## Automotive Market Update

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## With a global network of competence and around 6.300 automotive experts worldwide we are fully committed to the industry



#### Selection of the major national and international PwC acquisitions of the last few years:



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1	Crises & impact on the automotive industry	
2	Less power but not powerless	
3	Powertrain Outlook	
4	New Chinese Players	

# The automotive industry amid internal transformation and external uncertainties – More global crises in shorter cycles...

Not exhaustive



## ...resulting in a challenging environment characterized by production losses and volatile supply chains

#### Production volume losses YTD 2022

# Vehicles as production losses\*



#### Continued volatility in supply chains

- Regional Covid lockdowns as a constant risk •
- Medium-term supply problems due to chip and raw material availability
- Shortage of wire harnesses as a temporary problem (restart of production in Ukraine and multiple sourcing by OEMs improve supply)

Transparent & resilient supply chains instead of minimal procurement costs

#### Vehicle production worldwide in millions

# Vehicle production worldwide in millions



Global semiconductor volume losses are on a declining trend, showing a silver lining to an end of the semiconductor crisis

#### Semiconductor shortage

- Globally, only 8% of overall chip sales are allocated to the automotive industry vs. around 50% for consumer electronics."
- As of October 2022, **2,264k units of lost production** were announced globally."
- Currently, it can be expected that the semiconductor crisis will continue into 2023 although losses are declining."



#### LV\*: Impact of semiconductor volume losses

More stable prices are expected, however there is an upside risk to prices for EU metals due to possible energy supply disruptions this winter

#### Cold-rolled steel sheet **\$US/Metric Ton** Significant decline through 3,000 2022 and a relatively flat 2.500 baseline for 2023 2.000 1,500 1,000 500 Europe — North America — Asia 2019Q2 2020Q2 2021Q2 2022Q2F 2023Q2F 2024Q2F





#### Nickel





The crisis accelerated the EV transformation in all markets, BEV market shares expected to grow exponentially in all markets



...caused by key BEV production drivers – Electrification is being encouraged by both internal and external forces



\*Not exhaustive; only ICE are considered, HEV excluded \*\*Minimum target for fully electric cars by 2030 from the German Coalition Agreement 2021-2025 Source: PwC Autofacts Analysis



# Less power but not powerless

# OEMs margins are on record highs, while suppliers face increasing pressure and lost margins



Excluding companies with incomplete data series - America 13, Europe 31, Asia 36; delta in percentage points Source: Bloomberg, PwC Analysis, Data status 2019-2021

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# Especially in Europe, energy prices are threatening the business model of automotive suppliers



### Auto industry is in a recession...

## ...but order backlog acts as a buffer

#### S&P Global light vehicle production volumes\* and worldwide GDP



#### Global Production in million units — Worldwide GDP in th USD

## "

(indexed, 2015 = 100%)

Demand and supply are currently not in equation. **Supply problems** limit the amount of cars sold and result in record high **order backlog** (in Germany: **6.5 months**<sup>\*</sup>).

The order backlog could act as a buffer if demand decreases for a couple of months

Suppliers on all level should be **prepare a scenario based planning** to mitigate recession effects as the buffer is limited and the pressure is getting bigger

#### German Automotive production, order intake and order backlog





## Powertrain Outlook

## 2021 sales are well below 2019 and in some cases even below 2020. Results range from -16% to -28% between 2019 and 2021



#### **EU+EFTA – New Car Registrations by Top 10 Markets**

2019 - 2022F (millions)

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### Powertrain Share – Q1-Q3 2022



■BEV ■PHEV ■HEV ■ICE

\*Preliminary results; analyzed markets include France, Germany, Italy, Spain, UK, USA, China, Japan, South Korea, Norway, Sweden, Switzerland, Austria and the Netherlands \*\*EU5 production powertrain split based on Assembly Forecast by S&P Global, September 2022 Release

## Global passenger vehicle sales increased in recent months, however, supply pressures remain

#### Passenger Vehicle Sales\*: Scenarios for 2022 (in million units, Global) Vehicle Sales\* - Variance 7.5 (In million units, Global, 2012-22) 7.0 6.5 6.0 85 5.5 5.0 2017 4.5 4.0 3.5 Upside Scenario 2022 Downside Scenario 2022 Basis 2019 Basis 2021 PwC Base 2022 75 3.0 Feb Mar Apr May Jun Jul Sep Oct Nov Jan Aug Dec

Year	Sales (M)	Growth Rate ('21 vs. '19)	
2019	74.9	11.0%	
2021	66.7		
Year	Sales (M)	Growth Rate (vs. '21)	Growth Comparison Q3 2022 vs. Q3 2021
Upside Scenario - 2022	67.5	1.3%	9.4%
PwC Base - 2022	66.3	-0.5%	7.4%
Downside Scenario - 2022	65.1	-2.3%	5.2%



Global

55

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\*Passenger Vehicles = Passenger cars, in NA LVs w/o heavy pickups, commercial vans PwC Autofacts Analysis, S&P Global

## Focus Europe: Production in Q3 2022 is forecasted to be 38% above Q3 2021, due to the chip impact last year



#### Passenger Vehicle Production\*: Scenarios for 2022

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\*Vehicle Production = Passenger cars according to M1 classification \*\*Europe = EU+EFTA+UK PwC Autofacts Analysis, S&P Global

# The transformation of the car industry is in full swing – electric vehicles will dominate key markets starting from 2030

**Regional BEV diffusion (Passenger cars and light vehicles)** 

\*PwC Autofacts projection

\*\*EU 27. UK and EFTA

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#### Realistic scenario<sup>\*</sup> 40 19.5 17.4 17.9 13.8 **EU**\*\* 20 8% 65% 93% 92% 68% 35% 0 40 17.4 17.4 18.2 US 🕌 15.1 20 14%-2% 26% 49% 86% 98% 74% 51% 0 38.9 33.8 40 29.9 23.8 30% 56% 73% 12% CN 20 88% 70% 44% 27% 0 35.7 33.8 33.5 40 24.5 3% 22% 15% RoW (()) 1% 20 97% 85% 78% 99% 0 102.6 112.3 98.5 120 77.1 Total 17% 41% 80 59% -6% 40 94% 83% **6** 59% 41% 0 2021 2025 2030 2035

BEV Non-BEV

#### Key takeaways

- In 2030, almost every second car sold worldwide will be a battery electric vehicle (totaling 42 million units)
- Leading markets are China (19 million BEV) and EU (12 million BEV), both above 50% BEV share
- US as third main BEV market, with a time lag of ~5 years compared to EU and CN

## New Chinese Players

# Cars produced in China are selling in Europe and are projected to increase their share until 2025

Sales of vehicles manufactured in China on the European market (LVs, EU27+UK)



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Many European OEMs are also using China as an export hub for BEVs, leading to a strong increase of EU-sold vehicles produced in China



#### EU-sold vehicles produced in China

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## Within the last two years, Chinese OEMs have become more and more important in Europe



🖚 # of models



# Chinese BEV Market Share on the European market in 2030 is forecasted to be around 5.1% in the Base Scenario **Scenario analysis**

# Chinese BEV Share in EU27+ UK + EFTA in 2030ScenarioBEV market shareUpside7.9%Base5.1%Downside3.8%

#### Scenario assumptions:

Upside	Base	Downside
<ul> <li>More large fleet deals</li> <li>Faster BEV adoption</li> <li>Aggressive pricing</li> <li>Higher customer acceptance</li> </ul>	<ul> <li>Some large fleet deals</li> <li>Pricing inline with direct competitors</li> <li>General customer acceptance, but below established competitors</li> <li>Overall BEV regulatory assumptions for Europe and Fit for 55 ICE ban in 2035</li> </ul>	<ul> <li>More difficulty with customer awareness/acceptance</li> <li>Some possible EU restrictions on foreign production</li> </ul>

#### Chinese OEMs on entering the European market

*European customers would have to slowly get used to the new vehicle offering from China.* 

- Penny Peng, Head of Marketing at BYD
- If we do it successfully, most of our future sales will come from international markets, maybe half.
   Brian Gu, Vice-Chairman at Xpeng
- By the end of 2022, we aspire to reach at least fivefigure sales through the growing popularity of the U5 SUV as well as the addition of new models and markets.
  - Alexander Klose, VP at Aiways

### Contact



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## Thank you!

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