

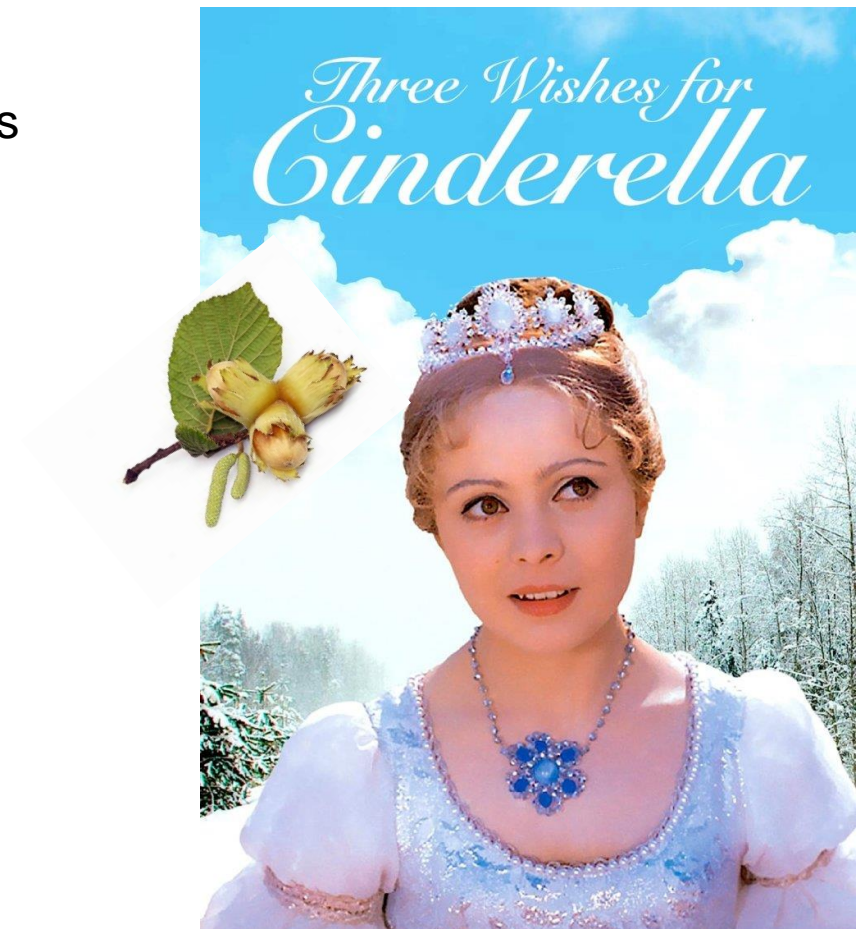
# Risks, challenges and opportunities for a sector in transition: a bumpy road ahead for CESEE countries?

Vienna, March 28, 2022  
Tomas Slacik



## New era with (un)predictable consequences, challenges, risks and opportunities

- I. Impact of electrification on the automotive industry
- II. Macroeconomic, (geo)political and environmental aspects and risks
- III. Impacts on and policy implications for CESEE

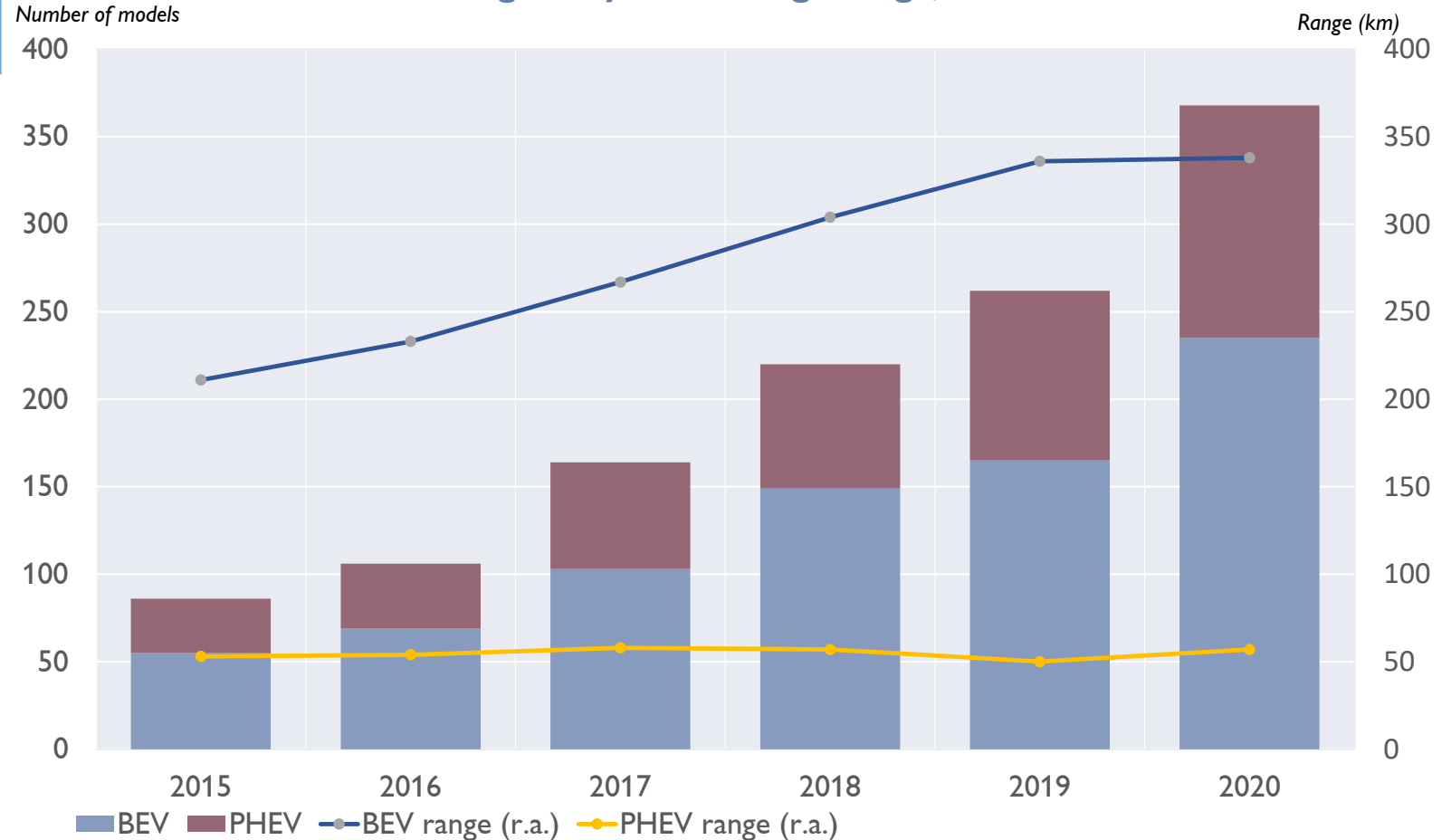


## Impact of electrification on the car market

### Supply side

- **Growing variety and range of EVs**
  - Economies of scale

Electric car models available globally and average range, 2015-2020



Source: IEA.

## Tough decisions for carmakers: efficiency vs. flexibility

### Supply side

- **Growing variety and range of EVs**
  - Economies of scale
    - Dedicated vs. shared platforms (Volkswagen vs. Skoda)?



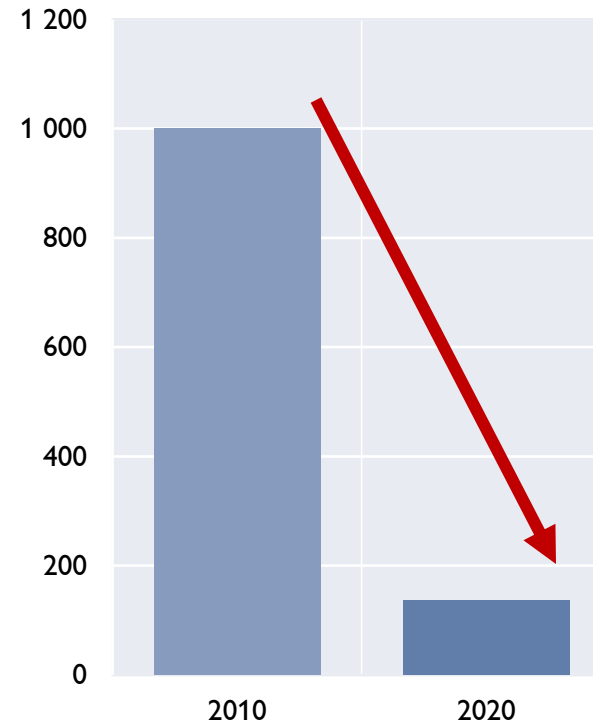
## EVs will become cheaper...

### Supply side

- **Growing variety and range of EVs**
  - Economies of scale
    - Dedicated vs. shared platforms (Volkswagen vs. Skoda)?
- **Falling prices of batteries?**

### Battery pack costs over time

Pack wholesale cost (USD/kWh)



Note: the newest generation of the Li-ion battery pack.

Source: BNEF, LMC automotive.

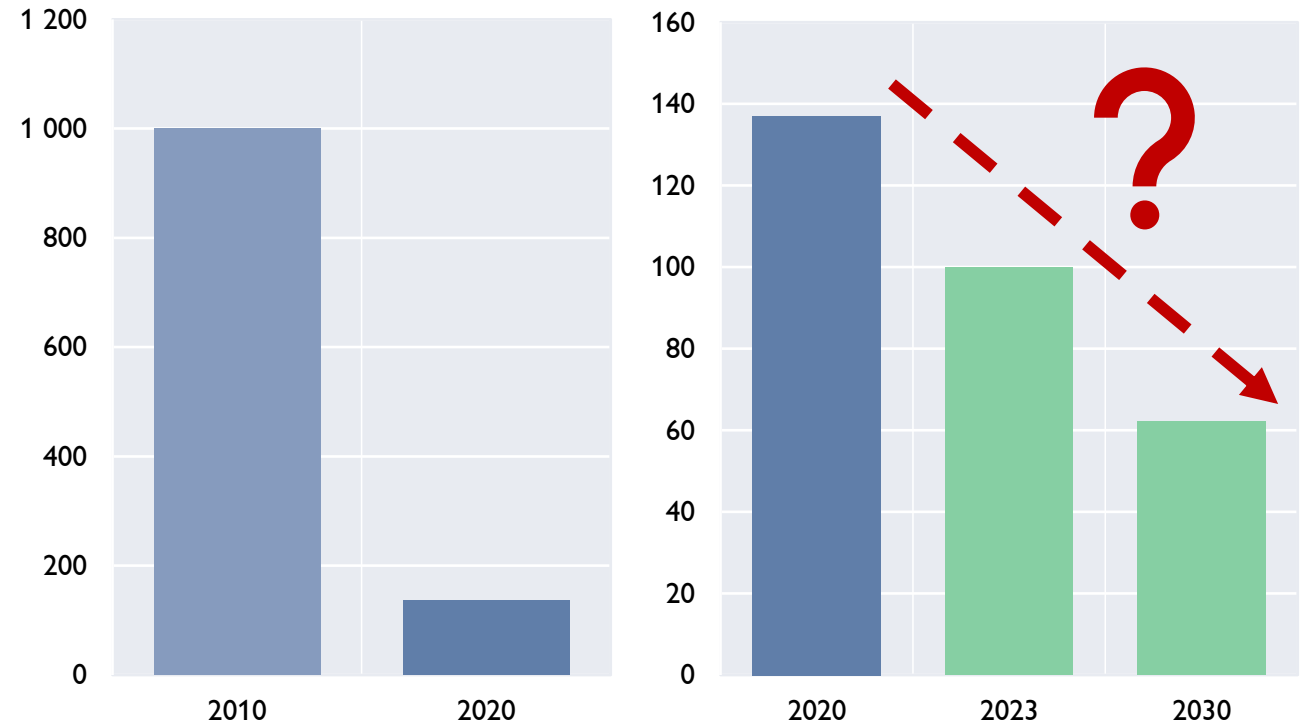
## ...but will they really become affordable?

### Supply side

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## Conventional cars will become less available...

### Supply side

- **Growing variety and range of EVs**
  - Economies of scale
    - Dedicated vs. shared platforms (Volkswagen vs. Skoda)?
- **Falling prices of batteries?**
- **Variety of conventionally powered cars winding down**



## .... and affordable

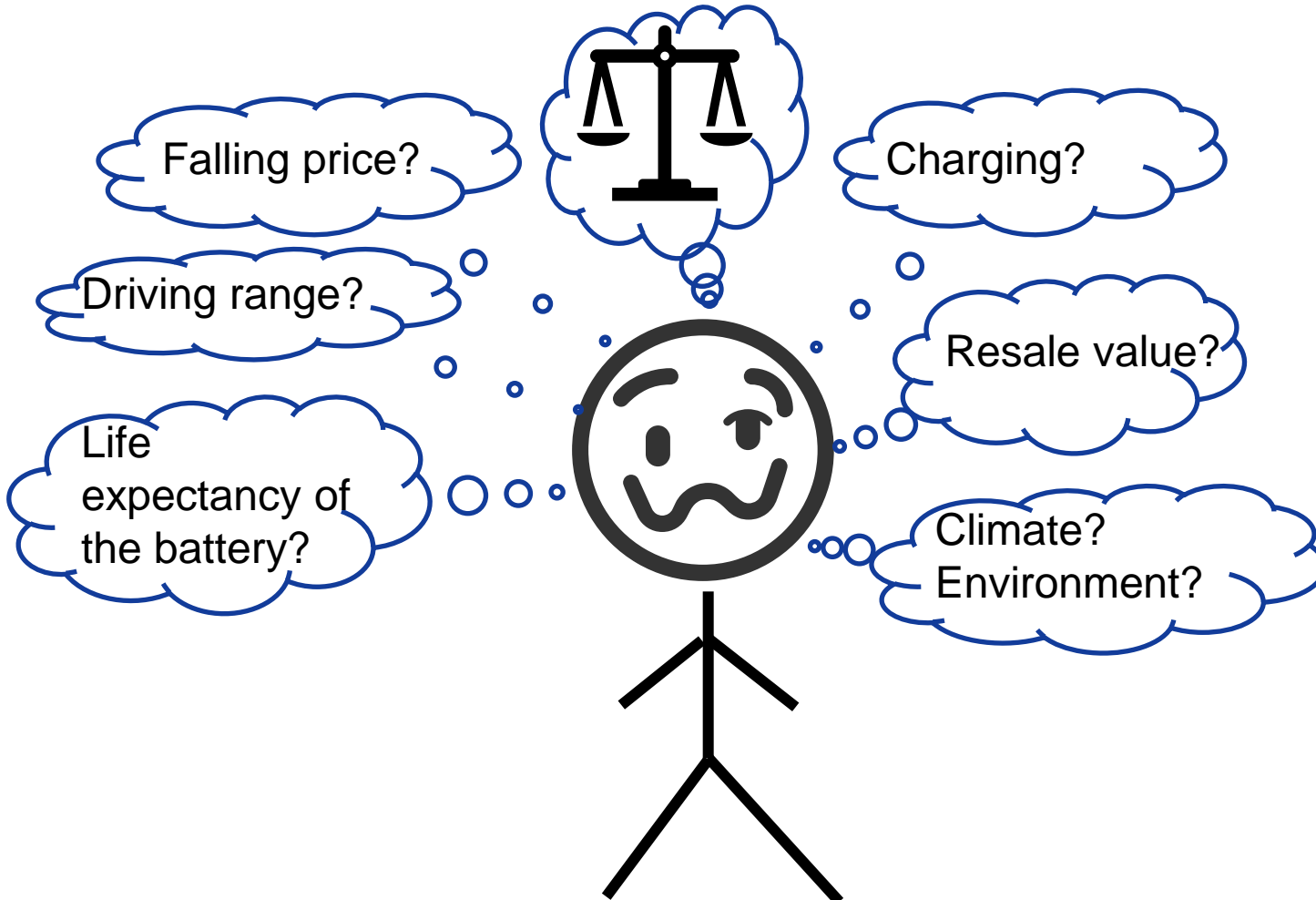
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- **Growing variety and range of EVs**
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- **Falling prices of batteries?**
- **Variety of conventionally powered cars winding down**
  - Especially smaller and cheaper cars

$$SET = 95 + 0.0333(m - m_{ref})$$



## Large-scale market acceptance remains to be seen



### Demand side

- **50% of consumers not willing to pay more for an EV than for a conventional vehicle (Deloitte 2020).**
- **About 1/3 of consumers in Europe have access to a charging outlet**

## Large-scale market acceptance remains to be seen

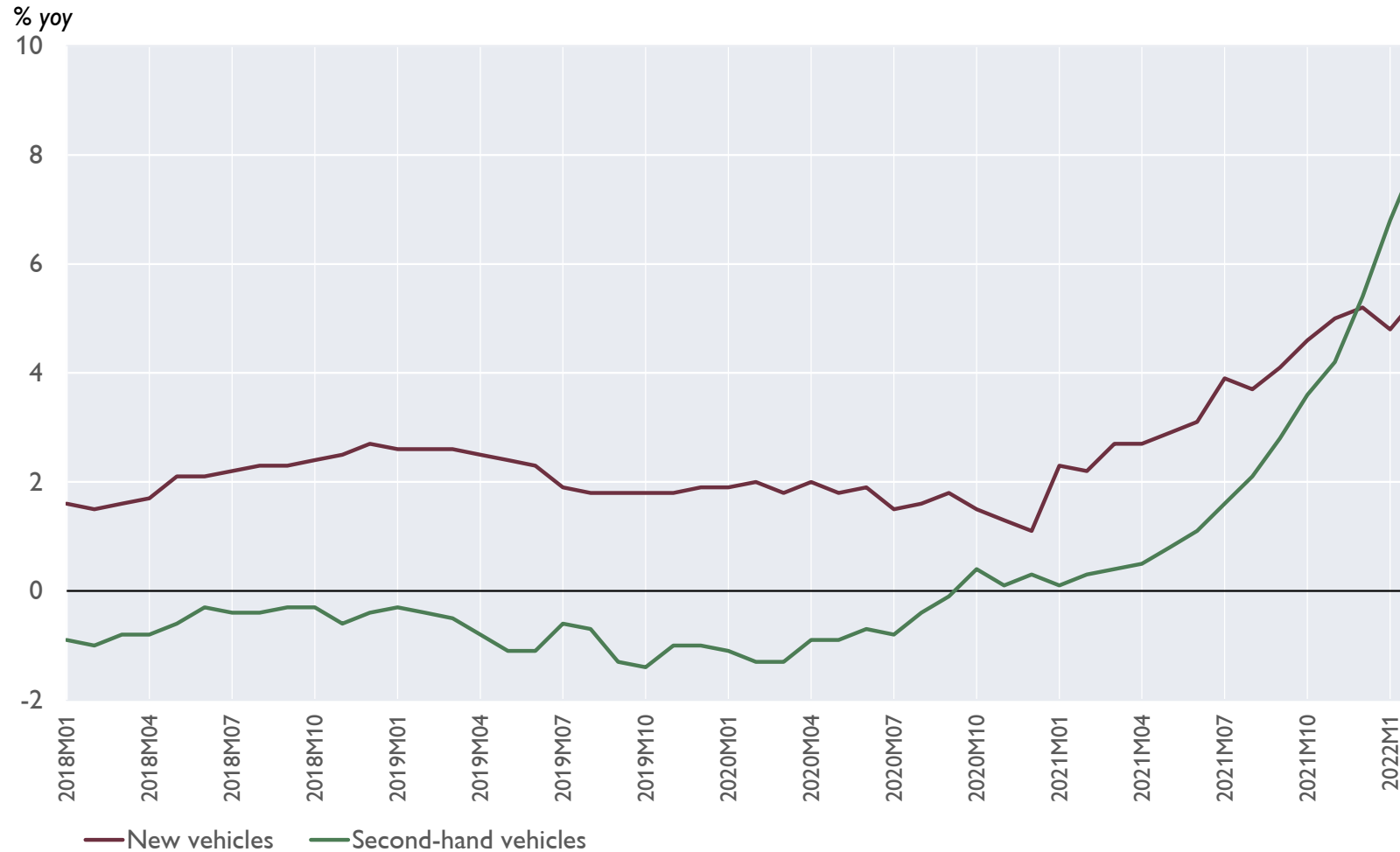


### Demand side

- 50% of consumers not willing to pay more for an EV than for a conventional vehicle
- Only about 1/3 of consumers in Europe have access to a charging outlet
- **Early EV buyers (pioneers) differ significantly from (future) mainstream consumers**

# My dear car...

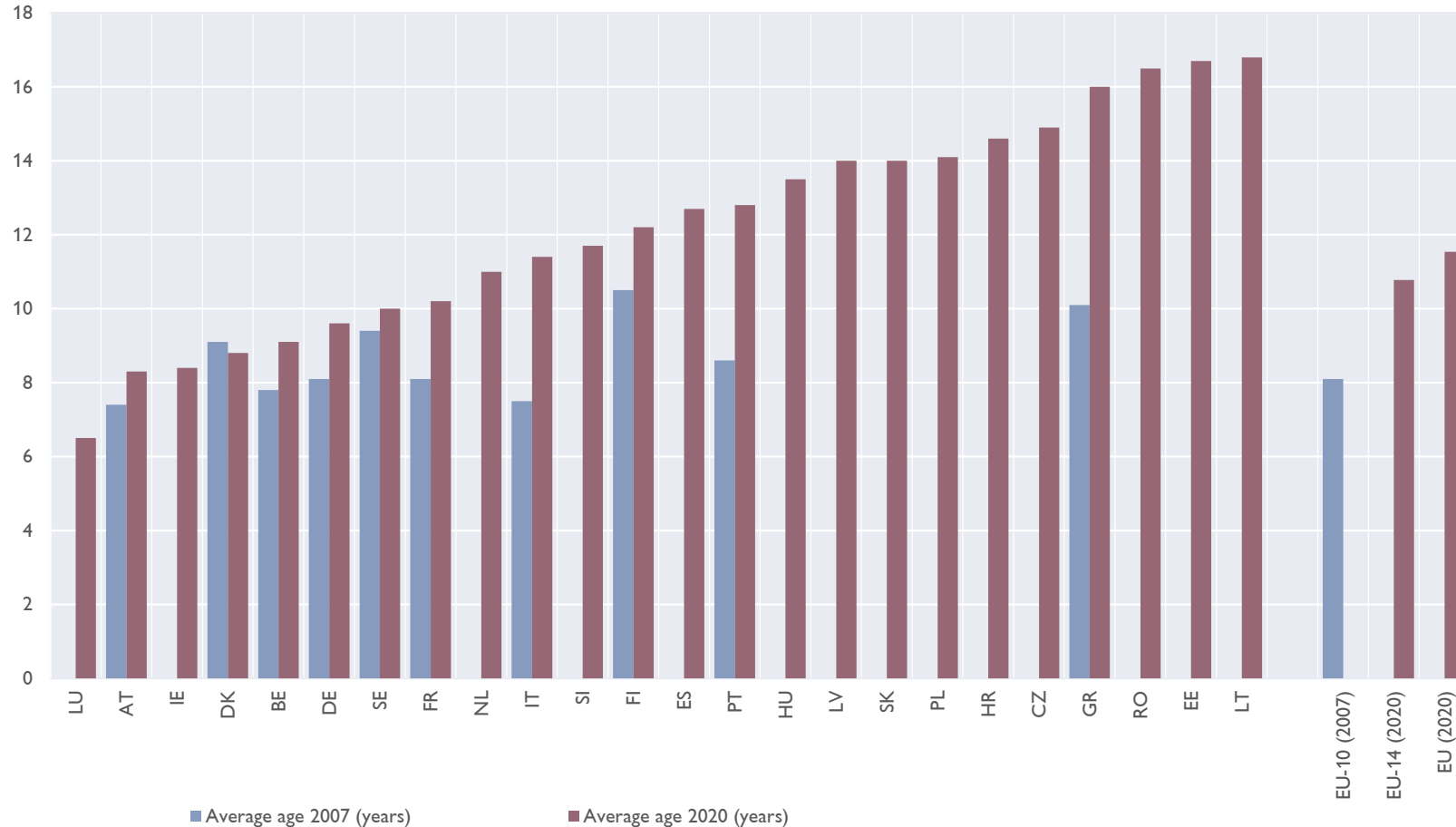
Annual price change of passenger cars in the European Union



## ...you are getting older with me

Average age of passenger cars in the EU

Years



Source: ACEA, authors' calculations.

## Impact of electrification on production processes and geography

- **Battery cell production set to become key**
- **Germany – despite declining vehicle output since 2018 –the hub of battery electrics.**
  - Investment in battery electrics remains, at least in this first phase, closer to home.

### Battery Cell Manufacturing Projects in Europe (operating, under implementation, announced)



Source: Deloitte, 2021.

## New kids on the block, particularly (Big) Techs

- **Role reshuffling and loss of control of established players**
  - automakers in particular may lose some of their prominence and power
  - transferring control of parts of production to new entrants

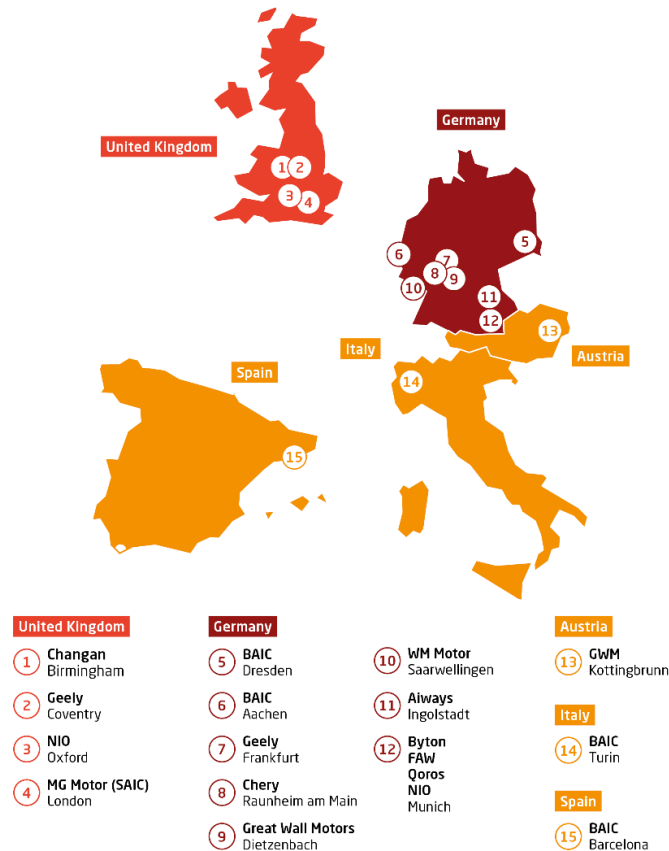


“Cars will be sold and produced in Europe in future. The question is by whom.”

(Mr Jahn, Board Member, Skoda Auto, Conference on European Economic Integration, November 2021)

## Chinese companies eyeing massive expansion to Europe: sales, production, R&D

### Chinese R&D and design centres established in Europe since 2015



## Investment needs looming high

- **Batteries: CO2 net-zero emission goal  
=> 20 gigafactories needed globally  
each year until 2030 (IEA, 2021)**
- **Power generation and transmission**
- **Charging infrastructure**





## II. Macroeconomic, (geo)political and environmental aspects and risks



### Investment needs looming high

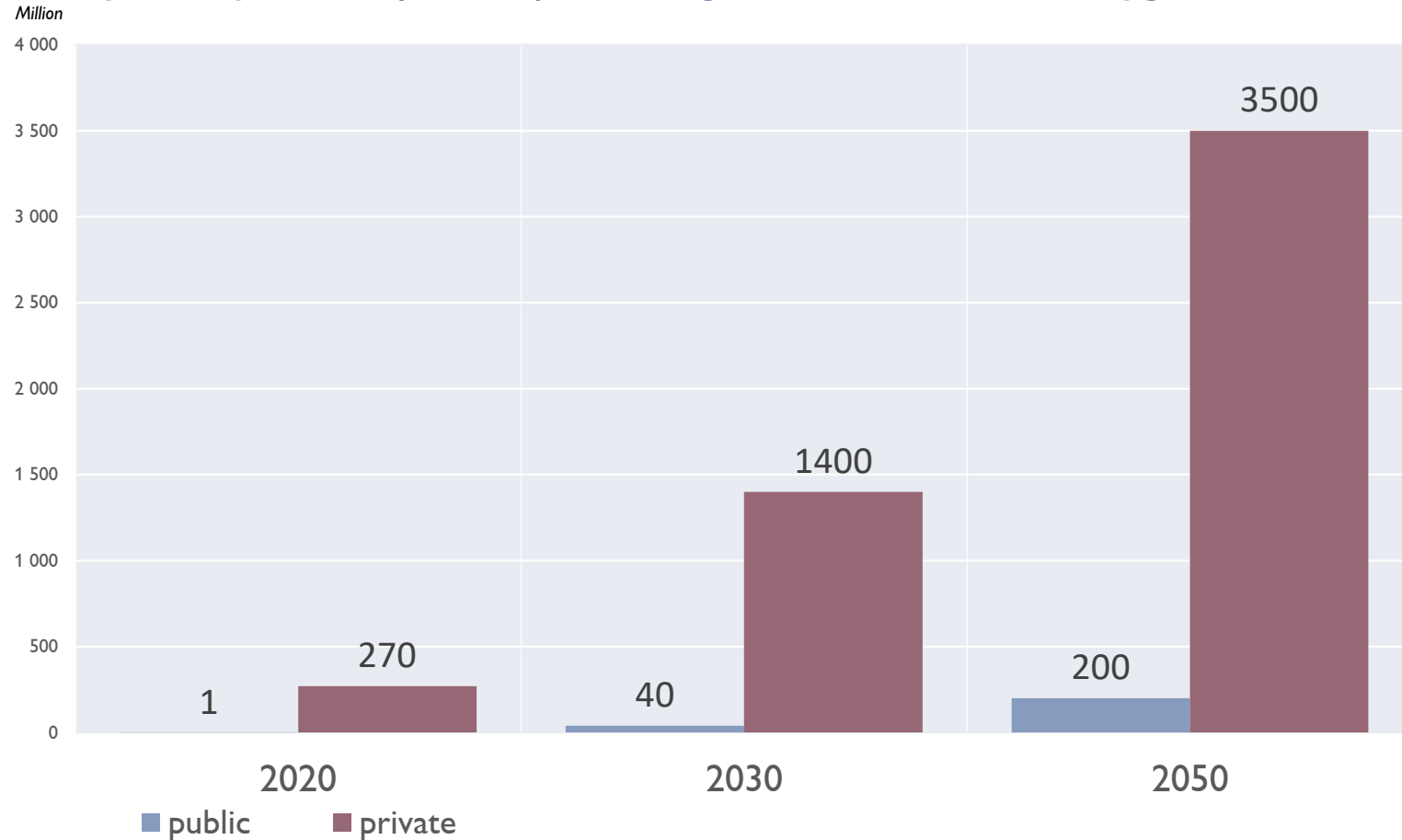
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## Investment needs looming high

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Globally necessary increase in public and private chargers to achieve the CO2 neutrality goal



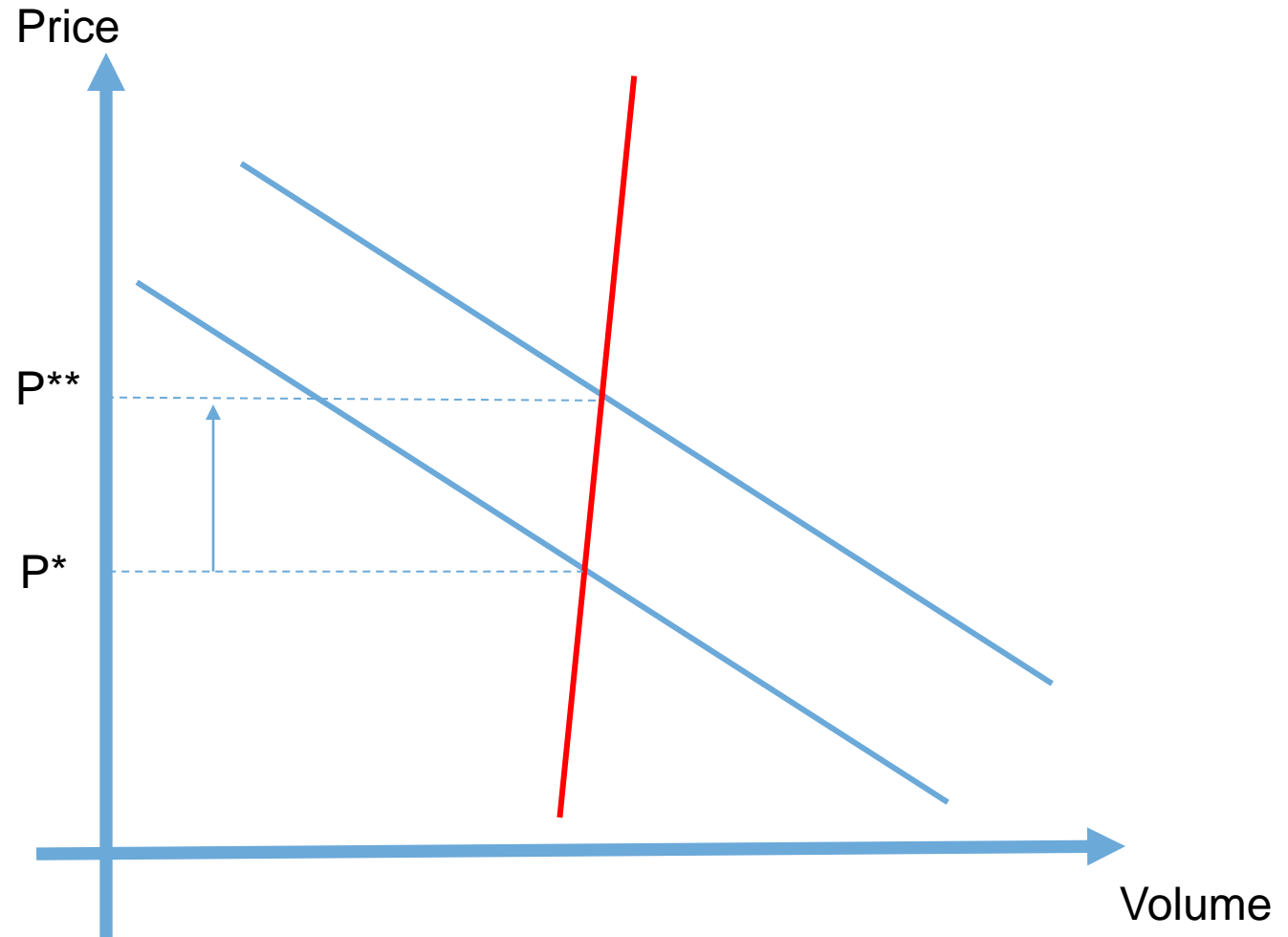
Quelle: IEA.

## Global chip shortage: the beginning of a new era of reoccurring supply shortages?



## Rising global competition for (scarce) natural resources and inputs

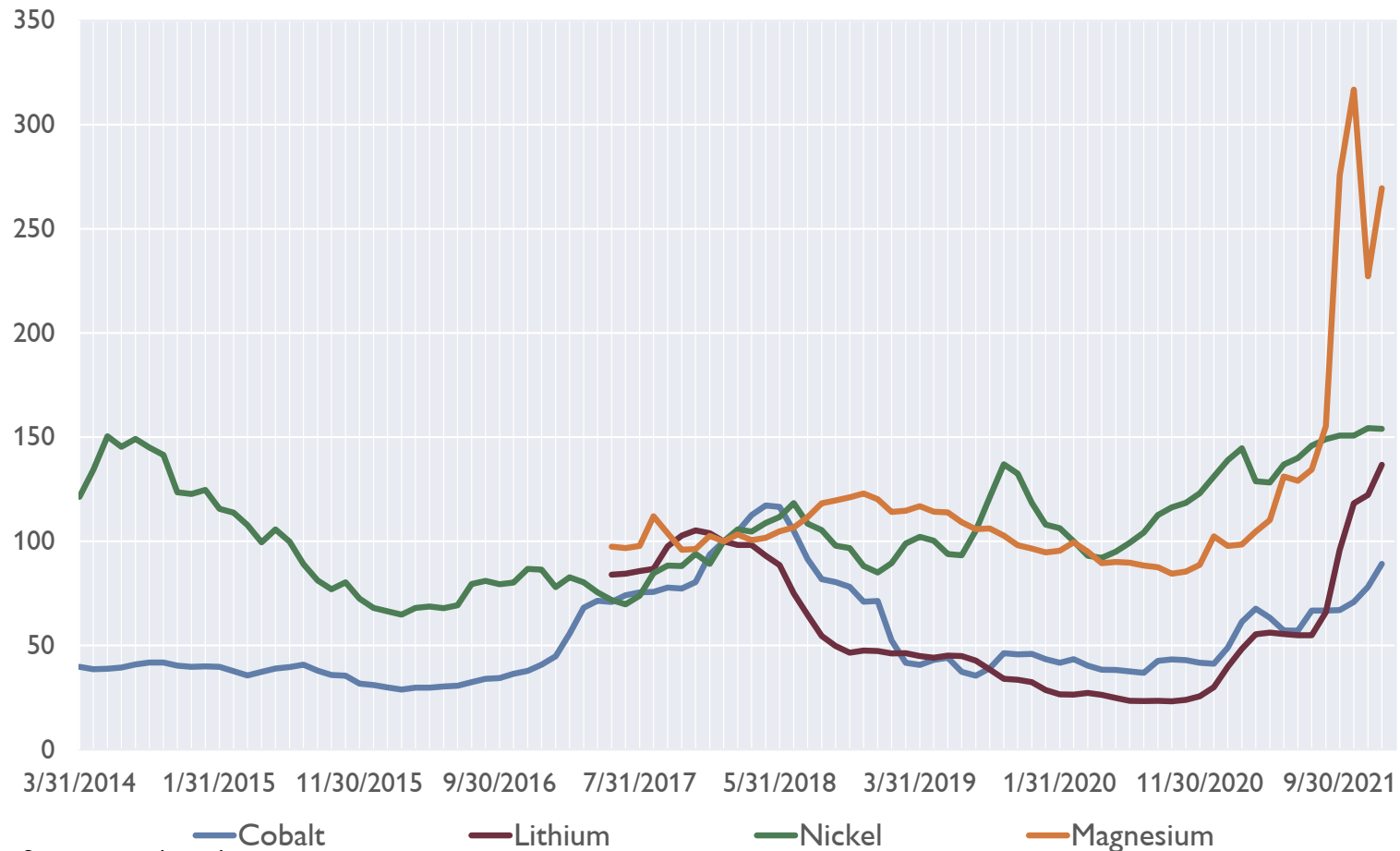
- Demand for lithium for use in batteries will swell by a factor of 30 by 2030
- Demand for rare earth elements will expand by a factor of ten.
- Supply: limited, inelastic, controlled by few (dubious) firms and countries



## Hence, rising and volatile prices...

### Price development of selected metals essential for electric vehicle production

January 2018=100



Source: [www.investing.com](http://www.investing.com).

...on top of other geopolitical, environmental and social consequences



## II. Macroeconomic, (geo)political and environmental aspects and risks

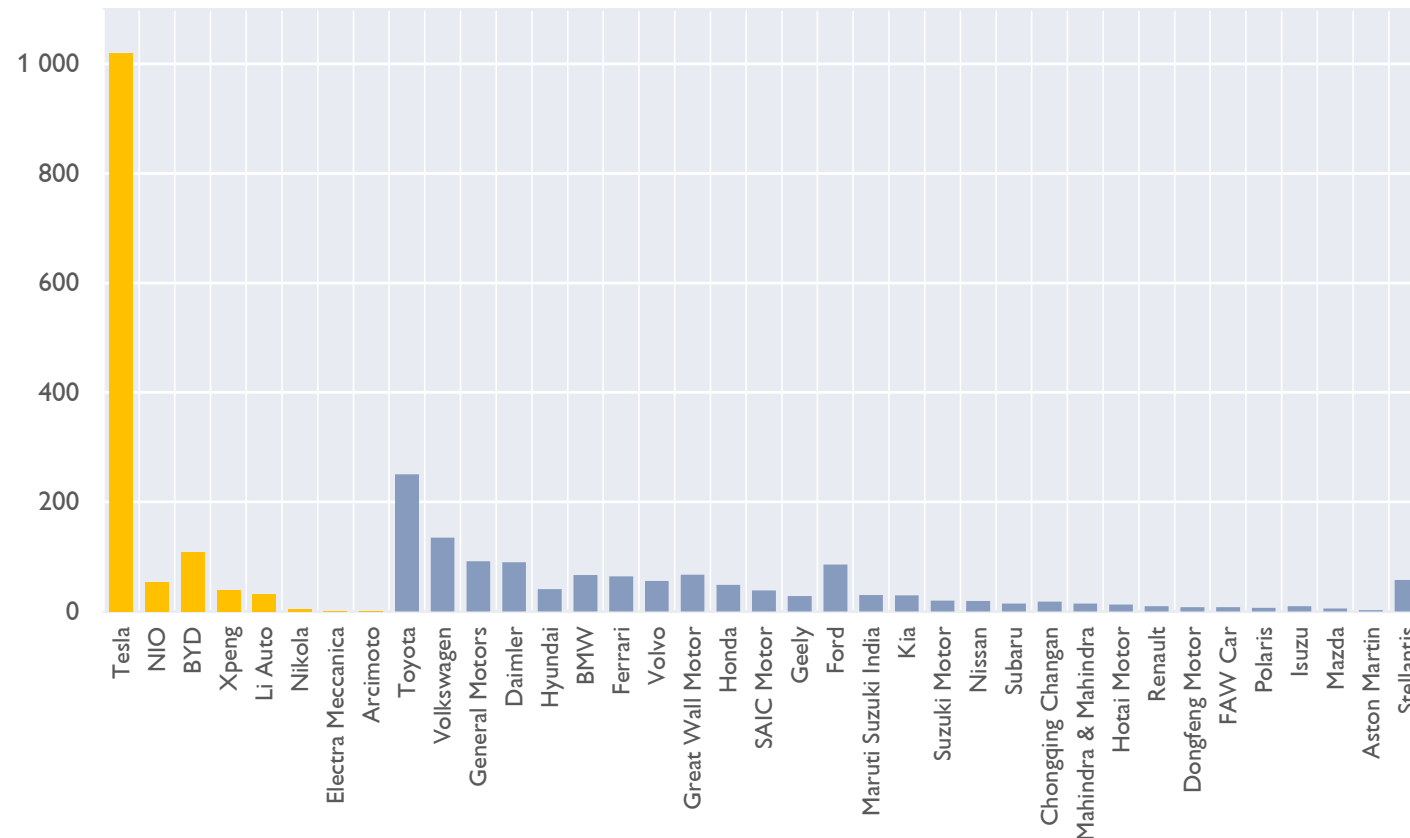


**Keyword „labor“ – let’s talk about it later...**

## Let's talk about „a big market delusion“ instead (Arnott et al. 2021)

### Enterprise Value, EV specialists vs. Traditional Automakers (as of Dec 14, 2021)

Enterprise Value in Billion USD



Source: Yahoo Finance.

EV Specialists vs. Traditional Automakers

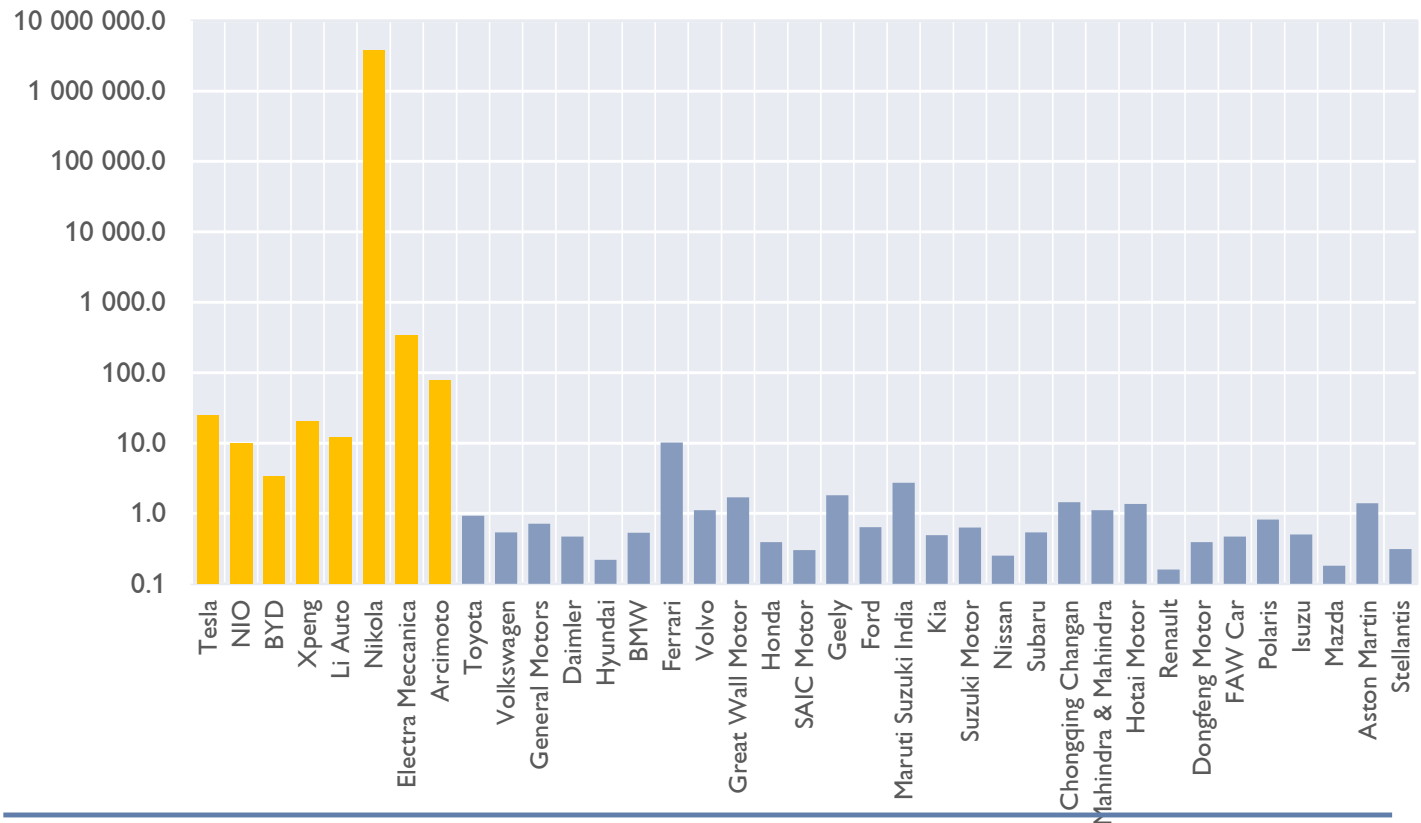


## Knock, knock, knockin' on heaven's door: Margins like Ferrari and production like Toyota?

- **EV specialists' vs. Traditional Automakers' price-to-sales: 70 vs. 1**  
(equally weighted)
- **NASDAQ-listed sectors before the burst of the dotcom bubble: 11.4**
- **Massive revaluation risks with possible knock-on effects?**
- **Concerns about exuberant expectations not confined to equity: EU Taxonomy?**

**Price-to-Sales Comparison, EV specialists vs. Traditional Automakers**  
(as of Dec 14, 2021)

Price-to-Sales Ratio in Log Scale



Source: Yahoo Finance.

EV Specialists vs. Traditional Automakers

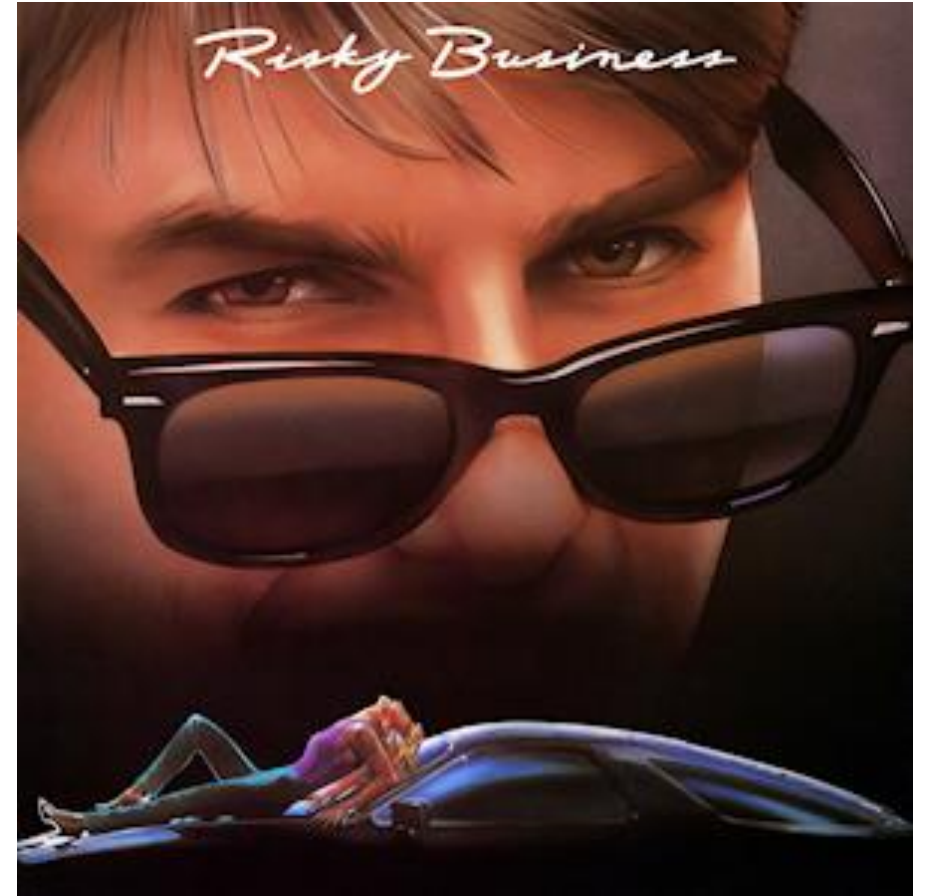
## More highly explosive risks...

- **Fiscal costs** (subsidies + tax revenue loss)
- **Adverse distributional effects**  
(fiscal incentives typically highly regressive)



## Automotive industry in CESEE part of a risky business

- After 120 years “self-imposed” replacement of the dominant technology with a market experiment
- Even if it succeeds, long tail of risks and adverse consequences



## Keep a close watch, keep your eyes wide open all the time as CESEE walk the line

- **Jumping on electrification trend to retain their role:**

- Interlinkages with Germany
- Key battery production

- **New opportunities**

- New players and sectors (IT, chemicals)
- Raw material deposits?



- **Industry transition slower than in Western Europe:**



- **Continued production of conventional cars**

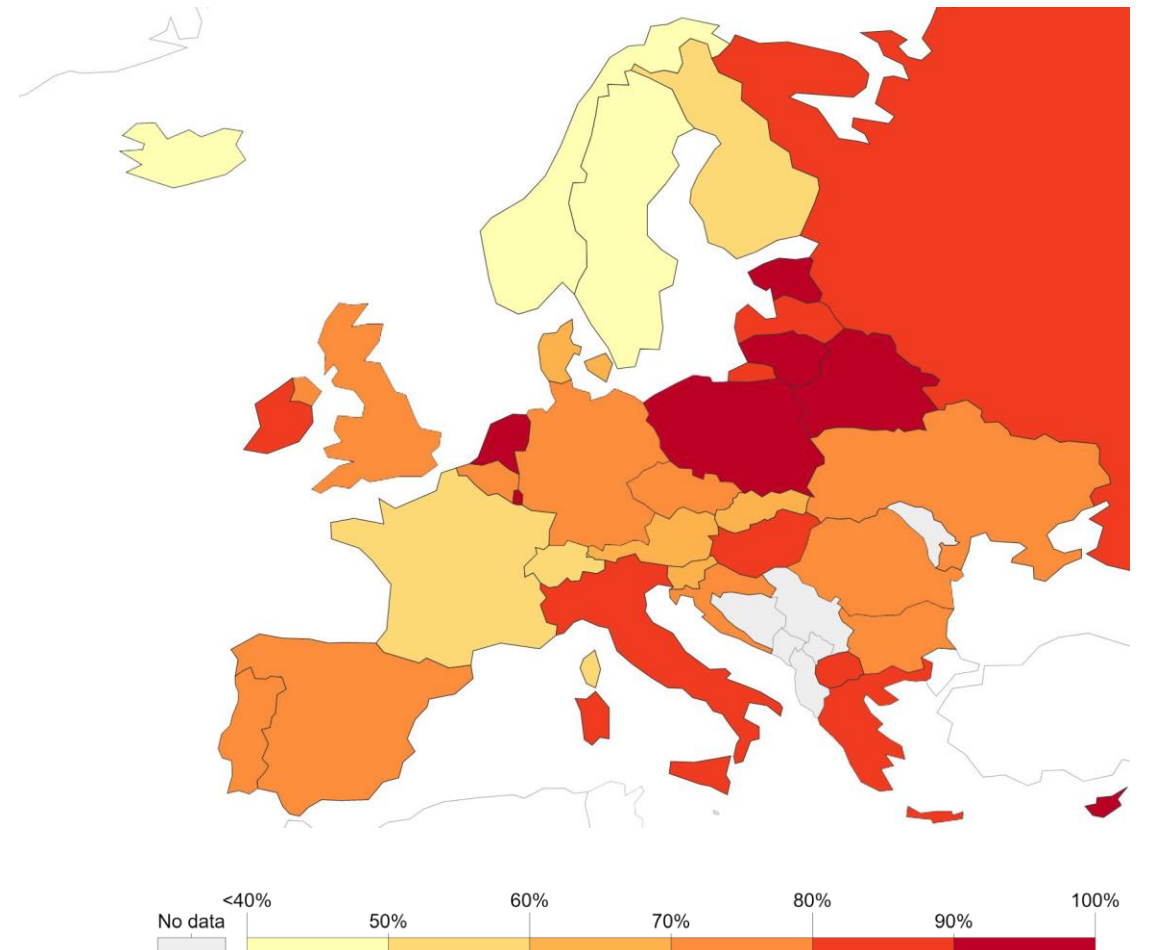
- Serving less advanced markets
- Mitigation and diversification

## Policy implications and conclusions

- Attract FDI into the automotive sector (EV production, batteries)
- ...but also into activities with a higher value-added, beyond the automotive sector
- Secure prospective affordable energy sources away from fossil fuels
- Diversify: e.g. digital economy
- Expect the unexpected: keep a close eye on risks, particularly in the financial sector

### Share of primary energy from fossil fuels

(in % of total energy, 2019)



**Thank you for your attention!**

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