A Work Project presented as part of the requirements for the Award of a Masters Degree in Finance from the Nova School of Business and Economics.

EQUITY RESEARCH – Fiat-Chrysler Automobiles

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Abstract: This Equity Research aims at analysing Fiat-Chrysler Automobiles in order to assess the potential capital and dividend gains of holding the stock during 2020. It starts with a brief company description and macroeconomic overview. Afterwards, the automotive sector and its tendencies are analysed. Thereafter, the past performance of each operating segment is summarized to set the context for the valuation. The valuation resorts primarily to the DCF method. Nevertheless, the APV method as well as Multiples are employed to evaluate the results' accuracy. Finally, a recommendation is, in addition to the associated expected gains and returns with the transaction.

Keywords: FCA Undervalued; Shared Mobility; Electrification; FCA-PSA Merger;

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FIAT-CHRYSLER AUTOMOBILES

COMPANY REPORT

AUTOMOTIVE INDUSTRY

2 JANUARY 2020

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The challenge of a changing industry

Developing a sustainable and diversified car portfolio

- Fiat-Chrysler leverages on its differentiated brands to target several vehicle segments. This way, the Italian manufacturer is able to have a significant market coverage and wide presence across the globe.
- Since the merger with Chrysler, FCA has been outperforming both the market and most of the peers. Nevertheless, it did so with significant volatility and its share price presents both the largest weekly upside and downfall for the past three years.
- The automotive industry is being profoundly reshaped by certain trends. Environmental concerns, increased connectivity, shared mobility and automation are some of the tendencies set to change the sector's current paradigm, forcing its players to innovate.
- In order to remain competitive and offer its customers a sustainable and technologically advanced product, Fiat-Chrysler is expected to increase its R&D costs.
- In December 2019, FCA confirmed a 50/50 merger with PSA group. Such merger would have a significant impact on the reduction of R&D costs due to the possibility to share costly resources and facilities. This is key for greater investment to follow the automotive market trends.

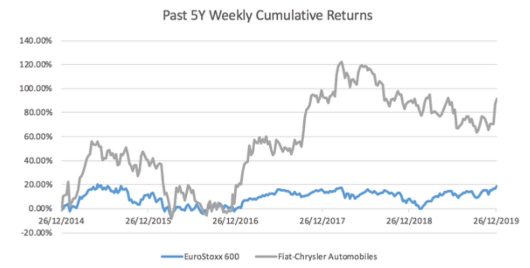
Company description

Fiat-Chrysler Automobiles is an Italian American multinational, which is currently the world's eighth largest car manufacturer. It results from the acquisition of the bankrupt Chrysler by Fiat, in 2014. With the merger, FCA increased market coverage, entering geographies in which Fiat did not sell before, and is targeting several segments with its different brands.

Recommendation:	**BUY**
Price Target FY20:	**18.74 €**
Price (as of 2-Jan-20)	**13.3 €**

52-week range (€)	11.05-15.24
Market Cap (€m)	20.540
Outstanding Shares (m)	1.567,5

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2018	2019E	2020F
Revenues	110412	101359	107282
Shipments (in thousand units)	4,655	4,267	4,399
EBITDA	10671	10668	11768
Net Profit	3632	3931	3646
EPS (in €)	2.35	2.51	2.33
Price FY (in €)	12.68	13.30	18.74
P/E	5.40	5.30	8.06

Source: FCA's Financial Statements and Analyst Estimates

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Executive summary

Fiat-Chrysler Automobiles (FCA) Group, the result of Fiat's acquisition of Chrysler, is currently one of the ten largest auto manufacturers in the world. It operates in 140 countries and has a considerable number of R&D centres and operating plants around the world. When referring to market share and number of sales, the U.S. and Italy are the two top countries with market shares of 88% and 45% among their own geographical groups, respectively. FCA group is divided into five main segments being four of them the geographical areas where it operates (NAFTA, EMEA, APAC and LATAM), and Maserati Global, FCA's luxury brand.

As of the end of 2018, FCA reached a value of €110 billion in Total Revenues and had made a significant investment of €3.5 billion in research and development that year. However, considering the future path of the automotive industry FCA is expected to increase its costs in the R&D segment (CAGR of 1.74% over the next ten years compared to CAGR of 1.48% over the past five years) as well as higher capital expenditures (CAPEX) which will reach a peak of 9% during the business plan period. These costs will be vital, considering that the development of new connectivity technology, electrification and automation is expensive but key for FCA to remain competitive in the market and sustain its profits in the long run. When comparing FCA with its main competitors one can see that it outstands in terms of Return on Assets and Return on Equity with values of 6.4% and 25.3%, respectively, comparing to the competitors' average values of 2.5% and 9.9% respectively. These reflect FCA's ability to have higher returns on the same assets and higher profit from shareholders' investments then its peers. However, FCA lags behind regarding EBITDA and Net margins with values below industry average, reflecting a lower ability to convert sales into profits than its competitors.

As for future performance, FCA is expected to have revenues growing at a CAGR of 1.79% from 2019 onwards, and an operating margin of around 5% in the long run. In October of 2019, FCA announced a possible merger with the PSA group to take place during the year of 2020. The merger was later confirmed, at a press conference, in December 18th, 2019. For valuation purposes there are considered synergies arising from the merger reducing the forecasted R&D costs by 20%. The one-off restructuring costs associated with the merger reach €2.8 BN and are expected to be incurred in 2022.

As of 2nd January 2020, FCA's share price was **€13.3**. An investor who purchases the stock at this price is expected to have capital gains of **€5.44**, considering the forecasted share price of **€18.74** for year-end 2020, through the DCF method.

Considering the projected dividend gains throughout the next year, **€0.46**, the investor is expected to achieve a potential return of **44,36%.**

Company Overview

Fiat-Chrysler Automobiles (FCA) resulted from the full acquisition of the Chrysler Group by the Fiat Group in early 2014, a complete merger both in financial and technical terms. Since FCA was the result of a merger of an Italian company with an American one this allowed the group to gain market power and competitive advantage operating in 140 countries and employing over 200,000 persons. This then led to new strategic goals and a new business plan for the period of 2014-2018 with a major focus on the financial targets and with ambitious strategic goals.

As stated by the manufacturer, "*FCA designs, engineers, manufactures and sells vehicles and its related parts*". It operates under several brands, each with its specific goals and focus. FCA operates and sells cars all around the world, North America being the most relevant market in terms of amount of sales and revenues. The group divides its operations into five segments, which consist of the four geographic groups where it is present and a luxury segment under the Maserati brand. These four geographic groups are the following: NAFTA (North America, Mexico, and Caribbean Islands), LATAM (Latin America), EMEA (Europe, Middle East and Africa), and APAC (Asia Pacific). Among these segments, NAFTA comprises more than 52% of total vehicle sales followed by EMEA with around 29%. The countries with the highest values are the U.S. (88% of total vehicle sales among the NAFTA geographic area) and Italy (45% of total cars sales in EMEA). The geographical area with the least impact is APAC (4% of total vehicle sales) which led the group to focus part of its strategy on this group of countries, specially China.

Overall, FCA operates several markets across de globe, with over 45 R&D centres and 102 plants. The group had around 4.8 million combined vehicle shipments, € 110 Billion in Total Revenues and an investment of € 3.5 Billion in Research and Development.

FCA shares currently trade in the New York Stock Exchange (under the symbol "FCAU"), and on the Milan Stock Exchange (under the symbol "FCA"). Its stock price has been on the price range of € 9.74 - € 10.39 in 2017 and reached the price of € 18.79 in 2018, which shows an upward movement in recent years. However, it suffered a downward movement from 2015 until 2017, going down from the 2015 price range of € 13.44 - € 15.21.

Shareholder Structure

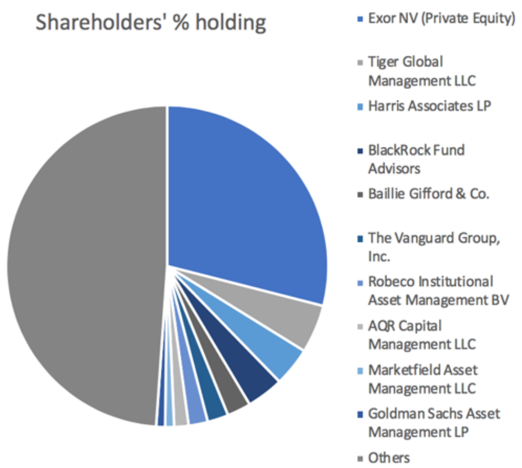

Exhibit 1 – Holding distribution of FCA's shares
Source: Marketscreener

FCA has three main shareholders which, all together, own 38.04% of the Group. Among these shareholders, Exor N.V. is the largest one with 28.98% ownership of FCA, followed by Tiger Global Management LLC with 4.85%. In terms of voting power, Exor N.V.'s is 42.11% which allows it to have a significant influence on the matters going on votes. Exor N.V. is controlled by the Agnelli family holding, descendant from one of Fiat's founders. As of 2018, 29% of FCA's common share were held in the U.S. *Exhibit 1* presents the distribution of FCA's share holdings.

As of December 2018, FCA's had 1,568 million common shares outstanding, some being special voting shares. FCA Board intends to distribute dividends of € 0.65 to holders of FCA common shares.

Brands Overview

Fiat-Chrysler Automobiles' strategy is to differentiate its products through several brands, targeted at specific market segments and geographies. It comprises the following brands: Abarth, Alfa Romeo, Chrysler, Street and Racing Technology (SRT), Dodge SRT, Fiat, Fiat Professional, Jeep, Lancia, Maserati, Ram, Mopar, Comau, and Teksid, the three latter being FCA's own engineering, technology development and raw materials supply companies. Regarding FCA's car brands, it is worth analysing each one, in order to understand how their behaviour in the market has been and how they have been evolving in terms of car sales over the last years. Moreover, such analysis provides an insight on how FCA targets each market segment and geography specifically and how that allows the manufacturer to maintain a consistent market share over the years.

Abarth: this brand specializes in performance modification for on-road sport cars. It was re-launched in 2007 and since then it has been improving its performance quite significantly. Between 2015 and 2018 it had an increase of 85% of total vehicle sales jumping from around 11,000 in 2015 to 20,700 vehicles sold in 2018. It has become a reference for small race car lovers.

Alfa Romeo: Alfa Romeo is a brand with a focus on the style and unique design of its automobiles. FCA has a clear strategy around this brand taking full advantage of its popularity and high quality both in design and incorporated technology. Although most Alfa Romeo cars sold until 2016 were on the medium car segment, it had suffered a shift towards the SUVs segment since then. Accompanying this shift was an increase of 62% in total car sales between 2015 and 2018.

Chrysler: Chrysler's brand is more dedicated to the production of minivans and full-size vehicles in North America. Having the focus on this market segment, it differs in the way it designs the vehicles and incorporates useful and innovative feature in every model. However, Chrysler vehicle sales decreased by around 50% since 2015 mainly due to a significant decrease in the sales on the large car segment. Currently, FCA has part of its strategy dedicated to the continuous innovation and improvements of Chrysler which is redefining its minivans and creating new models with new architecture and features, having prospects to grow.

Dodge/SRT: Dodge is FCA's division of high-performance and more aggressive cars. Dodge's vehicles have been showing their power and performance in several races which gave them the 'street cars' reputation. Along the past years it had been quite constant in terms of vehicle sales being in the range of 450,000 to 500,000 vehicles sold each year. This brand is now associated with street racing vehicles and FCA continues to improve these cars' performance and power.

Fiat / Fiat Professional: Fiat's focus has been designing small and practical cars. This Italian brand is present in the small and medium car segments, as well as light commercial vehicles under the Fiat Professional designation. It has been innovating around this sense of size and efficiency and in terms of vehicle consumption and driving experience. In the past years, however, its sales in the smaller car segment decreased around 60%. This was compensated by an increase in both the minivans and small SUVs segments (300% each). Therefore, total Fiat vehicle sales were kept in the range of around 700,000 vehicles sold every year.

Jeep: this is a well-known brand globally, in particular for its SUVs and off-road vehicles. Recently, this brand has been a focus of FCA to give rise to its full potential by expanding production to all regions and develop new models as a way to improve its growth around the world. Jeep's vehicle sales increased by only 30% when compared to 2015.

Lancia: Lancia is a brand with elegance and a notorious Italian style. It is designed for the ones that aim at having a car that stands out for its refinement and unique charm. In order to maintain its history and originality it is exclusively focused on the Italian market and it sells around 60,000 vehicles every year.

Maserati: Maserati brings luxury and sport together into its cars. This luxury brand focus on high performance and style as well as to keep its Italian signature in its vehicles. However, it must adapt to market trends and as such it has as strategy to innovate towards electrification and autonomous driving technology and the goal of renovating the brand and its product range. This strategy is highly important to boost Maserati's vehicle sales since it suffered a fall of almost 60% in its total car sales since 2015.

Ram: Ram was launched in 2009 and it is now a key player in the industries of heavy-duty trucks and commercial vans. This brand was separated from Dodge allowing it to prosper and innovate around its core industries. It has been proving successful and ahead of the competition with its efficient vehicles, having had an upward movement in its total vehicle sales of 20% between 2015 and 2018.

In addition to all nine car brands mentioned above, FCA operates around three more brands, these being related not directly to the production of automobiles, but to all the engineering and technology that are key components of each car. Among these other brands are Mopar, which provides authentic accessories and car parts that follow FCA's specifications, Comau, which combines engineering and technology with a major focus on innovation and flexibility, and Teksid, a major producer of iron castings and technologies for aluminium components.

Strategy

FCA's main strategy for the upcoming years is to invest in new models that follow the same trends as the remainder of the automotive industry, such as electrification and autonomous driving technology.

The group's 2018-2022 business plan presents several strategies that will boost the overall performance of the group both in terms of brand success and geographical presence. One of the greatest concerns of the current world is sustainability, which is also present in FCA's strategy, which continuously pursues the reduction of CO_2 emissions in accordance with each region's regulations. This will also allow the group to make use of new technologies and produce new models, especially for the brands that have become weaker and need improvements in their lineup and new marketing strategies. FCA's major focus in terms of brand restructuring is on Alfa Romeo, Jeep, Ram and Maserati, with the launch of new 'white space' products. Regarding Maserati, the main goal is to position the brand as a top luxury brand with new products and models.

In terms of geographical areas, the focus is on gaining market share in China, as it is a rapidly developing market but also given the fact it is one where the group has reduced presence. To do so, FCA will improve and renew the marketing there, in particular for the newly launched models. However, this will be a long-term strategy since there are significant market tensions currently in this geography and, to increase such a low market share (1.79% of total revenues in 2018) significantly, it will take several years.

Although the automotive industry is currently on a steady pace, FCA has the right strategies in order to continue succeeding in the market and to follow all market trends at the proper time. Since this is a highly competitive market FCA has agreed to join forces with the PSA Group. Synergies are expected to arise from the sharing of technologies, production plants and R&D advancements. This is a key strategy in order to follow the autonomous driving tendency, as well as electrification.

Economic Overview

Global economic activity remains weak, after the sharp downturn experienced in 2018. In particular, the manufacturing sector, which relies heavily on international trade, suffered a substantial slowdown, on the one hand due to the rising trade and geopolitical tensions across the world and, on the other, due to a decrease in demand for consumer durables across the developed and emerging economies. These factors have been partially offset by accommodative monetary policies, aimed at stimulating the economy. However, the global outlook is still precarious. with the stability of currently stressed emerging markets and progress towards resolving trade wars being determinant for the economy to reverse positively. Forecasts set global growth at 3.2 percent in 2019 and 3.5 percent in 2020[1].

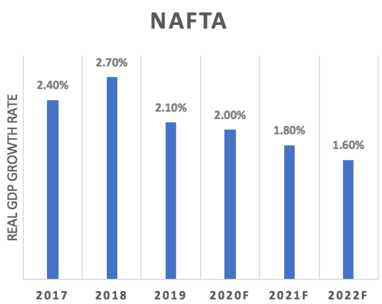

Exhibit 2 – Real GDP Forecast in the NAFTA region
Source: IMF

In the USA - the biggest country in **NAFTA** – the economy has been growing between 2 to 3% and the unemployment rate is close to its natural rate. This moderate growth, which does not cause big inflation, is typically referred to as a Goldilocks economy. Additionally, the fed is not expected to increase interest rates in the near future, focusing on promoting growth rather than preventing inflation. Trump's isolationist policies regarding international trade are likely to continue, harming investors' confidence and investment. As presented in *Exhibit 2*, GDP growth rate in the NAFTA geography is expected to slow down in the next years to 2%, 1.8% and 1.6%, respectively.

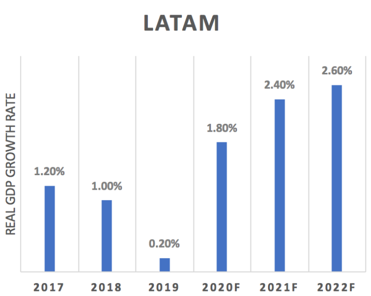

Exhibit 3 – Real GDP Forecast in the LATAM region
Source: IMF

In the **LATAM** region, political instability is preventing countries to reach higher levels of growth and the economy has slowed down at the start of this year, mainly due to Brazil, where investors face significant uncertainty regarding the approval of structural reforms. Although a smaller market for FCA, Venezuela continues under a severe humanitarian crisis and the country's economy is predicted to slow down by 35% this year. Nevertheless, the region's forecasted GDP growth rate is still positive, at 1.8% for 2020 and 2.4% for 2021 and 2.6% for 2022, as demonstrated in *Exhibit 3*.

[1] International Monetary Fund - World Economic Outlook, July 2019

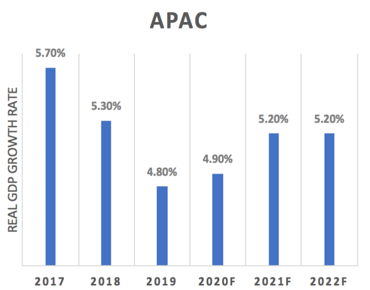

Exhibit 4 – Real GDP Forecast in the APAC region
Source: IMF

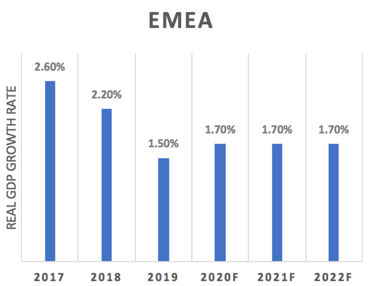

Exhibit 5 – Real GDP Forecast in the EMEA region
Source: IMF

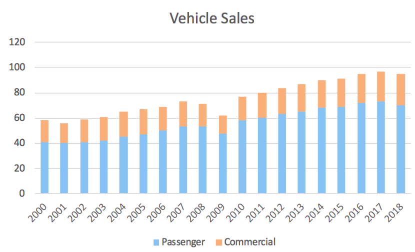

Exhibit 6 – Worldwide Vehicle Sales from 2000 to 2018
Source: Statista

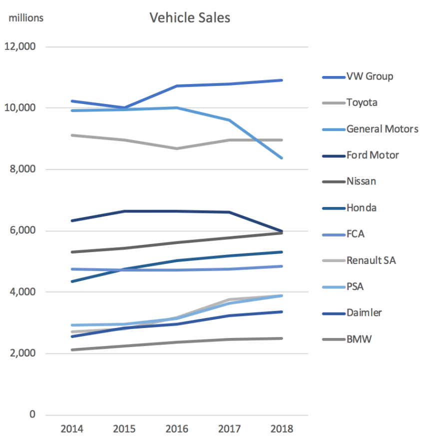

Exhibit 7 – Vehicle Sales Evolution for selected Peers
Source: Companies' Annual Reports

In China – the major country of the **APAC** region – the economy has been suffering over the past years both from the cross-Pacific trade war and from a weakening external demand, as one can observe from *Exhibit 4*. Nevertheless, the government is expected to stimulate the economy to face this adversity and the region's GDP is estimated to grow at 4.9% in 2020 and 5.2% in 2021 and 2022.

Finally, in Europe - FCA's target market in the **EMEA** region - the economy has been growing slowly but steadily, as *Exhibit 5* presents. Brexit has taken a negative impact on the UK's economy; uncertainty remains over the region's future and investors are moving out to other EU countries. In Germany, a weak external demand is prejudicing growth. In France, the outlook is positive, as the impact of protests is lowering and growth is expected to be boosted by fiscal stimulus. In the Middle East and Africa, the economy is estimated to have a higher growth. However, these regions are not as representative of FCA sales currently as Europe. Thus, these are only considered further in the future, as they develop. All in all, the region's economy is expected to grow at 1.7% in the following three years.

The Sector

Industry Overview

Since the verge of the millennium the automotive industry has been expanding at a significant pace, as demonstrated in *Exhibit 6*. Behind this high growth were, among others, less strict regulation regarding vehicle pollution than today and the rapid development of the emerging economies. However, the automotive industry reached a peak in 2017 and has decreased nearly 2% over the past two years. Due to the tendencies affecting the sector, described further in this report, over the next decade it is expected a market contraction in the more mature markets, NAFTA and EMEA, and a conservative growth rate in the developing regions APAC and LATAM.

The sector is dominated by a few large manufacturers, some comprising several bands. *Exhibit 7* presents the unit sales of 11 of the largest manufacturers worldwide, which represent more than 70% of worldwide unit sales. Despite a lower growth than, for instance, BMW or Daimler, Fiat-Chrysler has maintained a consistent level of shipments over the past years, demonstrating the company stability in the sector.

Following the merger with Chrysler, FCA was able to achieve a significant geographical coverage, taking advantage of a diversified brands' portfolio to target each market specifically. Additionally, its production is spread globally by 102 factories, which provides the manufacturer a natural hedge against currency fluctuations. These two factors are crucial for FCA's stable performance.

The automotive industry has been experiencing significant changes over the past years. New trends, powered by more demanding and conscious customers, are pushing competitors to provide an improved product and alternative mobility solutions. Setting ground for this disruption are stricter environmental policies, a shift in demand towards renewable sources of energy, the increasing need for connectivity, changing demographics, shared mobility and vehicle automation.

Environment & Renewables

It is a fact that cars leave a considerable footprint even before rolling out of the factory, a result from raw materials' production and all involved logistics. Additionally, cars keep polluting past the end of their lifespan, with toxic materials being disposed of in the environment. However, most environmental impact comes from the usage of fossil fuels, which are one of the main drivers of air pollution and greenhouse gases. Considering the worsening climate conditions, the significant technology improvements and upcoming public policies regarding alternative fuels, consumers are shifting their demand towards greener mobility solutions. In the car industry these are mainly met with electric or hydrogen powered vehicles. In the short to medium term, the latter do not constitute a viable alternative, as they require a supply network similar to petrol and diesel and, in order to dilute the costs of such a massive investment, the number of vehicles circulating using this technology would have to increase dramatically. On the contrary, most "green investment" is being done on car electrification, an easier to implement solution in the more developed regions, as the electric grid already exists.

Some of the challenges electric cars face are the high battery costs and the limited supply of raw materials used in its production. Additionally, the energy they use is usually not from a renewable source, which partially destroys the purpose of electrification and raises question marks on the difference vs a "regular" car. The success of electric cars relies heavily on battery production capacity, which in turn is limited by mining supply capabilities, and on the technological improvements required to increase autonomy and drive prices down, making these vehicles affordable for the mass market.

As described in the Business Plan 2018-2022, Fiat-Chrysler is committed in the electrification of their fleet, starting by the offer of plug-in electric versions of certain models and at a further stage 100% electric options. In LATAM, the company is in the frontline regarding ethanol-powered vehicles, a biofuel derived from sugarcane that is widely used in the region. In Brazil, the consumption of ethanol reaches

50% that of gasoline, a share that is expected to grow further. This alternative fuel is eco-friendlier than the traditional one, given that 70 to 80% of the CO2 emitted by the car is captured in the sugarcane photosynthetic process. As vehicle electrification is harder to implement in the developing regions, FCA strategy is to further explore this type of powertrain, particularly in LATAM.

Connectivity

Since the middle of the past century, the automotive industry has been incorporating technology into the luxury segments and, from the simplest car radios and monstrous car phones of the past to the fully connected Tesla infotainments of today, manufacturers want to make sure their clients do not “miss out on the world” while driving. For a few years now, manufacturers have allowed drivers to connect their smartphones to the car, being able to reproduce music and make calls. Currently, it is already possible to mirror a smartphone on the cars’ infotainment display, use it to unlock the car, start the engine, set climatization, check fuel levels or even remotely move the vehicle out of a tight parking spot. In a few years, with vehicle automation, connectivity may see its role in the industry increased. Cars will be able to share data between themselves and Artificial Intelligence solutions can be used to optimize routes, reduce costs and, most importantly, improve safety.

Following this trend and, in order to remain competitive, FCA is committed in increasing the connectivity experience offered by their vehicles. In order to do so, it is expected an increase in R&D costs throughout the following decade, which will not translate into an increase in prices, given that other manufacturers are already a step ahead in this field with similar pricing.

Demographics & Shared Mobility

From 1950 to 2018, worldwide urban population has grown from 751 million to a staggering 4.2 billion, representing nearly 55% of the world’s population. According to forecasts made by the United Nations[2], this figure is expected to continue increasing, reaching 68% by 2050, which translates into 2.5 billion new urban residents. In a decade, the world is projected to have 43 cities with more than 10 million inhabitants. This mass concentration will further aggravate the problems large cities already face in respect to traffic jams and the lack of parking spaces. Furthermore, due to environmental concerns, governments are implementing policies in order to reduce the number of cars circulating in large cities, while investing in a more efficient network of public transports.

[2] United Nations - “World Urbanization Prospects, 2018 Revision”

Considering this, the ownership of a car is increasingly becoming a liability and consumers are opting for alternative means of transportation for their daily commute. In fact, the way people look at cars has been changing. What was once considered to be a means for freedom, a product that allowed people to get together and go to work, is now thought of by younger generations rather as a service, just to go from point A to B. This service, which has been provided by public transportation for a long time now, is being complemented by ride-hailing platforms, such as Uber and Lyft, scooter and car sharing platforms. Daimler and BMW have already invested in the latter solution, respectively with Car2Go and DriveNow, making them not only vehicle manufacturers but also the service providers, incorporating the existing value chain towards the end user.

According to the European NGO Transport & Environment[3], the average car remains unused for nearly 90% of the time and, according to a study by McKinsey[4], 67% of car sharing users expect to increase usage a lot in the following years. Thus, a likely scenario is for people to change the paradigm of owning a fit-for-all vehicle and start using the most convenient shared mobility solution available for each situation. As stated by McKinsey, in ten years, one out of every ten cars sold may be a shared vehicle, which negatively impacts the sales of privately-owned vehicles. However, shared cars have higher wear and tear than the latter, due to higher utilization rates, and are replaced more often. It is predicted that the latter will partially offset the reduction in private car sales.

The cars currently used in sharing platforms already represent just a few models and the tendency is for further standardization, with less complex designs, less powerful engines and simpler interiors. This results in less complicated and more efficient assembly processes, leading to an expected reduction of up to 25% on the typical car price. Due to the high competition in the sector and to the fact that this may become the new reality, not only an exception, this reduction in production costs is expected to be reflected in the car prices, therefore, manufacturers will not see their margins increase.

Automation

Automation is perhaps the most awaited revolution in the car industry, with several manufacturers already undertaking projects regarding self-driving. Still, contrary to predictions made by several CEOs, the sight of an autonomous vehicle cruising around the highway is still not common nowadays and it will likely take another

[3] Transport and Environment - “Does sharing cars really reduce car use?”
[4] McKinsey - “How shared mobility will change the automotive industry?” - Anne Grosse-Ophoff, Saskia Hausler, Kersten Heineke and Timo Möller, April 2017

decade for these vehicles to be introduced in the larger cities. The difficulties encountered when implementing machine learning and artificial intelligence processes in such technology are higher than expected and the lack of regulation regarding this new mobility solution is proving to be determinant on its successful implementation. Despite the safety improvements that an autonomous and connected car network may bring, there is still scepticism arising on the conditions under which these vehicles may fail and the road for regulators and insurers to catch up is still long.

One of the fields in which automation may contribute significantly is regarding the economic viability of a shared mobility platform, which is currently sustainable only in highly populated cities. In addition to allowing users to ride without a driver, autonomous cars would allow platforms to position their vehicles optimally or even make them ‘callable on demand’, requiring a smaller fleet and reducing the associated costs. FCA predicts this to be a major advancement in the future and has partnered with Google to provide over 50,000 Chrysler minivans for the Waymo project, which aims at developing a self-driving taxi service in the US.

Increasing Competition

The automotive industry is significantly well protected against the threat of new entrants, due to high capital requirements and economies of scale but mainly due to the extensive years and R&D it would be needed for a new player to become competitive. Additionally, the sector is dominated by large groups, each one comprising several brands, as mergers are the way manufacturers seek to exploit synergies, increase presence in different geographies and split the burden of R&D costs. This reduces customer's bargaining power, as their alternative is more and more likely to be a brand within the same group. However, the threat of substitution is real as urban commuters are looking for other mobility solutions. Furthermore, the giant tech companies, Google and Apple, already showed interest in entering the sector as software providers and possibly as manufacturers, the latter having the ambitious intentions of releasing their own car by 2020. As software competence is becoming one of the most important factors in the industry, this will put pressure on existing players to increase their R&D. Considering the aforementioned, competition is likely to increase in the industry, with manufacturers competing for each other’s market share, driving margins down.

	2015	2016	2017	2018	2019
FCA	**30%**	**2%**	**55%**	**-16%**	**4%**
Toyota Motor	-1%	-8%	5%	-12%	19%
VW Group	-24%	-4%	21%	-19%	22%
General Motors	-3%	2%	16%	-20%	9%
Ford Motors	-10%	-15%	3%	-49%	20%
Nissan	19%	-8%	-5%	-24%	-32%
Honda Motors	10%	-14%	12%	-29%	7%
Renault SA	43%	-9%	-1%	-43%	-26%
PSA	46%	-4%	9%	10%	13%
BMW	8%	-10%	-2%	-21%	3%
Daimler	12%	-9%	0%	-43%	7%
Stoxx Europe 600	7%	-1%	7%	-14%	21%
MSCI World	-3%	5%	18%	-11%	22%

Exhibit 8 – Yearly Returns for selected peers and market indexes
Source: Bloomberg

Weekly 3Y	Biggest Downfall	Biggest Upside
FCA	**-15.4%**	**18.4%**
Toyota	-6.2%	7.2%
VW	-6.8%	12.3%
GM	-9.0%	12.0%
Ford	-9.8%	8.8%
Nissan	-9.5%	5.7%
Honda	-10.3%	9.5%
Renault	-9.5%	7.6%
PSA	-10.0%	15.0%
BMW	-10.1%	7.7%
Daimler	-11.9%	8.4%
Stoxx 600	**-5.1%**	**4.6%**
MSCI	**-5.7%**	**4.2%**

Exhibit 10 – Past 3 years' Weekly Largest Upside and Downfall for selected peers and market indexes
Source: Bloomberg

Year	EPS	Dividend
2019E	€ 2.51	€ 0.50
2020F	€ 2.33	€ 0.46
2021F	€ 2.53	€ 0.50
2022F	€ 1.41	€ 0.28
2023F	€ 2.63	€ 0.67
2024F	€ 2.36	€ 0.74
2025F	€ 2.11	€ 0.78
2026F	€ 1.89	€ 0.81
2027F	€ 1.85	€ 0.90
2028F	€ 1.82	€ 0.99
2029F	€ 1.80	€ 1.08

Exhibit 11 – FCA's Projected EPS and Dividend distributions
Source: Analyst Estimates

Activity Ratios				
in days	Avg. Hold. Period	Avg. Collect. Period	Avg. Pay. Period	Cash Convers. Cycle
FCA	**47.5**	**13.1**	**85.9**	**-25.3**
Toyota	37.2	103.7	35.6	106.1
VW Group	87.0	105.5	43.2	146.5
General Motors	36.2	86.6	72.6	37.6
Ford Motor	31.8	143.1	57.4	118.1
Nissan	54.7	254.0	59.2	244.1
Honda	47.1	59.9	30.8	76.2
Renault SA	58.1	289.6	83.7	239.0
PSA	44.3	13.4	93.5	-29.9
BMW	72.3	150.6	45.5	157.2
Daimler	86.9	122.3	40.8	159.2
	55.5	***132.9***	***56.2***	***125.4***

Exhibit 12 – Activity Ratios for FCA and selected Peers.
Source: Analyst Estimates; Bloomberg

Comparables

Fiat-Chrysler vs The Market and Competitors

Since the merger between Fiat and Chrysler took place, in 2014, the company has been generally outperforming the market and most of its competitors, as shown in *Exhibit 8*. In *Exhibit 9,* one can observe the stock's cumulative returns, relatively high in comparison to the Stoxx Europe 600 and MSCI Indexes. However, Fiat-Chrysler's stock presents a significant volatility, and it has suffered a significant downturn in 2018, in line with the market, which was followed by a mediocre return in 2019. In fact, as can be observed in *Exhibit 10*, over the past three years, FCA's stock presented both the biggest weekly price downfall, at -15.4% in mid-June 2017, and the biggest price hike, at 18.4% in January 2018. Compared to the indexes, these maximum stock fluctuations have more than three times the magnitude of the market's, posing an additional risk for short term investment strategies.

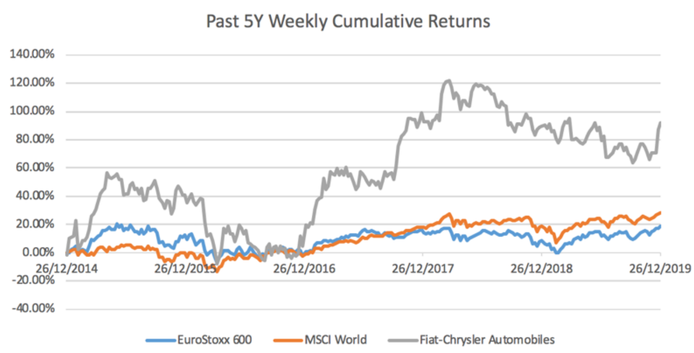

Exhibit 9 – Weekly Cumulative Returns
Source: Bloomberg

Nevertheless, Fiat-Chrysler Automobiles is expected to generate consistent EPS throughout the next decades, as can be observed in *Exhibit 11.* During the Business Plan 2018-2022 they target a low Payout Ratio, which is expected to rise afterwards, increasing the dividends distributed to shareholders.

Operating Ratios

Regarding Activity Ratios, as shown in *Exhibit 12*, FCA presents a Cash Conversion Cycle of -25.3 days, meaning that the firm is able to convert its inventory into sales faster than they pay to suppliers. This indicator is outstanding when compared to the average of 125.4 days competitors face between investment in inventory and conversion into sales. Despite FCA not being the most efficient converting inventory into sales, as their average holding period is not particularly good, they are very efficient managing their accounts payables and receivables as they are much quicker collecting from clients than its competitors and pay later to their suppliers.

Profitability From Operations			
in millions	*Gross Margin*	*EBITDA Margin*	*Net Margin*
FCA	***13.95%***	***9.66%***	***3.29%***
Toyota	*18.01%*	*14.09%*	*6.23%*
VW Group	*19.65%*	*15.40%*	*5.15%*
General Motors	*17.95%*	*12.32%*	*5.45%*
Ford Motor	*9.11%*	*7.18%*	*2.29%*
Nissan	*16.45%*	*10.53%*	*2.76%*
Honda	*20.82%*	*9.11%*	*3.84%*
Renault SA	*20.90%*	*10.85%*	*5.75%*
PSA	*19.98%*	*9.75%*	*3.82%*
BMW	*19.04%*	*17.96%*	*7.30%*
Daimler	*19.76%*	*9.90%*	*4.33%*
Peers Avg.	***18.17%***	***11.71%***	***4.69%***

Exhibit 13 – Operational Profitability Ratios for FCA and selected Peers.
Source: Analyst Estimates; Bloomberg

Profitability From Investments			
	Asset Turnover	ROA	ROE
FCA	**1.1**	**6.4%**	**25.3%**
Toyota	0.6	**3.7%**	9.7%
VW Group	0.5	**3.0%**	12.9%
General Motors	0.6	**3.9%**	21.2%
Ford Motor	0.6	**0.6%**	4.5%
Nissan	0.6	**1.1%**	4.0%
Honda	0.8	**2.6%**	6.3%
Renault SA	0.5	**2.0%**	6.7%
PSA	1.1	**4.8%**	18.8%
BMW	0.5	**2.3%**	8.7%
Daimler	0.6	**1.4%**	6.4%
Peers Avg.	***0.640***	***2.5%***	***9.9%***

Exhibit 14 – Assets' Profitability Ratios for FCA and selected Peers.
Source: Analyst Estimates; Bloomberg

Liquidity Ratios			
	Current Ratio	Quick Ratio	Cash Ratio
FCA	**0.82**	**0.59**	**0.27**
Toyota	1.04	0.81	0.32
VW Group	1.09	0.76	0.33
General Motors	0.92	0.73	0.33
Ford Motor	1.20	1.04	0.36
Nissan	1.50	1.22	0.18
Honda	1.23	0.88	0.42
Renault SA	1.03	0.88	0.24
PSA	0.94	0.61	0.55
BMW	1.18	0.83	0.25
Daimler	1.24	0.87	0.28
Peers Avg.	***1.11***	***0.84***	***0.32***

Exhibit 15 – Liquidity Ratios for FCA and selected Peers.
Source: Analyst Estimates; Bloomberg

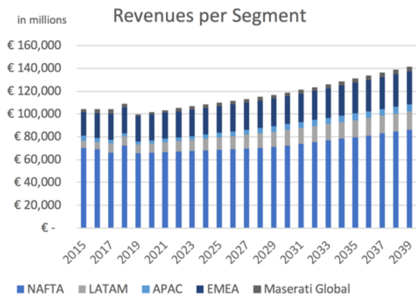

Exhibit 16 – Historical and Projected Revenues per segment
Source: Analyst Estimates; FCA's Annual Report

When looking at the industry's profitability margins, presented in *Exhibit 13*, it is evident that FCA retains a lower amount of its revenues after incurring all direct costs associated with producing the goods and providing services, as it has a lower Gross Margin than most competitors. Additionally, both EBITDA and Net margins are also below the industry's average, meaning they are not converting sales into profit as efficiently as competitors. FCA has set as goal improving their margins, in their Business Plan 2018-2022, however, at a too ambitious level, which we do not expect them to achieve, as described further in the report.

In terms of Assets' Profitability, FCA is performing well above its peers, as one can observe in *Exhibit 14*, with a Return on Assets (ROA) of 6.4% quite higher than the average of 2.5% of the comparables. This means FCA is able to generate more profit with the same assets than its competitors. Additionally, Fiat-Chrysler also has a higher Asset Turnover, as they are able to generate more revenue with the same assets. Regarding Return on Equity, FCA also stands out positively, with its ROE of 25.3% being more than double the comparables' average of 9.9%, which means the firm is able to generate more profit from its shareholders' investment than its peers.

In what concerns the liquidity position of FCA, it is possible to draw from *Exhibit 15* that the company has less ability to pay short-term obligations with their current assets than the average of its competitors, as it has a lower Current Ratio. They have less ability to pay the same current liabilities with their readily available assets, having a lower Quick Ratio and less ability to pay them using the most liquid resources, cash and cash equivalents, as they have a lower Cash Ratio.

Segment Performance

NAFTA (North America, Mexico, Canada and Caribbean Islands)

NAFTA is the segment with the most impact on FCA's sales and revenues, with more than 50% of total vehicle shipments of the group. Among this region, U.S. is the most significant country with the highest number of sales. The NAFTA segment presented a record high Adjusted EBIT and a high performance in the overall in 2018. Jeep and Ram brands had significant increases in their sales in the U.S. due to a change in demand in this region towards trucks and SUVs. In summary, this region had a strong performance having most revenues come from larger size vehicles such as trucks and SUVs. Despite having had a significantly lower number of shipments in 2019 and the outlook for NAFTA of a contraction in vehicle sales, this is expected to be an exceptionally bad year, therefore, shipments in this region will recover slightly in 2020. Afterwards, revenues in this segment are expected to grow at a CAGR of 2.83% during the business plan period and at 1.52% in the long run.

LATAM (Latin America)

LATAM presented a strong growth as well with a CAGR of 8.23% between 2015 and 2018. Most revenues in this segment come from sales in Brazil and of those, most are from passenger cars, small commercial vehicles and SUVs. This region, especially Brazil, has a strong advantage in the production of ethanol produced from sugar cane which is 80% renewable and is a significant aspect of this segment. However, it is also worth noticing that shipments into Latin America were quite affected by the economic tensions in Argentina. As so, this segment will slow down in terms of revenue growth, going down to a CAGR of 5.33% for the business plan period and of 3.31% for the following years.

EMEA (Europe, Middle East, and Africa)

EMEA is the second most relevant segment of FCA Group having around 29% of total sales in 2018. Inside EMEA, Italy is the country that present the highest number of sales and revenues. In this segment the type of vehicles that sell the most are passenger and light commercial vehicles. In terms of performance, this segment suffered from new regulations that lowered the number of sales, which, together with higher advertising costs of Jeep, led to a decrease in Adjusted EBIT. On the other side, FCA increased its product offering in this region with new models being launched and expects a CAGR of 0.68% for the next few years, which will increase to 1.95% for the long run period (2030-2039).

APAC (Asia Pacific and Australia)

APAC was the weakest segment resulting in a much lower Adjusted EBIT, mainly due to trade and regulatory challenges. In addition, APAC is the region where FCA has the lowest market share and less amount of sales and revenues. This region was highly affected by China's market weakness but partially offset by an increase in India's number of shipments resulting in a decrease of 44% from 2015 to 2018. However, it is expected to recover due to the introduction of new and improved vehicle models in the market resulting in a CAGR of 7.44% in revenues for the following ten years.

Maserati Global (Luxury brand segment)

Maserati is FCA's luxury brand segment and it focuses on the sale of luxury vehicles around the world. In 2018 Maserati presented lower results in the overall, due to market complications in China and lower volumes in North America and Europe. Since the highest number of sales are in U.S. and China, all these events affected the segment significantly, with a reduction of 34.38% in revenues from 2017 to 2018. However, FCA expects this segment to improve its performance and results with the entry of new and improved models in the market, estimating a CAGR in revenues of 1.88% for the future period (2023-2039).

Valuation

Assumptions

Value Drivers Forecast

Fiat-Chrysler's main value drivers are *Number of Shipments* and *Average Shipment Price*. The firm reports both the revenue and the number of shipments for each geography, thus, the average price is sourced combining these two inputs. Using both internal reports, estimations made by the company and external market research, it was assessed the potential growth rate of the auto industry for each geography. NAFTA and EMEA, being the more mature markets, are likely to be in the frontline of the transition to shared mobility and automation. Thus, car sales are expected to retract slightly over the next decade and a growth rate of -1% is estimated for both regions, below FCA's forecast of -1% for NAFTA and 2% for EMEA. On the opposite, LATAM is still a market under development, thus, advancements regarding automation, shared mobility or even mass electrification are not expected to occur in the near future. Therefore, a growth rate of 3% is forecasted for the region. The APAC region has also been experiencing a considerable growth, boosted by the emerging economies. The current paradigm is also not expected to change dramatically in the coming years, so a growth rate of 2% is estimated for the region. Finally, the luxury car market has been growing over the past years, mainly due to an increased demand from Asia, and is expected to continue growing at a rate of 1%. These rates (CAGRs) are the ones at which the market is expected to grow, in terms of vehicle sales, over the following decade.

In the NAFTA, LATAM and EMEA geographies, FCA has consistently been maintaining market shares of approximately 12%, 12.5% and 6.5%. Given the manufacturers diversified portfolio of brands, which provides it a solid competitive position in these regions, the manufacturer is expected to maintain near constant market shares over time in these geographies. Therefore, it is predicted that the *Number of Shipments* will evolve in line with each region's market growth rates. In APAC, the manufacturer is projected to achieve a slightly higher growth rate than the industry, at 3%, given the increasing demand for luxury vehicles and SUVs that FCA will target with the new Jeep and Alfa Romeo products and the manufacturers' current low market share. Finally, the Maserati Global segment is expected to grow extraordinarily, reaching 35 thousand shipments by the end of the Business Plan in 2022, as the brand is undergoing a re-launch, accompanying the luxury car market's growth rate thereafter.

Furthermore, data was retrieved about real GDP growth forecasts for each geography for the remaining of the business plan's period, 2019 to 2022. From that year afterwards, the forecasted real GDP was retrieved for a basket of countries, representative of each geography, and then the CAGR was deduced for the periods of 2022-2030 and 2030-2060. Having forecasted the real GDP growth in each geography for all the explicit horizon, it is expected that the *Average Shipment Price* will grow at this rate until 2029. It was then calculated a GDP growth rate for all geographies, weighted by the share of each one in Total Revenues. The result is the rate at which Total Revenues are predicted to grow from 2030 onwards.

Regarding the company's costs, there are some limitations on data availability. FCA does not release the breakdown of costs per geography in any of its public documents and investors' relations were not able to provide this information. Thus, the sum of the captions 'Cost of Goods Sold', 'Selling General and Administrative' and 'Research and Development' for each geography was deduced from the segment reporting notes, using segment Revenues and EBIT.

Arbitrarily trying to further break down these captions could significantly mislead the forecast of Total Costs. Furthermore, no major shifts are expected in the raw materials' markets, which are mainly the ones for rubber and aluminium. In fact, the latter has lately been oversupplied, which led to a price stagnation. Moreover, FCA sources certain vehicle components indoors, from their own producers Teksid and Comau, which partially protects them from components occasional price hikes due to demand peaks. Additionally, the weight of labour costs in Total Costs incurred by the company is predicted to remain constant in the near future, given that the production process is already significantly automated. Therefore, it was opted to directly forecast the EBIT Margin for each segment, using both company's Business Plan 2018-2022 estimations, comparative performance, relative to its peers, historical results and market studies.

It is predicted that, by the end of the Business Plan 2018-2022, FCA will achieve an EBIT Margin of **9%** in the NAFTA segment, **2%** in LATAM, **5%** in APAC, **2%** in EMEA and **10%** in Maserati Global. These values, more conservative than the company's expectations, reflect the pressure that increasing competition will put on manufacturers in the future. Additionally, due to stricter environmental regulations to be applied in the NAFTA region over the next decade, the average cost per shipment is expected to exceptionally increase by nearly 1,500$. Given that FCA has historically maintained a good margin in this geography, which is a particularly competitive one, this additional cost will likely not be reflected in prices. Thus, it is considered a progressive increase in COGS, which translates into a progressive decrease in the EBIT Margin to **6.4%** by 2029. In the remaining segments, as margins are relatively thin, it is estimated that an increase in costs would be reflected in a price increase; therefore, keeping the aforementioned margins constant is a fair proxy for the future.

Regarding the recent announcement of a merger with PSA, it is predicted that FCA will be able to reduce 20% of its forecasted Research and Development costs, benefiting from the synergies that arise with the pooling of both companies' acquired knowledge. In the press release FCA announces possible one-off costs of €2.8BN, associated with the necessary structural changes to achieve these future savings, which were considered to occur in 2022.

Furthermore, an increase in Research and Development Costs is expected over the next decade. This is due to the fact that Fiat-Chrysler is lagging behind the run for electrification and automation in the industry. In order to catch the pace of the further developed Tesla and VW Group, significant investment will be required. Starting in 2023 until 2029, it is considered incremental R&D costs with a peak of an additional 50% in 2026. Again, considering a merger with PSA and the consequent synergies, it is estimated that FCA will be able to split these additional R&D expenses.

Capex

FCA is planning on having capital expenditures of around 6% of Revenues, 2020 being an exception with a value of 9%. These values reflect FCA's strategy accurately given their future investment plans, such as new infrastructures, improved technology and electrification. As so, these were the values considered for valuation purposes.

The forecast on PP&E for the business plan period (2018-2020) was made given the CAPEX values predicted by the company as these were accurate values of what is predicted to happen. For the period after the business plan, PP&E was assumed to grow with revenues at a fixed percentage, consistent with ones presented during the previous period.

Depreciation has been particularly constant through the years, around 10% of PP&E, Goodwill and other intangible assets. Considering this quite constant value, depreciation forecast was made based on an average percentage of 10.36% and expected to remain close this proportion.

As so, forecast in CAPEX was consistent with the values presented on the business plan for that period, and afterwards it is assumed to continue growing as FCA is expecting several new investments and overall improvement regarding both facilities and vehicles equipment. However, this CAPEX growth will slow down slightly over the years since it would not be realistic to assume FCA will continue to invest in as many new assets in the long term.

Cost of Debt, Equity and WACC

Fiat-Chrysler Automobiles' longest-term outstanding bond, denominated in euros, matures at 29/03/2024. It has a coupon of 3.75% and it is trading at a price of **€113.243**, which implies a yield to maturity of **0.584%.** In order to calculate the true cost of debt of the firm, a reasonable probability of default and loss given default can be proxied from Moody's PD and LGD tables, for FCA's credit rating Ba1. Considering the estimated PD of **1.03%** and LGD of **55%**, it is predicted that FCA bears a cost of debt of **0.012%,** which implies an after-tax cost of debt of approximately **0.010%,** considering the tax shield of interest at the 18% marginal tax rate.

Beta	**1.758**
Standard Error	0.226
t Stat	7.769
P-value	0.000
Lower 95%	**1.311**
Upper 95%	**2.205**
Observations	161

Exhibit 17 – Summary of Beta Regression Output
Source: Analyst Estimates

The cost of equity was determined using the Capital Asset Pricing Model (CAPM). To do so, both the historical stock prices of FCA and the Stoxx Europe 600 Index were retrieved. It was considered as risk-free asset the 3-month German Eurobond, in order to compute excess returns and perform the regression for Beta. Using weekly data for the past 3 years, it was determined a Beta of **1.758**, with a standard error of 0.226, which results in a 95% confidence interval of [1.311;2.205], as shown in *Exhibit 17*.

Inputs:	
Industry Historical Avg. Beta Unlevered	**1.155**
Industry Historical Avg. Beta Relevered	**1.318**
FCA Historical Beta Unlevered	**1.536**
FCA Historical Beta	**1.758**
Average Unlevered Beta	**1.346**
Average Levered Beta	**1.538**
Rf	**-0.62%**
MRP	**5.75%**
Tax Rate	**18.00%**
Re	**8.23%**
Rd	**0.012%**
Ru	**7.12%**
Net Debt	**€ 4,370.40**
Equity	**€ 28,037.83**
D/E	**15.59%**
WACC	**7.12%**

Exhibit 18 – Inputs for Valuation
Source: Analyst Estimates; Data from Bloomberg

Due to the significantly broad confidence interval, this Beta was calibrated, at a 50/50 weighting, with the industry's average unlevered cost of equity, which was relevered to FCA's target D/E level. In order to assess the industry's average unlevered cost of equity, the same procedure described above was applied to each company of FCA's competitive set, mentioned in the Comparables section of the report: Toyota, VW, General Motors, Ford, Nissan, Honda, Renault, PSA, BMW and Daimler. It was considered risk-free assets and market indexes denominated in each stock's base currency. The result is in an industry's average unlevered Beta of **1.155**, as presented in *Exhibit 18*, which is relevered, according to FCA's target capital structure, to **1.318.** Therefore, it was estimated an average levered beta of **1.538.**

Following the CAPM formula and, considering the 3-month German Eurobond mentioned above as the risk-free asset and a market risk premium of **5.75%,** based on KPMG's Jun 2019 Research Summary recommendation[5], it was determined that FCA faces a cost of equity of **8.23%,** which translates into an unlevered cost of equity of **7.12%,** as presented in *Exhibit 18*.

As the company is not expected to significantly change their target debt level in the future, the Weighted Average Cost of Capital (WACC) is assumed to remain constant throughout time. Considering the Debt to Equity ratio for year-end 2019, of **15.59%,** the aforementioned after-tax cost of debt and cost of equity, the company's WACC is predicted to be **7.12%.**

Output

DCF Model

The first model used in FCA's valuation was the DCF (Discounted Cash Flow) model. For the explicit horizon, 2020 to 2039, the discounted cash flows sum to € 36,081 million. In the last year of the explicit horizon, 2039, the RONIC is estimated to be **8.58%**, while ROIC progressively decreases over the explicit period to the value of **11.96%,** by the same year. For the perpetuity period, starting in 2039, it was predicted that the company's CFs would grow at a long-term rate of, approximately, 1.95%. This translates into a discounted terminal value of € 21,553 million, with a weight of 37% in the sum of discounted CFs. Considering the non-core business at its book value of € (31,465) million leads to an enterprise value of € 26,168 million. Having a projected net debt of € (3,201) million, the Equity value results to be equal to € 29,370 million. Given Fiat-Chrysler's number of shares outstanding, 1,567.52 million, its target share price by the end of 2020 is estimated to be **€ 18.74**. Furthermore, investors who hold FCA's stock during 2020 are expected to receive distributions in the amount of **€ 0.46**. This target price implies a current stock undervaluation by the market, leading to expected capital gains of **€ 5.44**, in addition to the € 0.46 in dividends. This results in an estimated return of **44.36%** for an investor who buys the stock at the current price and holds it until the end of December 2020. Nevertheless, in order to realize the potential capital gains, it is imperative that the market perceives this current undervaluation over the next year, adjusting its price.

APV Model

In addition to the DCF method, Fiat-Chrysler's share price was also evaluated through the Adjusted Present Value model (APV). Considering the present value

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of the unlevered FCFs of € 57,630 million and the non-core business at its book value, € (31,465) million leads to an unlevered enterprise value of € 26,165 million. Having a present value of tax shields at € 3,750 million, the levered enterprise value is expected to be € 29,915 million by year-end 2020. Finally, deducing to the later the net value of debt of € (3,201) million results in an Equity value of € 33,117 million. As so, the estimated share price using the APV method is equal to **€ 21.13**, which results in possible capital gains of **€ 7.83**. Adding to this the forecasted value of transactions with shareholders, **€ 0.46**, results in an expected **62.33%** return for investors.

Multiples Valuation

In order to better understand how the market perceives the value of the comparables in comparison to Fiat-Chrysler Automobiles, three different multiple valuations were performed, namely EV/EBITDA, Price/Earnings and Price/Sales. The manufacturers mentioned in the comparables' section of the report were the ones considered for this valuation and the median of their ratios was assessed to compute an indicative share price for FCA. This way, the effect of outliers is minimized.

	EV / EBITDA Multiple	P / E Multiple	P / Sales Multiple
FCA	1.72	5.62	0.19
Toyota	9.43	11.86	0.83
VW Group	2.60	12.73	0.38
General Motors	2.67	6.52	0.36
Ford Motor	2.51	10.18	0.23
Nissan	1.56	7.80	0.23
Honda	7.40	8.96	0.35
Renault SA	2.09	3.50	0.22
PSA	2.08	6.88	0.27
BMW	5.92	7.32	0.49
Daimler	2.60	7.37	0.32
Median	**2.60**	**7.37**	**0.32**
Implied Share Price	**€ 19.72**	**€ 17.18**	**€ 22.51**

Exhibit 19 – Output of Multiples Valuation
Source: Analyst Estimates; Data from Bloomberg

The EV to EBITDA ratio suggests FCA shares to be valued at **€ 19.72**, whilst Price to Sales suggests a valuation of **€ 17.18.** The commonly used Price to Earnings ratio, which measures investors' willingness to pay per each euro of earnings, yielded a share price of **€ 22.51**.

Despite the "blindness" of multiples valuation in what concerns investor's expectations about the company being valued, as it only measures the expectations incorporated in the prices of the comparables, all ratios suggest FCA's shares to be undervalued, which is consistent with the results of the DCF and APV valuations.

Sensitivity

MRP	Share Price (DCF)	Share Price (APV)
5,25%	€ 24,04	€ 26,82
5,50%	€ 21,20	€ 23,77
5,75%	€ 18,74	€ 21,13
6%	€ 16,57	€ 18,80
6,25%	€ 14,64	€ 16,74

Exhibit 20 – Sensitivity on the Market-Risk-Premium
Source: Analyst Estimates

It is crucial to highlight the influence that some valuation inputs have on the projected share price. For instance, considering a different Market Risk Premium may yield significantly different results, as can be observed in *Exhibit 20*. Furthermore, it was assessed the impact of considering a different growth rate for the perpetuity period, starting in 2039. The results are presented in *Exhibit 21*. For

Growth rate	Share Price (DCF)	Share Price (APV)
0,00%	€ 14,77	€ 16,86
0,45%	€ 15,48	€ 17,62
0,95%	€ 16,38	€ 18,60
1,45%	€ 17,45	€ 19,74
1,95%	€ 18,74	€ 21,13
2,45%	€ 20,27	€ 22,77
2,95%	€ 22,19	€ 24,83
3,45%	€ 24,63	€ 27,45

Exhibit 21 – Sensitivity on the Perpetuity Growth Rate
Source: Analyst Estimates

the DCF valuation method, considering a growth rate of zero would result in a share price of **€14.77**, which is **21%** lower than the base case of **€18.74**.

Considering simultaneous variations in both valuation inputs, provides a more extensive insight on the sensibility of the share price to the model inputs and external market conditions. In *Exhibit 22*, it is demonstrated Fiat-Chrysler's share prices for different Market-Risk-Premiums and for different Perpetuity Growth Rates.

Share Price (DCF)		MRP				
		5,25%	5,50%	5,75%	6%	6,25%
Long Term Growth Rate	0,95%	20,64 €	18,39 €	16,38 €	14,59 €	12,97 €
	1,45%	22,16 €	19,66 €	17,45 €	15,49 €	13,74 €
	1,95%	24,04 €	21,20 €	**18,74 €**	16,57 €	14,64 €
	2,45%	26,34 €	23,07 €	20,27 €	17,84 €	15,70 €
	2,95%	29,33 €	25,45 €	22,19 €	19,40 €	16,99 €

Exhibit 22 – Scenario Analysis on the MRP and Perpetuity Growth Rate
Source: Analyst Estimates

Conclusion

The automotive industry is under the influence of several factors, both technological and environmental. Competition is high, with manufacturers not only trying to steal their competitors' market share by launching refreshed products but also developing new mobility solutions which are likely to change the industry's current paradigm. Fiat-Chrysler Automobiles has been able to leverage on its diversified portfolio of brands to target each geography specifically and is currently investing in automation and alternative fuels. This way, FCA has and will be able to sustain a consistent market share throughout the following years. Additionally, it has agreed to merge with PSA, allowing both manufacturers to benefit from synergies arising from the share of knowledge and R&D results and complement each other's weaknesses regarding geographical presence.

Based on the results of our primary valuation technique, the DCF valuation method described above, our recommendation is for investors to *Buy* Fiat-Chrysler Automobiles stock and hold it over the next year. This strategy is recommended given the expected capital gains of **5.44€** and estimated dividend gains of **0.46€.** This translates into a significant expected return of **44.36%** over the invested amount. However, it is important to stress that, in order to realize the potential capital gains at the end of 2020, there is a need for the market to perceive the stock's true value and correct this undervaluation, adjusting its price. Moreover, it is crucial to highlight FCA's stock volatility, which has some of the highest price fluctuations in the sector. In the event of a downfall as large as in mid-June 2017 (-15.4%), due to external market conditions, a significant portion of the potential capital gains could be eroded, leading to a share price of **€15.85**. When considering dividends, such a scenario would translate into a lower **23%** return over the invested capital.

Appendix

Financial Statements

Core Business *(in millions)*		Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Recurrent Items												
Total Core Revenues	€ 107,524	€ 98,417	€ 104,282	€ 106,099	€ 107,857	€ 109,360	€ 110,916	€ 112,527	€ 114,196	€ 115,926	€ 117,720	€ 119,582
Total Core Costs	€ 102,420	€ 92,956	€ 98,169	€ 99,658	€ 101,086	€ 103,145	€ 105,258	€ 107,427	€ 109,657	€ 111,155	€ 112,720	€ 114,354
Cost of goods sold	€ 92,342	€ 83,809	€ 88,510	€ 89,852	€ 91,140	€ 92,996	€ 94,901	€ 96,857	€ 98,867	€ 100,218	€ 101,629	€ 103,102
Selling, general and administrative expenses	€ 7,112	€ 6,455	€ 6,817	€ 6,921	€ 7,020	€ 7,163	€ 7,310	€ 7,460	€ 7,615	€ 7,719	€ 7,828	€ 7,941
Research and development costs	€ 2,965	€ 2,691	€ 2,842	€ 2,885	€ 2,927	€ 2,986	€ 3,047	€ 3,110	€ 3,175	€ 3,218	€ 3,264	€ 3,311
Synergies arising from Merger with PSA:						€ 796	€ 1,006	€ 1,217	€ 1,429	€ 1,239	€ 1,050	€ 861
Research and development costs						€ 597	€ 609	€ 622	€ 635	€ 644	€ 653	€ 662
Research and development costs incremental for electrification						€ 198	€ 397	€ 595	€ 794	€ 595	€ 397	€ 198
Total Operating Recurrent Income	€ 5,104	€ 5,461	€ 6,112	€ 6,440	€ 6,771	€ 7,011	€ 6,665	€ 6,317	€ 5,968	€ 6,009	€ 6,050	€ 6,089
Operating Margin (Recurrent) %	*4.75%*	*5.55%*	*5.86%*	*6.07%*	*6.28%*	*6.41%*	*6.01%*	*5.61%*	*5.23%*	*5.18%*	*5.14%*	*5.09%*
Non Recurrent items												
Restructuring costs	€ 95	€ 76	€ 57	€ 38	€ 19	€ -						
Restructuring costs related with Merger with PSA					€ 2,800							
Total Operating Non Recurrent Income	€ (95)	€ (76)	€ (57)	€ (38)	€ (2,819)	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Total Operating Income	€ 5,009	€ 5,385	€ 6,055	€ 6,402	€ 3,952	€ 7,011	€ 6,665	€ 6,317	€ 5,968	€ 6,009	€ 6,050	€ 6,089
Operating Margin %	*4.66%*	*5.47%*	*5.81%*	*6.03%*	*3.66%*	*6.41%*	*6.01%*	*5.61%*	*5.23%*	*5.18%*	*5.14%*	*5.09%*
Notional Taxes	€ 952	€ 1,023	€ 1,090	€ 1,152	€ 711	€ 1,262	€ 1,200	€ 1,137	€ 1,074	€ 1,082	€ 1,089	€ 1,096
Statutory Tax Rate	*19.00%*	*19.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*	*18.00%*
Tax Adjustments	€ 17	€ 751	€ 809	€ 863	€ 481	€ 958	€ 904	€ 850	€ 795	€ 802	€ 808	€ 814
% of Notional Taxes		*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*	*73.43%*
Permanent differences		€ (267)	$ (284)	$ (300)	$ (185)	$ (329)	$ (312)	$ (296)	$ (280)	$ (282)	$ (284)	$ (285)
Tax credits		€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)	€ (135)
Deferred tax assets not recognized and write-downs		€ 627	$ 668	$ 706	$ 436	$ 774	$ 735	$ 697	$ 659	$ 663	$ 668	$ 672
Dif. between foreign tax rates and the theoretical applicable tax rate and tax holidays		€ 470	$ 501	$ 529	$ 327	$ 580	$ 551	$ 522	$ 493	$ 497	$ 500	$ 503
Withholding tax		€ 56	$ 59	$ 63	$ 39	$ 68	$ 65	$ 62	$ 58	$ 59	$ 59	$ 59
Total Core Taxes	€ 969	€ 1,774	€ 1,899	€ 2,016	€ 1,192	€ 2,220	€ 2,104	€ 1,987	€ 1,870	€ 1,884	€ 1,897	€ 1,910
Effective Tax Rate	19.34%	*32.95%*	*31.36%*	*31.48%*	*30.18%*	*31.67%*	*31.57%*	*31.45%*	*31.33%*	*31.35%*	*31.36%*	*31.37%*
Core Result	€ 4,040	€ 3,611	€ 4,156	€ 4,387	€ 2,759	€ 4,791	€ 4,561	€ 4,330	€ 4,098	€ 4,126	€ 4,152	€ 4,178

Non-core Business *(in millions)*		Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Other Activities	€ 2,888	€ 2,942	€ 3,001	€ 3,058	€ 3,113	€ 3,172	€ 3,232	€ 3,293	€ 3,356	€ 3,420	€ 3,486	€ 3,553
% Gross Margin	-2.4%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%
Costs Other Activities	€ 2,960	€ 3,064	€ 3,124	€ 3,184	€ 3,241	€ 3,303	€ 3,365	€ 3,429	€ 3,494	€ 3,561	€ 3,630	€ 3,699
Restructuring costs	€ 8											
Result from investments:	€ 235	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Share of the profit of equity method investees	€ 240											
Other income from investments	€ (5)											
OCI	€ (103)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)
Share of Other comprehensive (loss) for equity method investees	€ (103)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)	€ (95)
% Investments accounted for using the equity method	-5.14%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%	-4.75%
Non Core Operating Result Before Taxes	€ 52	€ (216)	€ (219)	€ (221)	€ (223)	€ (226)	€ (228)	€ (231)	€ (233)	€ (236)	€ (239)	€ (242)
Taxes	€ 10	€ (41)	€ (39)	€ (40)	€ (40)	€ (41)	€ (41)	€ (42)	€ (42)	€ (42)	€ (43)	€ (43)
Profit from discontinued operations, net of tax	€ 302											
OCI	€ 152	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Gains/(losses) on remeasurement of defined benefit plans	€ 317											
Related tax impact	€ (76)											
Items relating to discontinued operations, net of tax	€ 2											
Items relating to discontinued operations, net of tax	€ (91)											
Non Core Result	€ 496	€ (175)	€ (179)	€ (181)	€ (183)	€ (185)	€ (187)	€ (189)	€ (191)	€ (194)	€ (196)	€ (198)

Financial *(in millions)*		Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Net financial expenses	€ 1,056	€ (589)	€ 423	€ 310	€ 473	€ 599	€ 839	€ 1,025	€ 1,165	€ 1,266	€ 1,353	€ 1,419
	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%	9.69%
Tax Shield	€ 201	€ (106)	€ 76	€ 56	€ 85	€ 108	€ 151	€ 185	€ 210	€ 228	€ 244	€ 256
OCI	€ 107											
Gains/(losses) on equity instruments measured at fair value through other comprehen	€ (4)											
Gains/(losses) on cash flow hedging instruments	€ (9)											
Related tax impact	€ (6)											
Exchange (losses)/gains on translating foreign operations	€ 126											
Financial Result	€ (748)	€ 483	€ (347)	€ (254)	€ (388)	€ (491)	€ (688)	€ (841)	€ (956)	€ (1,038)	€ (1,109)	€ (1,164)
Comprehensive Income	€ 3,788	€ 3,919	€ 3,630	€ 3,951	€ 2,188	€ 4,115	€ 3,686	€ 3,300	€ 2,951	€ 2,894	€ 2,847	€ 2,816

	PAST	Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
D&A	€ 5,507	€ 5,404	€ 5,836	€ 6,004	€ 6,065	€ 6,129	€ 6,196	€ 6,265	€ 6,336	€ 6,411	€ 6,487	€ 6,567
% of PPE, Goodwill and Intangibles	10.21%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%	10.36%

Exhibit 23 – Past and Projected Reformulated Income Statement, 2018 - 2029
Source: Analyst Estimates and FCA's Annual Reports

Core Business												
(in millions)	**PAST**	**Business Plan 2018-2022**				**Annuity**						
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**
Operating cash	€ 4,774	€ 4,370	€ 4,630	€ 4,711	€ 4,789	€ 4,856	€ 4,925	€ 4,996	€ 5,070	€ 5,147	€ 5,227	€ 5,309
% of Revenues	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*	*4.44%*
Inventories	€ 10,694	€ 10,896	€ 11,507	€ 11,682	€ 11,849	€ 12,091	€ 12,338	€ 12,593	€ 12,854	€ 13,030	€ 13,213	€ 13,405
Average Holding Period (days of Revenue)	*42.27*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*	*47.45*
Assets sold with a buy-back commitment	€ 1,707	€ 1,599	€ 1,695	€ 1,724	€ 1,753	€ 1,777	€ 1,802	€ 1,829	€ 1,856	€ 1,884	€ 1,913	€ 1,943
% of Revenues	*1.59%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*	*1.63%*
Intangible assets												
Goodwill and intangible assets with indefinite useful live	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970	€ 13,970
% of Revenues	*12.99%*											
Other intangible assets	€ 11,749	€ 10,426	€ 11,047	€ 11,240	€ 11,426	€ 11,585	€ 11,750	€ 11,921	€ 12,098	€ 12,281	€ 12,471	€ 12,668
% of Revenues	*10.93%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*	*10.59%*
Property, plant and equipment	€ 26,307	€ 27,792	€ 31,341	€ 32,764	€ 33,170	€ 33,633	€ 34,111	€ 34,607	€ 35,120	€ 35,652	€ 36,204	€ 36,776
% of Revenues	*24.47%*	*28.24%*	*30.05%*	*30.88%*	*30.75%*	*30.75%*	*30.75%*	*30.75%*	*30.75%*	*30.75%*	*30.75%*	*30.75%*
Deferred tax assets	€ 1,814	€ 1,679	€ 1,544	€ 1,409	€ 1,274	€ 1,139	€ 1,004	€ 869	€ 734	€ 599	€ 464	€ 329
Trade and Other Receivables	€ 8,672	€ 7,502	€ 7,950	€ 8,088	€ 8,222	€ 8,337	€ 8,455	€ 8,578	€ 8,705	€ 8,837	€ 8,974	€ 9,116
Average Collection Period (days of Revenue)	*29.44*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*	*27.82*
Tax receivables	€ 490	€ 346	€ 367	€ 373	€ 379	€ 385	€ 390	€ 396	€ 402	€ 408	€ 414	€ 421
Average Collection Period (days of Revenue)	*1.66*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*	*1.28*
Prepaid expenses and other assets	€ 684	€ 663	€ 703	€ 715	€ 727	€ 737	€ 747	€ 758	€ 770	€ 781	€ 793	€ 806
% of Revenues	*0.64%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*	*0.67%*
Total Core Assets	**€ 80,861**	**€ 79,244**	**€ 84,753**	**€ 86,676**	**€ 87,559**	**€ 88,509**	**€ 89,494**	**€ 90,516**	**€ 91,578**	**€ 92,588**	**€ 93,643**	**€ 94,743**
Deferred tax liabilities	€ (937)	€ (858)	€ (909)	€ (925)	€ (940)	€ (953)	€ (967)	€ (981)	€ (995)	€ (1,010)	€ (1,026)	€ (1,042)
% of Revenues	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*	*-0.87%*
Tax payables	€ (115)	€ (105)	€ (112)	€ (113)	€ (115)	€ (117)	€ (119)	€ (120)	€ (122)	€ (124)	€ (126)	€ (128)
Average Collection Period (days of Revenue)	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*	*0.39*
Trade payables	€ (19,229)	€ (23,149)	€ (24,528)	€ (24,955)	€ (25,369)	€ (25,723)	€ (26,088)	€ (26,467)	€ (26,860)	€ (27,267)	€ (27,689)	€ (28,127)
Average Collection Period (days of COGS)	*76.01*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*	*85.85*
Total Core Liabilities	**€ (20,281)**	**€ (24,111)**	**€ (25,548)**	**€ (25,993)**	**€ (26,424)**	**€ (26,793)**	**€ (27,174)**	**€ (27,568)**	**€ (27,977)**	**€ (28,401)**	**€ (28,841)**	**€ (29,297)**
Total Core Invested Capital	**€ 60,580**	**€ 55,132**	**€ 59,205**	**€ 60,682**	**€ 61,135**	**€ 61,716**	**€ 62,320**	**€ 62,948**	**€ 63,601**	**€ 64,187**	**€ 64,802**	**€ 65,447**
Investments accounted for using the equity method	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002	€ 2,002
Other non-current assets	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556	€ 556
Assets held for sale	€ 4,801	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Employee benefits liabilities	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)	€ (8,470)
Provisions	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)	€ (16,044)
Other liabilities	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)	€ (9,509)
Liabilities held for sale	€ (2,931)	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Total Non-core Invested Capital	**€ (29,595)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**	**€ (31,465)**
Total Invested Capital	**€ 30,985**	**€ 23,667**	**€ 27,740**	**€ 29,217**	**€ 29,670**	**€ 30,251**	**€ 30,855**	**€ 31,483**	**€ 32,136**	**€ 32,722**	**€ 33,337**	**€ 33,982**
Other financial assets	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977	€ 977
Non operating cash (Excess cash)	€ 7,676	€ 18,128	€ 16,959	€ 18,643	€ 19,940	€ 22,416	€ 24,340	€ 25,786	€ 26,820	€ 27,721	€ 28,408	€ 28,891
Long-term debt	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)	€ (8,667)
Other financial liabilities	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)	€ (207)
Short-term debt and current portion of long-term debt	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)	€ (5,861)
Debt	**€ (6,082)**	**€ 4,370**	**€ 3,201**	**€ 4,885**	**€ 6,182**	**€ 8,658**	**€ 10,582**	**€ 12,028**	**€ 13,062**	**€ 13,963**	**€ 14,650**	**€ 15,133**
Equity (total)	**€ 24,903**	**€ 28,038**	**€ 30,941**	**€ 34,102**	**€ 35,852**	**€ 38,909**	**€ 41,437**	**€ 43,511**	**€ 45,197**	**€ 46,686**	**€ 47,987**	**€ 49,114**
D/E	-24%	16%	10%	14%	17%	22%	26%	28%	29%	30%	31%	31%
Transactions with shareholders	€ 284	€ (784)	€ (726)	€ (790)	€ (438)	€ (1,058)	€ (1,158)	€ (1,226)	€ (1,265)	€ (1,406)	€ (1,546)	€ (1,690)
Payout Ratio	-7.82%	20%	20%	20%	20%	26%	31%	37%	43%	49%	54%	60%

Exhibit 24 – Past and Projected Reformulated Balance Sheet, 2018 - 2029
Source: Analyst Estimates and FCA's Annual Reports

Core Business												
(in millions)	PAST	Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
NOPLAT - Recurrent	€ 4,135	€ 3,687	€ 4,213	€ 4,425	€ 5,578	€ 4,791	€ 4,561	€ 4,330	€ 4,098	€ 4,126	€ 4,152	€ 4,178
NOPLAT - Non Recurrent	€ (95)	€ (76)	€ (57)	€ (38)	€ (2,819)	€ -	€ -	€ -	€ -	€ -	€ -	€ -
D&A	€ 5,507	€ 5,404	€ 5,836	€ 6,004	€ 6,065	€ 6,129	€ 6,196	€ 6,265	€ 6,336	€ 6,411	€ 6,487	€ 6,567
Core Gross FCF (Operational Cash Flow)	€ 9,547	€ 9,015	€ 9,992	€ 10,390	€ 8,824	€ 10,920	€ 10,757	€ 10,595	€ 10,435	€ 10,536	€ 10,640	€ 10,746
Invested Capital PP&E	€ 26,307	€ 27,792	€ 31,341	€ 32,764	€ 33,170	€ 33,633	€ 34,111	€ 34,607	€ 35,120	€ 35,652	€ 36,204	€ 36,776
Net CAPEX	€ (2,800)	€ (6,889)	€ (9,385)	€ (7,427)	€ (6,471)	€ (6,592)	€ (6,675)	€ (6,760)	€ (6,850)	€ (6,943)	€ (7,039)	€ (7,140)
% of Revenues	*2.60%*	*7.00%*	*9.00%*	*7.00%*	*6.00%*	*6.03%*	*6.02%*	*6.01%*	*6.00%*	*5.99%*	*5.98%*	*5.97%*
Invested Capital NWC	€ 4,911	€ (380)	€ (441)	€ (475)	€ (509)	€ (440)	€ (370)	€ (301)	€ (230)	€ (253)	€ (275)	€ (297)
ΔNWC	€ 1,021	€ 5,291	€ 61	€ 34	€ 34	€ (69)	€ (69)	€ (70)	€ (70)	€ 23	€ 22	€ 22
Invested Capital Others	€ 29,362	€ 27,721	€ 28,305	€ 28,393	€ 28,474	€ 28,523	€ 28,579	€ 28,642	€ 28,711	€ 28,788	€ 28,874	€ 28,967
Δ Invested Capital Others	€ (446)	€ 1,641	€ (584)	€ (88)	€ (81)	€ (49)	€ (56)	€ (63)	€ (70)	€ (77)	€ (85)	€ (93)
Investment Cash Flow	€ (2,225)	€ 43	€ (9,909)	€ (7,481)	€ (6,518)	€ (6,710)	€ (6,800)	€ (6,893)	€ (6,989)	€ (6,997)	€ (7,102)	€ (7,211)
Core Free Cash Flows	€ 7,322	€ 9,058	€ 84	€ 2,909	€ 2,306	€ 4,210	€ 3,957	€ 3,702	€ 3,445	€ 3,539	€ 3,538	€ 3,534

Non-Core Business												
(in millions)	PAST	Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Gross Free Cash Flows (Non-core)	€ 447	€ (175)	€ (179)	€ (181)	€ (183)	€ (185)	€ (187)	€ (189)	€ (191)	€ (194)	€ (196)	€ (198)
Non-Core Invested Capital	€ (29,595)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)
Δ Non-Core Invested Capital	€ 2,381	€ (1,870)	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Non-Core Cash Flow	€ (1,934)	€ 1,695	€ (179)	€ (181)	€ (183)	€ (185)	€ (187)	€ (189)	€ (191)	€ (194)	€ (196)	€ (198)
Total Free Cash Flows	€ 5,388	€ 10,753	€ (96)	€ 2,728	€ 2,123	€ 4,025	€ 3,770	€ 3,513	€ 3,254	€ 3,346	€ 3,342	€ 3,336

Financing												
(in millions)	PAST	Business Plan 2018-2022				Annuity						
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Financial Results	€ (855)	€ 483	€ (347)	€ (254)	€ (388)	€ (491)	€ (688)	€ (841)	€ (956)	€ (1,038)	€ (1,109)	€ (1,164)
Net Financial Assets	€ (6,082)	€ 4,370	€ 3,201	€ 4,885	€ 6,182	€ 8,658	€ 10,582	€ 12,028	€ 13,062	€ 13,963	€ 14,650	€ 15,133
Δ Net Financial Assets	€ 4,817	€ 10,452	€ (1,169)	€ 1,683	€ 1,297	€ 2,476	€ 1,924	€ 1,447	€ 1,033	€ 902	€ 687	€ 482
Debt Financing Cash Flow	€ (5,672)	€ (9,969)	€ 822	€ (1,938)	€ (1,686)	€ (2,967)	€ (2,612)	€ (2,287)	€ (1,989)	€ (1,940)	€ (1,796)	€ (1,646)
Net Cash Transactions with Shareholders	€ 284	€ (784)	€ (726)	€ (790)	€ (438)	€ (1,058)	€ (1,158)	€ (1,226)	€ (1,265)	€ (1,406)	€ (1,546)	€ (1,690)
Equity Financing Cash Flow	€ 284	€ (784)	€ (726)	€ (790)	€ (438)	€ (1,058)	€ (1,158)	€ (1,226)	€ (1,265)	€ (1,406)	€ (1,546)	€ (1,690)
Financing FCF	€ (5,388)	€ (10,753)	€ 96	€ (2,728)	€ (2,123)	€ (4,025)	€ (3,770)	€ (3,513)	€ (3,254)	€ (3,346)	€ (3,342)	€ (3,336)

Control Metrics	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
RONIC	-19.44%	13.67%	-9.67%	5.19%	78.08%	-173.80%	-39.58%	-38.26%	-36.95%	4.23%	4.56%	4.22%
ROIC	12.97%	11.90%	17.80%	15.95%	19.09%	16.15%	15.08%	14.03%	13.02%	12.84%	12.69%	12.53%
RR	-79.36%	-147.77%	96.66%	33.39%	8.12%	12.13%	13.24%	14.50%	15.93%	14.22%	14.81%	15.42%
g (Operational CF)	-0.46%	-5.58%	10.84%	3.98%	-15.07%	23.76%	-1.50%	-1.51%	-1.51%	0.97%	0.98%	0.99%
g = RONIC x RR	15.43%	-20.21%	-9.34%	1.73%	6.34%	-21.08%	-5.24%	-5.55%	-5.89%	0.60%	0.68%	0.65%
g (Core FCF)	-1.87%	-10.64%	15.11%	5.54%	-37.10%	73.64%	-4.80%	-5.06%	-5.36%	0.67%	0.65%	0.62%

Exhibit 25 – Past and Projected Cash Flow Map, 2018 - 2029
Source: Analyst Estimates and FCA's Annual Reports

Core Business										
(in millions)					Convergence with Economy					
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
NOPLAT - Recurrent	€ 4,384	€ 4,470	€ 4,557	€ 4,646	€ 4,737	€ 4,830	€ 4,924	€ 5,020	€ 5,119	€ 5,219
NOPLAT - Non Recurrent	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
D&A	€ 5,221	€ 5,323	€ 5,427	€ 5,533	€ 5,641	€ 5,751	€ 5,863	€ 5,978	€ 6,095	€ 6,214
Core Gross FCF (Operational Cash Flow)	€ 9,605	€ 9,792	€ 9,984	€ 10,179	€ 10,378	€ 10,581	€ 10,788	€ 10,999	€ 11,214	€ 11,433
Invested Capital PP&E	€ 37,495	€ 38,228	€ 38,975	€ 39,737	€ 40,514	€ 41,306	€ 42,113	€ 42,936	€ 43,776	€ 44,631
Net CAPEX	€ (5,939)	€ (6,055)	€ (6,174)	€ (6,294)	€ (6,418)	€ (6,543)	€ (6,671)	€ (6,801)	€ (6,934)	€ (7,070)
% of Revenues	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*	*4.87%*
Invested Capital NWC	€ (373)	€ (380)	€ (388)	€ (395)	€ (403)	€ (411)	€ (419)	€ (427)	€ (436)	€ (444)
ΔNWC	€ 76	€ 7	€ 7	€ 8	€ 8	€ 8	€ 8	€ 8	€ 8	€ 9
Invested Capital Others	€ 29,254	€ 29,546	€ 29,844	€ 30,148	€ 30,458	€ 30,774	€ 31,096	€ 31,424	€ 31,759	€ 32,100
Δ Invested Capital Others	€ (287)	€ (292)	€ (298)	€ (304)	€ (310)	€ (316)	€ (322)	€ (328)	€ (335)	€ (341)
Investment Cash Flow	€ (6,150)	€ (6,340)	€ (6,464)	€ (6,591)	€ (6,720)	€ (6,851)	€ (6,985)	€ (7,121)	€ (7,261)	€ (7,403)
Core Free Cash Flows	€ 3,455	€ 3,452	€ 3,519	€ 3,588	€ 3,658	€ 3,730	€ 3,803	€ 3,877	€ 3,953	€ 4,030

Non-Core Business										
(in millions)					Convergence with Economy					
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Gross Free Cash Flows (Non-core)	€ (200)	€ (203)	€ (205)	€ (208)	€ (210)	€ (213)	€ (215)	€ (218)	€ (221)	€ (224)
Non-Core Invested Capital	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)	€ (31,465)
Δ Non-Core Invested Capital	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
Non-Core Cash Flow	€ (200)	€ (203)	€ (205)	€ (208)	€ (210)	€ (213)	€ (215)	€ (218)	€ (221)	€ (224)
Total Free Cash Flows	€ 3,254	€ 3,249	€ 3,314	€ 3,381	€ 3,448	€ 3,517	€ 3,587	€ 3,659	€ 3,732	€ 3,807

Financing										
(in millions)					Convergence with Economy					
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Financial Results	€ (1,202)	€ (1,223)	€ (1,239)	€ (1,256)	€ (1,273)	€ (1,290)	€ (1,309)	€ (1,328)	€ (1,347)	€ (1,367)
Net Financial Assets	€ 15,396	€ 15,595	€ 15,803	€ 16,018	€ 16,241	€ 16,472	€ 16,710	€ 16,957	€ 17,211	€ 17,474
Δ Net Financial Assets	€ 263	€ 200	€ 207	€ 215	€ 223	€ 231	€ 239	€ 247	€ 255	€ 263
Debt Financing Cash Flow	€ (1,465)	€ (1,423)	€ (1,446)	€ (1,471)	€ (1,496)	€ (1,521)	€ (1,547)	€ (1,574)	€ (1,602)	€ (1,630)
Net Cash Transactions with Shareholders	€ (1,789)	€ (1,826)	€ (1,868)	€ (1,910)	€ (1,953)	€ (1,996)	€ (2,040)	€ (2,085)	€ (2,130)	€ (2,177)
Equity Financing Cash Flow	€ (1,789)	€ (1,826)	€ (1,868)	€ (1,910)	€ (1,953)	€ (1,996)	€ (2,040)	€ (2,085)	€ (2,130)	€ (2,177)
Financing FCF	€ (3,254)	€ (3,249)	€ (3,314)	€ (3,381)	€ (3,448)	€ (3,517)	€ (3,587)	€ (3,659)	€ (3,732)	€ (3,807)

Control Metrics										
RONIC	31.94%	9.22%	8.58%	8.58%	8.58%	8.58%	8.58%	8.58%	8.58%	8.58%
ROIC	12.90%	12.80%	12.68%	12.57%	12.46%	12.35%	12.25%	12.15%	12.05%	11.96%
RR	21.20%	22.77%	22.77%	22.77%	22.77%	22.77%	22.77%	22.77%	22.77%	22.77%
g (Operational CF)	-10.62%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%
g = RONIC x RR	6.77%	2.10%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%
g (Core FCF)	4.93%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%

Exhibit 26 – Projection of the Cash Flow Map, 2030 - 2039
Source: Analyst Estimates and FCA's Annual Reports

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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EQUITY RESEARCH – FCA & The influence of Maserati on Fiat-Chrysler's share price

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A project carried on the Equity Research WP, with the supervision of:

Nuno Vasconcelos e Sá

03-01-2020

Abstract: The aim of this individual report is to further analyse how different possible future paths for Maserati may influence Fiat-Chrysler Automobiles' share price. The foundations for this scenario analysis will be set after a brief description of the brand's history and current contextualization. Thereafter, five different paths for the evolution of Maserati's number of shipments are modelled, which are evaluated for different *EBIT margins.* Finally, Fiat-Chrysler's target share price for year-end 2020 is evaluated in each possible scenario.

Keywords: Scenario Analysis; Maserati Relaunch; Luxury Car Segment; Electrification and Connectivity.

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Maserati is an Italian luxury car brand, part of Fiat-Chrysler Automobiles' portfolio, known for the production of ultra-luxury and high-performance sports-cars, with eye-catching designs and outstanding quality of materials. The brand has, however, its roots in car racing. Founded in 1914 by five brothers, Maserati initially aimed at developing race cars and it took almost fifty years for the brand of the trident to change its focus into producing road-going grand tourers. Since the withdrawal from racing, the brand has been owned by Citroën, which announced its liquidation during the severe oil crisis of 1973. The Italian government intervened to save its peoples' jobs and Maserati ended up being transferred to an Italian state-owned holding company. At that time, De Tomaso, who also founded a car manufacturer under his name, was the company's CEO, who later bought the state-owned share of the company. Nevertheless, the single ownership was short and, two months later, De Tomaso sold 49% of Maserati's shares to Fiat, which ended up buying the remaining 51% of the company in 1993. Under Fiat's guidance, Maserati was positioned as Ferrari's luxury division, which helped bringing the brand up from the ghosts of bankruptcy. After seventeen consecutive years of losses, the manufacturer finally registered a profit in 2007.

Over the past decade, Maserati has significantly increased its lineup, launching products in new segments. As reported by FCA[1], Maserati had a market coverage of 14% in 2012, represented only by its 2-door Sports Car and a Large Sedan, which translated in just 6,000 annual shipments worldwide. With the launch of the Maserati Ghibli in 2014, a Mid-size sedan, Maserati was able to increase coverage to 32% of the market and boost sales to 30,000 shipments. Following the changing consumer preferences and the increasing demand for a different auto segment, in 2017, Maserati launched the Levante, its first Full-size SUV model, amplifying market coverage to a considerable 46% and the number of shipments up to 50,000 units.

[1] FCA Capital Markets Day - Maserati Brand Presentation, Balocco June 1, 2018

Despite the significant growth Maserati has experienced over these years, the brand hit a peak in 2017, with the number of shipments crumbling the year after to 35,000 units worldwide and being on track to hit just 19,000 by 2019 year-end. Fiat-Chrysler Automobiles states this to be a result of “reduced volumes in China and other key markets, partially due to lower industry volumes in Maserati relevant segments” and a “planned dealer stock reduction”, which may not give the true insight on the reasons for this significant decrease.

Maserati has been positioning in the premium segments, as an alternative to the more mainstream Porsche, Mercedes, BMW or Audi. Despite its focus on developing well-designed vehicles, well-built engines and high-quality interiors, the manufacturer has always lagged behind in terms of technology and frequency of lineup updates, when compared to close competitors. For instance, the brand launched its 2-door Coupe in 2007 and just ceased its production this year, having done only small mid-cycle refreshments, almost no infotainment improvements or interior upgrades. On the opposite, since 2007, Porsche has already launched two new versions of its comparable model, the 911, in 2012 and 2019. Furthermore, they have done mid-cycle updates in 2009 and 2015 and always strived to offer their customers the most recent cockpit and driving technologies. Additionally, they have offered several powertrains and a wide variety of optional equipment. It isn’t for nothing that, in that period, Porsche sold nearly 116.000 units of the 911 while Maserati just sold 40.520 of the GranTurismo/GranCabrio model.

The manufacturer states its typical client is 5 to 10 years younger and has double the income than the respective segment’s average. Until a couple of years ago, this client was not sensible to the aforementioned matters, focusing mainly on the car’s performance and exclusivity. However, as technology becomes more and more relevant in our lives and, given Maserati owners’ relatively young profile, these customers realize the lineup is getting outdated and start shifting to other brands, one of the possible reasons behind Maserati's poor performance over the past two years.

Maserati understood this to be a significant flag for its future performance and has announced significant updates to be made until 2023. The manufacturer states these will start next year with the mid-cycle freshening of the most sold models - Ghibli, Quattroporte, Levante - and with the launch of the Maserati Alfieri, an all-new 2-door Coupe/Cabrio Sportscar named after one of the founding brothers, which is announced by FCA to be the first electric luxury Coupe ever. Further on, the manufacturer will launch a new Maserati GranTurismo/Cabrio, as well as new Quattroporte and Levante models. Additionally, and perhaps most importantly, Maserati has plans to launch a new Mid-size SUV, which will further increase market coverage to 69%, as demonstrated in *Exhibit 1*.

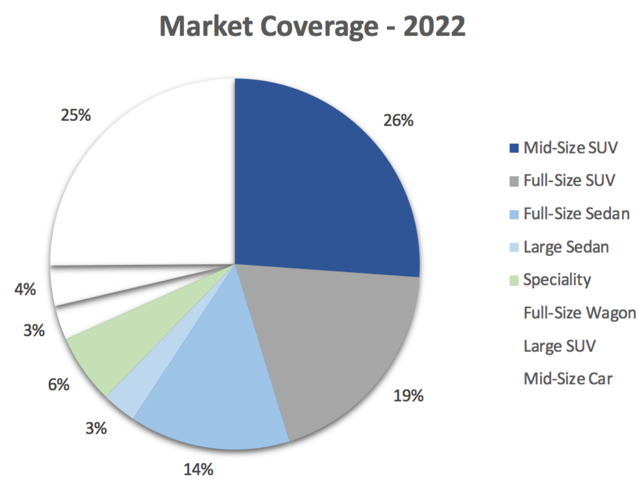

Exhibit 1 – Maserati's expected market coverage by 2022.
Source: FCA Capital Markets Day - Maserati Brand Presentation, Balocco June 1, 2018

Given that demand for this particular segment has been increasing worldwide and this new vehicle will likely be more affordable relative to the remaining of the lineup, it may pose as a key factor in Maserati's future performance. Most new products will be available in the traditional ICE versions (Internal Combustion Engine) but Maserati affirms all of them will now have as option plug-in hybrid and full electric variants, as well as high connectivity features and Level 3 Automation, which demonstrates Maserati's perhaps too high ambition to catch up the pace with competition.

Despite all this looking quite promising on paper, the manufacturer is not known for its ability to bring its products to market on the expected timing. The Maserati Alfieri, for instance, was announced in 2014, with production expected to start by 2016. Three years later, production has yet to begin. Furthermore, Maserati's past low ability to compete with its more technologically advanced peers raises question marks on how good these vehicles will be relative to the competition when they are effectively launched, not only in terms of infotainment but also regarding the hybrid and electric powertrains. These uncertainties were reflected in the full valuation model and, as such, the Maserati Global segment was conservatively forecasted. Having set the context in which this analysis is performed, five different paths for the evolution of Maserati's number of shipments were created. As new product launches are set to occur during the remaining of the current Business Plan, the different paths are modelled over these three years (2020 - 2022). The five paths are presented in *Exhibit 2*.

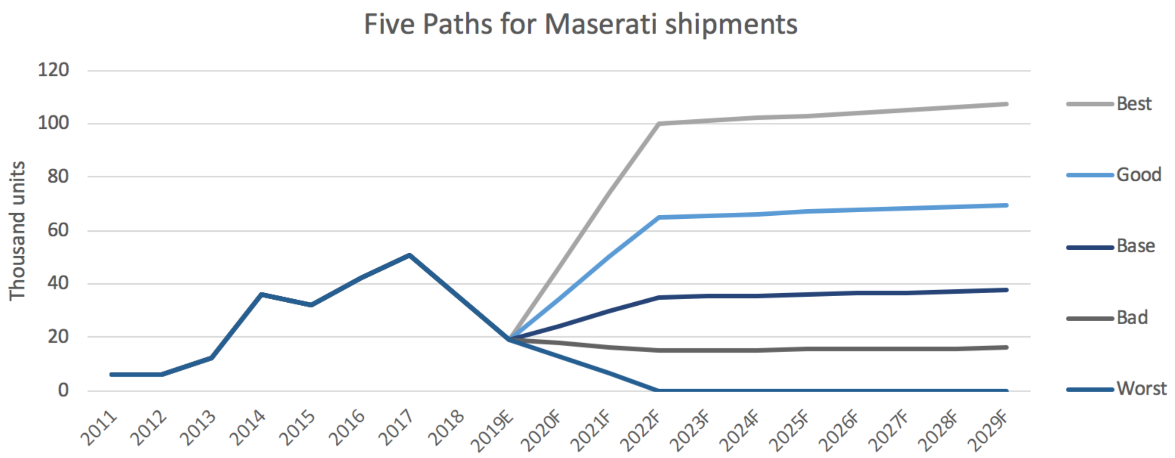

Exhibit 2 – Modelled paths for Maserati's sales volume;
Source: Annual Report and Analyst Estimates

- In the **Best** scenario, it is assumed that Maserati will reach their target of 100.000 annual shipments by the end of the Business Plan.
- In the **Good** scenario, it is assumed that Maserati will reach 65.000 annual shipments by the end of the Business Plan.
- In the **Base** scenario it is considered the case applied in the full valuation model, in which Maserati reaches 35.000 shipments by the end of the Business Plan.
- In the **Bad** scenario, it is assumed that Maserati will decrease annual shipments to 15.000 by the end of the Business Plan.

- In the **Worst** scenario it is considered that Maserati will cease to exist by the end of the Business Plan. In this scenario there is a complete failure of the brand's re-launch, either because the new products are not successfully brought to market or due to the persistence of a technological gap relative to its competitors.

Furthermore, these scenarios are evaluated for different *EBIT Margins,* attained by year-end 2022. In addition to the estimation of 10% used in the full model, five levels are created towards which the *EBIT Margin* may evolve during the Business Plan [2.5; 5; 7.5; **10**; 12.5; 15] %.

The result of this scenario analysis is presented in *Exhibit 3*. As one can observe, there is a significant range under which FCA's target share prices may fall depending on the performance of the Maserati, mainly due to the high margin of this business unit relative to the other four segments. If we consider the unlikely scenario in which Maserati is able to reach the goal set in 2018 of 100.000 shipments and an *EBIT Margin* of 15% by 2022, the share price would jump to **€25.69**, translating in a **37%** increase relative to the **Base** scenario price, at 10% *EBIT Margin,* of **€18.74**.

		EBIT Margin					
		15.0%	12.5%	10.0%	7.5%	5.0%	2.5%
Scenarios	**Best**	€ 25.69	€ 24.38	€ 23.01	€ 21.58	€ 20.09	€ 18.53
	Good	€ 22.55	€ 21.68	€ 20.77	€ 19.82	€ 18.83	€ 17.80
	Base	€ 19.73	€ 19.25	**€ 18.74**	€ 18.21	€ 17.65	€ 17.07
	Bad	€ 17.78	€ 17.55	€ 17.31	€ 17.06	€ 16.80	€ 16.53
	Worst	€ 16.26	€ 16.23	€ 16.19	€ 16.16	€ 16.12	€ 16.08

Exhibit 3 – Fiat-Chrysler's share price evaluated at each scenario, for each EBIT Margin
Source: Analyst Estimates

It is concluded that, despite a lower performance over the past two years, the Maserati segment provides a significantly higher upside than downfall for FCA share price. At the current state, due to the low sales volume, the brand is not generating a significant value. However, if the relaunch is successful, Fiat-Chrysler's share price may increase considerably, consequence of the segment's high margins, when compared to NAFTA, LATAM, APAC and EMEA.