A Work Project presented as part of the requirements for the Award of a Master's Degree in Finance from the NOVA – School of Business and Economics.

How Environmental regulation will impact Ferrari N.V. in Europe and US

João Maria Santos Matos Alves
33898

A Project carried out on the Master's in Finance Program, under the supervision of:

Nuno Quartin Bastos de Vasconcelos e Sá

03/01/2020

How Environmental Regulation will impact Ferrari N.V. in Europe and US

Abstract

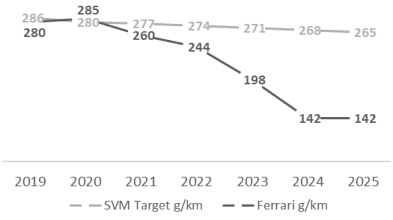
The following report has the objective to determine the value of fines applied to the Italian luxury car brand Ferrari N.V. pursuant to the current environmental regulation in Europe and US. The outcome of this dissertation will establish a target share price and a finalized investment recommendation. Currently, Ferrari benefits from certain legislations which exempt the brand from specific eco-metrics since it qualifies as a Small Volume Manufacturer in most of the territories where it sells cars. Heavy fines are applied to OEMs that do not comply with emission targets defined in their jurisdictions.

Keywords: Ferrari; Environmental regulation; Fines; Share price

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences

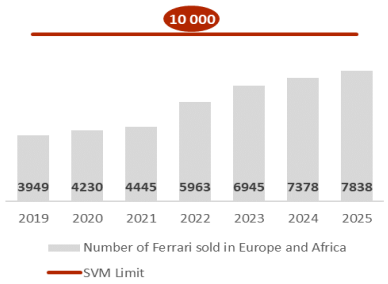
DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).
In Europe, SVM's (responsible for registering between 1,000 and 10,000 cars per year in Europe)[1] can propose their own derogation target for emissions. Pursuant to that derogation following their petition, Ferrari instead is obliged to meet alternative Co_2 emissions targets, reaching a target level of 277[2] g/km[3] in 2021 for its fleet of EU-registered cars. Nova Research Team forecasted future emission targets until 2025 to be applied to Ferrari via interpolating the historical growth of this item (Chart 1). From 2019 beyond, the penalty for each g/km of target exceedance was defined as €95[1]. Ferrari will preserve its SVM status until 2025 in Europe since it will produce less than 10,000 units (Chart 2). To forecast units sold in Europe, we calculated the weight the European and African markets[4] represent in total. Next, we multiplied this weight by the forecasted total number of units shipped globally. It yielded 7,838 units shipped in 2025. We strongly believe Ferrari will maintain its SVM status in Europe far beyond 2025 as this calculation was inflated by 2 factors: 1) the forecasted total number of shipments is highly optimistic representing an increase of 101% from 2018 levels; 2) the weight of cars shipped includes the African market. With that said, to forecast future emissions of Ferrari vehicles, we computed a weighted average between the g/km produced by current non-hybrid Ferrari models and g/km produced by its future hybrid models. We assumed that the average g/km used by the non-hybrid models would remain constant at today's level until 2025. To calculate the g/km produced by the hybrid models we assessed an average of today's hybrid sports cars from other brands and presumed it would remain constant until 2025. In this

Chart 1:
Grams of Co2 per Kilometre in EU
(2019E-2025F)



Source: Nova Research Team

Chart 2:
Proxy of Ferrari sold in Europe
(2019E-2025F)



Source: Nova Research Team

[1] European Commission. 2016. "Reducing CO2 emissions from passenger cars" Accessed January 1. https://ec.europa.eu/clima/policies/transport/vehicles/cars_en#tab-0-0

[2] Ferrari N.V. annual report. 2018. Accessed January 1. https://corporate.ferrari.com/sites/ferrari15ipo/files/ar_2018_ferrari_nv_web_0.pdf

[3] Grams of CO_2 per kilometre

[4] Ferrari does not disclose units shipped solely in Europe. For that reason, we assume the European market plus African market as a proxy for units sold only in Europe.

analysis we apply the same weights of the hybrid fleet as computed in the main report[5].

In the **US**, both Corporate Average Fuel Economy ("CAFE") standards and Greenhouse Gas Emissions ("GHG") standards are imposed on manufacturers of passenger cars[6]. Under the Obama administration the CAFE standards were set for model years 2022-2025 to increase fuel efficiency from 46.6 to 56 m/g[7] for passenger cars. Concerning the GHG standards, auto-producers consented to reduce them in new passenger cars by about 50%[8] by 2025, compared to 2010. This translates in a reduction to about 144 g/m[7] by 2025.

In 2018, the Trump Administration released a common proposal, the "Safer Affordable Fuel-efficient" (SAFE) Vehicles Rule for model years 2021-2026. The SAFE Vehicles Rule would amend certain existing CAFE standards and establish new ones. Under this rule, the CAFE standards would freeze at 2020 levels[9] (44.7 m/g[7] through at least 2026). In 2019[10], NHTSA and EPA took initial steps towards finalizing the proposed rule by issuing a final action entitled the "One National Program Rule" which enables the federal government to provide nationwide uniform CAFE standards for automobiles. Under this new regulation, the waiver granted to California under the Clean Air Act to establish more rigorous standards for vehicle emissions that are applicable to model years 2021 through 2025 will be withdrawn[2].

In September 2016, Ferrari petitioned NHTSA for recognition as an independent manufacturer of less than 10,000 vehicles produced globally[2], and petitioned for alternative CAFE standards. If their petition is rejected or if Ferrari produces annually more than 10,000 vehicles globally, it will not be able to benefit from the more favorable CAFE standards. In 2020 accordingly to

[5] Between the period of 2020-2025 the weights of the hybrid Ferrari fleet are: 5%; 18%; 27%;52%; 83%; 83% respectively.

[6] The CAFE standards were created by National Highway Traffic Safety Administration ("NHTSA"). Environmental Protection Agency ("EPA") oversees the GHG standards.

[7] Continental. 2019. "Worldwide Emission Standards and Related Regulations Passenger Cars / Light and Medium Duty Vehicles". Accessed January 1. https://www.continental-automotive.com/getattachment/8f2dedad-b510-4672-a005-3156f77d1f85/EMISSIONBOOKLET_2019.pdf

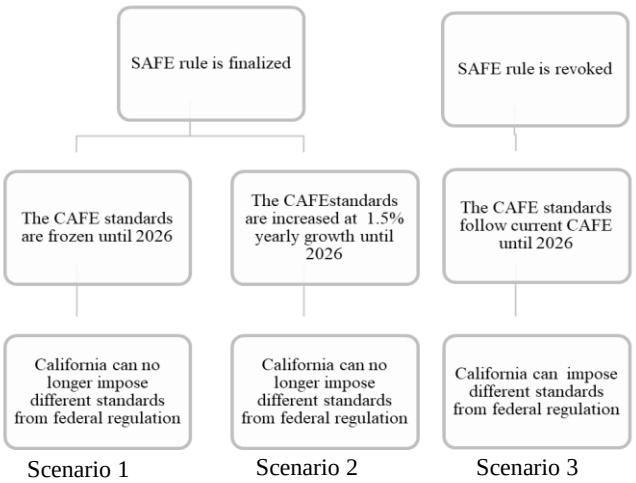
[8] Congressional Research Service. 2018. "Vehicle Fuel Economy and Greenhouse Gas Standards: Frequently Asked Questions". Accessed January 1. https://www.hsdl.org/?abstract&did=811692

[9] The New York Times. 2018. "Trump Administration Unveils Its Plan to Relax Car Pollution Rules". Accessed January 1. https://www.nytimes.com/2018/08/02/climate/trump-auto-emissions-california.html

[10] United states Environmental Protection Agency. 2019. "Trump Administration Announces One National Program Rule on Federal Preemption of State Fuel Economy Standards". Accessed January 1. https://www.epa.gov/newsreleases/trump-administration-announces-one-national-program-rule-federal-preemption-state-fuel

our forecast, Ferrari will produce more than 10,000 vehicles globally hence losing its less stringent CAFE standards and SVM status with NHTSA. Current fines for OEM's that fail to achieve CAFE target's in US are $5.50 per 0.1 mpg[11]. Since the SAFE Rule is not yet completely finalized, it is worthy considering what are the possible future scenarios in the US regulation regarding CAFE standards (Figure 1): Scenario 1 is the most beneficial to Ferrari since until 2026 CAFE targets would remain constant and California would not be able to set tighten standards. These are good news for Ferrari since more than 33%[12] of the states in US adopted California standards; Scenario 3 is the least advantageous to Ferrari because it would be mandatory to follow current, more rigorous, standards. We believe Scenario 2 is the most likely to happen because: 1) Administrator Andrew Wheeler[13] declared that the final proposal of SAFE vehicle rule will not look exactly like the original one announced in 2018 (where the goal was to freeze CAFE standards at 2020 levels through 2026); 2) some cars manufacturers secured a voluntary deal[13] with California to set tougher CAFE standards for themselves than what the White House was trying to implement (3.7% increase YoY in fuel economy from 2022 to 2026) in the eventuality of California losing its waiver. Therefore, Trump administration started considering more vehement not freezing the CAFE standards until 2026 and possibly increasing them YoY by 1.5% growth rate[14]. Assuming Scenario 2 as a certainty we computed the value of the fines

Figure 1:
Possible scenarios for CAFE regulation



Source: Nova Research Team

[11] United States Department of Transportation. 2019. "Rulemaking on civil penalty rate". Accessed January 1. https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy

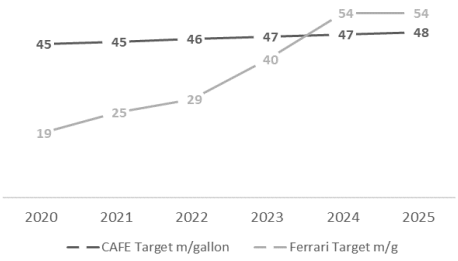
[12] The International Council on Clean Transportation. 2019. "Overview of global zero-emission vehicle mandate programs". Accessed January 1. https://theicct.org/sites/default/files/publications/Zero%20Emission%20Vehicle%20Mandate%20Briefing%20v2.pdf

[13] Thomson Reuters. 2019. "U.S. EPA chief hints vehicle CO2 limits will tighten". Accessed January 1. https://www.reuters.com/article/us-autos-emissions-cafe/u-s-epa-chief-hints-vehicle-co2-limits-will-tighten-idUSKBN1X11SH

[14] National Highway Traffic Safety Administration. 2018. "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks". Accessed January 1. https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf , there are eight possible alternatives currently being considered regarding an increase of the standards YoY instead of freezing them. Nova Research Team beliefs that an increase of 1,5% represents the 8 available alternatives.

Ferrari will be awarded. We assume Ferrari will have to start complying with the broader CAFE standards from 2020 onwards. In Chart 3 we can observe the CAFE targets Ferrari would have to abide by up to 2025 and the forecasted average m/g its fleet will require. To calculate it, we performed a weighted average which has an identical procedure as previously described in the "Europe" section. The only difference comes down to instead of using g/km we use m/g. Also, we assume Ferrari fleet will have a hybridization level equal to the one computed in the main report[5].

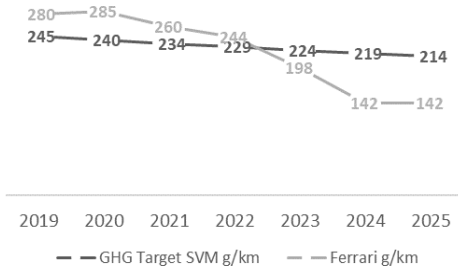
Chart 3:
Miles per gallon in the US allowed by NHTSA (2020F-2025F)



Source: Nova Research Team

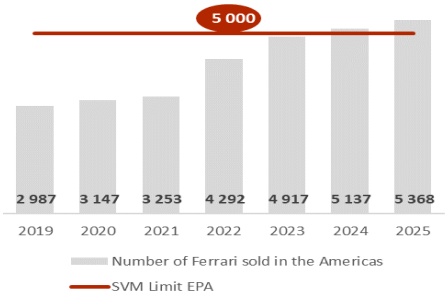
For model years 2017-2025, EPA allows SVMs (manufacturers with less than 5,000 yearly unit sales in the United States)[15] to petition for less stringent GHG standards. EPA has granted Ferrari an SVM status. Therefore, it petitioned EPA for alternative GHG standards for the model years 2017-2025[2]. In Chart 4 we can observe the GHG standards requested by Ferrari up until 2021[16]. From 2022 to 2025 we are assuming similar growth as in the past. Ferrari only discloses the number of units that sells in the Americas. To forecast unit sales in the US we used the number of units sold from the Americas region and applied the same historical trend up until 2025 (Chart 5). In 2025 it yields 5,368 units sold in the Americas. As long as all the other countries in the continent are responsible for at least 6.86% of this value, then Ferrari will retain its SVM status with EPA. We believe this is a reasonable assumption. Moreover, the forecasted number of Ferrari's shipped to the US is inflated since is accounting with shipments for every country on the American continent.

Chart 4:
Grams of CO_2 per kilometer in US allowed by EPA (2019E-2025F)



Source: Nova Research Team

Chart 5:
Proxy of Ferrari sold in the US (2019E-2025F)



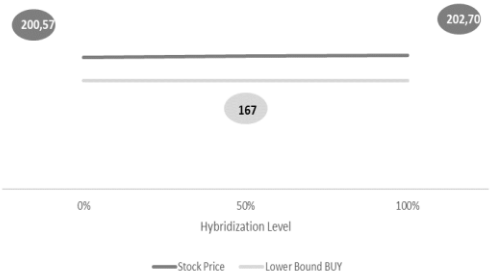
Source: Nova Research Team

[15] Environmental Protection Agency. 2019. "Proposed Determinations of Light-Duty Vehicle Alternative Greenhouse Gas Emissions Standards for Small Volume Manufacturers". Accessed January 1. https://www.federalregister.gov/documents/2019/07/31/2019-16319/proposed-determinations-of-light-duty-vehicle-alternative-greenhouse-gas-emissions-standards-for

[16] Environmental Protection Agency. 2019. "Proposed Determinations of Light-Duty Vehicle Alternative Greenhouse Gas Emissions Standards for Small Volume Manufacturers ". Accessed January 1. https://www.govinfo.gov/content/pkg/FR-2019-07-31/pdf/2019-16319.pdf

Thus, we believe not only Ferrari will maintain its SVM status with EPA until 2025, but also for the years to come. Although there is the possibility of selling more than 5,000 units in US, we predict it will occur when technologies such as EV or hybridization will already be in place in Ferrari models. Consequently, it will be far easier for this luxury brand to adapt to more severe GHG standards. Nonetheless, according to our estimations, Ferrari g/km produced will indeed exceed their GHG targets[17] (Chart 4). Current fines for OEM's that do not comply with GHG standards are fined $140 for each m/g.

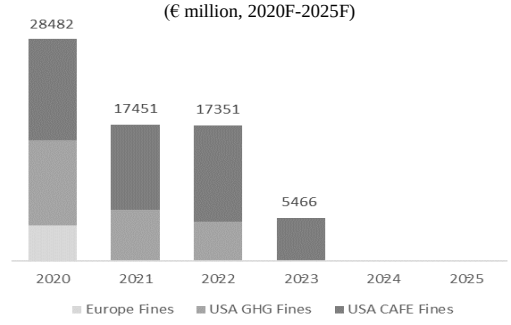
Chart 6:
Share price according to the level of hybridization attained (€, 2021F)



Source: Nova Research Team

All in all, if Nova Research Team incorporates this analysis in the DCF model, the stock price at the beginning of 2021 would be €199.82 instead of €200.05. Therefore, according to our model, if an investor holds Ferrari stock between the period of 2020 and 2021, it should yield a return of 35.30%, instead of 35.54%. Hence, this result does not alter the main conclusion stated in the main report. Nevertheless, we believe that it is important to consider different levels of hybridization across the analysis period since it will have an impact on the volume of fines (Chart 6). Independently of the level of hybridization we consider that fines granted to Ferrari have an immaterial value (Chart 7). In the worst-case scenario, which would be having no hybrid car whatsoever until 2025, it would yield a stock price of €184.29, still leading to a buy recommendation. In sum, Nova Research Team shares the view of Roland Hwang, transportation director at the Natural Resources Defense Council, which advocates that the current level of fines applied to OEMs makes it "cheaper for automakers to miss the target than to try to achieve it"[18].

Chart 7:
Core business Free Cash Flow (€ million, 2020F-2025F)



Source: Nova Research Team

[17] To forecast future GHG emissions of Ferrari vehicles, we computed a weighted average equal to the one described in the "Europe" section.

[18] Automotive News. 2016. "Industry blindsided as CAFE fines jump Higher fines for missing mpg targets could upend compliance strategies". Accessed January 1. https://www.autonews.com/article/20160716/OEM11/307189981/industry-blindsided-as-cafe-fines-jump