Banka roku 2016

Banka roku 2017

AUTOMOTIVE INDUSTRY: ETERNAL FORCE OF THE CZECH ECONOMY?

TRENDS & VISIONS IN THE AUTOMOTIVE SECTOR

TRADITIONAL CARMAKERS OR IT GIANTS?

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SOCIETE GENERALE GROUP

THREE IMPORTANT TRENDS IN AUTOMOTIVE PRODUCTS

- **Alternative fuels (electrification)**
- **Car sharing**
- **Autonomous driving**

IS GOVERNMENT SUPPORT NEEDED?

- **Alternative fuels (electrification):** Naturally, government policies could support or speed up the process of introducing alternative fuels

- **Car sharing:** While one may think tax policy could divert consumers from car ownership, in fact it is not very probable

- **Autonomous driving:** The most important support for autonomous driving is the legal framework that plays a central role regarding this trend

State incentives for BEVs/PHEVs

Country	State incentives for BEVS/PHEVS
China	Central government tax exemptions of up to $8,500 plus up to 50% from local governments; licence plate restrictions for ICE vehicles; next step could be a quota of EVs per car manufacturer.
USA	Federal income tax credit of $7,500 and additional incentives from the states.
Germany	€4,000 grant for purchasing BEVs with a selling price of up to of €60,000; 10-year exemption from ownership tax.
UK	Grant of up to 35% of the selling price of a vehicle; exemption from ownership tax for BEVs costing less than £40,000.
France	State incentive of from €6,000 to €10,000 to scrap old diesel vehicles.
Norway	Exemptions from acquisition tax ($11,600) and VAT (25%); exemptions on tolls for roads and ferries.
Japan	BEV state subsidy of up to $7,700.
Netherlands	Registration tax exemption for BEVs; CO2-based taxation scheme unfavourable for PHEVs vs BEVs.
Sweden	State incentive reduced by 50% in 2016 to SEK20k for PHEVs but unchanged at SEK40k for BEVs.

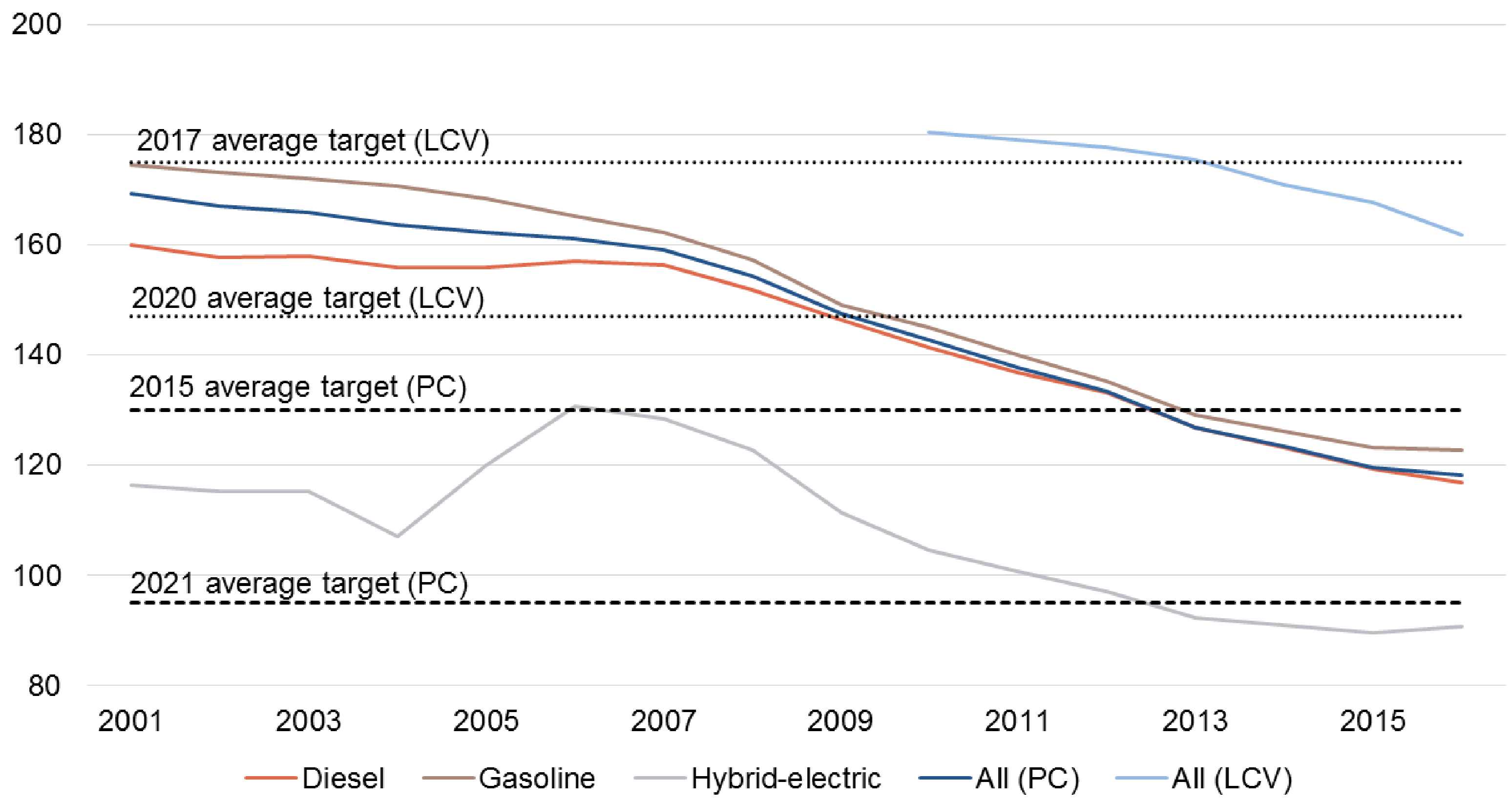
Source: SG Cross Asset Research/Credit, Economic & Strategy Research, Komerční banka

GOVERNMENT SUPPORT IS NOT NEEDED

- We think these three trends will develop and support each other as each of the technologies is able to limit drawbacks of the others. We can identify the interrelation of these trends in two ways:
- **First**, alternative fuel engines are the most probable solution to meet ecological limits but are still costly; car sharing will be the method used to decrease the cost of alternatively powered cars. However, car sharing is an inconvenience for a large part of the population, as the car will not be parked in front of the house or might not be available at a particular time. This inconvenience, though, could be compensated by autonomous driving cars. The car arrives at your house based on an app or a call centre request
- **Second**, the increased safety of autonomous cars will become more popular as systems are able to surpass the cognitive abilities of human drivers. In addition to safety, autonomous cars can save a large amount of time for consumers. Moreover, if driverless cars can be organised in a callable way, they can be easily shared. Since such an autonomous car sharing system would be organised by large operators that would share the purchase cost among themselves, the demand for alternative fuel cars would increase

INCREASING PRESSURE FOR STRICTER ECOLOGICAL NORMS

Alternative fuels are ahead of ecological norms

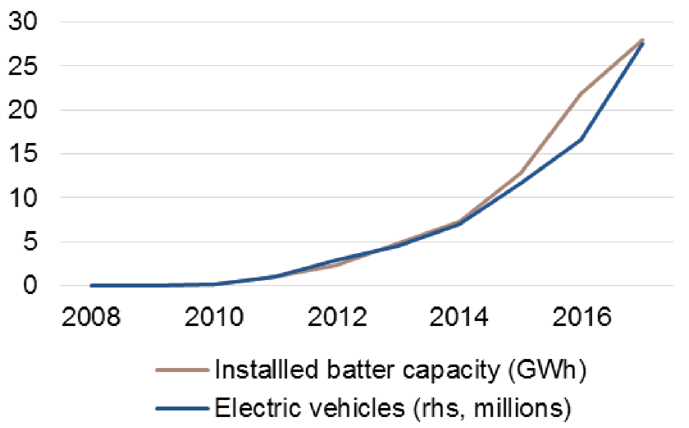


Source: ICCT, Economic & Strategy Research, Komerční banka

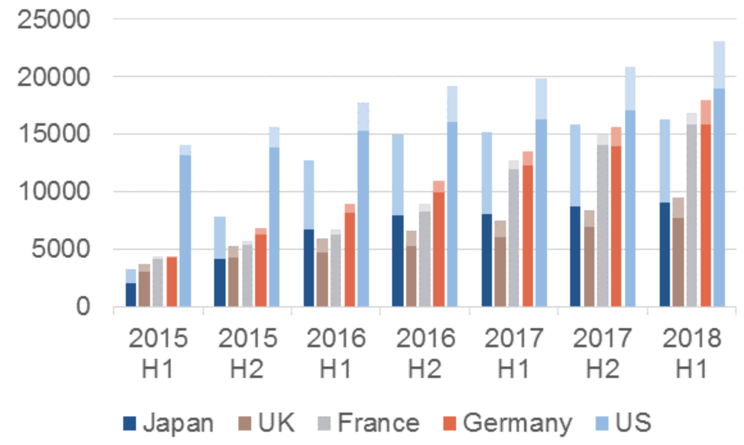
TREND OF GROWTH IS EXPONENTIAL BUT STILL AT LOW LEVELS

- Vehicles powered by alternative fuels are ever more popular but in absolute size account for a still marginal share
- Infrastructure is catching up

Worldwide electric vehicles in use and installed capacity of batteries



Number of electric charging stations (dark – fast charging (DC), light – slow charging (AC))



Source: Ev-volumes.com, Macrobond, Economic & Strategy Research, Komerční banka

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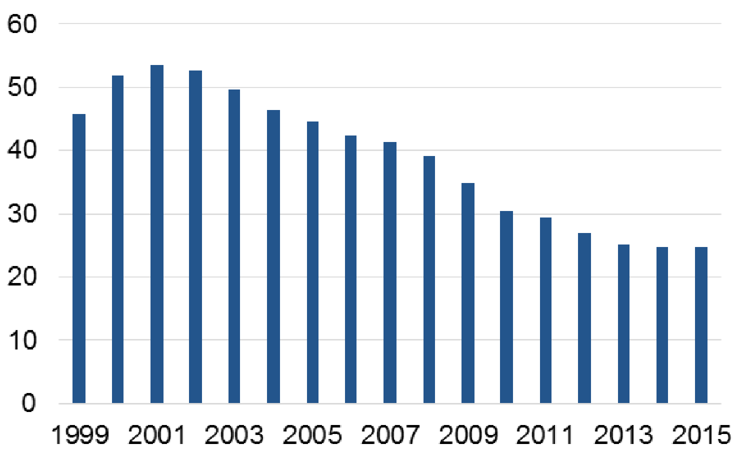
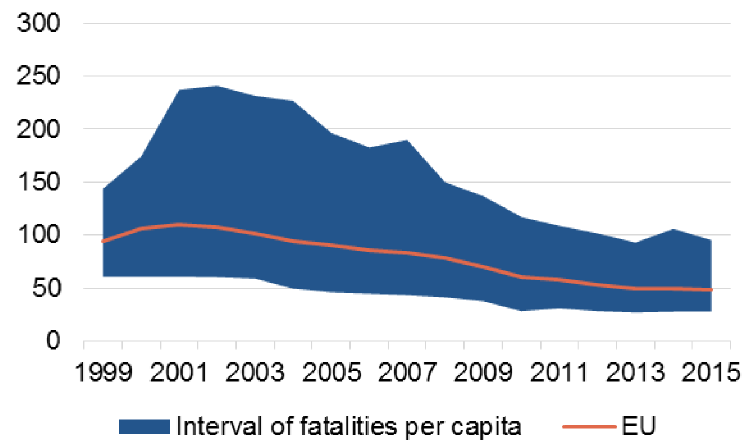
THE NUMBER OF ROAD FATALITIES IS STILL HIGH

- Even though the trend of fatalities is downward sloping, there were still 68 fatalities on roads on average per day in the EU in 2015. This is 25,000 deaths on roads for the year
- In the United States, the average daily number of fatalities was 102, equaling 37,500 deaths in 2016

Road fatalities in the EU (thousands)



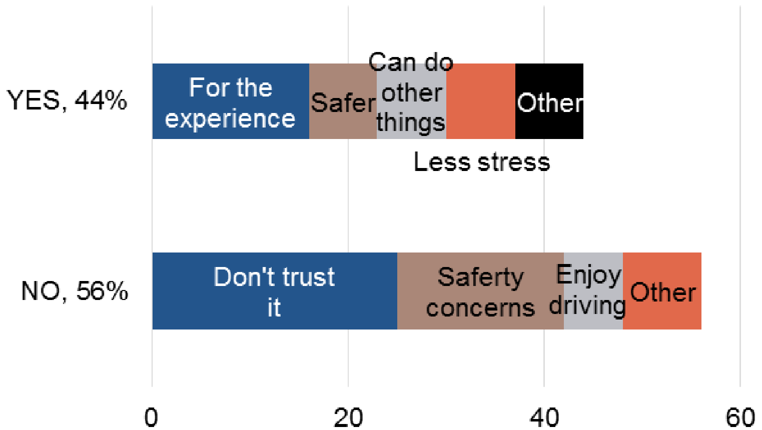
Road fatalities in EU member countries per capita

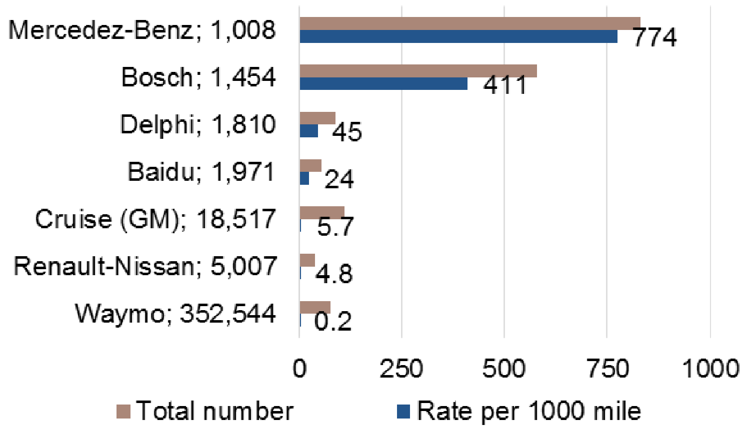


Source: Eurostat (suing CARE), Economic & Strategy Research, Komerční banka

WE ARE AT THE BEGINNING

- Consumers are not yet fully convinced
- The technological difficulty of autonomous driving and the organisation of the mobility service have attracted IT giants to automotive manufacturing





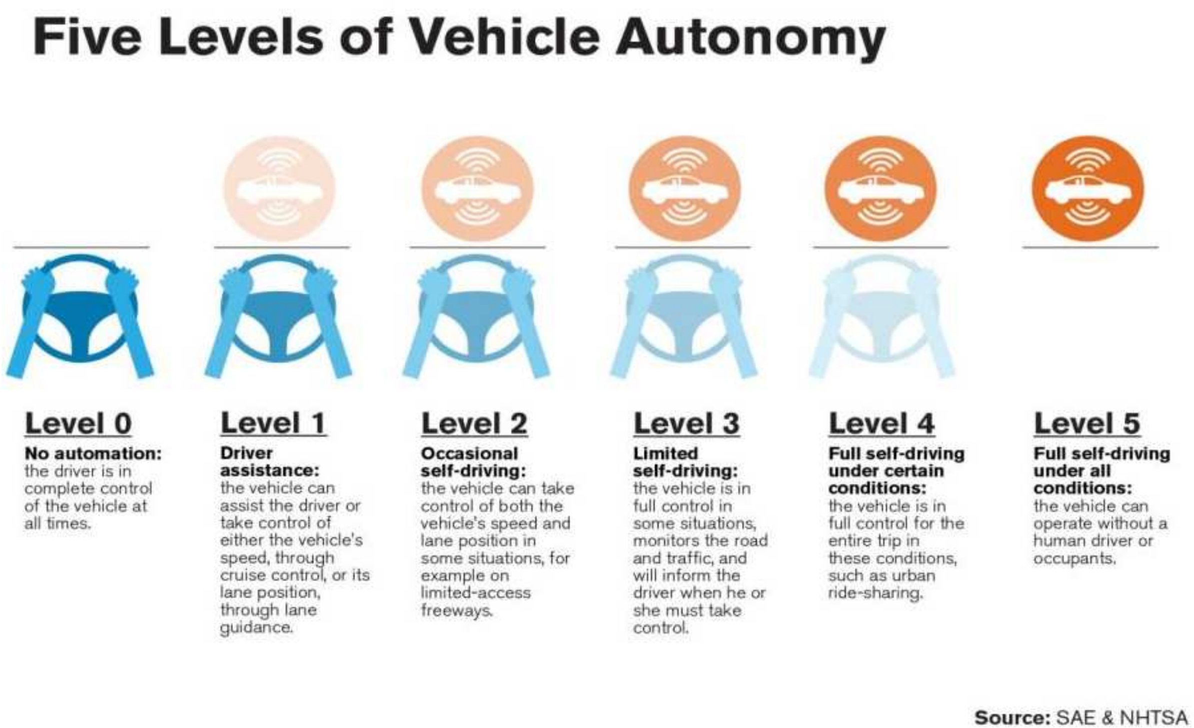
Source: Pew Research Centre via Economist, Economic & Strategy Research, Komerční banka

Source: California Department of Motor Vehicles via Economist, Economic & Strategy Research, Komerční banka

Note: Number behind the company name denotes amount of test miles on public roads.

AUTONOMY OF DRIVING IS THE KEY GAME CHANGER

- Autonomous cars can decrease the occurrence of road fatalities
- The technological difficulty of autonomous driving and the organisation of the mobility service have attracted IT giants to automotive manufacturing.



Source: NHTSA, Economic & Strategy Research, Komerční banka

ADDED VALUE BATTLE

- **IT giants (i.e. Apple and Waymo - formerly Google car)** are using their IT advantage, which allows them to focus on the development of driverless systems at the highest level of automation, where they hope to create the biggest added valued
- In addition, outsourcing digital aspects of life to cloud services or Apple/Android accounts operated by these companies would allow software customisation of cars and support vehicle sharing
- Removing the human driver will close the cost gap to the mass transportation price, which will open the niche for door-to-door ride-sharing companies. **Companies such as Uber and Lyft** will compete for automotive added value as they are the dark horses in the race for the external option of operating a fleet and it makes little difference to them who will be the manufacturer of the autonomous vehicle
- **Their natural rival in the battle is carmakers.** They have huge know-how about producing cars as products. Given the sophistication of mass production, this is not an easy task, as we can see in the case of Tesla 3. However, carmakers do not have extensive experience with the flow and processing of the data produced by sensors needed for autonomous cars

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9 sector teams in the **Top 5**

17 sector teams in the **Top 10**