



# Auto Industry Update

ECG Spring Congress, Malaga

Justin Cox, Director Global Production

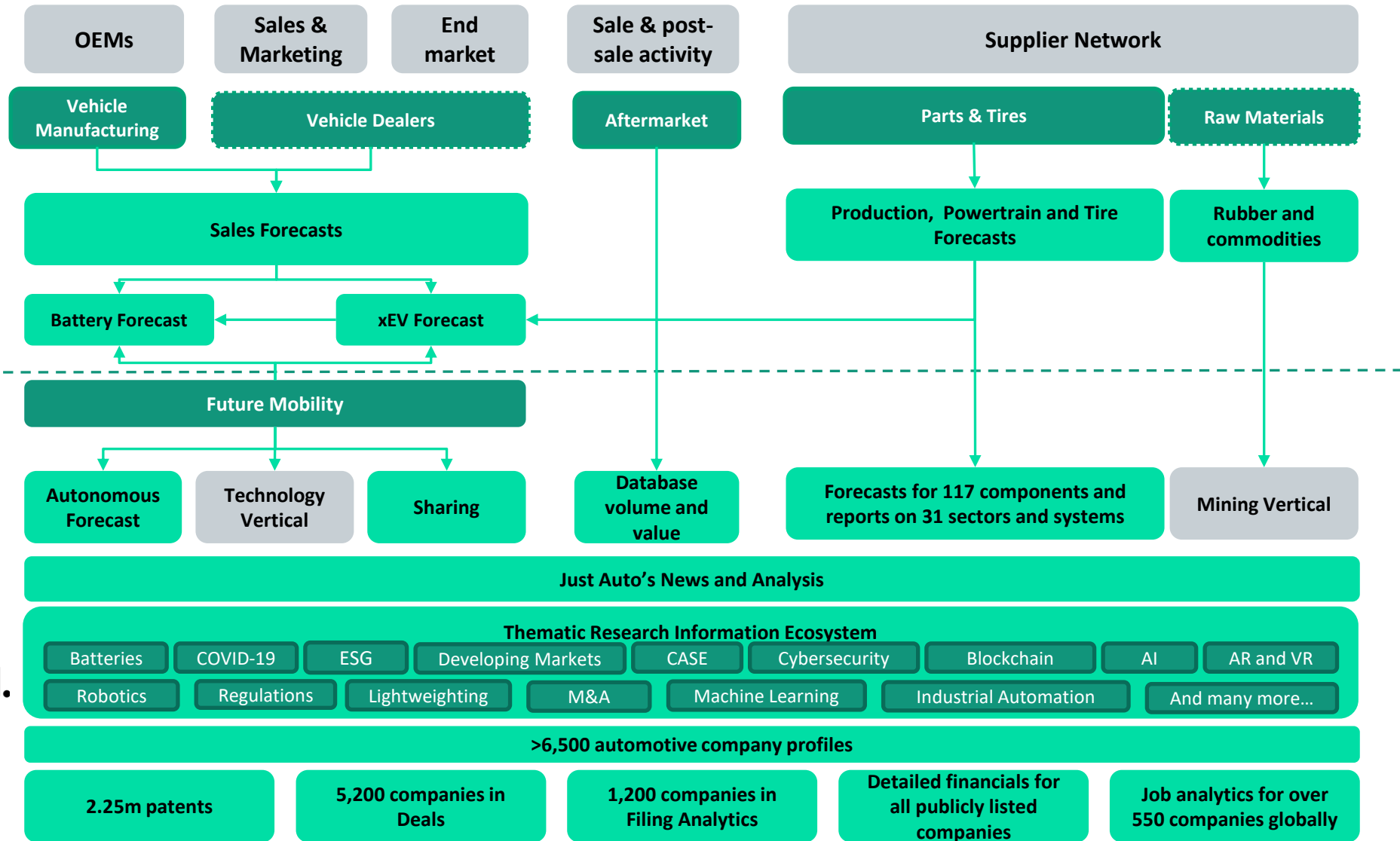
13 May 2022



# GlobalData acquisition of LMC expands automotive



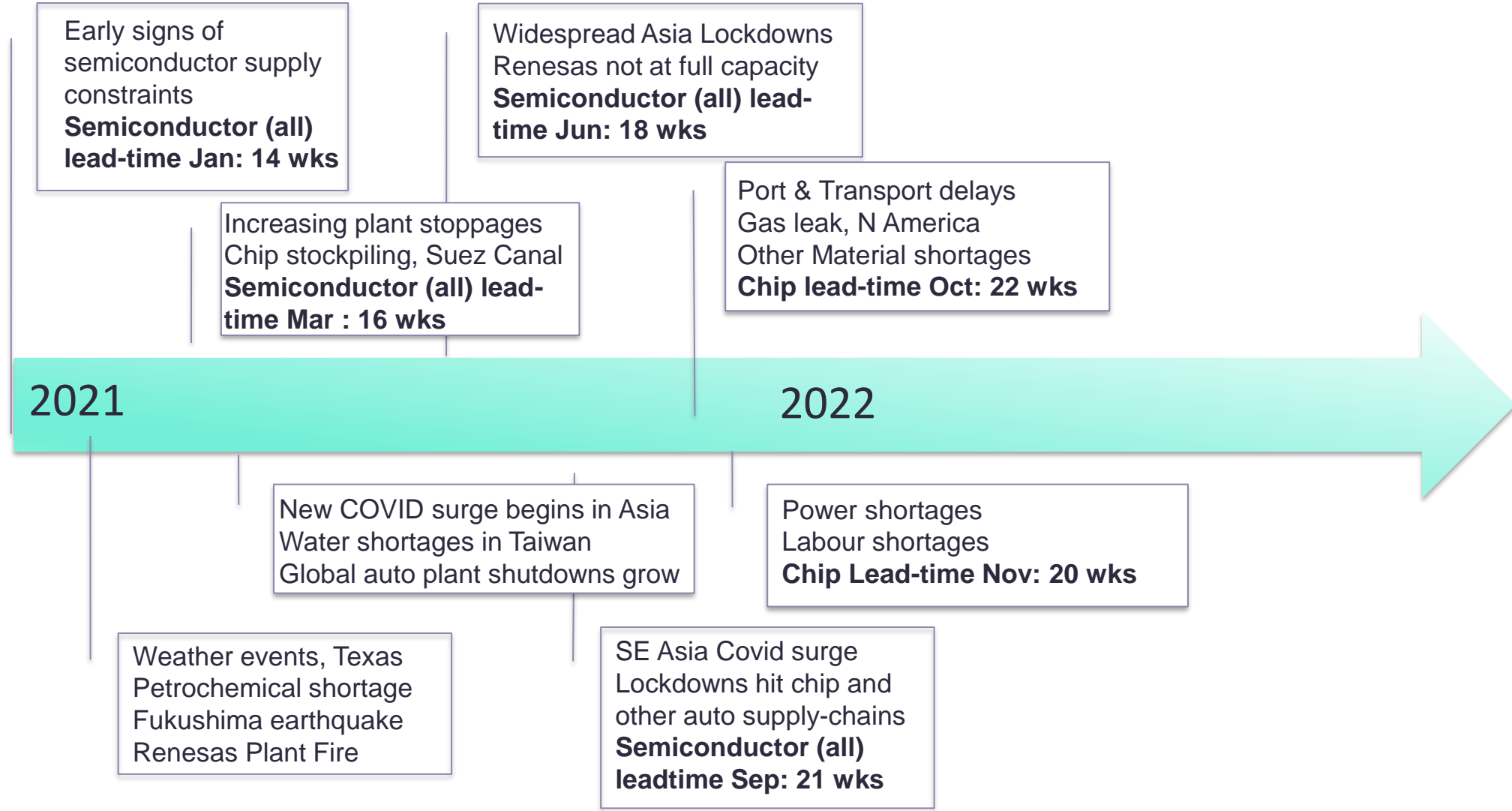
LMC



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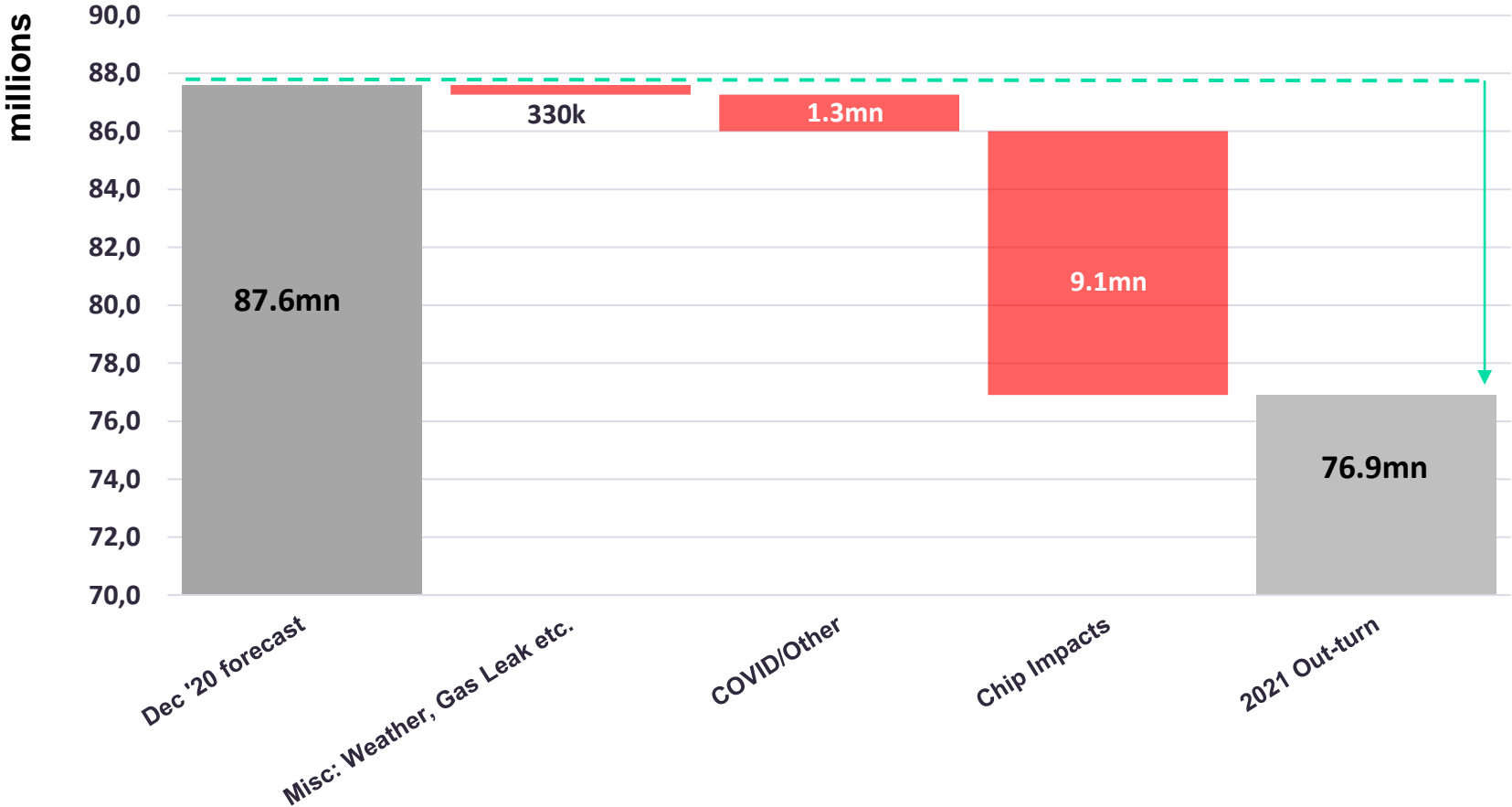
# Recap: Global Auto Production Environment



# 2021 Global LV Production



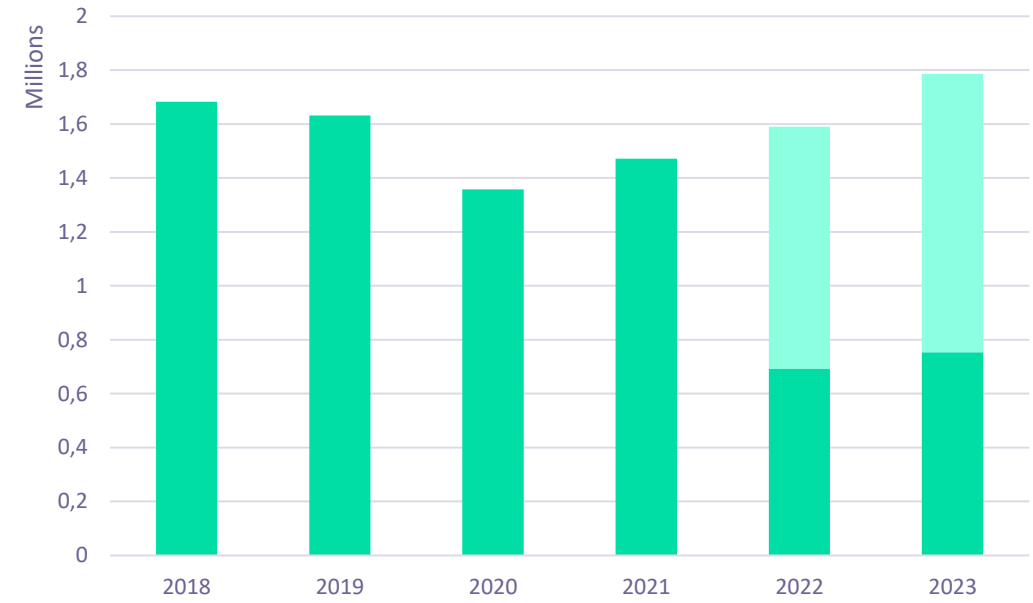
## Base Forecast Evolution



## Russia: Plant Closures

GROUP	VEHICLE PLANT	CLOSURE DATES
BMW Group	Kaliningrad	Mar 2, until further notice
Ford Group	Elabuga	Mar 3, until further notice
Hyundai Group	St Petersburg (Hyundai)	Mar 1, until further notice
Mazda Motors	Vladivostok	Mar 5, until further notice
Mercedes-Benz Group	Solnechogorsk	Mar 3, until further notice
Renault-Nissan-Mitsubishi	Moscow (Renault)	Feb 28-Mar 5: Mar10-20: Mar24-onward
Renault-Nissan-Mitsubishi	Togliatti (VAZ)	Feb 28-Mar 4: Mar 5-25: Apr4-24
Renault-Nissan-Mitsubishi	St Petersburg (Nissan)	Mar 10, until further notice
Renault-Nissan-Mitsubishi	Izhevsk	Mar 5 –Mar 25: Apr 4-24
Renault-Nissan-Mitsubishi	Kaluga (PSA/ Mitsubishi)	Apr 11, until further notice
Toyota Group	St Petersburg (Toyota)	Mar 3, until further notice
Volkswagen Group	Kaluga	Mar 3, until further notice
Volkswagen Group	Nizhny Novgorod (GAZ)	Mar 3, until further notice

## Russia: LV Production forecast cut\*



\*March '22 v Feb '22

- Russian LV assembly facilities starved of components and kits.
- Indefinite stoppages affecting over 80% of Russian LV assembly capacity.
- Political and Commercial friction undermine business fundamentals and planning.
- Production expected to shrink by over 50% in 2022.
- Entrenched Russian isolation is likely to see the deterioration, or likely nationalisation in some cases, of automotive assets,

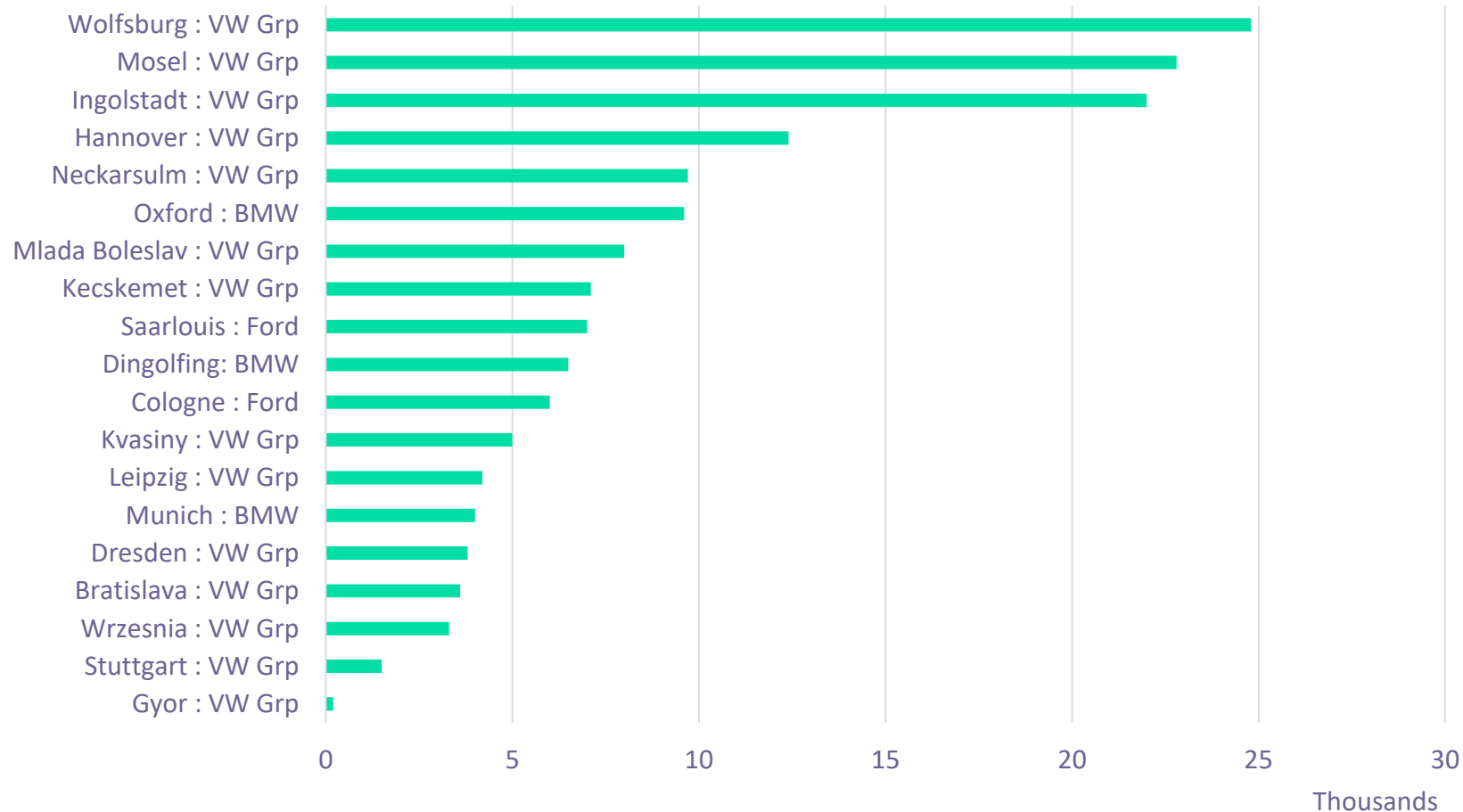
## Ukraine Auto Suppliers

SUPPLIERS	PRODUCTS	KNOWN CUSTOMERS
APTIV	Electrical Cables	
Leoni	Wiring harnesses	VW Group (VW, Audi, Porsche, Lamborghini). Also supplies Opel.
Nexans	Wiring Harnesses, Fittings	
ODW Elektrik	Wiring Harnesses, mechatronic assemblies	Bosch, Brose, ZF, Autoliv, Fujikura, Cooper Standard, Tyco
Bosch	Re-working: car starters	
Bader	Leather Seat covers	Globally: Audi, BMW, Stellantis, Opel, Renault, Lamborghini, Porsche
Yazaki	Wiring, Cables, Steering pump parts	JLR, BMW
Forschner	Electric cables, Tooling	
Tochprilad	Cable harnesses, micro switches	Lear Seating, Skoda
Gentherm	Wiring, cables, seat and steering wheel heaters	
Prettl	Wiring Harnesses	
Sebn	Electrical cables, safety systems	
Accomplast	Plastic injection moulding/assembly	Kostal, Leoni
Spheros	Fluid heaters, air conditioners (Bus and Truck)	Bus plants in Ukraine & Belarus
Fujikura	Wiring Harnesses, fuse boxes	VW, Porsche, Skoda, Audi
Kromberg & Schubert	Electrical systems, cables and plastic components	Mercedes, VW, BMW, Audi
CVG	Various, Wiring Harnesses Commercial Vehicles	
Beregkobel	Electrical cables	Audi, Mercedes?, BMW?
Datwyler	Moulded parts and rubber compounds, Seals.	ZF, Valeo, Hyundai Mobis, Akebono
Kostal	Control switches, electronic sensors, trim	Ford, Skoda, Volkswagen, Audi, Porsche, Lamborghini

Source: UkraineInvest, Company Literature, Other

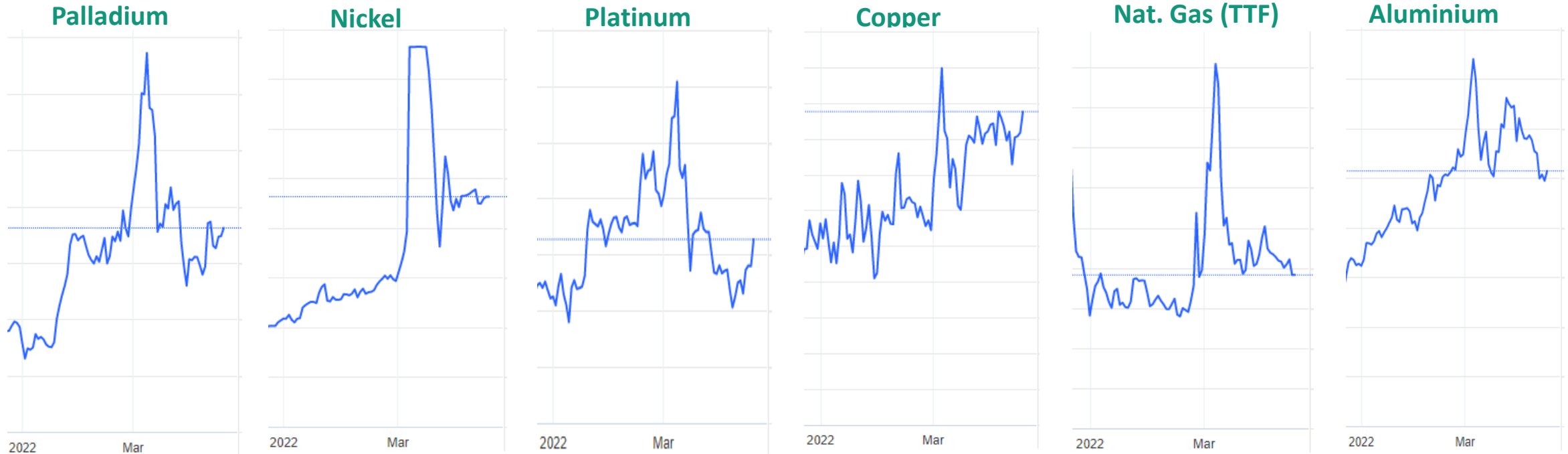
## Rest of Europe: Plant Closures

Estimated volume loss in Q1 2022 v Benchmark



- German OEMs most exposed to Ukraine supply-chain
- Estimated aggregated lost German LV output against benchmark is around 125k in Q1 '22.
- Some slow build-rates at Mercedes due to Ukraine-related shortages.
- Ford in Saarlouis and Cologne are the most recent OEM to report shortages

## Commodity Prices:



Source: Trading Economics, 18/04/22

- Demand patterns, logistics disruption and supply issues have already been inflating commodity prices
- Those materials where Russia-Ukraine supply is globally most significant have seen further volatility
- Russia is the world's biggest supplier of Palladium and 3<sup>rd</sup> biggest producer of Nickel.
- Ukraine typically produces 40% of the world's Neon which is key for the manufacturing of semiconductors.



## China : Daily new confirmed COVID-19 cases (log scale)



Source: Johns Hopkins University CSSE COVID-19 Data

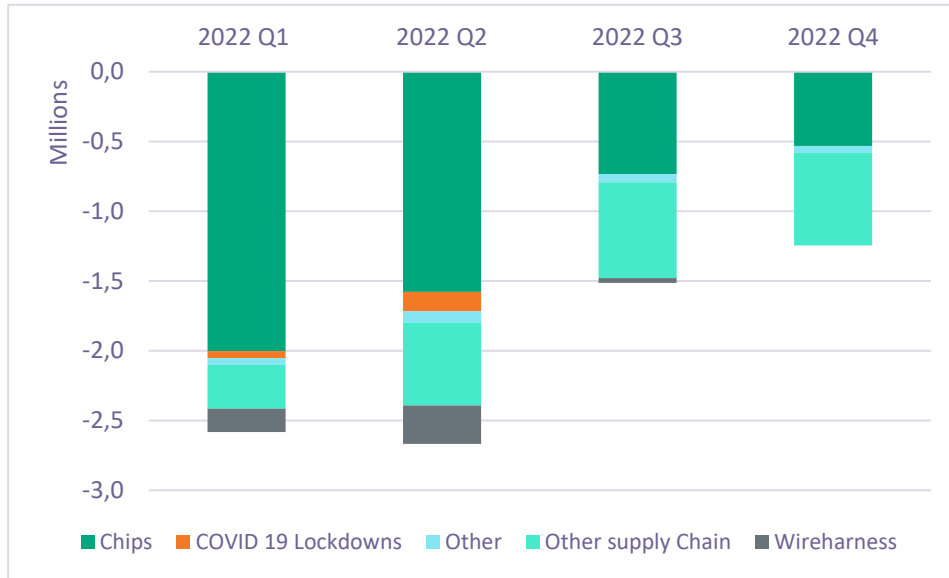
- Covid-19 (Omicron) cases rise sharply in Asia prompting increasingly large lockdowns.
- Some are severe and have notably disrupted LV output in Jilin at FAW Toyota and VW.
- But wider output losses through restrictions could exceed 300k in March.
- Accelerating Omicron cases combined with zero-COVID policy, threatens deeper supply-side disruption.

## Current LV output disruption announcements

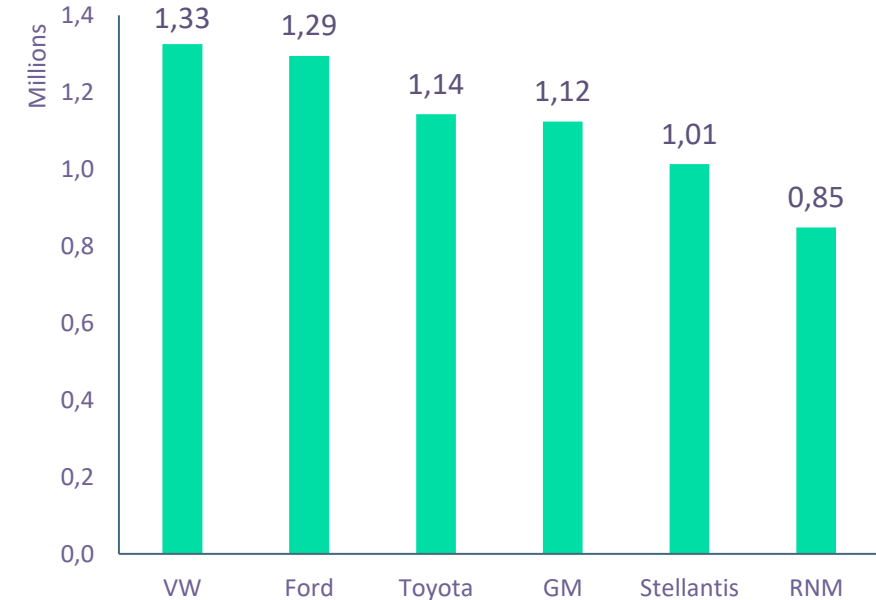
OEM	Plant Location	Suspension Date	Estimated Loss
<b>Brilliance</b>			
<i>Brilliance BMW</i>	Shenyang	Mar 23-31	10,000
<b>FAW</b>			
<i>FAW-VW</i>	Changchun	Mar 13-16: Apr 1-17	33,500
<i>FAW-Toyota</i>	Changchun	Mar 13-16: Apr 1-17	12,000
<i>FAW Car</i>	Changchun	Apr 1-17	13,500
<b>SAIC</b>			
<i>SAIC-VW</i>	Shanghai	Mar 15-18: Apr 1-17	34,000
<i>SAIC GM</i>	Shanghai	Apr 1-17	19,500
<i>SAIC Motor</i>	Shanghai	Apr 1-17	6,000
<b>Tesla</b>			
<i>Tesla</i>	Shanghai	Mar 16-17: Apr 1-17	26,500



## Quarterly Allocation



## 2021 OEM Impact

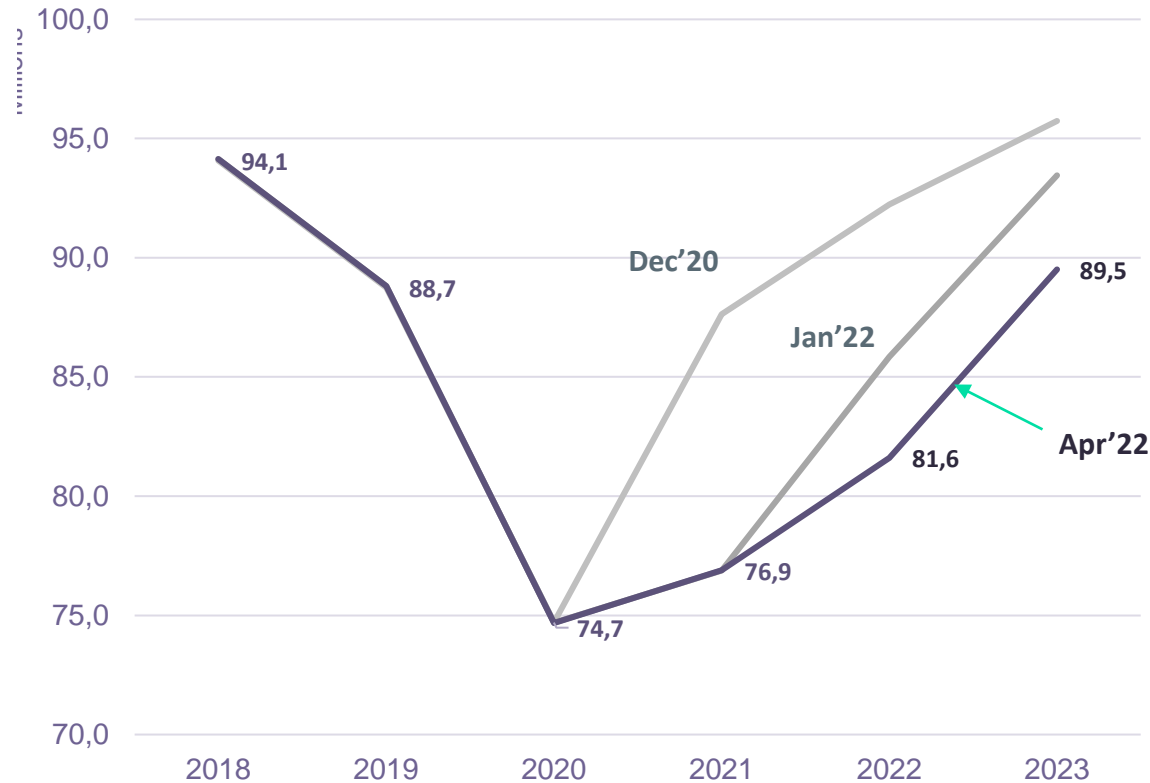


- Disruption in 2021 totalled over 10mn units from planned volume, with around 90% of volume due to semiconductor shortage. NA and Europe made up over half of the chip shortage global impact total.
- Ford’s impact was early but VW surpassed all as year progressed. GM’s impact levelled off and Toyota’s was late.
- 2022 was showing some improvement but Russia/Ukraine adds new layer of disruption risk - impact at around 8.0mn units for the year but risk remains high.

# Near-Term LV Production Forecast - Global



## Forecast Evolution



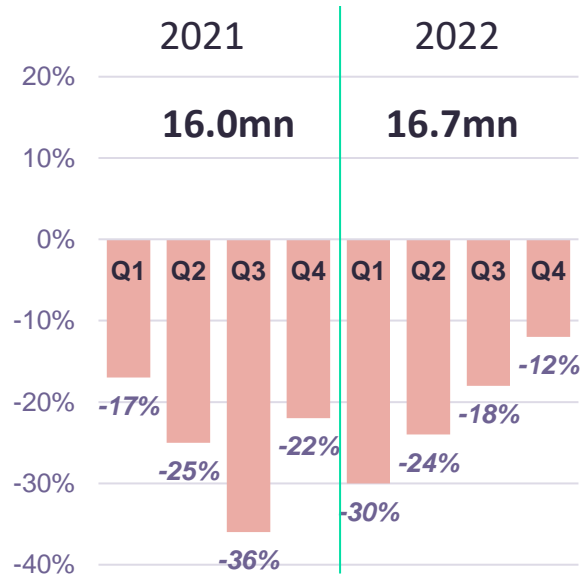
- Forecast has shifted from a 'V' shape to 'U' shaped recovery
- Since Jan'22, global forecast (Apr '22 prelim) for full-year 2022 cut by 4.3mn and a further 4.0mn in 2023.
- Pent-up demand and restocking impulses to support recovery.
- BUT losses to used cars, lease terminations, market exits.
- Pricing pressures: OEM focus on margin rather volume, OE investment costs.
- Combine to lower inventories and market size.

# Near-Term Forecast (March '22) : Key Regions

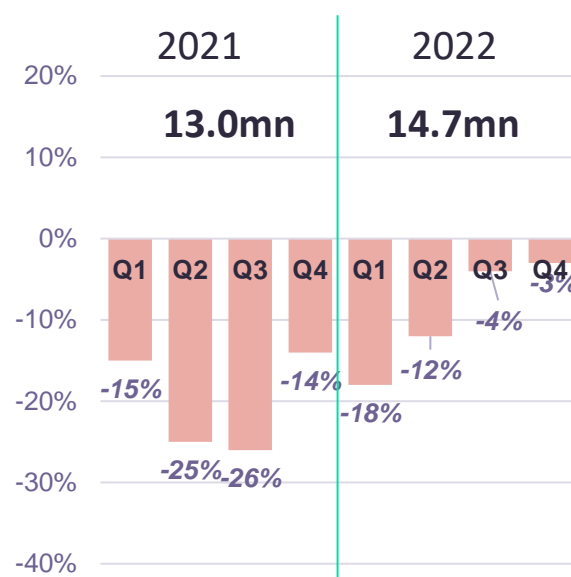
Note: all growth rates measured against 2019 volumes



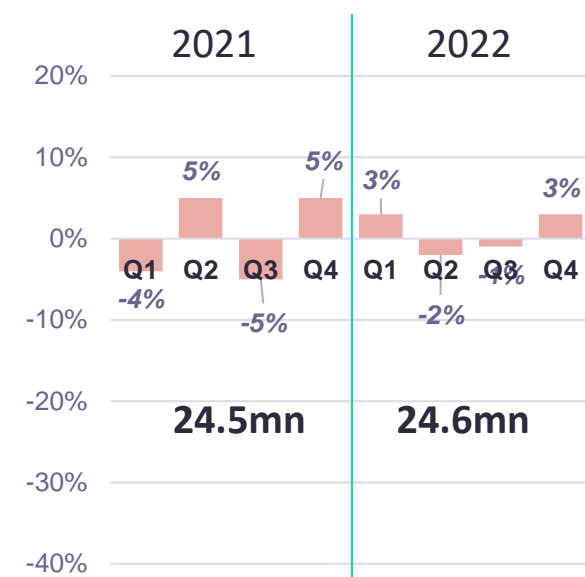
## Pan Europe



## North America



## China



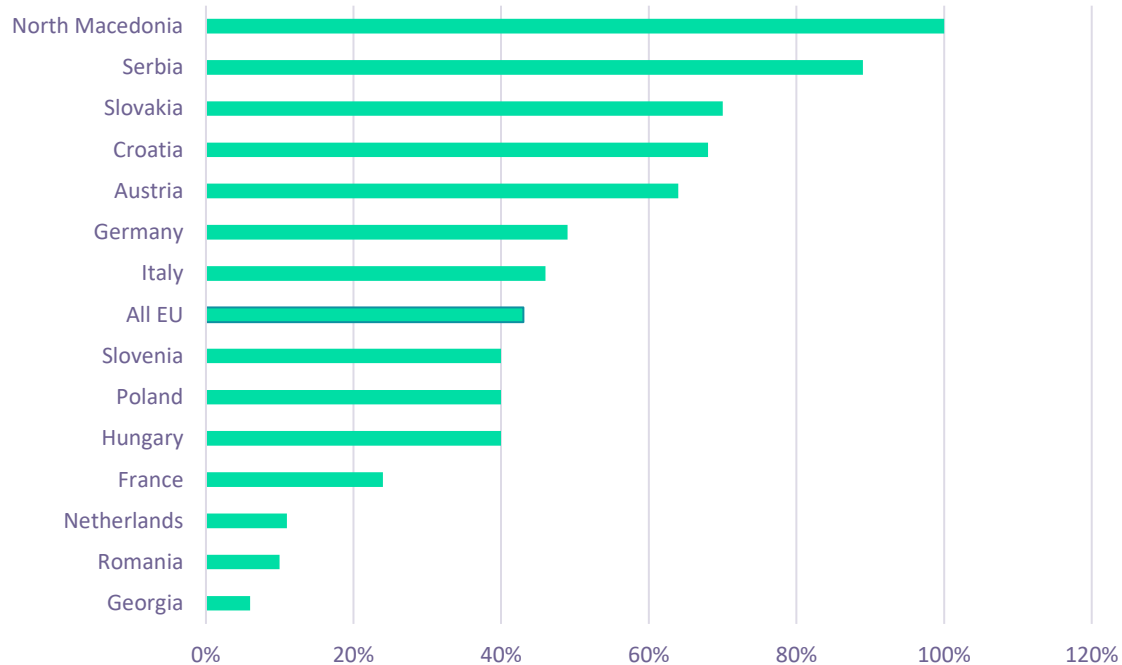
- Russia-Ukraine related component disruption. Russian output slump.
- Lingering chip shortage.
- 2022: forecast cut by 2.4mn since Jan'22 – Growing downside risk
- 2022: +4% yoy

- 2022: forecast cut by 600k since Jan'22
- Output insufficient to support underlying demand
- Material shortages slow operations.
- Tight labour market.
- 2022: +13% yoy but rising risks.

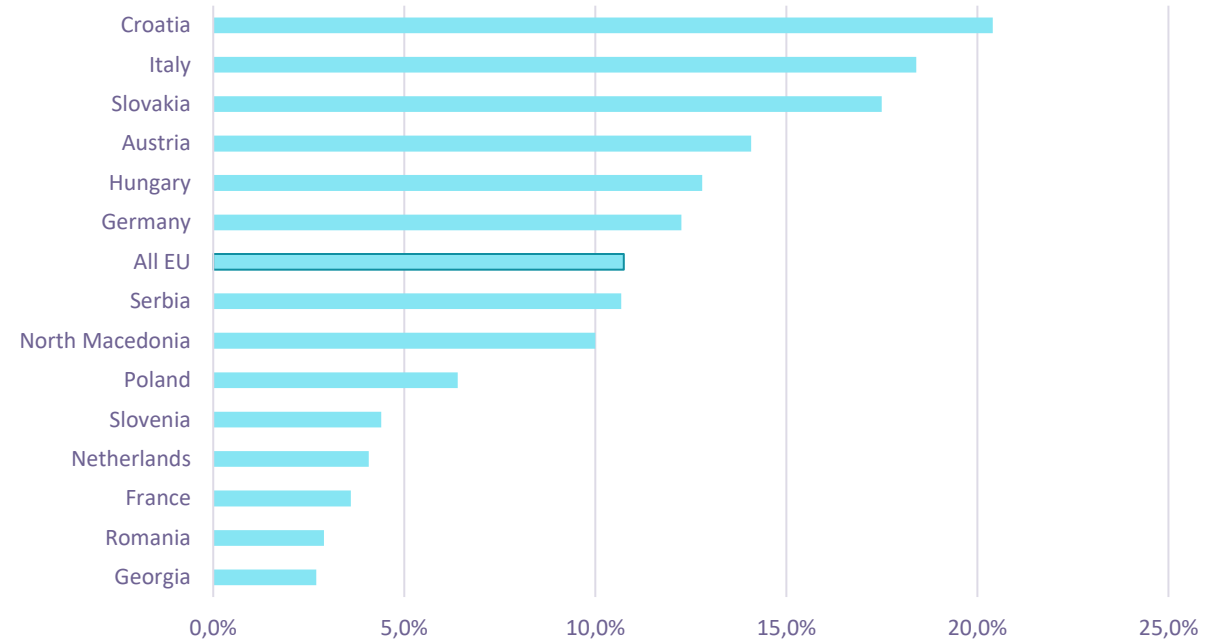
- 2022: forecast cut by over 1.2mn units since Jan'22.
- COVID-19 disruption and wider global supply-chain risks : Semiconductors, raw materials (Russia-Ukraine related).
- Economic slowdown.
- 2022: +1% yoy.

## Energy Supply Exposure by European country

Share of gas supply from Russia (2020)



Russian gas contribution to energy supply by country (2020)



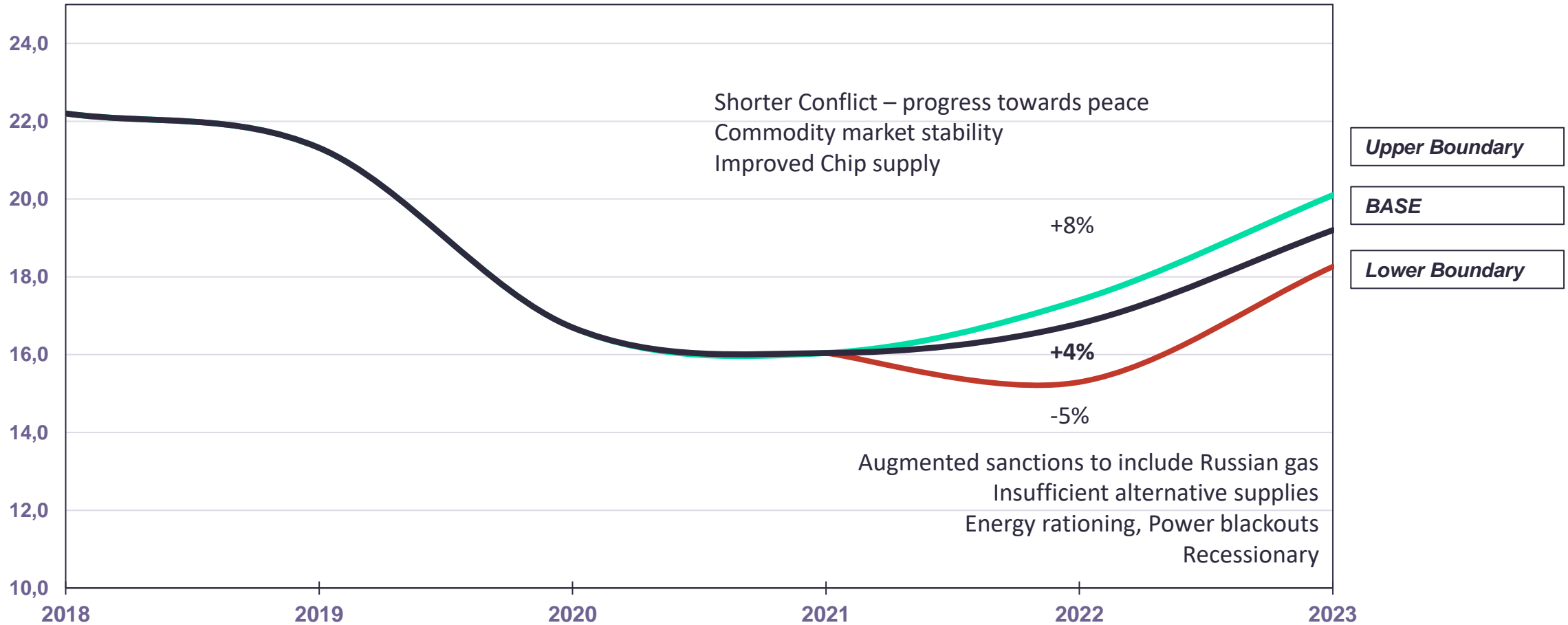
Source: Eurostat, Global Data calculations

- The EU sources around 40% of its Natural Gas from Russia
- Accounting for the contribution of Russian gas to the energy supply mix, the EU's exposure falls to around 10%
- Without alternatives in place, energy shortfalls could rapidly undermine industrial activity
- Germany and Italy amongst other key auto industry hubs would be exposed.

# Near-Term European LV Production Synthesis

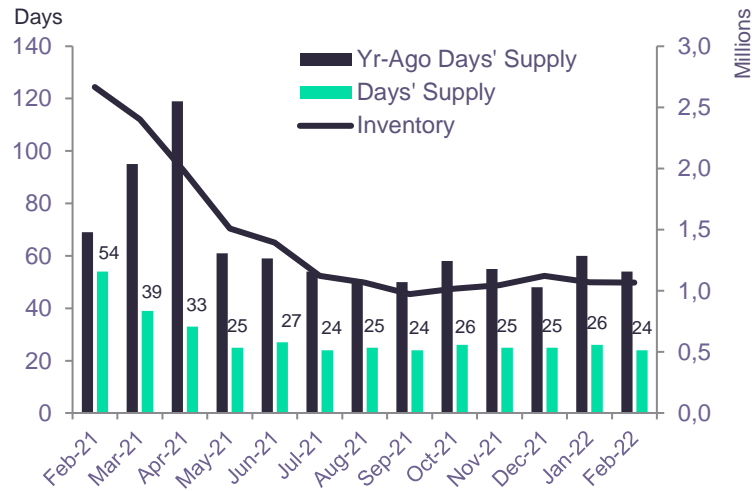


Base, Upper and Lower Forecast Boundaries: Downside risks dominate.

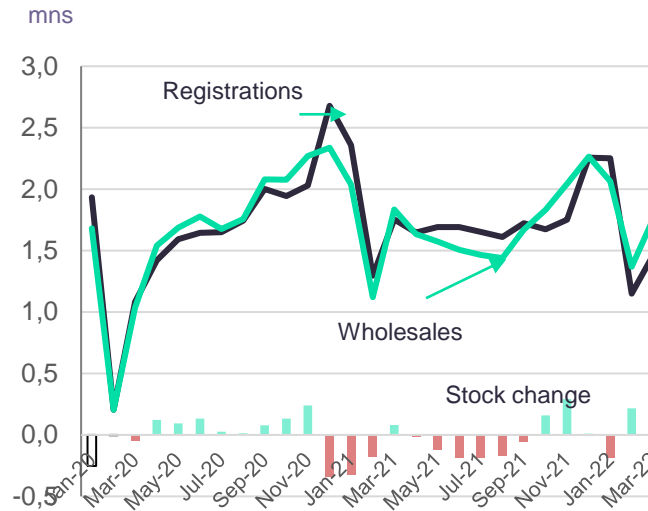




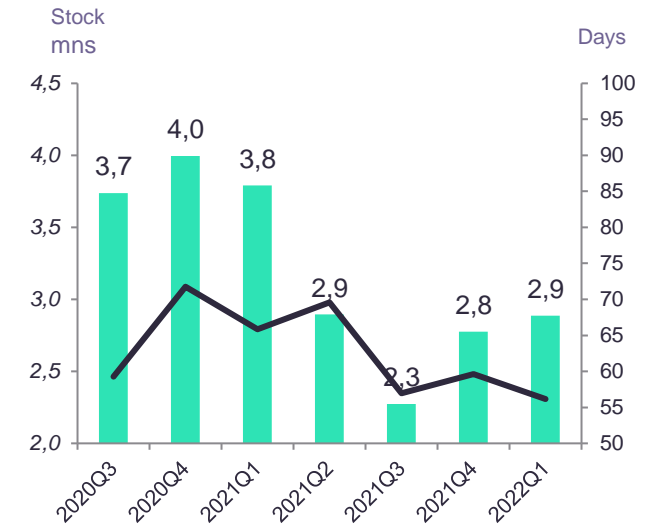
## US LV Days' Supply



## China : Stock Change



## Europe LV Days' Supply

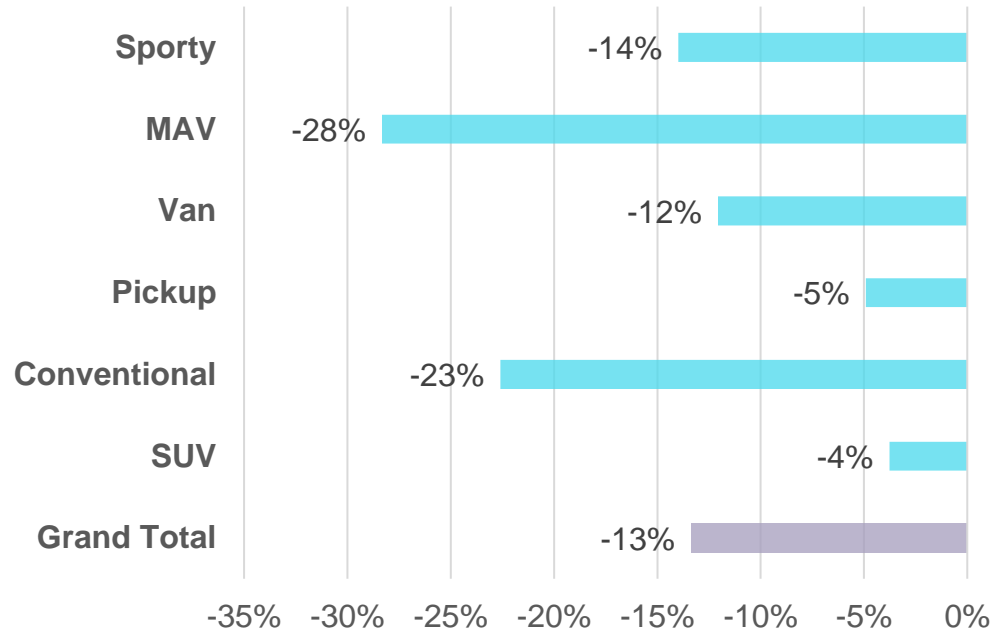


- US days' supply has improved marginally in recent months, but still well below normal levels and below the pace of demand. February was 60% below February 2021. Market will not likely see significant improvement until well into 2023.
- China's change in stock has been negative 8 of 12 months in 2021. December remained positive, leading to improved close to the year. Chips and covid-19 remain a risk in the short-term.
- Europe: 'security' stock-building in Q4 '20, but since then absolute stock levels have fallen by 25%. Some signs of improvement in Q4 2021 but absolute levels still well below normal.

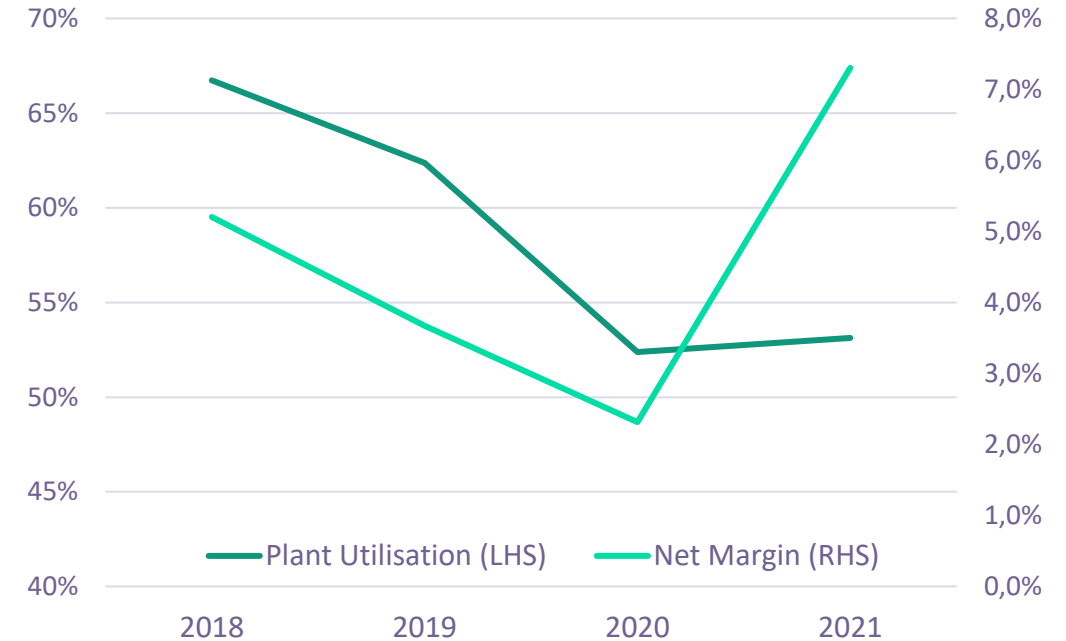
# Global LV Production 'Mix' Impact



## Production by Body-type: 2021 v Dec'20 forecast



## Global Utilisation & Global Net Margin



Source: LMC Automotive, Global Data

- Slower selling body-types (MAVs and Conventional) worst affected by production cuts.
- Volumes protected for faster selling higher margin body-types (Pickups and SUVs)
- Global assembly plant utilisation plummeted to below 55%
- Global Auto OEM Net Margins surged



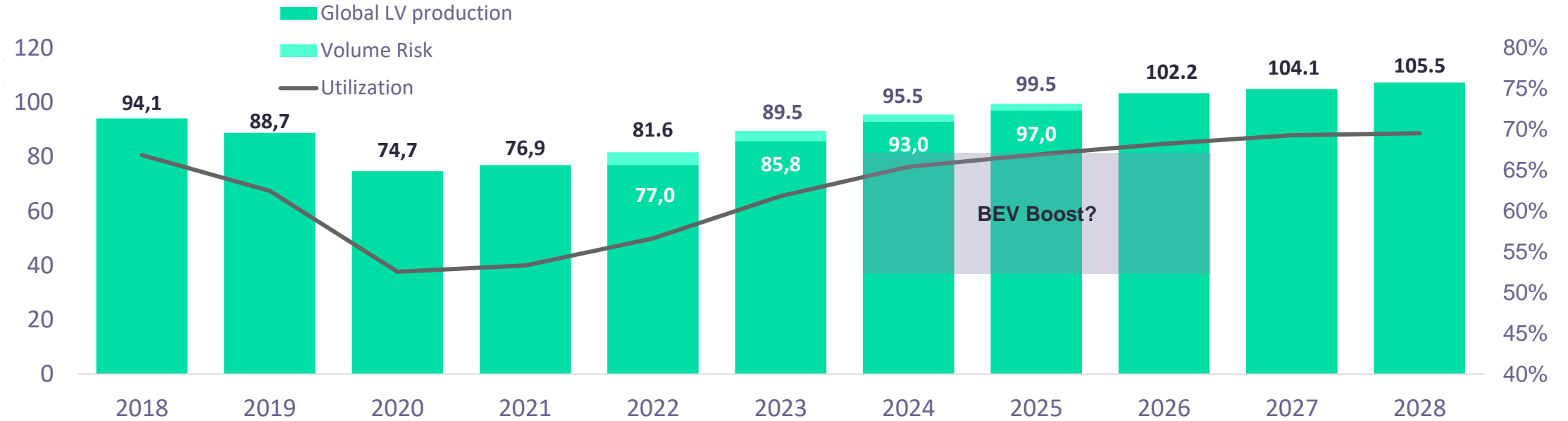
# OEM Medium-Term 'Score-card'



Global LV Production by Key Groups: 2019 = 100

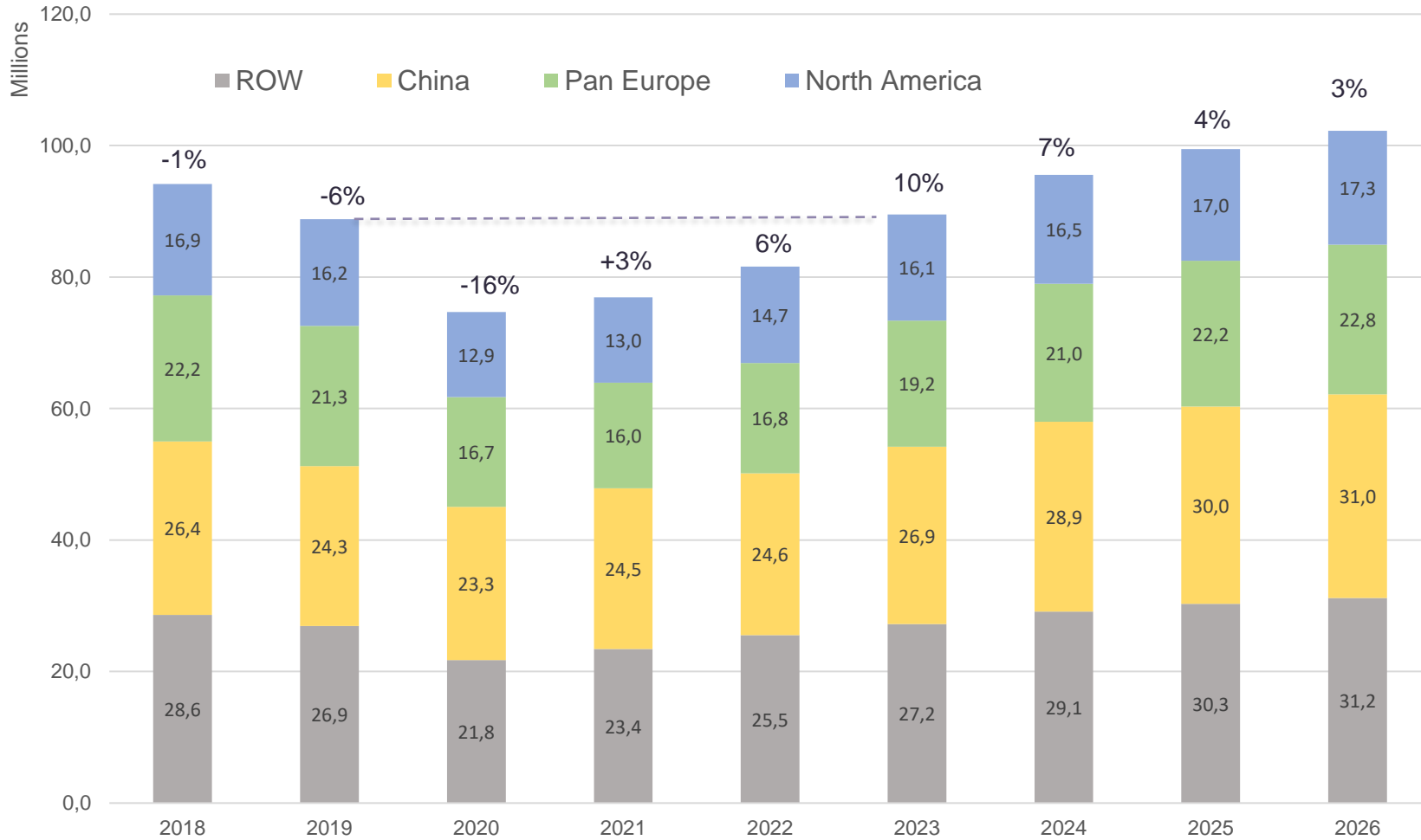
	2020	2021	2022	2023	2024	2025	2026
<i>All Global Total</i>	84	87	92	101	108	112	115
<i>Toyota Grp</i>	87	95	96	103	108	112	113
<i>VW Grp</i>	82	76	78	88	95	102	108
<i>RNM</i>	72	72	76	84	92	96	99
<i>Hyundai Grp</i>	84	88	93	99	106	111	113
<i>Stellantis</i>	78	81	93	103	112	116	117
<i>GM</i>	82	71	77	86	88	89	90
<i>Honda</i>	85	79	83	91	95	95	96
<i>Ford</i>	76	71	80	88	91	93	95
<i>Suzuki</i>	83	95	97	101	106	109	113
<i>SAIC Grp</i>	96	111	104	109	114	114	117
<i>BMW Grp</i>	88	96	95	104	109	114	118
<i>Mercedes-Benz Grp</i>	86	83	86	97	103	106	108
<i>Geely Grp</i>	93	96	95	107	128	135	141
<i>Tesla</i>	140	254	374	449	478	538	607

# Global LV Output – Longer Term Development



- Forecast uncertainty highest in 2022, which will drive mid-term recovery Risk include, Covid-19 variants, parts shortages, geo-political conflict, logistic issues, labour shortages and inflation.
- CAGR 21-25 of 7% slightly outpaces demand as inventory rebuild pushes volume to 100mn units.
- Mid-term forecast could get boost from BEV conversion; but raw-material scarcity could undermine affordability and consumer appeal.
- Vehicle sharing could be long-term volume risk but only if significant issues solved.

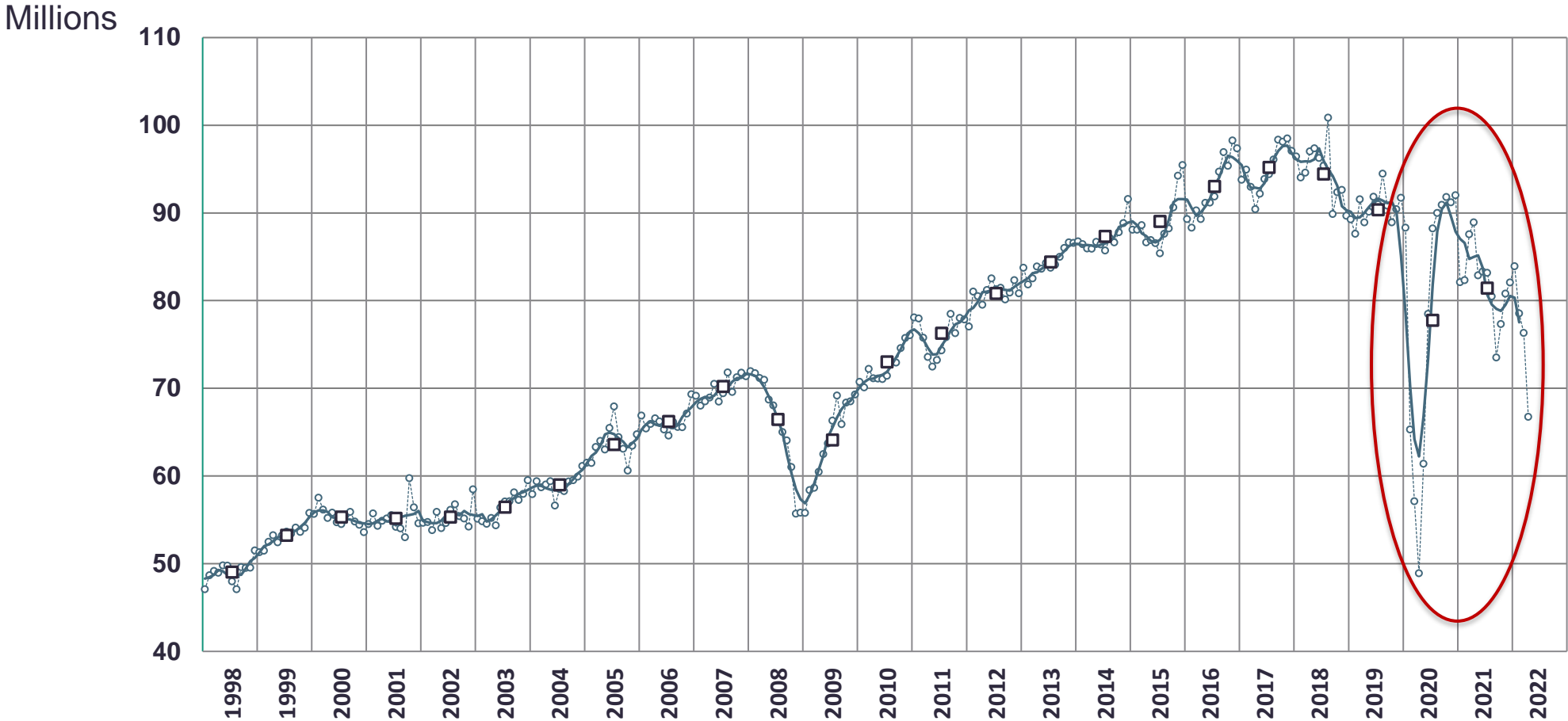
# Global LV Output – Longer Term Development



<b>CAGR*</b>	
China	: 4.8%
Europe	: 7.3%
N America	: 5.8%
Japan	: 3.3%
S Korea	: 4.4%
India	: 7.5%
World	: 5.9%

\*Compound Annual Growth Rate, 2021-2026

# Global Light Vehicle sales

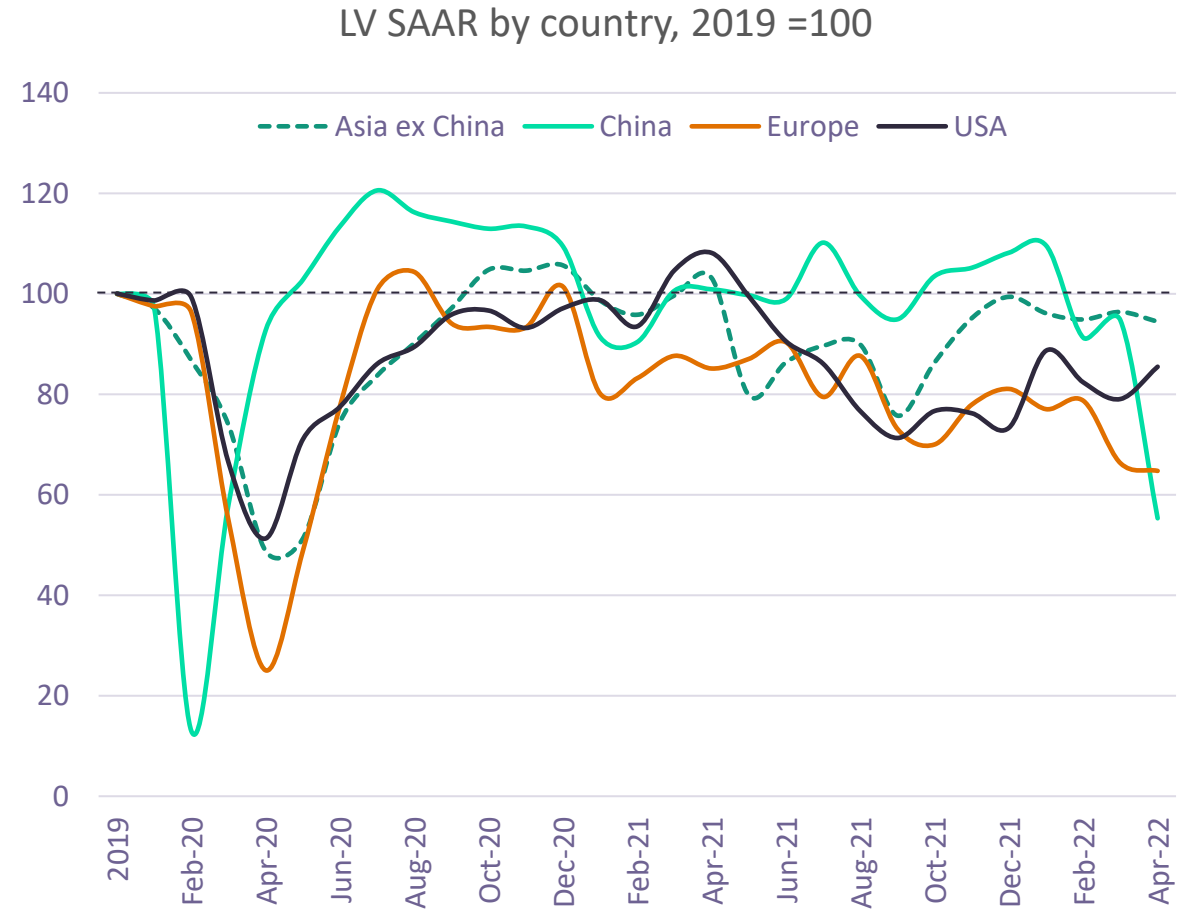


Sep 21  
74 mn  
Jan 22  
84 mn  
Apr 22  
67 mn

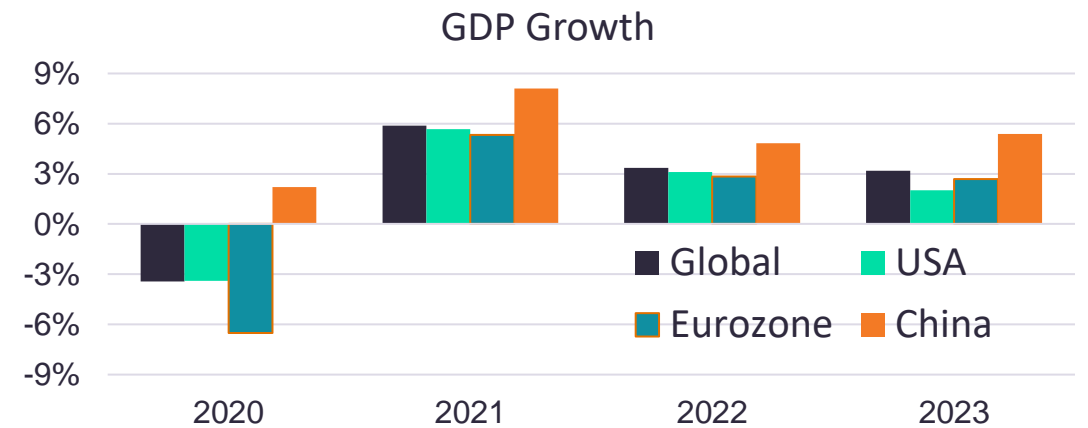
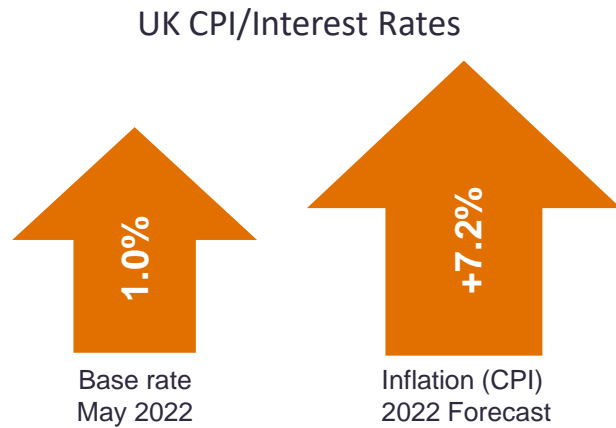
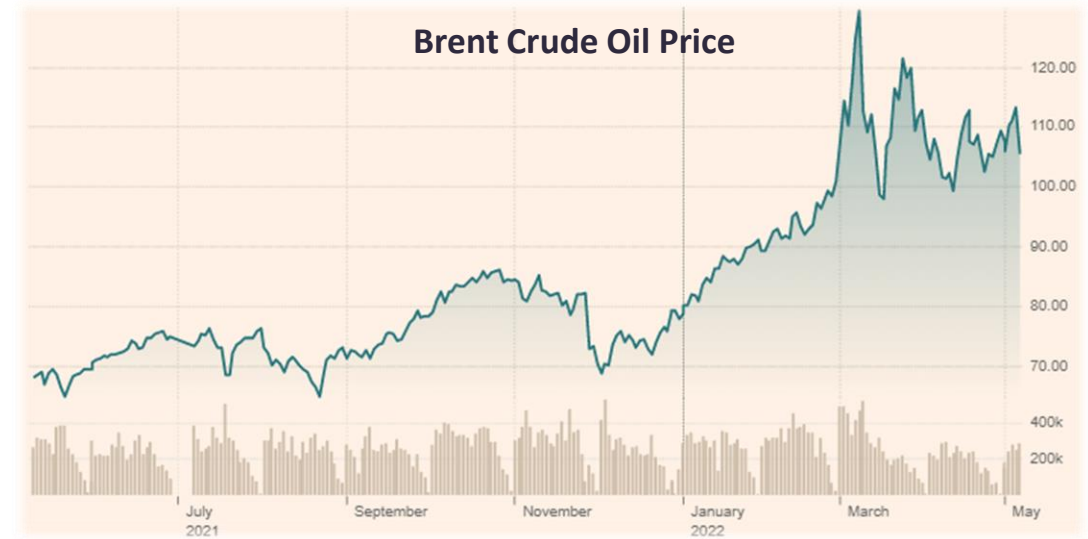
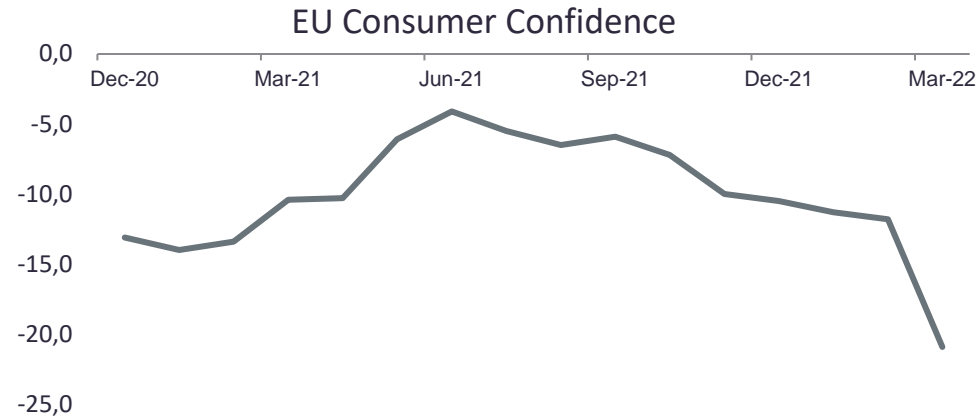
# Market backdrop by region



- Following depressed market activity of first lockdowns in spring of 2020, summer saw selling rates rebound as pent-up demand and government support measures came through.
- However, 2021 presented challenges with further movement restrictions in some countries, followed by supply disruption.
- China market continued to perform at around pre-pandemic levels in 2021 though recent coronavirus outbreak and price pressure present serious challenges.



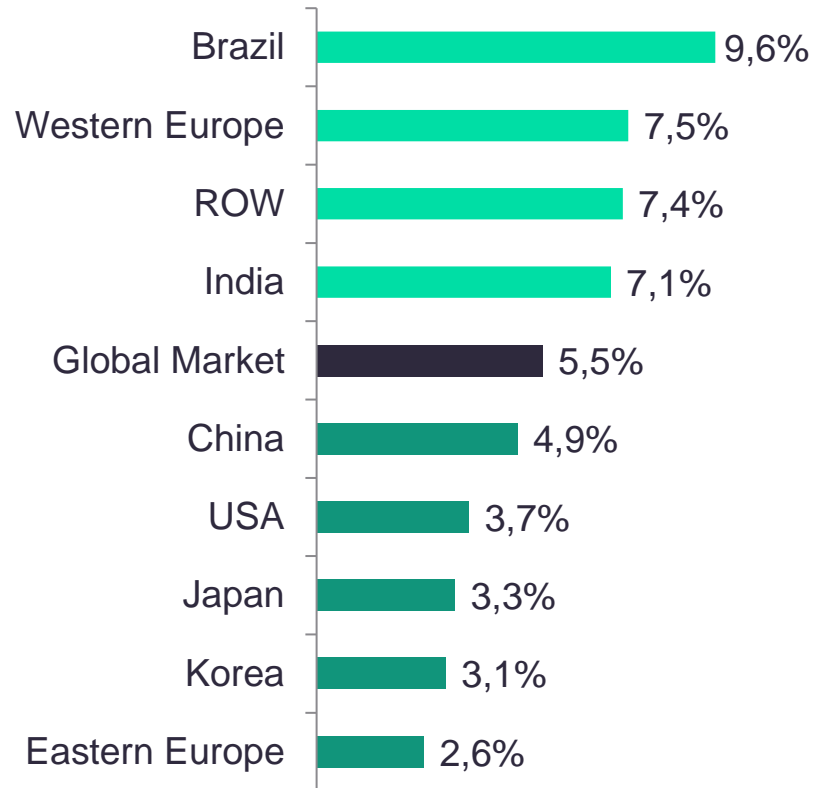
# Economic outlook revised down



# Medium-term recovery path for key markets



CAGR Global LV Sales '21-'25

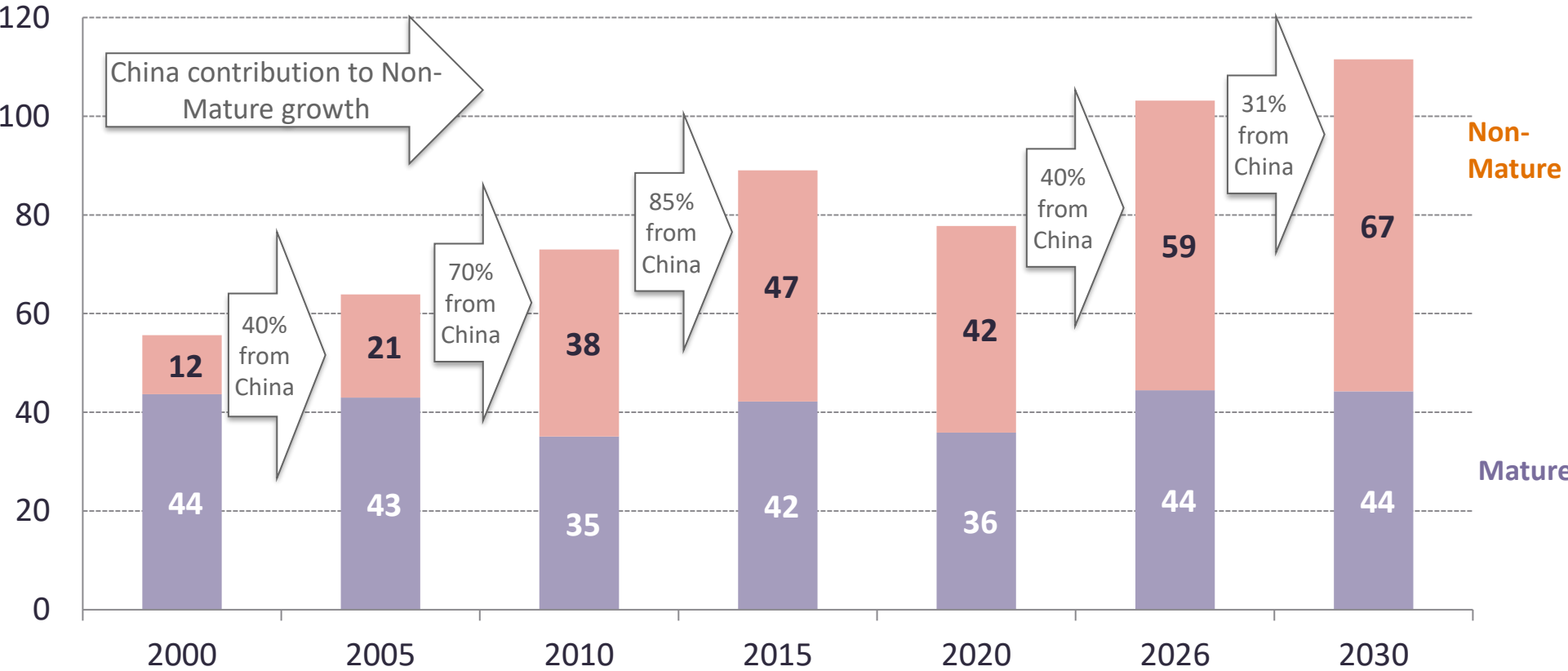


- Global CAGR at 5.5% 2021-2025, with most emerging markets outperforming mature.
- Strong recovery in Western Europe after lagging in 2021. Eastern Europe recovery at risk.
- US growth flattening out post-recovery.
- In absolute volumes terms, China remains single largest engine for growth.

# Global growth will not come from mature markets



### Global Light Vehicle Sales (millions)







**Thank You**

