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The global automotive industry and enhanced regulations: a very steep path ahead

Executive summary

The global auto sector is facing several challenges including enhanced and stricter regulations against environmental risks in the context of a slowdown of the global economy. Car sales are on a downward trend, as uncertainty bites. Moreover, regulations around the world are becoming more stringent as Europe and, in the United States, the State of California in particular; implement tougher norms, followed by regulation bodies in other big markets for the auto sector. Consequently, auto companies' profitability will be impacted, as they will invest to deliver cars tailored to meet their consumers' evolving needs, while complying with stricter rules regarding requirements to produce cars that generate lower gas emissions for example, which will increase their costs. Finally, the car sector, while trying not to be outrun, will be reshaped by the entry of newcomers such as Google Waymo and Tesla alongside historical traditional actors, as well as a wave of mergers and acquisitions.

2020 and beyond: some tough years ahead as emissions norms are converging

More challenging "emission rules" in Europe

Europe is at the forefront of forcing the car industry to comply with stricter norms. As such, 2020 is seen as a major year for the car sector in Europe. The European Commission (EC) is targeting tougher emission targets from 2021 to 2030, forcing carmakers to increase the share of electric and low-emissions vehicles (see **Table 1**).

TABLE 1
Allowed CO₂ emission in grams per km in Europe

Years	Permitted CO ₂ emission (g/km)
2012 to 2019	130
2020 / 2021	95

Sources: Continental

Moreover, there will be an intermediate step at the year 2025, which will mark a 15% drop in CO₂ emission for the sold fleet. 2030 will see another mandatory drop (since 2021) reaching 37.5%, hence a decrease of one-third of total emissions over a decade, only possible by a surge in electric cars sales. Currently, carmakers are producing cars of which the 2017 average emissions stand within 103 g/km (Toyota) and 151 g/km (Jaguar), and are facing many challenges to lower their emissions. They should also echo the higher costs on customers, at the risk of losing them, and could be fined for every extra gram of CO₂/km/vehicle. PA Consulting estimates that for the VW Group, penalties could amount to USD 1.4 bn, around 10% of its annual profit¹.

Finally yet importantly, electric vehicles (EV) and plug-in hybrid (of which the batteries need to be charged by plugging it to an external source of electricity) need infrastructures and large investments to lower production costs and to develop efficient charging stations. For instance, Fiat Chrysler Automobiles (FCA) is expected to spend USD 9 bn in electrification by 2022 according to PA Consulting².

1 - PA Consulting, November 2018. *Driving into a low emissions future*.
2 - *Ibid*.

INSERT 1 / THE CURRENT STATE OF THE AUTO MARKET

Tougher market conditions are weighing on the global car industry. In the three biggest markets (The European Union, China and the United States), sales and registrations are plunging and affecting the industry outlook. This is voiced by our Q3 2019 barometer assessments, as the sector is in high risk for all regions (Table 2). On a yearly basis, global annual sales and production figures, as recorded by the automotive intelligence company Wards, are down: -8 % and -14% year-on-year (y-o-y) at end of June 2019. It is the first time that such a negative growth happens since the Great Recession. The European Union (EU) was mainly affected by the implementation in September 2018 of stringent homologation rules for new models, the so-called "Worldwide harmonized Light vehicles Test Procedures" (WLTP, see Insert 2 for an explanation).

These tougher rules caused bottlenecks for carmakers, delaying their grants to sell cars. Approval for one model took many weeks, and testing centers were flooded by carmakers to certify their vehicles on time. With fewer models to be sold, registrations were lower as customers delayed their purchases. They also rallied the month before to benefit from incentivized cars. Moreover, European households were and are less prone to buy a car in the 12 months ahead, according to quarterly surveys carried out by the European Commission. Eurozone consumer confidence is on a negative trend since the onset of 2018.

The US market is affected by a weaker demand, notably for sedans, while remaining rather steady for SUV and pickups. This trend keeps impacting carmakers' operations, as passenger car models are witnessing a drop in their market share, which is triggering the closure of several plants around the country. Moreover, even though light trucks offer higher margins than their car counterparts, they can't be bought by less affluent households. Coupled with higher borrowing costs (+123 basis points for loans to finance companies at the end of Q1 2019 y-o-y according to the FED), these factors translate into lower demand for new vehicles and a higher one for second hand cars and light trucks. The Chinese market is hit hard by lower demand as consumers are waiting for fiscal measures.

They are also impacted by the sequels of the trade war between China and the US. Furthermore, big municipalities such as Beijing, Shanghai and the likes are imposing strict license plate figures for new cars each year. In fact, households are turning to cheaper and easier to buy second-hand car sales. Lastly, the implementation of the stricter "China VI" in some cities on July 1st 2019 (one year before the nationwide rollout) is currently underway and impacting sales over there.

prepare. Additionally, adding specific components such as better-designed tailpipe systems and filters to capture particles will increase prices at a time of falling sales. Furthermore, carmakers are strongly advised and incentivized by the central authority to add electric vehicles to their portfolio. China is already the largest market for such powertrains, but car manufacturers need to scale up and sell more EV, which would be only possible and financially viable if they invest into platforms⁵ to lower marginal cost.

There is a convergence of norms and regulations between the European Union and China. Several other emerging countries are establishing regulations similar to those enacted in Europe. India is one of them. As the fifth largest passenger car market in the world and the third in Asia, India will implement the Bharat Stage VI from April 2020 onward, skipping the stage V in order to fasten the implementation of the tougher Stage VI. It is based on the Euro 6 norm and RDE will be the testing scheme, firstly for data collection and then for conformity in 2023. The government is forced to enact stricter regulations to fight rampant pollution causing major health issues and costs. In South Korea, authorities implemented a legislation based on US norms and Euro 6, with RDE as testing scheme. Japan designed its own norms, very similar to the US legislation.

A risk of fragmentation is underway in the US auto market

Motor regulations and norm settings in the US are under the control of the federal government through the auspices of two agencies: the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA). Roughly, the first one sets norms related to particle emissions while the latter defines rules related to fuel economy. Overall, the two agencies try to monitor and regulate the motor industry in terms of the impact of pollution on human health. California enabled its own pollution laws since the 1960's⁶ before the federal rollover. As such, the nationwide norms are aligned with those of the California Air Resources Board (CARB). In 2009, the EPA and the NHTSA delivered a waiver to CARB in order to allow California to define more stringent regulations than federal ones. 13 other States and the District of Columbia⁷, representing around 40% of newly sold vehicles annually, have adopted these rules. However, President Donald Trump mentioned his ambition to revoke this grant, affirming that the standards set by the CARB are excessively high and impose a burden on the car industry, but the State of California had threatened to challenge legally any attempt. The NHTSA finally revoked the waiver on 19 September 2019. As a consequence, The State of California alongside 21 others States and two cities filed a federal complaint the day after. The Trump administration's willingness to impose weaker norms nation-wide, which may help the consumption of oil products, as environmental standards have made higher mileage for one gallon of fuel mandatory, and as such reducing the impact of thermal engines on air⁸.

The outcome of such a situation might be the creation of a fragmented US car market for three main reasons. Firstly, carmakers would have to invest while selling lower volumes of a model with different specifications, which should increase marginal cost. Secondly, legal battles in the US are long and difficult to predict, and major carmakers already urged President Trump to negotiate with California. Thereby, four of the largest actors already agreed with the CARB to comply by a stricter set of rules by 2026, leading them to be able to sell in California⁹. These four global carmakers,

TABLE 2
Coface Automotive Sector Risk Assessment by regions, Q3 2019 Barometer

Sector	ASIA PACIFIC	CENTRAL & EASTERN EUROPE	LATIN AMERICA	MIDDLE EAST & TURKEY	NORTH AMERICA	EASTERN EUROPE
Automotive	●	●	●	●	●	●

● Low risk ● Medium risk ● High risk ● Very high risk

However, charging stations need a real boost from public authorities. According to the ACEA³, Europe needs around 2.8 million charging points by 2030, far from the 145,000 currently operating in 2019⁴. Moreover, only four countries (out of 28) amount to 76% of all charging stations (the Netherlands, Germany, France and the UK), while there is a strong need for a more evenly disseminated infrastructure, to encourage the adoption of electric vehicles in less affluent countries of the European Union. Beyond the infrastructure, the propelling of sales of electric vehicles needs incentives from governments in order to offer affordable cars to consumers. Electric vehicles are more expensive than their fuel powered engines counterparts, and financial support is crucial.

Asia is really catching up

Initially set to be implemented by July 2020, China VI is already mandatory for all new vehicles since July 2019 for several provinces. This norm is a mix of Euro 6 and US federal requirements, but with WLTP and RDE (see Insert 2) as testing schemes. Since China is suffering from chronic pollution, central authorities enacted the Blue Sky policy to impose cleaner air. Mirroring the European WLTP implementation, carmakers were complaining they were not given enough time to

3 - Association des Constructeurs Européens d'Automobiles, The European Automobile Manufacturers' Association.

4 - <https://www.lesechos.fr/industrie-services/automobile/les-bornes-de-recharge-condition-sine-qua-non-au-decollage-du-vehicule-electrique-1137232>

5 - A platform is a way to share spare parts, various expenses such as R&D over a large number of assembled cars. Thus, carmakers are able to benefit from economies of scale.

6 - Under the patronage of the Governor Ronald Reagan in 1967.

7 - <https://database.aceee.org/state/tailpipe-emission-standards>.

8 - This is known as Corporate Average Fuel Economy. <https://www.ucsusca.org/clean-vehicles/fuel-efficiency/fuel-economy-basics.html>

9 - <https://www.theverge.com/2019/7/25/20727261/trump-emissions-rollback-ford-volkswagon-honda-bmw-california-deal>.

namely Ford, Volkswagen, BMW and Honda, are under the threat of an antitrust investigation from the Justice department for colluding with each other in setting their own standards without agreeing with a regulator. Finally, an August 2019 analysis from Energy Innovation¹⁰ has shown that the consequences of freezing the waiver and thus splitting the US car market could cost the US economy around USD 400 bn by 2050, notably by increasing fuel consumption. Moreover, the legal battle will increase the level of uncertainty for carmakers and their suppliers at a time when the whole industry is at a crossroad, and will pose a risk for planning investments in the forthcoming years.

“Unprecedented” transformation in the automotive industry

Lower sales and more competitive markets

The enhanced regulations on the main worldwide markets are not the only challenge faced by automotive sector actors. Coface expects continued negative trends in car sales in 2020, given that the factors that have impacted this trend will carry on, next year (see **Insert 1**). This will undoubtedly lead to higher competition, and carmakers are already trying to protect their market shares. With sales and registrations on a downward trend, carmakers are entering a phase in which it will be difficult to maintain a satisfactory level of profitability investment in order to comply with environmental requirements, and not to be outpaced by competitors. Furthermore, inventories will rise without adequate production management. Nonetheless, it could be possible for some carmakers to cannibalize other market shares on a declining market, and as such protect their margin. Cost rationalization is an answer but might only be a small relief for a market that is losing ground.

A notable effort on investment from carmakers is expected, not only to meet stricter CO₂ emission requirements, but also to adapt to the customers' evolving preferences (such as a high propensity to buy pickups and SUVs, highly pollutant vehicles). Even in a slowing market, clients expect new models to be sold in order to replace older vehicles. This is particularly the case for households, when the time comes to opt for a new vehicle. Businesses and fleets are not spared, because newer vehicles allow them to lower total cost of ownership (TCO)¹¹. S&P expects research and development (R&D) costs as well as capex amount to consume around 10%-11% of the sector revenue during the years 2019-2020: carmakers will accelerate

on electrification and e-mobility while reviewing their production processes, which will help them to produce alternative fueled engines while making economies of scale¹². Carmakers are already investing a large amount of money, namely CAPEX as well as R&D expenses (around 13% of sales between 2014 and 2018), and are expected to continue doing so, even in case of limited revenue growth in 2020.

Suppliers will also feel the pain

Auto suppliers will continue to be hit hard by the slowing global car market. They will see their revenue and income growth be less dynamic. Rationalizing their cost structure in order to adapt to a swiftly changing global market is one answer. Furthermore, since carmakers are going to impose tight controls over their production costs, these actions will reverberate over the whole supply chain and will affect suppliers' orders books volumes and prices. Suppliers of the car industry remain the main segment providing carmakers with

INSERT 2 / THE EU IS A FOREFRONT OF THE FIGHT AGAINST EMISSIONS

The automotive industry is deeply impacted by norms and regulations across the world, and a new model must be homologated before being granted the right to be sold. These regulations impose certain levels of particle emissions for safety reasons², and force carmakers and their suppliers to invest and innovate to meet these stringent rules. They target lower releases of carbon dioxide (CO₂), unburnt hydrocarbons, Nitrogen oxides (NOx), Particulate Matter (PM), which for some are the main greenhouse gases, or are highly toxic and shorten human life.

Regulations vary depending on the type of vehicle and their geographical location (Table 3). The EU is at the forefront, with strict rules evolving over time. The rules were strengthened after the 2015 Volkswagen (VW) cheating scandal on diesel emissions, which affected not only this group, but also many other suppliers and carmakers¹⁴.

WLTP implements more realistic laboratory tests to assess the real levels of emissions. The previous testing scheme¹⁵ was considered unrealistic, notably after the 2015 Dieseldate. WLTP enabled assessments that are more consistent and thus showed that cars emitted more particles, causing penalties to be applied to carmakers. However, the penalty levels depend on the scheme developed by each European country. Since September 2019, the Real Driving Emission (RDE) is another set of mandatory testing procedures for all new vehicles sold in Europe. Contrary to WLTP, its tests are done on road.

TABLE 3
Current emission regulations for biggest markets

Geography	Description	Key elements
European Union	Euro 6d with Worldwide harmonized light vehicles Test Procedures (WLTP, in laboratory) and Real Driving Emission (RDE, on road)	Aims at reducing the amount of highly pollutant emission such as Nox, CO ₂ , Particulate matters, etc.
USA (Federal)	Tier 3 harmonized with California Air Resources Board Low Emission Vehicle (CARB LEV III)	Targets limiting Nox, hydrocarbons and other emissions and defines requirement for electric vehicles
USA (California with waiver)	California Air Resources Board Low Emission Vehicles (CARB LEV III)	Imposes restrictions on emissions since 2012 but was harmonized with US Tier 3 in 2014
China	China 5 (heavily based on Euro 5)	Reducing Nox, hydrocarbons and CO ₂
India	Bharat Stage IV	Reducing Nox and hydrocarbons emissions, WLTP for testing
Japan	“Post New Long Term Regulation” with WLTP for testing	Similar to Euro 6
South Korea	Mix of CARB LEV III and Euro 6 with RDE	See above

Sources: Continental

10 - Mahajan, M. & Orvis R., August 2019. Economic, emissions impact of Trump administration fuel economy and GHG emissions standards freeze; implications for U.S., California, “Section 177” States, Canada.

11 - A measure of the cumulative costs of a vehicle.

12 - <https://www.theverge.com/2019/5/8/18536668/vw-volkswagen-id-3-preorders-oelectric-car-long-range-ev>

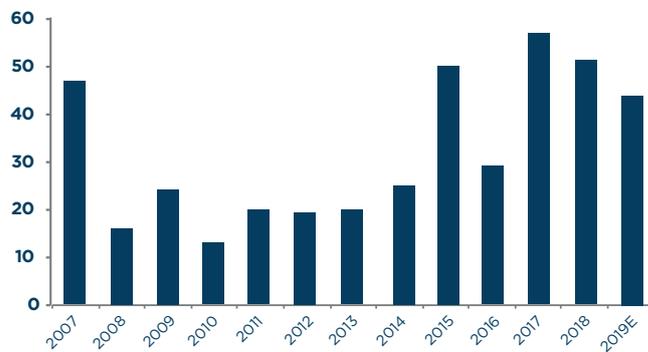
13 - Continental Automotive, May 2019. Worldwide Emission Standards and Related Regulations.

14 - Investigations are currently underway for some carmakers and suppliers in the US and in some countries in Europe. The VW Group acknowledged the fact devices and software were used to decrease the level of NOx emitted during testings.

15 - NEDC: New European Driving Cycle.

cutting-edge technologies, to comply with existing or new regulations and reaping the benefits of an efficient integration. Moreover, car part makers can acquire decisive technologies by merging with or acquiring companies, in order to remain competitive on a tougher market. It will help them to lower their costs while offering a wide range of products and services to their customers. This is particularly true in this segment, because carmakers require their suppliers to go along with them when conquering new markets or opening a new plant. Carmakers and their suppliers also negotiate between each other to set volumes, prices and quality standards for several equipments. In order to prevail, car part makers need to invest and acquire new technologies, in order to maintain the upper hand when dealing with their clients. However, acquiring a company may deteriorate their financial stability, as they have to pay a higher price tag for highly demanded technologies.

CHART 1
M&A amount evolution for the car part making industry



Sources: Strategy&

Quick transformation in the sector: traditional actors' adaptation to structural changes and greater importance of newcomers

Automotive sector players are actively investing in order to meet standard requirements and not to be distanced by new players. A way to bypass these hurdles is to merge with competitors, or form an alliance with them. It enables them to share resources for developing critical and costly technologies. Ford and Volkswagen (VW) co-operate since 2019, on the development of electric vehicles, self-driving cars and new mobility services. Moreover, they are implanted on geographical strongholds such as Europe and China for VW, and North America for Ford. Fiat-Chrysler Automobiles and Peugeot SA are merging on an equal basis, in order to both increase their global footprint and invest in electric vehicles. Carmakers can also acquire companies of which the activity is not tied only to the car industry. The Japanese company Dynamic Map Platform, owned by Toyota and Honda, bought the US mapping company **Ushr** during February 2019. They rushed to acquire this startup in order to not be distanced by Chinese rivals and the like of Google. Suppliers are also active in this field. According to PwC¹⁶, car part makers will pour around USD 44 bn in 2019, a third year of intense mergers and acquisitions activity (see **Chart 1**).

Japanese buyers are gaining momentum in actively pursuing deals with companies that have a strong foothold in areas such as self-driving, semiconductors, etc. Like their peers, they are targeting areas that may help them to hold the pace of swift technological shifts that shake the industry. These investments are decisive in accumulating enough know-how to be ready when electric vehicles will finally take off. While full electrical vehicles cannot fully compete with engines that are more classical since infrastructures are indeed lacking, one can expect that governments and industry leaders will spend money in this segment to ensure the viability of their whole investment in the EV technology.

16 - Ostermann D. & alii, PWC (2019). Automotive supplier transactions continue to surge.

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