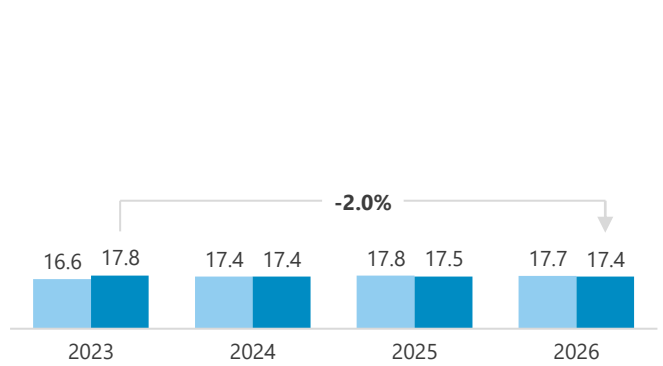
Development of automotive production worldwide

Production figures in Europe for 2023 are 7.2% higher than expected at the start of the year; stable volumes from 2024 onwards; Asian market shows continuous growth over the next few years

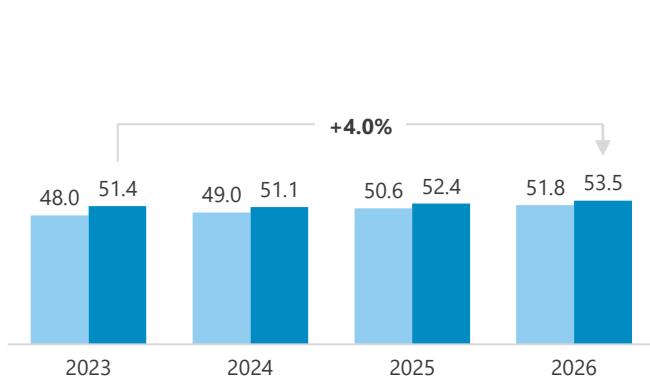
Automotive production worldwide<sup>1</sup>



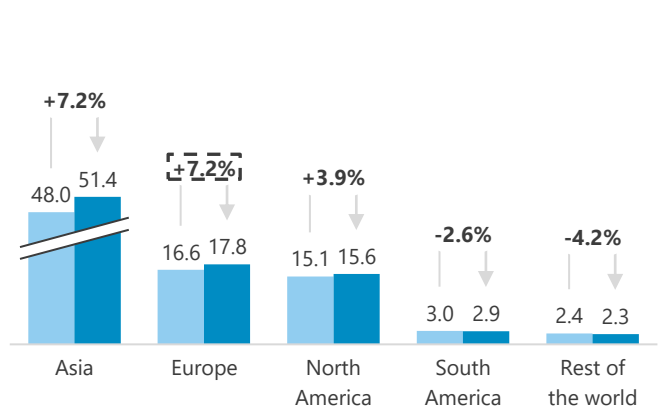
Automotive production Europe<sup>1</sup>



Automotive production Asia<sup>1</sup>



Development 2023 by region<sup>1</sup>



Explanation

- › Compared to the forecast at the beginning of last year, global production volumes for 2023 have been increased by 5.1 million units; the improvement is primarily due to a fourth quarter that is significantly above plan; expectations for 2024 have risen by around 1.5 million units, and similar trends can be seen for 2025 and 2026; overall, production volumes are expected to increase by around 3.1 million units by 2026
- › For Europe, the forecast for the years 2024 to 2026 assumes a slight decline in production volume compared to 2023
- › In Asia, on the other hand, growth of 4.0% is expected over the next three years
- › In the last year, European (+7.2%) and Asian (+7.2%) production volumes in particular increased compared to the forecast at the start of the year, while production figures in South America and the rest of the world fell in comparison to expectations

Source: IHS Markit Light Vehicle Engine Forecast: Engine Production (Status 01/2023 & Status 01/2024); 1) In million units

Savings programs in the automotive industry

Cost-cutting programs by OEMs and Tier 1 suppliers will have a lasting impact on the medium-sized supplier industry

Overview of current selected cost-cutting programs of OEMs and suppliers



- > Increase in return on sales by eliminating low-margin products (keyword: premiumization, Newsletter Q4 2023) among other things
- > Staff reductions (especially at management level and in relation to discontinued products)



- > Reduction of 7,150 jobs; around a quarter of the jobs in research and development
- > Consolidation of individual locations



- > Increasing profitability and competitiveness through cost optimization
- > Savings primarily in purchasing, production as well as research and development
- > Loss of 12,000 jobs by 2030



- > Increase in return on sales from 3.5% to 6.5%
- > Optimization of material and product costs
- > Cost savings through reduced fixed and production costs
- > Reduction in personnel costs (especially in the indirect personnel); primarily through partial retirement and a hiring freeze
- > Reduction in development times for new models from 50 months to 36 months



**BOSCH**

- > Reduction of 1,200 jobs in software and electronics
- > Job cuts of up to 1,500 employees in the drives division (development, administration and sales)
- > Further cost savings across all areas



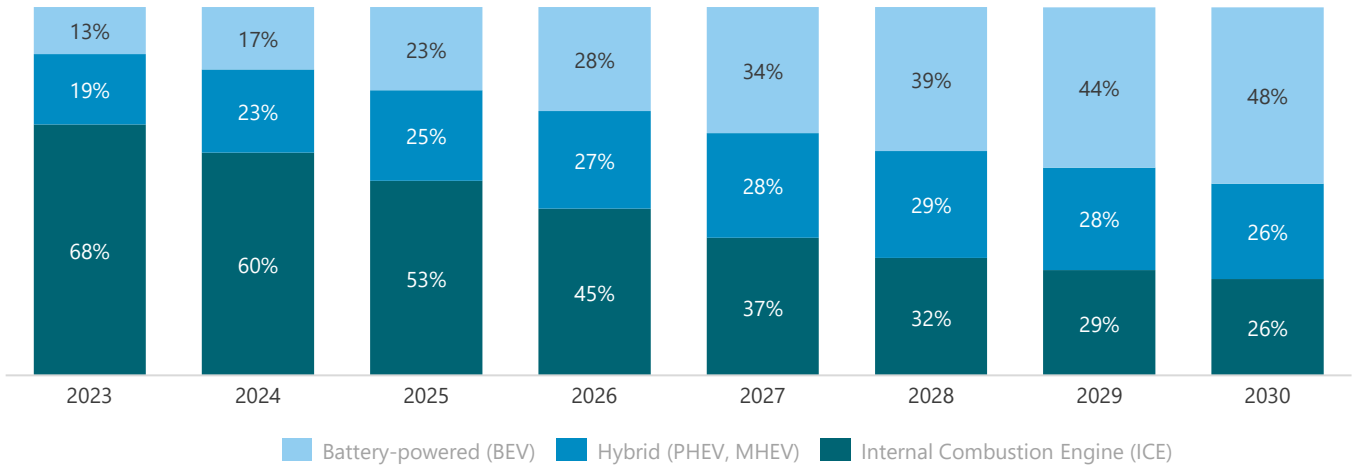
Impact on the supplier industry

- > Increased pressure on margins for OEMs leads to greater price pressure for suppliers; savings in purchasing will affect suppliers along the supply chain
- > Companies in a crisis will come under even greater pressure due to the additional price war
- > Savings in the areas of research and development (including the shortening of development times) put suppliers to a major challenge
- > A high degree of flexibility and sufficient capacity in the development process are therefore of crucial importance for suppliers

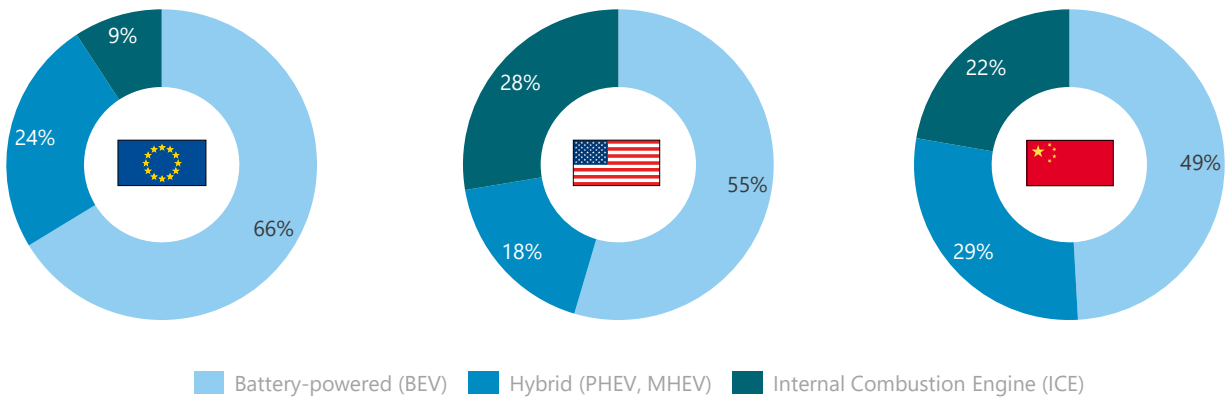
"Electric Only": product and market distribution

Regulatory drivers, manufacturers' increased focus and the sharp drop in battery prices are driving the development of e-drives forward

FC global production distribution BEV vs. hybrid vs. ICE<sup>1</sup> [%]



FC key markets production 2030 BEV vs. hybrid vs. ICE<sup>1</sup> [%]



Explanation

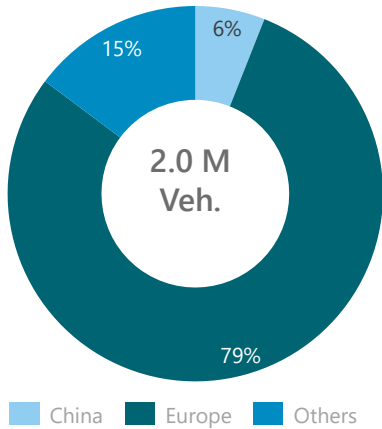
- > The share of BEVs and hybrids is expected to increase significantly by the end of 2030 and reach a production share of 74%; a sharp decline in ICE drives is expected in Europe and China in particular
- > Due to the rapid pace of change, suppliers require sufficient (financial) R&D capacities, a high speed of product development and suitable certifications
- > to ensure their relevance for OEMs in the future as well
- > Long-term forecasts assume that the production of PHEVs in particular will increasingly shift from Europe to the Asian/Chinese region

Source: IHS Markit Light Vehicle Engine Forecast: Engine Production (Status 01/2024); 1) ICE: Internal Combustion Engine, MHEV: Mild Hybrid Electric Vehicle, PHEV: Plug-In Hybrid Electric Vehicle, BEV: Battery Electric Vehicle; Figures include (commercial) vehicles up to 6.0 tons vehicle weight

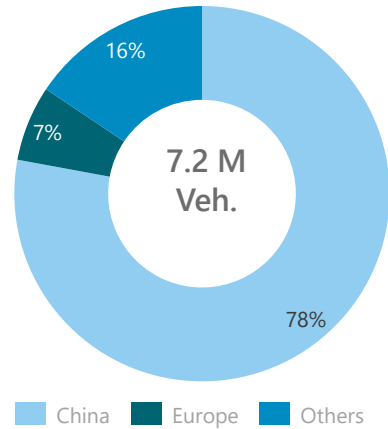
Growth in Asia: production volume of electric vehicles by region

Local brands are establishing themselves as the largest producers of electric vehicles in Europe and China; in 2023, 3.6 times as many electric vehicles were produced in China as in Europe

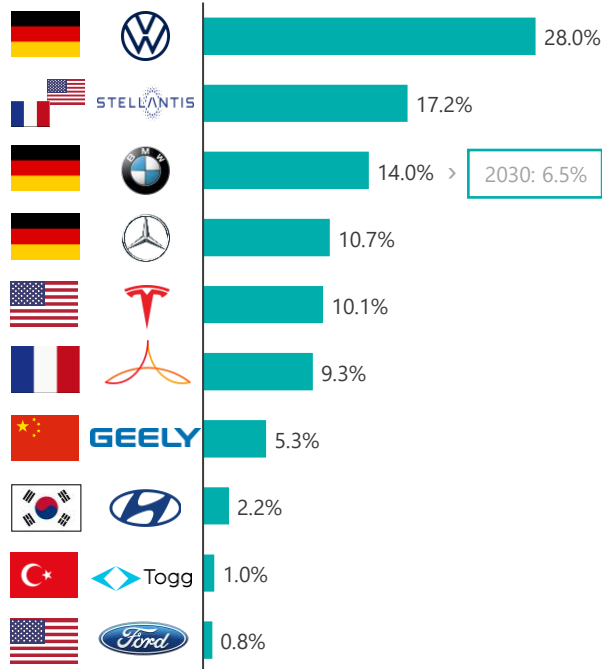
Europe: Production volume of electric vehicles by company headquarters in 2023



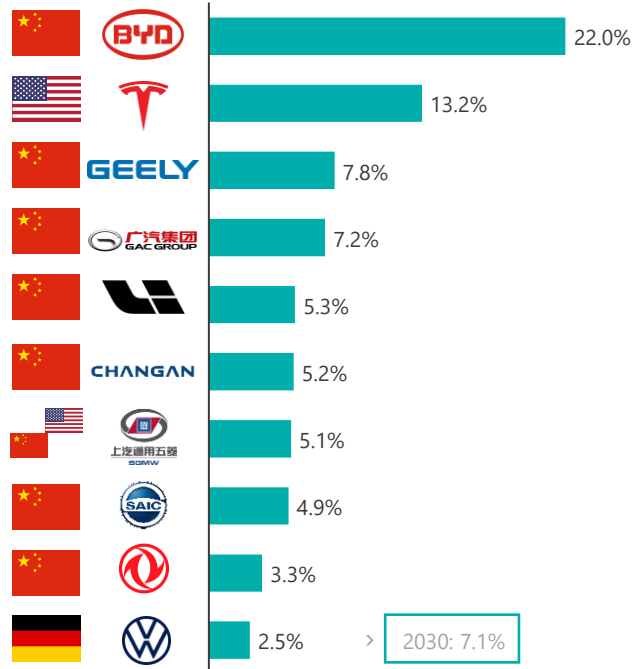
China: Production volume of electric vehicles by company headquarters in 2023



Top 10 OEMs market shares:



Top 10 OEMs market shares:



Explanation

- > Volkswagen was the largest manufacturer of electric vehicles in Europe in 2023 with 28% of total production volume
- > German and European brands with a share of around 53% and around 79% respectively of electric vehicles produced
- > Chinese brands have established themselves as the largest producers in the domestic market, accounting for around 78% of electric vehicles produced in China
- > German brands only account for a total production share of around 4.6%

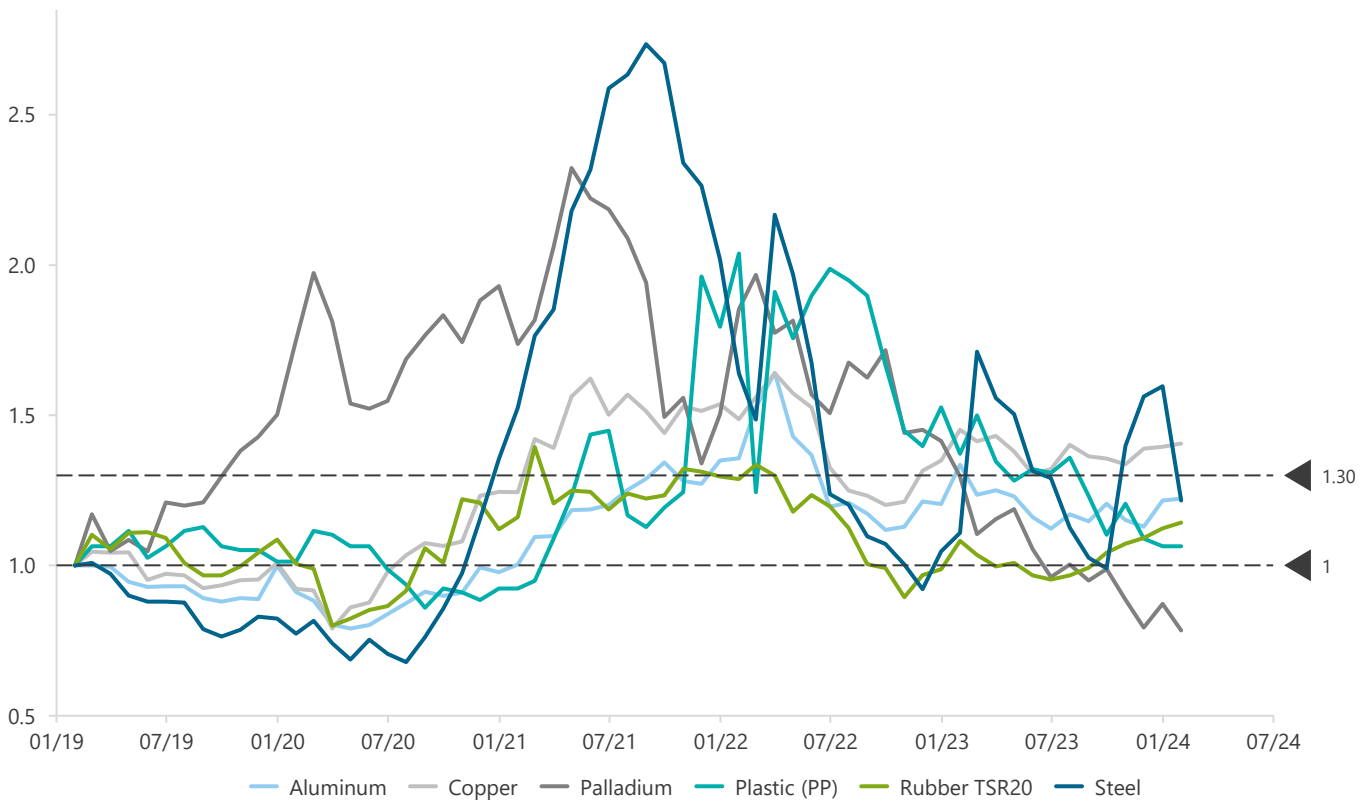
Source: IHS Markit Light Vehicle Engine Forecast: Engine Production (Status 01/2024)

Raw material prices (selection)

Chinese construction crisis weighs on various raw materials; positive material surcharge effects for suppliers could arise for steel, among others; trend of rising copper prices could continue in 2024

Monthly development of automotive-relevant raw materials (Jan 19 to Jan 24)

Index (Jan19= 100%)



Explanation

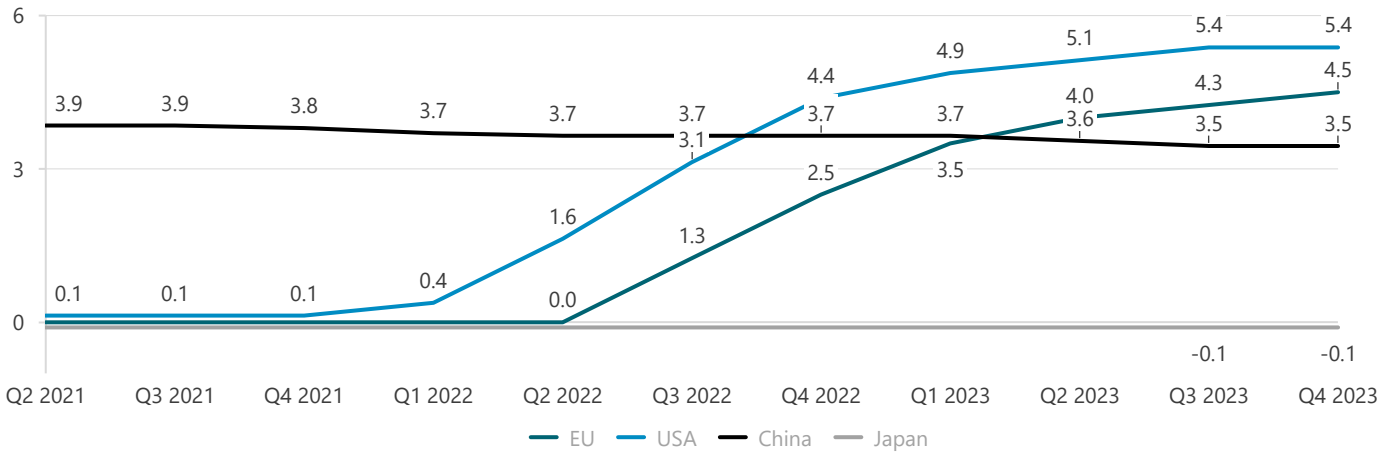
- > The construction crisis in China and the associated fall in demand is weighing on iron ore prices; as a key raw material in steel production, the lower iron ore prices are also affecting the price of steel
- > As a recovery is not expected soon, there could be positive material surcharge effects
- > Palladium-processing companies can expect prices to remain low, as demand from the automotive industry is lacking or only slowly picking up again
- > Copper prices rose by around 6% in the second half of 2023; prices are expected to continue rising, particularly due to the relevance of the raw material in the energy transition and in the defense industry, as well as the impact of the closure of an important copper mine in Panama announced for 2024

Source: LME, NYMEX, SICOM, DERA, bdew, plasticker

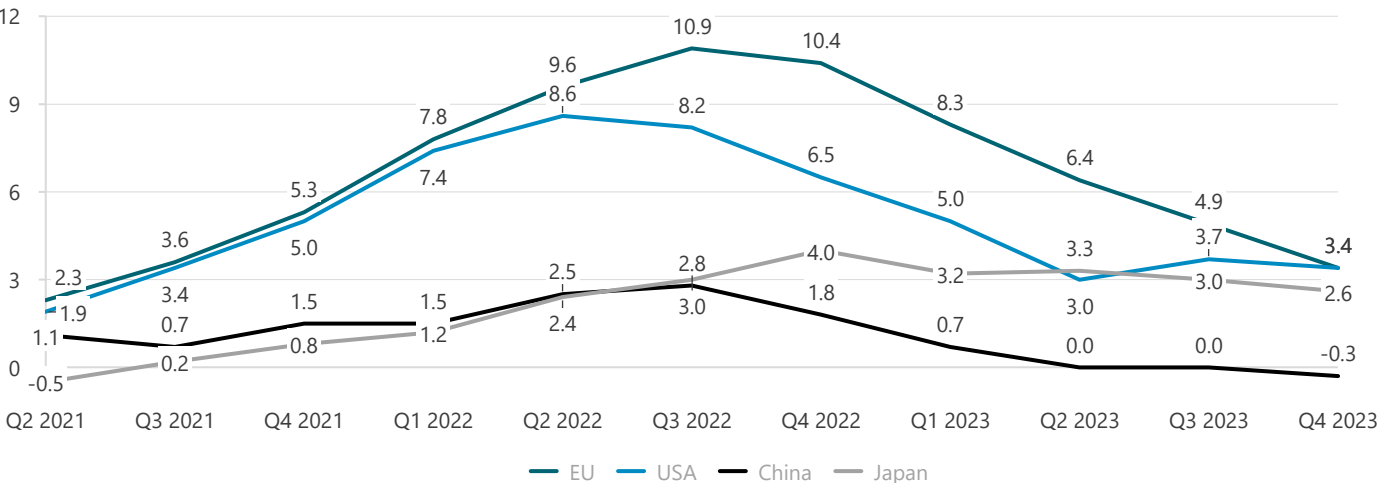
Development of interest rates and inflation

Inflation rates have recently declined, partly due to the increase in key interest rates in Europe and the USA; new registrations in Germany rising sharply compared to 2022 despite stable interest rates

Development of interest rates in selected regions [%]



Development of inflation in selected regions [%]



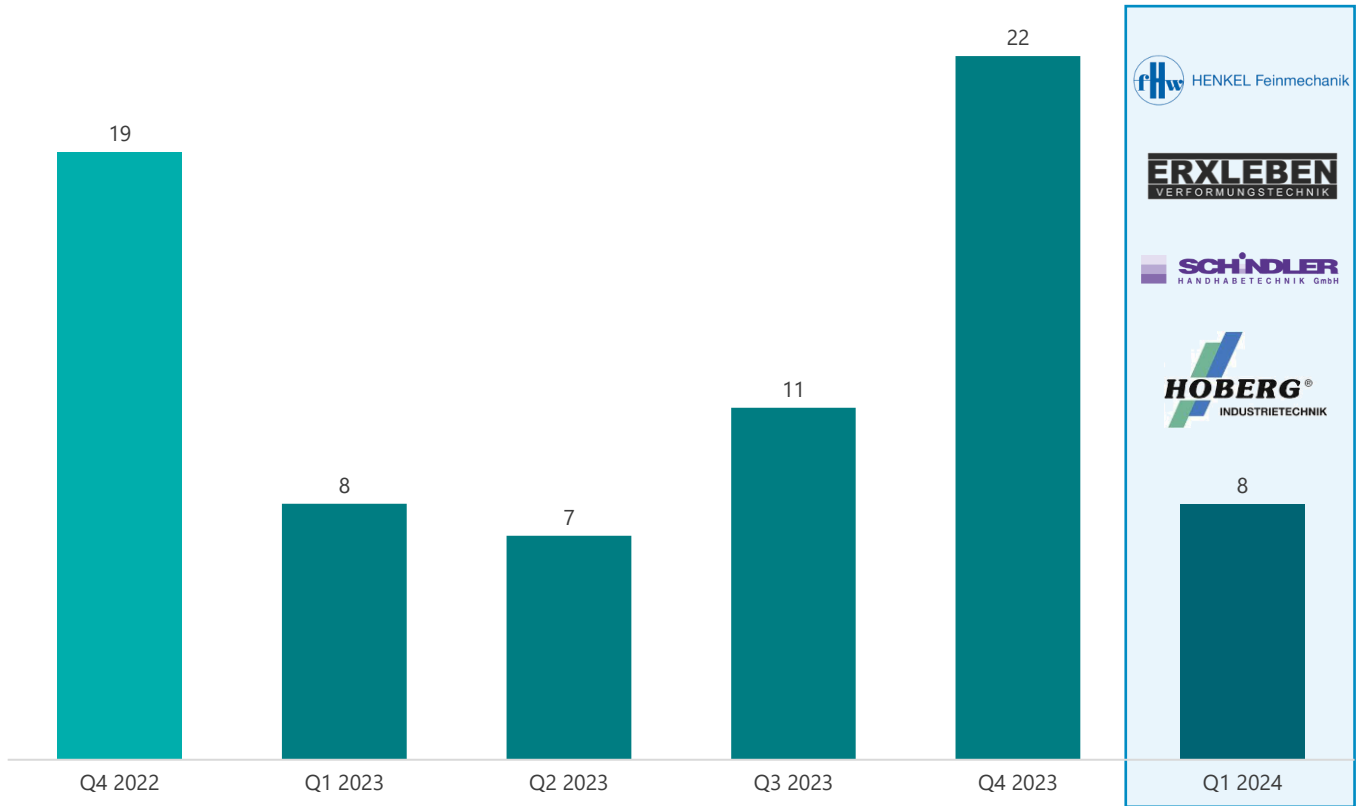
Explanation

- Despite a continued increase in interest rates in 2023, new car registrations in Germany rose by around 22% compared to the weak previous year; a fall in interest rates and the significantly lower inflation rate could ensure a further increase in registration figures
- For the supplier industry, the current interest rate level coupled with the OEMs' announced cost-cutting programs could lead to a delay or cancellation of necessary investments by the German automotive industry in order to master the transformation of the sector

Insolvencies in the supply chain

Significant increase in insolvencies evident at the end of 2023; the ongoing challenges for suppliers will remain in 2024; insolvencies in Q1 2024 at previous year's level

Insolvency filings by automotive companies and suppliers<sup>1</sup> Q4 2022 - YTD<sup>2</sup>



Explanation

- › The number of insolvencies in the automotive supplier industry increased significantly at the end of 2023; this current development underlines the tense situation and highlights the ongoing challenges facing the industry
- › Medium-sized automotive suppliers continue to face considerable pressure due to price increases, the ongoing shortage of skilled workers and rising refinancing costs
- › Insolvency figures in Q1 2024 are on a par with the previous year; due to the ongoing problems, there is a risk that insolvencies among German automotive suppliers will continue to rise or remain at an elevated level

Source: RSM Ebner Stolz Research 1) Includes companies with an annual turnover > € 5 million; 2) status as at: 05.03.2024



## Focus topic: "Green steel"

In addition to the EU phase-out of the combustion engine, the CO<sub>2</sub>-neutrality of the supply chain planned by the OEMs also has a significant impact on automotive suppliers

### Current sustainability goals of German OEMs and regulatory principles



- > The "Ambition 2039" aims for a CO<sub>2</sub>-neutral new-vehicle fleet along the entire value chain
- > Climate protection in all life cycle phases - from the supply chain and in-house production to use and disposal



- > Delivery of 10 million BEVs within the next 10 years and increase in the proportion of secondary material used to 50%
- > By 2030: Reduction of CO<sub>2</sub>-consumption per vehicle in use by 50% & CO<sub>2</sub>-reduction over the entire life cycle by 40%



- > Decarbonization, i.e. CO<sub>2</sub>-neutrality of production and vehicle fleet by 2050



- > No new registrations of vehicles with combustion engines from 2035 in accordance with EU regulation (exception: synthetic fuels)



### Implications for the automotive industry

- > The OEMs' sustainability targets are having an impact on suppliers due to the switch to BEVs. Manufacturers of components for the combustion engine are experiencing falling volumes - suppliers for the electric drive are benefiting
- > On the other hand, suppliers that manufacture powertrain-independent components are also affected by the OEMs' targets: Mercedes makes this clearest in its targets - however, BMW and VW also state that they want to reduce CO<sub>2</sub> emissions throughout the entire supply chain. In concrete terms, this means, for example, that the production and processing of raw materials should also be CO<sub>2</sub>-neutral in the future

„Green Steel“

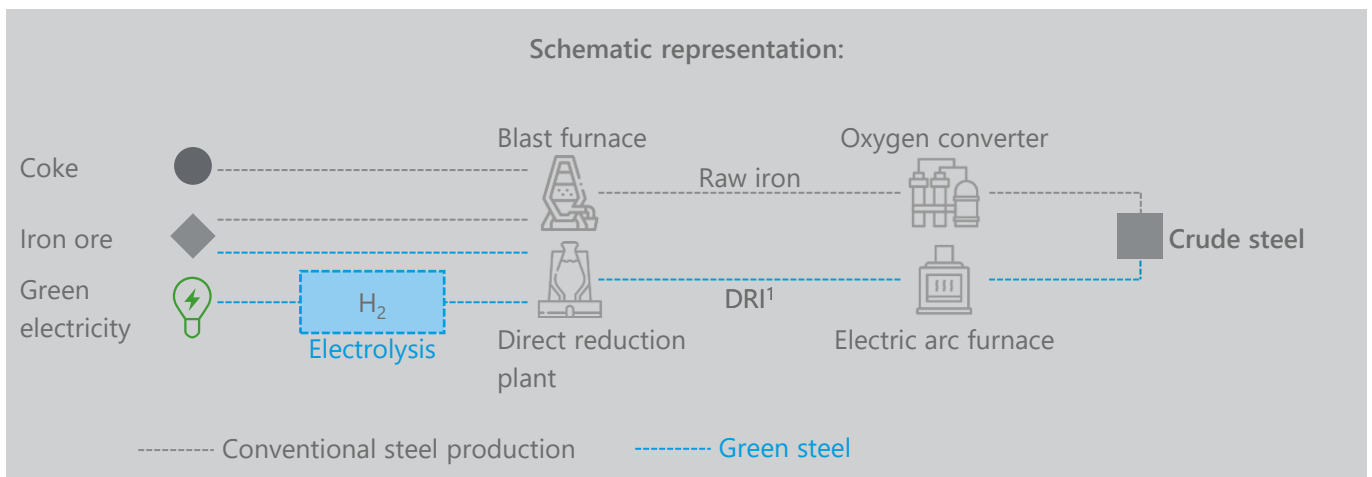
The challenges facing the German automotive industry using the example of green steel demonstrate the need for huge investment to achieve the targets set

What green steel changes

- > Steel is an essential raw material in the global automotive industry - despite the increasing popularity of aluminum, the average car consists of 60% steel. In the course of steel production, oxygen is extracted from iron ore through the use of reducing agents (e.g. coke). This process produces CO<sub>2</sub> as a by-product, which is a significant factor in the carbon footprint of automotive supply chains
- > Hydrogen can also be used as an alternative to coke. In this case, CO<sub>2</sub> is replaced by H<sub>2</sub>O (water) as a by-product in the production process. Hydrogen obtained from green energy sources, so-called green hydrogen, is regarded as the industry's long-term plan for achieving CO<sub>2</sub>-neutrality
- > The following example shows the infrastructural challenges:
- > The automotive industry uses ~10 million tons of steel from German production alone. To produce this amount with H<sub>2</sub> would require approx. 650,000 tons of green hydrogen per year. (A vast share of what the North Sea project "AquaVentus" is expected to produce annually from 2035)
- > However, green hydrogen is also needed in other sectors, such as the chemical industry, to achieve Germany's climate goals
- > The very high level of investment in the transformation of steel production is also likely to be reflected in steel prices. It is expected that green steel will be more than 50% more expensive than conventional steel



Conventional steel production vs. green steel







Source: RSM Ebner Stolz Research, BDEW, dena, aquaventus.org, Wasserstoff Kompass, Wirtschaftsvereinigung Stahl, flaticon.com

1) Direct reduced iron

## „Green Steel“

From 2025/26, the German automotive industry can expect larger volumes of green steel from German direct reduction plants; however, technological issues are still unresolved

### Initiatives in the area of green steel

<p>Steel industry</p>		<ul style="list-style-type: none"> <li>➤ The Swedish company H2 Green Steel plans to operate a newly built plant in Boden (Sweden) with direct reduction facilities from 2025 (annual capacity: 2.5 million tons of iron)</li> <li>➤ Thyssenkrupp: Start of operations of a direct reduction plant in Duisburg planned from 2026 as part of the tkH2Steel project (annual capacity: 2.3 million tons of iron)</li> <li>➤ Salzgitter AG: SALCOS program with first direct reduction plant incl. electrolyzers from 2025 in Salzgitter (annual capacity: 2.0 million tons of iron)</li> <li>➤ Public funding of €7 billion for the steel transformation of Thyssenkrupp, Salzgitter, SHS and ArcelorMittal, among others</li> <li>➤ Chinese steel manufacturers, including Ansteel and Baowu, are investing in the planned transition to hydrogen-based steel production until 2060</li> </ul>
<p>OEMs</p>		<ul style="list-style-type: none"> <li>➤ Through the cooperation with H2 Green Steel, Mercedes aims to process around 50,000 tons of green steel in its press shop from 2025</li> <li>➤ BMW has concluded supply contracts with H2 Green Steel and Salzgitter</li> <li>➤ VW plans to use green steel from Salzgitter in its production from 2026</li> </ul>
<p>Tier-1s</p>		<ul style="list-style-type: none"> <li>➤ The Tier-1s are also working with H2 Green Steel; Schäffler is shareholder of the Swedish company; ZF has signed a long-term supply contract until 2033</li> <li>➤ Chassisbuilder Wagon plans to use CO<sub>2</sub>-reduced steel from Salzgitter AG; Mubea produces springs from green steel in cooperation with ZF</li> </ul>
<p>Science</p>		<ul style="list-style-type: none"> <li>➤ Researchers at the Max Planck Institute have developed a method that produces green steel in electric arc furnaces from a by-product of aluminum production, red mud. This would eliminate the need for high investments in direct reduction plants</li> <li>➤ In Albania, researchers have discovered natural hydrogen deposits that would make complex electrolysis processes obsolete</li> </ul>

## „Green Steel“

## Green steel may threaten the German automotive industry's competitiveness, depending on future increases of steel prices and consumer willingness to pay for a CO<sub>2</sub>-neutral supply chain

### Expected impact on the automotive industry

#### OEMs

- › Strategic partnerships with steel manufacturers will be necessary to secure the currently limited availability of green steel
- › If the increased material costs for steel cannot be passed on to consumers, margins are likely to fall

#### Suppliers



- › Financing requirements for working capital will increase due to more expensive prices for green steel
- › The higher material cost ratio will reduce the relative margins of suppliers, which must be taken into account in financing rounds, among other things

#### German economy

- › Investments in green hydrogen offer new business areas, but burden various sectors with high capital expenditure
- › CO<sub>2</sub>-neutrality in automotive supply chains will lead to rising prices for consumers and could influence inflation



### Conclusion

- › The transformation towards green steel harbors major risks for the automotive industry in Germany: without an adequate supply of hydrogen and green electricity, steel prices will become much more expensive. This jeopardizes the competitiveness of Germany as an industrial location
- › It also remains to be seen whether green steel will catch on globally and whether OEMs will find sufficient suppliers for plants abroad
- › If steel prices rise, steel-processing suppliers could be faced with the long-term question of whether to base strategic decisions on the location of new plants on the availability of cheap green energy, which enables more cost-efficient green steel production
- › As with the discussion about the powertrain, there is a risk of committing to just one technology (direct reduction plants) while alternative technologies are still being researched. As a major steel consumer, the automotive industry should keep an eye on these developments

## RSM Automotive Webinar

## Voices from the global RSM network on trends in the automotive and mobility industry

”

Specifically, automotive companies will need to consider how the requirements affect their approaches to developing decarbonisation transition plans, align their reporting with strategy to their business models and financial reporting requirements, implement improved risk management processes, and set up due diligence processes to identify and mitigate risks in their supply chains. As a result, biodiversity will be a critical focus looking ahead to 2024.

*Lawrence Keyler, Partner RSM US, Global Automotive Leader*



”

Digital regulations require increased investment in cybersecurity and data protection-compliant technologies. Companies that do not take this path will face regulatory challenges and could lose out on a sustainable, electrified future in the mobility industry. Having said that, consumer demand is nowhere near regulators' goals, so we will have to see who catches on first.

*Markus Mühlenbruch, Partner RSM Ebner Stolz Management Consultants*

”

Zoning laws, traffic restrictions, and low-emission zones are some of the regulatory tools being employed to discourage the use of polluting vehicles and encourage greener alternatives. Financial incentives, such as subsidies for EV purchases, tax benefits for low-emission vehicles, and investment in charging infrastructure are all crucial in making sustainable options more accessible and attractive to the public.

*Mario van den Broek, Partner RSM Netherlands, Head of Business Consulting*



”

Millennial consumers have demonstrated a diminished interest in vehicle leasing or ownership as a whole and shown a much greater willingness to utilise ride-share services

*James Ward, Partner RSM US, Industrials Senior Analyst*

”

The increased global competition is going to challenge the traditional OEMs to think about their product development, marketing and supply chain. The newcomers may have an advantage because they started off as an EV company. Traditional OEMs will need to manage the transition of their existing internal combustion engine (ICE) fleet while introducing new EVs to the market.

*Grand Lui, Partner RSM Canada, Manufacturing Leader*



## RSM Ebner Stolz Management Consultants

- › As part of RSM Ebner Stolz, we are one of the most relevant German management consultancies with continuously strong growth.
- › Our clients invest in compatible industry experts and situation specialists who achieve significant change and work closely with management on site or remotely.
- › Home bases in Hamburg, Cologne, Frankfurt, Stuttgart and Munich.
- › Our more than 2,100 colleagues in auditing, tax and legal advice are based at a total of 14 locations throughout Germany.
- › Feel free to contact RSM Ebner Stolz Management Consultants. We will answer your individual questions.

### Your contacts



**Markus Mühlenbruch**  
Partner

+49 173 3022391  
markus.muehlenbruch  
@ebnerstolz.de



**Marcus Losch**  
Partner

+49 172 7161985  
marcus.losch@  
ebnerstolz.de



**Marius Mayer**  
Senior Manager

+49 173 7460196  
marius.mayer  
@ebnerstolz.de

- › To find out more about the key trends in the automotive industry, click on the following [link](#) to access our international webinar.
- › This year's Automotive Conference will take place on November 7th at the Porsche Museum in Stuttgart. The invitation to the event will be sent separately. You can find impressions of the conference from 2023 by clicking on the following [link](#).