PwC Autofacts® Market Update

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PwC Autofacts® Foresight to drive the industry

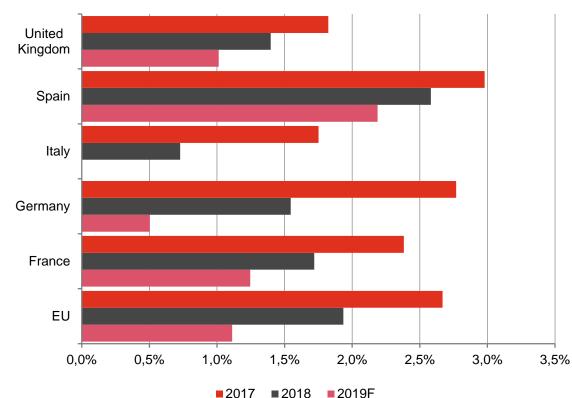


EU economics pointing down

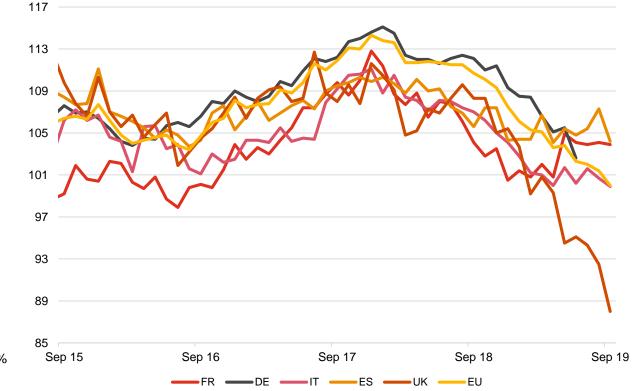


Partially resulted from the worldwide political turmoil and uncertainty, the real GDP growth in Germany has slowed down to 0.5%. Italy has found itself in a deep recession. The real GDP growth in EU has slowed down from 1.96% in 2018 to 1.11% in 2019. The Economic Sentiment Indicator (ESI) in the European Union continued to fall from 110.7 last year to 100 in September.

EU & Top 5 – Real GDP Annual Growth 2017 – 2019F (percentage change)



EU Top5: Economic Sentiment Indicator Sept. 2015 - Sept. 2019 (balance, percentage)



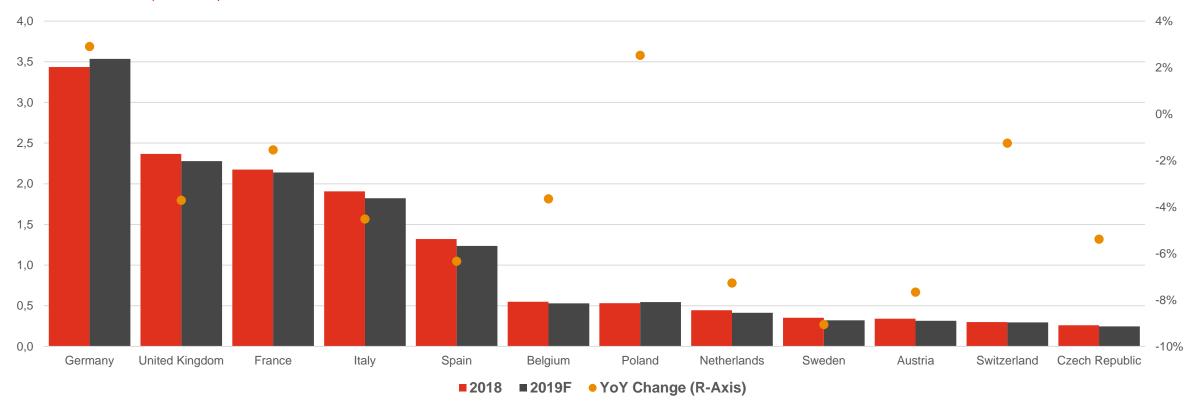
Source: HIS Markit, European Commission (Oct 2019) **PwC** | PwC Autofacts[®]

New car registrations in EU mostly weak-ish



Given the outlook of 2019 economy, it will be difficult for the European car market to bounce back. The EU total car markets is expected to decline slightly by 1.9% to 15.3 million units.

EU+EFTA – New Car Registrations by Top 12 Markets 2018 vs. 2019F (millions)

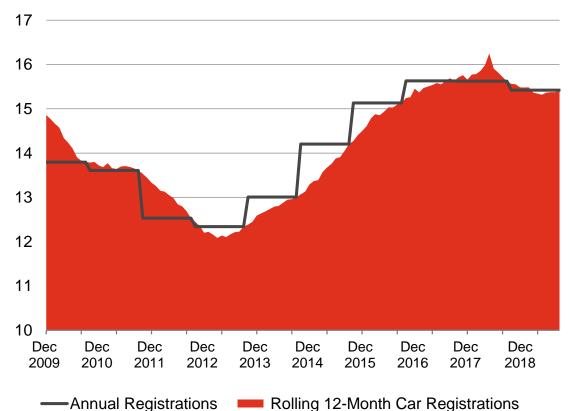


New car registrations in EU+EFTA on a mellow trend

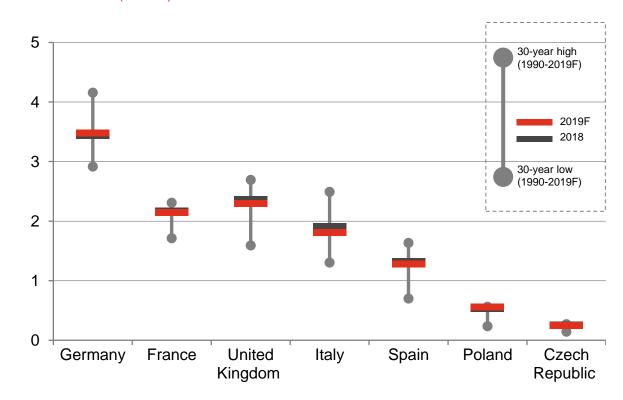


German sales is expected to increase by 2.9% to a total 3.54 million units, wherever sales declines are expected in Italy (4.5%), UK (3.7%), Spain (6.3%), France (1.5%) in 2019. Accordingly, Autofacts expects the Top 5 markets of the EU to face a further decrease of 1.7% to 11.0 million in 2019.

EU+EFTA – Rolling 12-Month Car Registrations Dez. 2009 – Dez. 2019F (millions)



EU+EFTA – New Car Registration Variance 1990 – 2019F (millions)



Source: Autofacts Analysis, ANE, ACEA

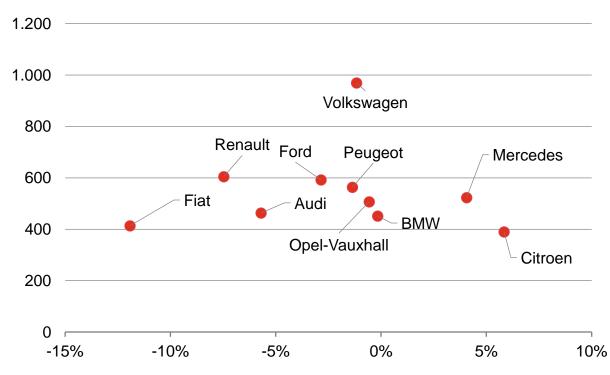
EU top 5 sales by brand show supply and demand problems

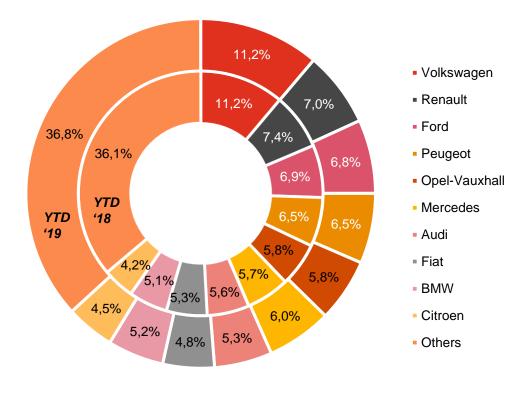


Volkswagen continues its dominance in the Top 5 markets of the EU. Fiat, Renault and Audi show a significant decline in sales, with negative growth rates of -11.9%, -7.5% and - 5.7% respectively.

EU Top 5 Markets – Brands Sales Volume and Growth Rate* 2018 Sept YTD. vs. 2019 Sept YTD. (thousands)





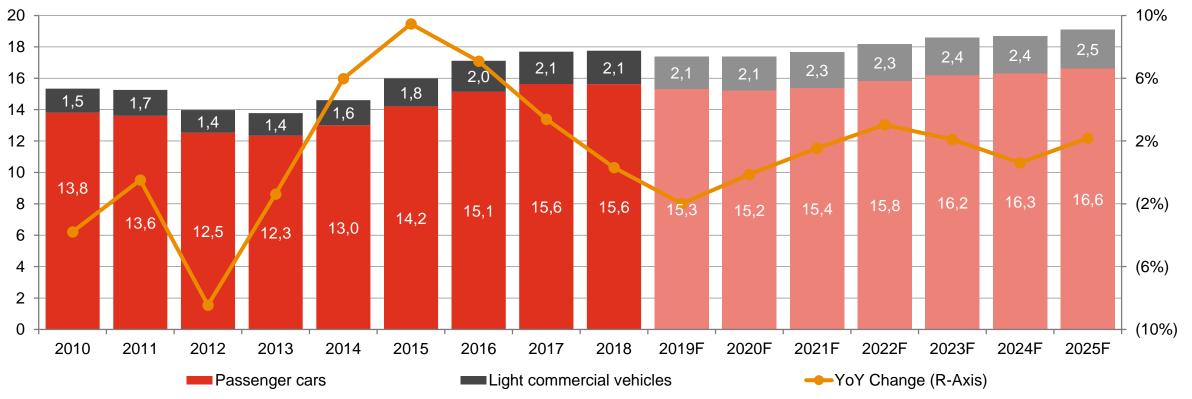


Light vehicle sales outlook shows a dip in 2020



Given the outlook of 2019 economy and the planned introduction of the WLTP on light commercial vehicle as well as the introduction of the RDE on Sept. 1st, new LV registration in 2019 is expected to decline over the EU 28 + EFTA countries to 17.4 million units.

EU+EFTA – New Light Vehicle Registrations 2010 – 2025F (millions)



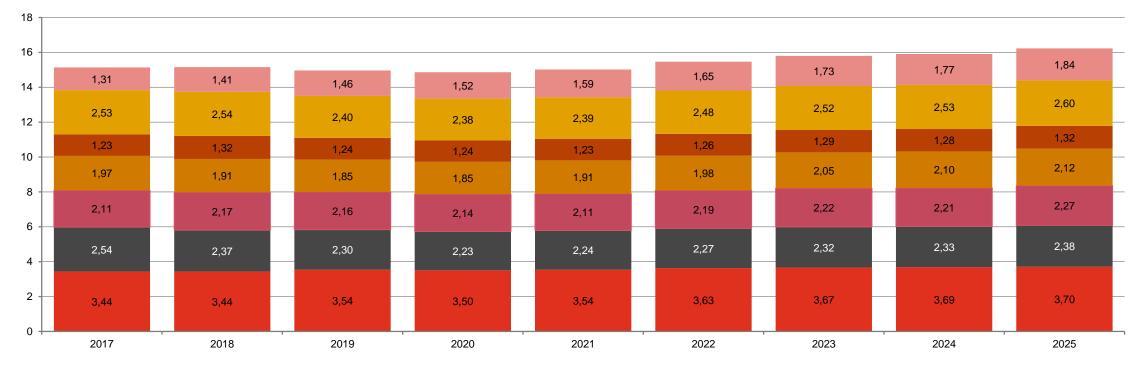
Source: Autofacts Analysis, ACEA **PwC** | PwC Autofacts[®]

Car sales outlook for Europe to fall into a hole in 2020?



Given the outlook of 2019 economy and the planned introduction of the WLTP on light commercial vehicle as well as the introduction of the RDE on Sept. 1st, new LV registration in 2019 is expected to decline over the EU 28 + EFTA countries to 17.4 million units.

Europe – New Car Registrations 2010 – 2025F (millions)



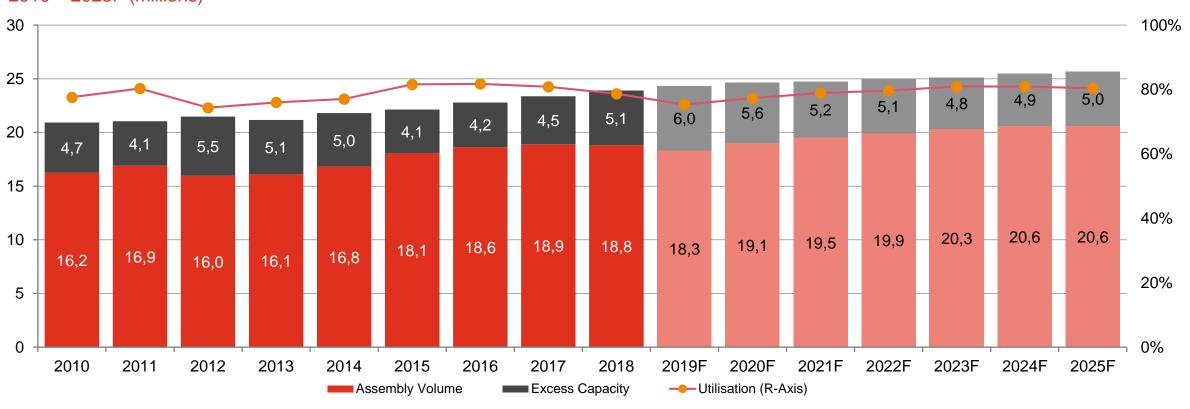
Germany United Kingdom France Italy Spain other EU EU13 Total

Light vehicle assembly outlook not to bad, though



Due to the cooling markets in- and outside of Europe, the European light vehicle assembly is expected to decrease by 2.5% to 18.3 million units in 2019, resulting the plant utilization rate to drop from 78.7% last year to 75.4% in 2019.

EU – Light Vehicle Assembly 2010 – 2025F (millions)

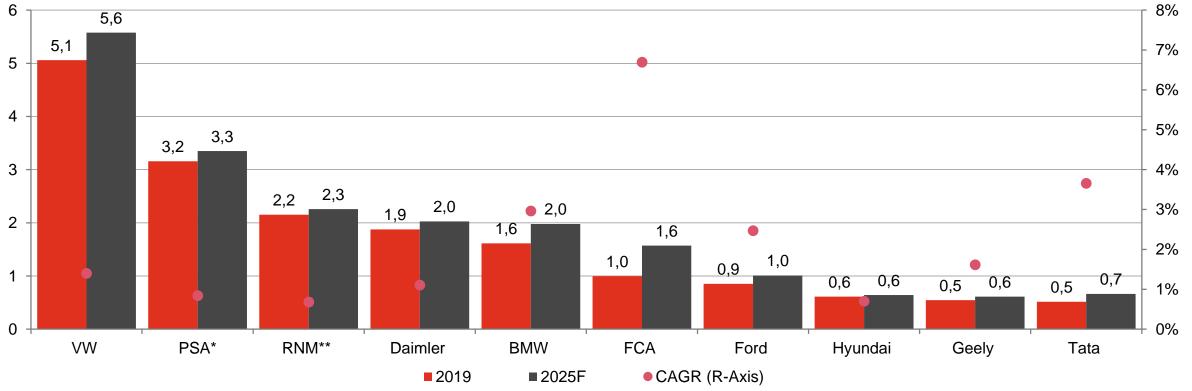


Vehicle assembly by alliance groups driven by product



VW Group is expected to produce 5.6 million units in 2025 in the European Union. There is head-to-head race between alliance groups Hyundai, Geely and Tata, which is expected to continue and likely to intensify even further in the next 6 years

EU – Top 10 Alliance Groups 2018 vs. 2025F (millions)



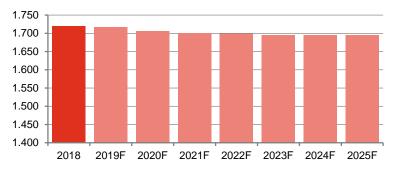
Source: Autofacts Q4 2019 Release | **Peugeot Société Anonyme **Renault–Nissan–Mitsubishi Alliance

Powertrain outlook shows the dying of Diesel

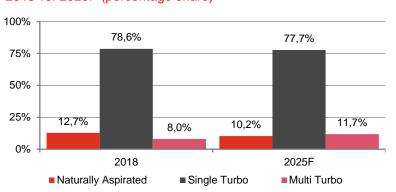


In order to meet emission requirements, electrified vehicles are expected to gain market share in the near future. Therefore, by 2025, around 47% of all vehicles are forecasted to have an electrified powertrain, compared to 5.8% in 2018. Increasing growth of the hybrid figure depends on further decline of pure combustion and in particular diesel vehicles. To meet emission regulations and customer needs for even more performance, Autofacts expects manufacturers and technology partners to focus further on charged engines, downsizing and an increasing number of gears.

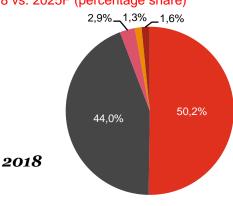
Average Engine Displacement 2018 – 2025F (cubic centimeters)



Technology Outlook 2018 vs. 2025F (percentage share)

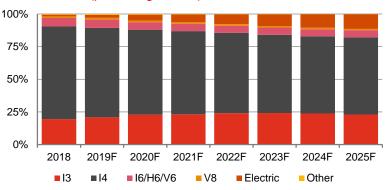


Vehicle Propulsion 2018 vs. 2025F (percentage share)



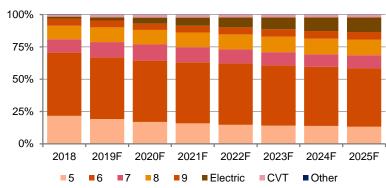
Engine Share by Configuration

2018 – 2025F (percentage share)



Trans. Share by Gear Count

^{2018 - 2025}F (percentage share)



Alternative powertrains pushing and pulling the industry

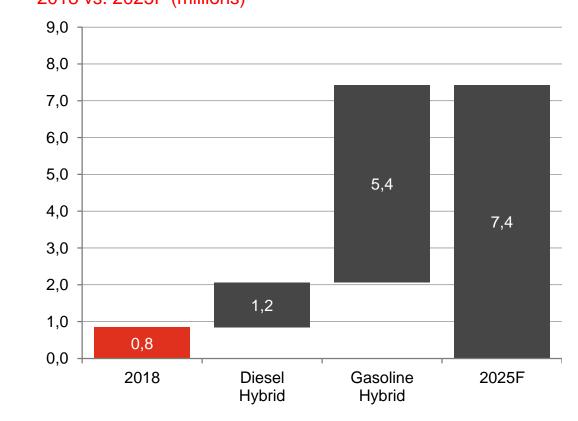


As the EU has proposed stricter fuel consumption in 2021, fully electric and hybrid powertrains are regarded as necessary to achieve those goals, especially as declining diesel sales and increasing crossover sales make the challenge even more difficult. The installation of alternative drivetrains in light vehicles that are manufactured in the EU is forecast to grow more than ninefold, resulting in around 9.8 million confirmed units by 2025.

2018 vs. 2025F (millions) 12,0 10.0 2,1 8.0 1,7 6,0 9.7 4.0 4.6 2,0 0,3 1.1 0.0 **BEV/FCV*** 2018 Full Hybrid Mild Hybrid 2025F Plug-In Hybrid

EU – Electrified Powertrain Type Distribution

EU – Hybrid Distribution 2018 vs. 2025F (millions)



Thank you





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