



Equity Valuation

Ferrari NV

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Abstract

The presented dissertation has the aim to determine the fair value of the Italian luxury car manufacturer Ferrari NV. In line with this, a target price is developed and finalized in an investment recommendation based on the outcome of this work and the current share price.

The state of the art literature of equity valuation and the most suitable valuation approaches for the company are assessed in a first step. Followed by an in-depth analysis of the business and the industry it operates in. Subsequently, the assumptions and the forecasted financials are presented and applied in both, a discounted cash flow and multiples approach.

The DCF analysis derives at a share price value of €61.83 compared to the market price of €50.10 as of 16th of November 2016. The multiple valuation arrived at a significantly lower level of €42.62 and did not confirm the results under the fundamental approach. The target price is set to €58.36 and resembles an upside of 15%.

A comparison to the valuation of UBS equity research on Ferrari is conducted and critically reviewed to evaluate the differences of both valuations.

Resumo

A presente dissertação tem como principal objectivo determinar o justo valor do fabricante de carros de luxo Italiano, Ferrari NV. Assim, um preço alvo foi desenvolvido culminando numa recomendação de investimento baseada no resultado deste trabalho e preço corrente de cada acção.

Primeiramente foram analisadas a existente literatura sobre o tema, assim como os métodos de avaliação mais adequados para a empresa. Posteriormente segue-se uma análise profunda do negócio e da indústria na qual opera. Subsequentemente, os pressupostos e previsões financeiras são apresentados e utilizados para as abordagens de DCF e Múltiplos.

A análise DCF resulta num preço por acção de 61.83€ comparado a um preço de mercado de 50.10€ a 16 de Novembro de 2016. A avaliação por múltiplos chegou a um nível significativamente mais baixo de 42.62€ e não confirmaram os resultados da abordagem principal. O preço alvo é fixado a 58.36€ e representa um valor 15% acima.

A comparação face à avaliação da UBS Equity Research sobre a Ferrari foi realizada e criticamente revista, de modo a avaliar as diferenças entre as duas avaliações.

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List of abbreviations

CAGR	Compound Annual Growth Rate
Capex	Capital Expenditures
CAPM	Capital Asset Pricing Model
CEO	Chief Executive Officer
COGS	Cost of Goods Sold
DCF	Discounted Cash Flow
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortization
ECB	European Central Bank
EV	Enterprise Value
FCA	Fiat Chrysler Automobiles
FCFE	Free Cash Flow to the Equity
FCFF	Free Cash Flow to the Firm
FED	Federal Reserve Bank
GDP	Gross Domestic Product
HNWI	High Net Worth Individual
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
IRAP	Italian Regional Production Tax
IRES	Italian Corporate Income Tax
NV	Dutch Public Company
NWC	Net Working Capital
NYSE	New York Stock Exchange
OLS	Ordinary Least Square
P/E	Price-to-Earnings
PP&E	Property, Plant & Equipment
R&D	Research & Development
S.p.A.	Italian Public Company
SG&A	Selling, General & Administrative Expenses
SPV	Special Purpose Vehicle
WACC	Weighted Average Cost of Capital
YTM	Yield to Maturity

1 Introduction

Since the downstream of interest rates over the last decade, investors are seeking for attractive alternatives to gain higher yields when investing their money. Fixed income bonds are highly affected by the low-interest rate level and do not seem to be attractive for retail investors anymore as they cannot expect any high gains from that investment with accurate yields.¹ Contrary to these unfavorable downward movements stock markets have risen and performed well during the past years.

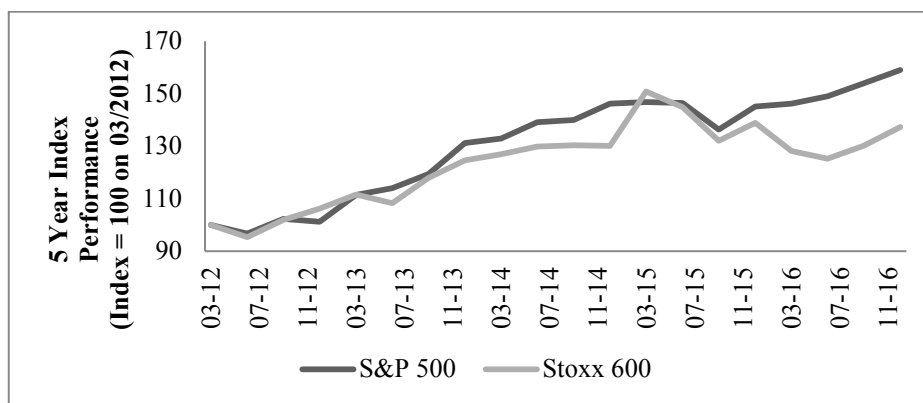


Figure 1: Index Performance S&P 500 & Stoxx 600 - 2012-2016 (Reuters, 2016)

Due to this fact, many retail investors have put their focus on share capital investments, which makes an in-depth analysis and investment advice on an individual stock even more attractive than before. Political and economic factors such as recent announcements of the FED and the ECB about interest rate outlooks have profoundly affected the stock market.² These fluctuations create an investor sentiment that many security prices might not reflect the fair value of the underlying assets and therefore create investment opportunities with high potential.

In 2015 Ferrari NV underwent an initial public offering (IPO) in the course of its separation from the parent company FCA. As a private corporation with a long and powerful history, this public offering came with a lot of attention of the public. The listing also raised the question whether Ferrari is one of many car manufacturers or if it is rather placed among luxury companies that typically act in a very different segment than the automobile industry. Given the fact that there is not any enterprise that is a perfect match to Ferrari the investor sentiment given by the current valuation multiples of the market Ferrari trades well in line with luxury peer companies rather than automotive peers. Due to the beginning struggling

¹ <http://www.wsj.com/articles/as-yields-fall-investors-turn-to-alternative-assets-1477274402>

² <https://www.ft.com/content/11b16252-bcb5-11e2-9519-00144feab7de>

after the IPO and the upcoming 70th anniversary this paper has the objective to estimate the fair value of the company given all the recent company-, industry- and macro-specific factors.

In order to determine an in-depth equity analysis of Ferrari NV the primary purpose and the research question of this work is stated as follows:

What is the fair value of Ferrari NV (RACE.MI) as of 16th of November 2016?

In line with the research question, the following topics will be discussed accordingly: suitable valuation methods, important value drivers, macroeconomic environment and dynamics of the industry.

In a first step the most commonly used valuation techniques will be presented in a state of the art literature review with an indication of the most suitable methods to value Ferrari.

Followed by a company analysis that presents the company itself, the historical performance and further describes the spin-off of the business from FCA, its parent company.

Afterward, the industry will be analyzed to point out the environment and important drivers of the industry. This chapter also elaborates the major challenges and opportunities that affect for Ferrari based on the industry development.

In the fifth chapter, a detailed financial forecast based on all available information is developed. It serves as a demonstration of how the assumptions were made and gives an outlook on the financial performance of the company.

Based on these assumptions and forecasts the following chapter is about the actual equity valuation of Ferrari. It presents the techniques that were used and how the value is calculated that then comes up with an estimated value.

Chapter seven gives a critical acclaim of a valuation of the UBS equity research on Ferrari in order to compare this works assessment to the value that the investment bank drew from their assumptions.

The final chapter is about drawing conclusions and identifying limitations of the report at hand.

2 Literature Review

The technique of valuation has been becoming more and more attractive in the past years as it is the general approach to allocate resources and investment decisions. Even the non-finance executives are getting more interested in valuation as they use it as a base to take decisions in operations, ownership claims and opportunities (Luehrmann 1997). It is important to understand that value does not equal price as a valuation can be done from several viewpoints, such as buyer and seller side, that differs significantly (Fernández 2001). Goldman Sachs researchers advice to use several valuation approaches to crosscheck the values obtained as "different approaches can lead to very different values" (Young et al. 1999).

This chapter gives an overview of the state of the art valuation techniques and an analysis of the suitability of the techniques in order to develop a fair value for Ferrari NV.

2.1 Multiples

The multiple valuation is not an approach to develop the intrinsic value of a company, but more an estimation for the value at current market conditions as the value is derived from the market momentum of comparable companies (Damodaran 2002). It represents in one kind of way the price that investors are willing to pay (Young et al. 1999). Due to its simplicity, the method is used many times as a supportive valuation next to a fundamental valuation approach in order to challenge and check the assumptions that have been taken in the fundamental estimation (Koller et al. 2010; Goedhart et al. 2005). In fact, it became state of the art to use more than one valuation approach in order to crosscheck the values and to better understand the critical factors of the valued firm and its peers (Young et al. 1999; Fernández 2002). Therefore a carefully chosen group of comparable companies is crucial for a good estimation of value (Eberhart 2004). In addition to this, Liu et al. (2002) have proven that forward-looking multiples outperform the accuracy of the valuation over trailing and leading multiples as described by (Pinto et al. 2015). It also refers to the difficulty of using relative valuation across different countries and industries as it is profoundly affected by accounting standards, economic and resulting differences.

2.1.1 Types of Multiples

There are two main types of multiple valuation. **Price multiples** consider the stock price to its portion of fundamental value, whereas **Enterprise value** comes up with the total market value and its ratio to a fundamental value of the company and all its capital (Pinto et al. 2015).

2.1.1.1 Equity Value Multiples

Equity Value multiples or also called earnings multiples as presented in Formula 1 are widely used due to their simplicity, availability of data and easiness to communicate (Pinto et al. 2015). The most commonly used earnings multiple is the P/E ratio as it resembles the current market valuation for a company.

$$P/E \text{ Multiple} = \frac{\text{Market Price per Share}}{\text{Earnings per Share}}$$

Formula 1: Price-Earnings Multiple

But the multiple comes with several distortions as Foushee et al. (2012) explains; it is highly driven by the leverage ratio of a company. Hence, it is not only focusing on the operating profit, which better resembles the value of the capital. The second weak point of the P/E multiple is that it is an accounting measure that can be manipulated easily with non-recurring items in profit and loss (Koller et al. 2010).

This valuation serves as a good indication of the equity value and counts to one of the most used key ratios in the financial world. Therefore it is used in this work among others to estimate the equity value for Ferrari.

2.1.1.2 Enterprise Value Multiples

The enterprise multiples represent the market value of a company in proportion to some sort of value such as EBITDA or EBIT, as presented in Formula 2. Several authors suggest to chose enterprise multiples over earnings multiples as they are less sensitive to the level of leverage of the peers when applying the method to a group of companies with different capital structures (Pinto et al. 2015; Koller et al. 2010).

$$EV/EBITDA = \frac{MV \text{ Equity} + MV \text{ Debt} - \text{Cash}}{EBITDA}$$

Formula 2: Enterprise Value to EBITDA Multiple

In order to derive to an accurate enterprise value through this multiple, Goedhart et al. (2005) suggests adjusting the calculated value for excess cash, other non-operating assets, operating leases and pensions.

It is important to crosscheck the values derived from the equity multiples with the values of the enterprise multiples to offset the negative point of both approaches with the positive features.

2.1.2 Peer Group

Comparing the company only to its industry fellows might be misleading as there can be major inter-industry differences. Therefore it is more beneficial to compare growth rates, returns on invested capital and the capital structure to find the right comparable companies (Goedhart et al. 2005; Foushee et al. 2012; Fernández 2002). According to leading literature, the peer group should be chosen by carefully analyzing the companies return on invested capital and growth expectations (Koller et al. 2010; Goedhart et al. 2005; Eberhart 2004; Pinto et al. 2015).

2.2 Discounted Cash Flow-based Valuation

Leading finance literature explains four common types of firm valuation based on discounted future expected cash flows: (1) free cash flow to the firm, (2) cash flow to equity, (3) capitalized cash flow and (4) adjusted present value (Oded & Michel 2007). Each method relies on the carefully forecasted financial items that correspond to the cash flow of a firm's operations, and the enterprise/equity value can be obtained by discounting those cash flows at an appropriate discount rate. Free cash flow does not equal the accounting cash flow as it is based on the accrual approach and uses an arbitrary mechanism to determine revenues, costs and expenses (Fernandez 2013).

As the capital structure of Ferrari NV is considered to stay constant over the near future, the DCF method will be applied, as it is more appropriate in this situation. Thus, the free cash flows and the terminal value will be discounted by the wacc.

2.2.1 Cost of Capital

The cost of capital is a rate of return that investors of the company demand for an investment with the same risk profile (Damodaran 2002). It is the minimum return that investors could expect when investing in a similar portfolio entailing the same risk (Koller et al. 2010; Luehrmann 1997). The cost of capital can be split down into required return on equity and required return on debt as described in the following:

2.2.2 Cost of Equity

The cost of equity is the required excess return or premium that investors demand above the risk-free rate in order to invest in a portion of the company's equity and therefore are exposed to the risk profile (Damodaran 2002; Pinto et al. 2015). There are three major models to calculate the cost of equity.

Starting with the Capital Asset Pricing Model (CAPM) as it is often referred to as the most fundamental and traditional method (Sharpe 1964; Zabarankin et al. 2014; Graham &

Harvey 2001). The CAPM is, as seen in Formula 3, is composed of a linear function with the intercept of the risk-free rate and the slope of a beta that represents the firm's exposure to the market risk and a premium that resembles the market risk itself (Damodaran 2002; MacKinlay 1995). A calculation based on CAPM is made by an OLS regression for the beta using the return of the company to a particular benchmark like the index in which the company is listed and multiply it by a risk premium that resembles the excess return (Bartholdy & Peare 2003).

$$CAPM: k_e = r_f + \beta * (r_M - r_f)$$

Formula 3: Calculation Cost of Equity with Capital Asset Pricing Model

According to Fama & French (1992) the return of a security can in be estimated in the long run with the help of three factors of systematic risk. In addition to the CAPM they use a size premium, with the assumption that companies with small market capitalization have higher returns in respect to companies with larger market capitalization, and a value premium assuming that the Price-to-Book Value of a company influences the cost of equity.

A third alternative to estimate the cost of capital is the Arbitrage Pricing Model by Ross (1976). The return of an asset is predicted taking into account macroeconomic factors in a linear function. It analyzes the arbitrage situation of the asset. If there is no arbitrage, the asset can be priced in line with comparable assets.

In the case of Ferrari the CAPM approach is considered to be superior to the Fama & French model as the company is not significantly influenced by the additional factors included in the three-factor model.

2.2.2.1 Risk-free interest Rate

The risk-free rate is the first component of the CAPM model and part of the calculation of the market risk premium; it should be chosen under two conditions. Firstly, the asset has to be considered free of default risk and, secondly, no reinvestments are allowed for that the actual returns can match its expected returns (Damodaran 2002). As an investment with zero default risk does not exist in reality, the return of a bond issued by the government is the closest asset that fulfills these conditions (Pinto et al. 2015).

Furthermore, the risk-free rate used for the first component of the CAPM should be equal to rate utilized in the calculation of the risk premium, and the duration of the bond should range in the same period as the investment horizon (Fernández 2004; Pinto et al. 2015).

2.2.2.2 Beta

According to (Damodaran 1999), beta is a constant that measures the additional risk when including the asset to a diversified portfolio and can be estimated using the market model, comparable companies or the calculator provided by financial data providers such as Bloomberg or Thomson Reuters (Pinto et al. 2015). The beta estimation based on the average of comparable companies is not considered to be as accurate as the market model (Fernández 2011). When applying the market model, as presented in Formula 4, the observed sampling frequency in a particular period and the choice of a benchmark index are two critical aspects with significant influence on the beta estimation.

$$R_i = \alpha_i + \beta_i * R_M + \varepsilon_i$$

Formula 4: Regression equation for beta of stock i

Pinto (2015) suggests aligning company characteristics to the choice of the benchmark index. The key features are the region of operations and its competitors, size of the company and growth expectations. The effectiveness of the chosen sample period and its frequency is highly discussed under leading researchers. Bartholdy & Peare (2005) for example argue that five years monthly data brings the highest accuracy, while Reeves & Wu (2013) claim that high-frequency data such as one year daily returns are even more accurate.

Due to its recent IPO in October 2015, there is only one option, namely one-year daily returns, to apply the market model on Ferrari NV. In order to come up with a forward-looking perspective of the beta that is calculated based on historical returns, the results should be adjusted with a market beta of one (Blume 1975).

2.2.2.3 Market Risk Premium

Koller et al. (2010) assert "sizing the market risk premium is arguably the most debated issue in finance." Three models can be used in order to estimate the market size premium of which none is internationally accepted or superior to another: the historical returns approach, regression analysis and DCF valuation (Koller et al. 2010). For the consistency of the CAPM model the risk-free rate for computing the market risk premium (r_f) should be equal the r_f used in the first determinant of the formula (Pinto et al. 2015). The index that resembles the market return (r_M) should resemble the characteristics of the companies operations in order to reproduce the same type of diversification (Stulz 1999).

2.2.3 Cost of Debt

The effective rate a company has to pay to serve its current debt. As interest expenses are tax deductible, there are two forms of cost of debt: the pre-tax cost of debt and the after-tax cost

of debt (Graham 2000). According to Damodaran (2002) cost of debt is driven by three factors: risk-free rate, company's default risk, and the tax advantage. In case the company has an investment-grade the pre-tax cost of debt can be determined by using the yield to maturity (YTM) of the long-term debt. By deducting the tax benefit, as presented in Formula 5, the company's after-tax cost of capital (k_D) can be estimated under the condition that the enterprise meets its coupon payments on time and reimburses its face value in full (Goedhart et al. 2005).

$$k_D = YTM(\text{LongTerm Debt}) * (1 - Tax)$$

Formula 5: Cost of Debt

In case the company has no credit rating it can be estimated by looking and past credit default spreads that were applied to the company or to estimate a synthetic rating based on the company's financial ratios (Damodaran 2002).

2.2.4 Weighted Average Cost of Capital

In order to determine the present value of the levered cash flows it should be discounted by a rate that reflects the combined effect of financing and investment decisions, which is represented by the weighted average of cost of equity and after-tax cost of debt at market values (Miles & Ezzell 1980). Formula 6 presents the calculation of the wacc with its respective components.

$$wacc = \frac{MV(E)}{MV(E) + MV(D)} * r_E + (1 - T) * \frac{MV(D)}{MV(D) + MV(E)} * k_D$$

Formula 6: Calculation for weighted cost of capital

Despite the fact that its name "weighted average cost of capital (wacc)" is neither a cost nor a required return, it is simply the weighted average of a required return (r_E) and a cost (k_D) (Fernández 2011).

2.2.5 Free Cash Flow to the Firm

The free cash flow to the firm, as presented in Formula 7, is the money that is available for all capital provider of the company already deducted for operating expenses and investment needs (Pinto et al. 2015). More precisely it is the cash that is left on the table for any kind of capital providers of the company such as debt holders, equity provider and non-equity investors in the particular period.

$$FCFF = EBIT * (1 - T) + Depreciation - \Delta NWC - Capex$$

Formula 7: Free Cash Flow to the Firm Calculation

By discounting this cash flow figure with the wacc, the enterprise value can be determined (Fernandez 2013).

2.2.6 Free Cash Flow to Equity

Free cash flow to equity derives from the free cash flow to the firm and is the money that goes to common stockholders after serving all creditors and preferred stockholders (Pinto et al. 2015). One possible calculation of FCFE can be done as presented in Formula 8, starting from the FCFF and deducting net interest and principle payments to debt holders as well as adding new debt borrowings (Fernandez 2013).

$$FCFE = FCFF - Interest * (1 - T) + Net borrowing$$

Formula 8: Free Cash Flow to Equity calculation

The FCFE has to equal the amount of dividends and other money to shareholders such as retained earnings. According to (Damodaran 2006) the discounted cash flow to equity is an equity valuation method based on potential dividends not on actual dividends as FCFE differs most of the time from dividends paid. In order to derive at the equity value of the company the FCFE has to be discounted by the cost of equity (r_E). In a final step, the net debt of the firm has to be added to the equity value in order to obtain the enterprise value (Oded & Michel 2007).

2.2.7 Capitalized Cash Flow

The capitalized cash flow method is not often used to value publicly traded firms as it is more appropriately used to value small private businesses with stable growth and no projections can be done (Pinto et al. 2015). The capitalized cash flow model will not be considered in this paper, as it is not beneficial to develop the valuation of Ferrari based on this method.

2.2.8 Adjusted Present Value

The adjusted present value method follows the findings of Modigliani & Miller (1958) who claimed that in perfect capital markets, enterprise value is not affected by capital structure. In reality, however, the existence of imperfections, financial distress and taxes influence the value of a company significantly.

The adjusted present value separates the valuation of operations and tax benefits in order to disregard the capital structure of the enterprise. The two principal components of the approach are shown in Formula 9. The valuation starts with the firm value of an unlevered company and adds the present value of tax shields to it (Koller et al. 2010).

$$APV = Present Value_{Unlevered} + Present Value_{Tax Shields}$$

Formula 9: Calculation of Adjusted Present Value

It is preferably applied when the capital structure of a company is constantly changing (Graham & Harvey 2001).

2.2.9 Forecasting

The financial forecast is a prediction of the company's future performance and should be done carefully and consistent in line with economic theory, competitor and industry analysis and historical evidence to derive reliable estimates of revenues, sales and cash flow (Pinto et al. 2015). To start the forecasting, it is important to analyze the company's historical financial performance deeply and to prepare the raw data as it serves as the basis for your prediction.

Most important is the preparation of the historical income statement, balance sheet and statement of retained earnings (Koller et al. 2010). Projections can either be made by taking a fundamental analysis of future expectations such as opportunities and strategic plans or by only looking at past results and benchmarks. It is recommendable to prepare several scenarios in a forecast such as "base," "worst" or "best" in order to reduce biases in the estimates (Ruback 2011). It is highly important to separate the historical performance from recurring and non-recurring or extraordinary items, as they will overly bias your prediction (Damodaran 2002). As most items of the income statement can be attached to a particular ratio, it is often used to estimate line items according to forecast ratios such as cost in percentage of sales (Koller et al. 2010). As predictions tend to overestimate the future development, Ruback (2011) suggests using an inflated discount rate to antagonize the bias of a too optimistic forecast.

2.2.10 Terminal Value

The DCF method is based on the 2-Stage approach that consists of the first stage with detailed forecasting for a certain number of years and the second stage that determines the terminal value in perpetuity assuming a constant growth rate (Pinto et al. 2015). Only when the company has reached a steady-state phase a terminal value can be determined as an infinite going concern assumption. The Terminal Value is often based on questionable assumptions and has a significant effect on the valuation in total (Penman 1998). Damodaran (2002) introduces three possible approaches to determining the terminal value, using multiples, a liquidation estimate or assuming a constant growth rate of cash flows and therefore using a perpetual growth model. As Ferrari NV is observed under the going concern assumption the

multiple and continual growth model, as displayed in Formula 10, will be taken into account for the valuation.

$$Terminal\ Value_T = \frac{Cash\ Flow_{T+1}}{r - g}$$

Formula 10: Terminal Value under perpetual growth model

Formula 10 is based on the assumption that the rate of return was used smaller than the growth rate ($r > g$). In order to determine the growth rate in perpetuity, it should be considered that a company could not grow higher than the economy it is operating in. Basically, the growth rate for an infinite period of time should not exceed excess GDP growth plus inflation. Due to the current situation where interest rates are at a historical low and inflation in advanced economic countries is stagnating the terminal value is affected significantly.

3 Company Analysis

Ferrari is one of the most famous and highly exclusive luxury car manufacturers around the world, also known for its hugely successful Formula One team Scuderia Ferrari. The company was founded by Enzo Ferrari in 1947 and is based in Maranello, Italy. According to Brand Finance (2015), Ferrari is among the top ten of the most powerful brands according to their Brand Strength Index (BSI).³ With only 7,664 manufactured cars in 2015, Ferrari follows a small volume production strategy in order to promote its exclusivity and scarcity strategy. The company was owned by FCA Group with a stake of 90% since 1988 and the remaining 10% held by Piero Ferrari, Enzo's son. In October 2015 Ferrari separated from FCA Group through an IPO at the New York Stock Exchange, NYSE (Ferrari, 2015) under the ticker RACE.K. It is currently also listed on the Milan Stock Exchange under the Ticker RACE.MI.

3.1 History of Ferrari

Ferrari founder Enzo Ferrari was born in 1898 in Modena, Italy and counts as one of the most prestigious racecar drivers and entrepreneurs. Growing up with a passion for racing he founded his racing team called 'Scuderia Ferrari' in 1929. In 1947, Ferrari launched its first racing car, in the following Ferrari has become the most famous racing team nowadays with over 5,000 victories across all racing disciplines. Its highly successful Formula One activities are also used as marketing instruments and generate revenues in the form of merchandising, licensing and royalty income (Company website, 2016).

Road cars were initially built in order to fund its racing activities starting with the launch of the first road car, the 166 Inter V12, in 1948 followed by V8 engine cars in the 1970s. Up to now Ferrari has built some of the most luxurious and highly desired sports cars that the world has seen and the *Cavallino Rampante* ("prancing horse") became one of the most iconic logos among brands worldwide (Company website, 2016).

In 1969 Fiat acquired 50% stake of Ferrari becoming the primary stakeholder next to Enzo Ferrari. Upon the death of Ferrari founder Enzo in 1988, Fiat became controlling stakeholder with owning 90%, while the remaining 10% were kept by the son Piero Ferrari. In October 2014 FCA announced the separation of Ferrari from its mother company (Prospectus, 2016).

³ <http://brandfinance.com/news/ferrari--the-worlds-most-powerful-brand/>

3.2 Initial Public Offering and Spin-off

After the announcement of its separation from FCA Group in 2014, Ferrari initiated its public offering in October 2015 with a special purpose vehicle (SPV) that held 100% of Ferrari S.p.A. formerly owned by FCA Group. In order to restructure its capital, FCA Group gave out a promissory note to the special purpose vehicle. Under the ticker, "RACE.K" Ferrari distributed 10% of its stake to the public keeping 80% held by FCA Group and 10% by Piero Ferrari. In January 2016 the separation was completed by a spin-off as the final step. The 80% stake held by FCA Group was transferred to the special purpose vehicle and successfully distributed to common shareholders and mandatory convertible security holders of FCA Group in a demerger. On completion, the SPV got merged into Ferrari and renamed to Ferrari N.V. with legal headquarters in Amsterdam, Netherlands (Prospectus, 2016). After the spin-off in January 2016, Ferrari N.V. remained the following shareholder structure, as presented in *Figure 2*.

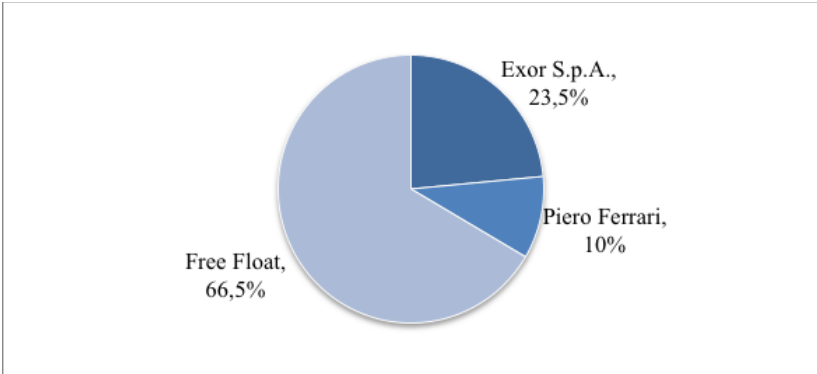


Figure 2: Shareholder Structure Ferrari N.V. 2016

Exor S.p.A. is an Italian investment company and the largest shareholder of Ferrari N.V. with 23.5% of the total common shares. Piero Ferrari remained its 10% of stake in common shares.

Due to the loyalty voting mechanism, Exor’s and Piero Ferrari stake in the company results in a relative voting power of 33.4% and 15.4%, respectively. The remaining 66.5% of common shares are available for public investors and are traded on the NYSE as well as the Milan Stock Exchange (Ferrari, 2015).

3.3 Share Price Performance

Current developments of the stock price of RACE.MI has shown that after a rough post-IPO phase the common shares have recovered and even succeeded its initial price by the end of September 2016. As leading literature has shown that the “short-run underpricing” is a common phenomenon for stocks that just went public (Ritter, 1991).

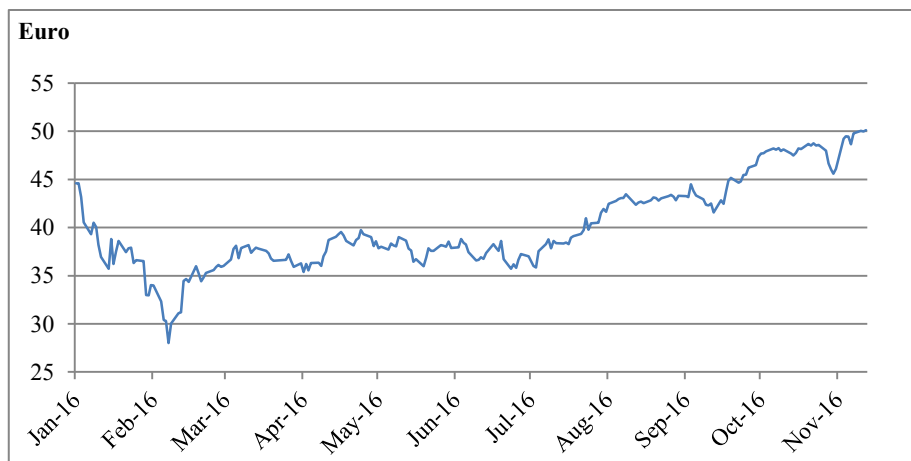


Figure 3: Stock price performance RACE.MI: January 16 - November 16 (Reuters, 2016)

As presented in *Graph 3*, the stock price has shown significant upwards momentum since July 2016 and has recently overpassed the €50 mark. The interim report at the beginning of November has given a great outlook on the estimation of 2016 end of the year results.

3.4 Business Segments

The company is structured in four revenue lines as separated in *Graph 4*. With 7,644 manufactured cars in 2015 and €2bn generated revenue (73% of total), **Cars & Spare Parts** represents the strongest segment and core business of Ferrari. This section includes design, development, and production of Ferrari models. Ferrari models can be split into two categories. Cars with a V8 engine that have an average price of around 200k and V12 engines that are sold at an average of 300k.

Currently ten various Ferrari vehicles are on the market. In order to follow its corporate strategy of scarcity and exclusivity the production and waiting list, management is well designed to ensure these values.⁴ With waiting times of one up to two years for a delivery of the car, the future revenue streams can be reliably forecasted.

A crucial part of its brand image is the Formula One activities and the main channel for Ferrari's marketing activities. The revenue line **Sponsorship, Commercial & Brand** is the second biggest revenue generating segment, with 15% of total revenues. This section includes the revenues of Scuderia Ferrari Racing Team and income generated by licenses, merchandising and royalties of the Ferrari brand.

⁴ <http://corporate.ferrari.com/en/about-us/product-range>

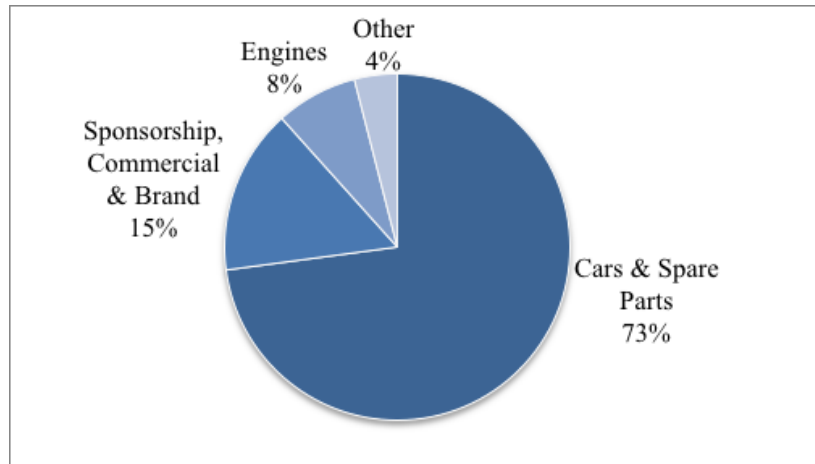


Figure 4: Revenue Generating Segments as percentage of Total Revenue in 2015

The **Engines** segment generated 8% of Ferrari's total revenue in 2015. This part consists mainly of shipments of engines to Maserati that make 81% of the segment revenue. Ferrari has exclusively manufactured for Maserati, and no other car manufacturer is considered as a purchaser of the engines, and it assures that the engines are assembled and manufactured under the same production processes. In 2015 Maserati purchased 3,300 V8 and 21,500 V6 engines from Ferrari. The remaining 19% of segment revenue are generated by motor rentals of Scuderia Ferrari for its Formula One activities.

Other revenues generate 4% of total income and are mainly created by the Ferrari Financial Services Group and the profits of the management of the Mugello racetrack. This circuit is primarily used for testing and developing purposes and is also frequently rented to special events or other car manufacturers.

3.5 Geographic Operations

From a geographical view, Ferrari is mostly operating in Europe and America with combined revenue generation of 78% of total revenues, 44%, and 34% respectively. The breakdown of the revenue origins can be observed in *Figure 5*. Stable economy countries like Germany and the UK represent the strongest markets for Ferrari within Europe, with 8% and 10% respectively, followed by the Middle East with 6% of total revenues. The Asia and Pacific region only accounts for 22% of income but is subject to change shortly developments as global wealth growth is driven by those regions.

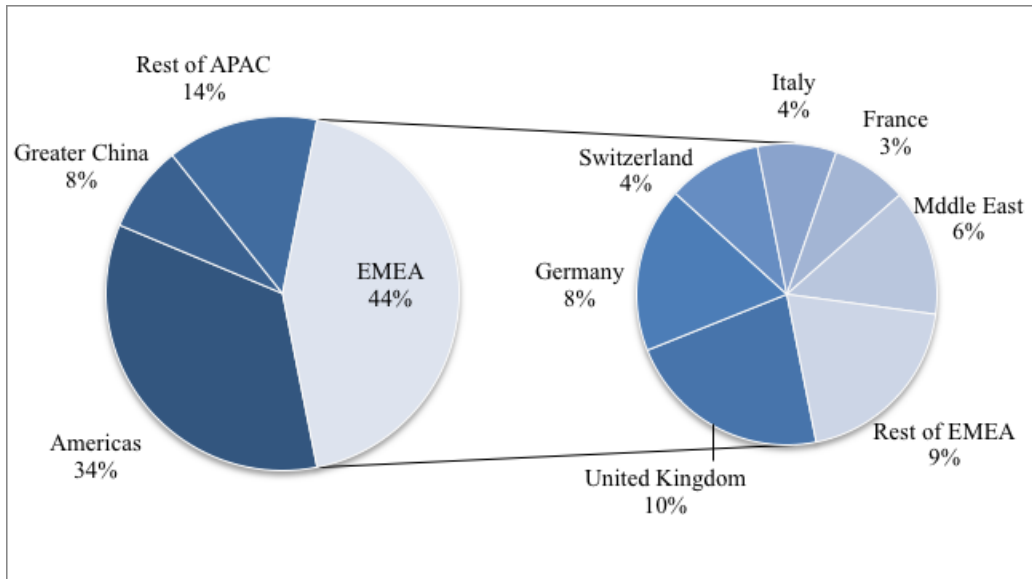


Figure 5: Generated Revenues by Geography

With Ferrari producing all of its cars and engines in Modena, Italy the company is affected by currency fluctuations for 56% of its sources of income as they are outside of Europe.

3.6 Historical Performance

Ferrari has become one of the most prestigious car brands, with highly luxurious cars like the “LaFerrari” or the “Enzo” just to name a few, and the most successful Formula One team, winning 224 Grand Prix, 15 World Constructor titles, and 15 World Driver's Championship.

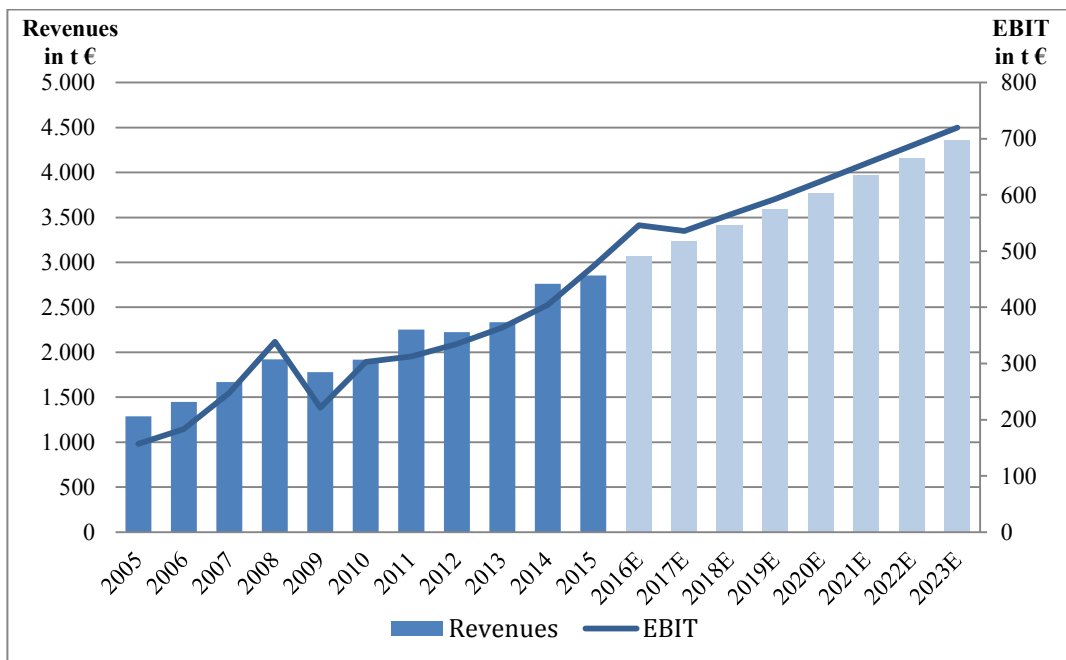


Figure 6: Historical Performance Revenues and EBIT in thousand Euros

Ferrari sold 7,664 cars in 2015, a historic high, generating €2.8bn in revenues by a solid 17.8% EBIT margin, as presented in *Graph 6*, making it undoubtedly unique among its

automobile manufacturer peers. Between 2005 and 2015 Ferrari had a growth of 9.23% CAGR in revenues, increasing its units sold per year by 3.95% CAGR, from 5,409 in 2005 to a historic high of 7,664 units sold in 2015.

By apparently sticking to its small volume strategy, keeping the demand at a higher level than the supply, Ferrari set its goal for units per annum to 9,000 by 2019, which indicates a 4.1% CAGR, way lower than the expected growth of its target group of high net worth individuals (HNWI).

4 Industry Analysis

Ferrari is serving a small niche market in the automobile sector, namely the ultra-luxury sector. Consumers do not purchase this kind of cars to meet their transportation need, and Ferrari is not solely selling a transportation vehicle but rather the experience and prestigious feeling of owning one, which is privileged to the world's richest human beings. It counts to the most recognized brands even though the number of potential buyers is extremely low. Target customers are high net worth individuals in a mature age, mostly men. Therefore the crucial economic factor that drives the future development of Ferrari is the HNWI growth.

4.1 Luxury Player

The company has quite a different understanding of business, pricing and brand image than other car manufacturers. It operates in a unique position compared to its automotive peers. With only 7,664 units produced per annum, it is far away from production sales of BMW with roughly 2 million units per annum or even Porsche with 200 thousand units per annum. It is even hard to compare it to other ultra luxurious car companies such as Aston Martin or Lamborghini as none of them is publicly traded and can keep up with the brand image of Ferrari.

Comparing key factors like EBITDA margin and growth rate Ferrari positions itself well in the luxury good sector. Given its brand awareness, pricing power and low volatility on economic cyclicity or depressions gives Ferrari also typical characteristics of a luxury player. These features and the positioning of Ferrari make it more volatile to the development of high net worthy individuals (HNWI) and less to global GDP movement.

4.2 High Net Worthy Individuals (HNWI)

According to Capgemini's World Wealth Report (2016), the HNWI market will grow 8% until 2017, which is above the general economic growth of the expected GDP development worldwide of 2.4% (Worldbank, 2016). Given the fact that the outlook until 2025 is showing a high growth rate all along the company enjoys a beneficial prospect.

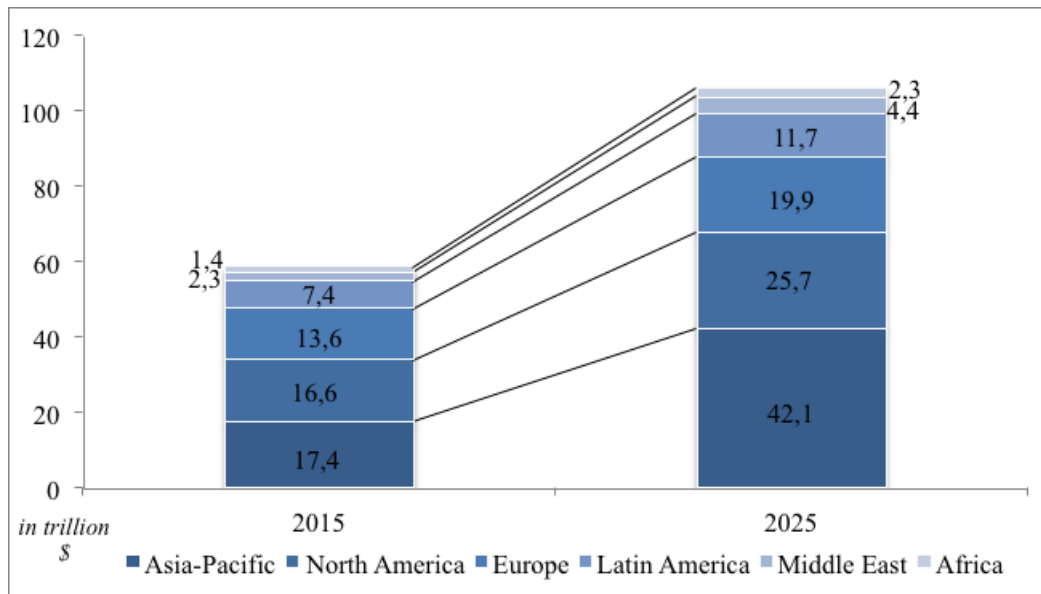


Figure 7: Wealth growth in total amount held between 2015-2025

By analyzing the World Wealth Report carefully, presented in *Graph 7*, it is observable that most of the worldwide growth is generated in Asia-Pacific, showing a total wealth increase of 142% until 2025, equaling a 9.2% CAGR. The rest of the world is growing at a slower pace at an average of 4.5% CAGR reaching a total increase of 55% by 2025. The total CAGR estimated for the next ten years will be 6.1%.

Nevertheless, Ferrari is more resilient to the general growth expectations as they use to have long waiting lists that already indicate the future growth estimations.

4.3 Challenges and Opportunities

According to the high growth of HNWI in the Asia Pacific region, Ferrari has a tremendous opportunity to enlarge its business in this area as for now it only accounts for roughly 22% combined. The company already tried to focus their strategy towards this trend by celebrating the 50th anniversary of Ferrari being in Japan with a strongly limited special vehicle, the J50.⁵ For now, the management around CEO Sergio Marchionne has not defined a clear strategy to increase sales in this region.

Even though the outlook of Ferrari's target market looks very promising, the biggest challenge for Ferrari is to find the trade-off between its scarcity and exclusivity strategy and to grasp the growing demand by increasing its car sales. Increasing sales aggressively would mean that Ferrari has to cut its high-profit margins most likely and to invest in new plants while simultaneously losing its scarcity and exclusivity status as the cars will become

⁵ Information is taken from corporate website: <http://corporate.ferrari.com/en/world-premiere-ferrari-j50>

inflationary. Most certainly this outcome is not the long-term strategic goal of the company and would disregard its primary strategy.

Other significant limitations to future operations are new laws, regulations, and policies concerning fuel efficiency, reduced greenhouse gas or pollutant emissions that will apply for Ferrari. As those regulations are about to change quite dynamically, especially in recent years. The most significant impact on the company will be when they exceed the yearly shipment of 10,000 cars, as they will not be considered as independent manufacturer of fewer than 10,000 vehicles per year anymore and more strict rules and standards have to be met (Annual Report, 2015).

5 Financial Forecast

The valuation of this work is conducted as of 16th November 2016, and all necessary assumptions and financial data have been taken from the information available at this point. The company has released an interim report of the first three-quarters on the 3rd of November. The financial year is considered to follow the standard calendar year, starting on the 1st of January until the 31st of December of the particular year. As the data cut-off period is close to the end of the fiscal year 2016, the valuation will be performed based on the forecasted years from 2017-2023, when the company is to be considered in a steady state. The steady-state assumptions are particularly based on the exclusivity strategy of Ferrari and the fact that by the expected growth 2023 will be the year when they hit the limit of 10k vehicles per annum.

5.1 Income Statement

At first, the historical development of the single items of the income statement will be analyzed in order to come up with forecasted values. All relevant assumptions and calculations will be presented in the following.

5.1.1 Revenues

Ferrari's revenues are mainly generated through the sale of cars accounting for 70% of total revenues. With an average car price of more than 200 thousand euros Ferrari is highly dependent on the growth of HNWI. Ferrari sticks consequently to its small volume strategy and its active management of waiting list, which leads to very robust revenue forecasts. As they set a particular production at lower levels than its demand, there is high revenue stream certainty as most of the models that are launched are already sold out before even the first model has left the factory. Thus, the revenue streams of Ferrari are more driven by the strategy set by the management including the launches and active management of new models than by the actual demand growth.

Also the fact that Ferrari is a highly recognized and robust brand in the luxury sector the risk in revenue and cash flow is significantly lower than general automotive producer. In 2013 Ferrari reduced its production to 7,000 models, a total of 400 units lower than 2012 in order to promote the scarcity of its products even though the demand was growing in that year.

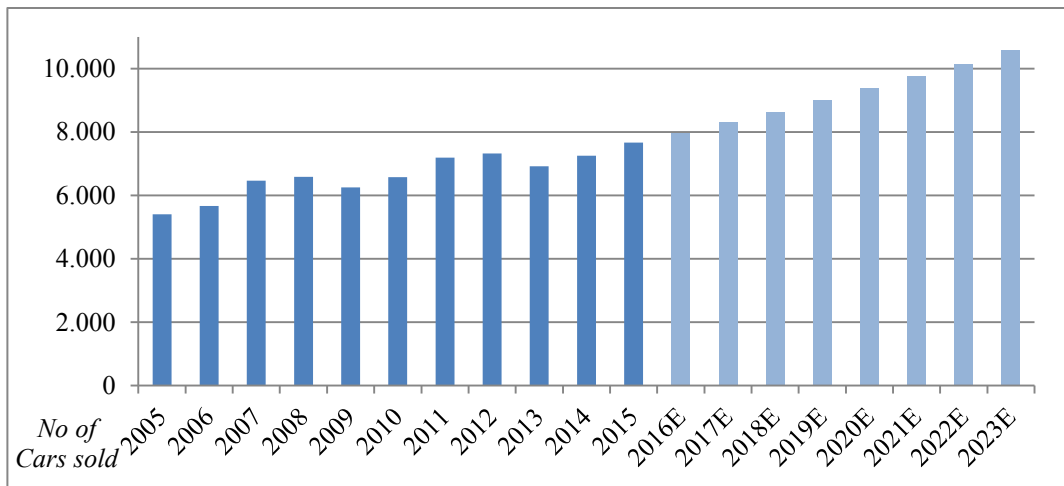


Figure 8: Shipments of cars from 2005 until 2023E

According to the prospectus of Ferrari's IPO the management has set a strategic plan for responding to the growth of demand in emerging markets and the changes in size and spending capacity of its target clients to reach a total of 9,000 units by 2019, equaling a CAGR of 4.1%. Given the growth of the target clientele of 6.1% CAGR of HNWI over the next ten years, Ferrari will grow at a slightly lower pace. As the limitation of 10k sold cars will be exceeded in 2023, Ferrari is subject to decrease their growth expectations and to grow on a steady level of inflation to keep their strategy ongoing until they have responded to the limitation.

The second most important component of forecasting revenues next to the units produced is the average price per unit in order to calculate the total revenue. The average price of a V8 model ranges around 200k euros and for V12 machines around 300k. Nevertheless, special editions like the LaFerrari are as expensive as 1,000k euros. While the ratio between the broad range of V8 and V12 machines remained at a level of around 80/20 to come up with an average value of 220k for the general models excluding the limited vehicles. The company generally launches one new model every year with a cumulative lifecycle of 8-9 years leading to an average model range of 8 to 9 cars. Waiting lists for buying a vehicle are from 12 up to 24 months, and usually, pre-owners of a Ferrari get asked first to award the loyalty of the customers.

Ferrari's second biggest segment regarding revenues is generated by sponsorship, commercial and brand as it accounts for 15% of total revenues. The main driver in this segment is the Formula One racing team as it serves as the primary marketing tool. It also includes the sponsorship activities of Scuderia Ferrari and the broadcasting licenses of the racing team. Historically seen Ferrari is the most successful race team in the Formula One but taken into account recent result, with the last championship won in 2008, Ferrari has

underperformed in this sector with position three or four among all teams. This segment has already been the one with the lowest growth rate in the last years and is assumed to continue at a low rate as 2% CAGR for the following years. Significant expenses have to be put in Scuderia Ferrari to make it compete at the top again. Nonetheless, Ferrari is to be considered one of the most valuable brands according to Brand Finance (2015).

Regarding Engines, it is mainly dependent on the sales to Maserati, as it accounts for 81% of total engine revenues (8% of overall revenues). In the annual report, Ferrari gives the outlook of a cumulative output of 260,000 engines sold to Maserati by 2023, which equals a CAGR of 7.2% starting from 21,500 engines sold in 2015. The other 19% come from engine rentals to the Formula One team. As the racing team has not been very successful in recent years, with championships lastly won in 2008, Ferrari expects the revenues generated by Scuderia Ferrari to lessen and expenses about to grow, due to new regulations and requirements of the motorsport (Annual Report, 2015). As costs in development will increase significantly and can only bring higher revenues in future years the engine proceeds of the Formula One team are about to decrease during the explicit period.

Thus, the expected growth of the whole engine segment is assumed to be around 4.8% CAGR until 2023, corresponding to a 6.8% increase in engine sales to Maserati and a -5% decrease in rentals to the Formula One racing team.

The smallest part of generated revenues referred to as others, is equally divided in revenues from financial services and the management of the Mugello racetrack and accounts for 3% of total revenues. As the financial service income is attached to cars sold the same growth rate is assumed. Ferrari does not disclose any further information on the racetrack revenues. Thus the historical mean of the development of other income will be taken into account.

5.1.2 Monte Carlo Simulation Sales

Based on these estimates for the specific revenue lines a Monte Carlo simulation was performed taken into account the historic standard deviation of the revenues to better simulate potential influences on sales. The financial forecasting is significantly reliable on the sales predictions. Therefore it is more sophisticated to use this model that makes the forecasting more robust to certain economic scenarios. The simulation of the sales was performed 2,000 times and the median outcome of sales are presented in the following chapters and are used as the basis for the valuation. The total results of the Monte Carlo Simulation are presented in the appendix as for every sales prediction a specific share price was calculated.

5.1.3 Cost of Goods Sold (COGS)

The cost of sales is mainly composed by the expenses that occur with the manufacturing and distribution of cars sold as well as costs related to engines shipments to Maserati and rentals to the Formula One team. It also includes warranty and product-related costs that will occur in the future but are estimated at the time of shipment. In the previous four years, the cost of sales amounted for slightly above 50% of revenues. The relative amount of COGS at the end of the third quarter in 2016 was at 50.7% of revenues, a reduction of 120bp when comparing it to the value of the first three-quarter in 2015, by 52.5% at the year-end.

Ferrari just recently renegotiated its long-term contracts in order to achieve higher efficiency regarding variable costs related to the manufacturing of the cars. Thus, it will be assumed that the future costs can be estimated with the average of the portion of costs on revenues in the year 2015 and 2016 projected to the year's end. The COGS will be calculated at a fixed 51.3% of total revenues for the years 2017 until 2023.

5.1.4 Selling, general & administrative costs (SG&A)

This block of costs can be further divided into two parts, the selling costs that mainly consist of expenses for marketing and selling personnel and the general and administrative expenses that cannot be directly attributed to either sales, manufacturing or R&D functions. In 2015 the expenses of the initial public offering were included in the general and administrative costs, which makes it not representative for the usual operations to forecast the following years. Therefore, the simple average the years 2012 to 2014 were taken. The SG&A costs amount to 11% of total revenues and will be kept at this fixed percentage for the forecasted years.

5.1.5 Research & Development (R&D)

Ferrari mainly uses R&D costs in order to improve their Formula One race cars and uses the findings to transfer it to its luxury sports cars. As previously described in the company analysis the underperformance of the Formula One team and the importance of its success drives Ferrari to increase their efforts in R&D. The company already follows this investment strategy on the Formula One team for the last years and therefore the average of the period of 2012 until 2016, projected to the year-end, will be used to estimate its cost percentage regarding total revenues. Relatively to the total revenues, Ferrari uses 19.7% in R&D expenses.

5.1.6 Other expenses/income

Other expenses include items related to indirect taxes, provisions or miscellaneous expenses, which is partially offset by other income that is composed by the gain on disposal of tangible

assets, rentals and miscellaneous income. This item is difficult to estimate and therefore the mere average of the historical values of the years 2012 until 2015 is taken into consideration in order to forecast other expenses/income. Thus, this item will be related to total revenues at a constant 5%.

5.1.7 Interest

The interest income/expenses are only related to the industrial operations of Ferrari, as the financial services income/expenses are included in net revenues. The historical value of the last four years was taken for the estimation, as it resembles the low interest rate phase that is currently going on. Net financial income/expenses were assumed to stay at a constant level of -0.8% of the EBIT.

5.1.8 Taxes

Ferrari is legally based in the Netherlands but all its production and administration offices are located in Maranello and Modena, Italy. Therefore the company is being taxed corresponding to Italian taxation law. Italian corporations are subject to a general corporate income tax, IRES, and a regional production tax, IRAP (Deloitte 2016). In 2017 the new tax reform in correspondence to Italy's stability law of 2016 will become effective and the IRES will be decreased from 27.5% to 24%. The IRAP stays at 3.9% rate, which sums up to an effective tax rate of 27.9% starting from 2017 onwards.⁶

5.2 Balance Sheet

As the balance sheet is related to several items on the income statement and vice versa, it is essential to understand these inter-relationships, and therefore the line items of the balance sheet will be forecasted in the following.

5.2.1 Fixed Assets

The statement of financial position showed a total of €1,85bn of fixed assets for the fiscal year 2015, composed of the items presented in *Table 1*. As Ferrari follows the IFRS standards, in particular, IAS 36, the company's Goodwill is subject to impairment tests and will not be amortized. Thus, the goodwill will be assumed to stay at the same level over the forecasted period at the level of 2016. It is tested for impairment annually or if certain circumstances occur more frequently.

⁶ <http://taxsummaries.pwc.com/uk/taxsummaries/wwts.nsf/ID/Italy-Corporate-Taxes-on-corporate-income>

The property, Plant & Equipment (PP&E) and Intangible Assets were analyzed carefully to its historical development from 2012 until Q3 2016. Yearly changes regarding additions, disposals, amortization, reclassification and translation differences on year-to-year change were taken into account in order to come up with an estimate for these items. The growth of these two items is closely attached to the sales growth and therefore projected to grow in line with revenues. PP&E and Intangible Assets are subject to grow at half of the rate of revenues with a CAGR of 1.45% during the explicit period.

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Goodwill	787.178	787.178	787.178	787.178	785.182	785.182	785.182	785.182	785.182	785.182	785.182	785.182
Intangible assets	265.066	242.167	265.262	307.810	346.566	351.618	356.555	360.849	364.147	369.404	376.494	383.268
% increase		-9,0%	9,1%	14,9%	11,9%	1,5%	1,4%	1,2%	0,9%	1,4%	1,9%	1,8%
Property, plant and equipment	544.606	604.454	585.185	626.130	640.468	649.803	658.927	666.863	672.958	682.674	695.776	708.296
% increase		10,4%	-3,2%	6,8%	2,3%	1,5%	1,4%	1,2%	0,9%	1,4%	1,9%	1,8%
Investments and other financial assets	41.032	1.271	47.431	11.836	12.275	12.275	12.275	12.275	12.275	12.275	12.275	12.275
Deferred tax assets	34.793	41.543	111.716	122.622	129.956	133.268	137.801	142.211	146.346	151.391	157.347	163.349
% of Income Tax Expenses	34,4%	34,5%	83,9%	85,1%	84,8%	84,8%	84,8%	84,8%	84,8%	84,8%	84,8%	84,8%
Total fixed assets	1.672.675	1.676.613	1.796.772	1.855.576	1.914.447	1.932.146	1.950.740	1.967.380	1.980.908	2.000.926	2.027.074	2.052.370

Table 1: Total Fixed Assets Forecast (in t Euro)

Investments and other financial assets include investment properties, participation in unconsolidated companies and non-current financial assets. Currently, Ferrari is not holding investment properties anymore as they got sold in 2015. The current composition of this line item is the options hold by Ferrari in buying shares of Delta Top Co the entity that is responsible for the promotion of the Formula One Championship and non-current other securities or financial assets. Ferrari discloses only a little information about the option as the fact that the option is granted from 2014 until 2020, it is renewable and gets measured independently at fair value. This item is assumed to stay constant during the forecasted period.

Deferred taxes will be influenced due to the change in Italian tax legislation, but it is expected to develop at a fixed percentage of total income tax expenses. In the IPO year of 2014 and Q3 2016, this portion was at an average of 84.8% of total income tax expenses. This level will be assumed in order to forecast this item on the balance sheet for the upcoming years.

5.2.2 Current Assets

Current Assets are tightly attached to sales and cost of sales for the specific fiscal year. In line with the calculation of the working capital most line items were calculated as average days, they are covered either regarding sales or cost of sales.

Accounts receivable in days were estimated based on the historic five-year average from 2012 until 2015 regarding sales. The coefficient of 170 days on average is multiplied by the amount of sales per day (Sales/365) in the particular year.

Inventories in days, on the other hand, are measured by matching it to the cost of sales of the explicit period. In line with receivables, the five-year average indicates the ratio for the forecasted years with a coefficient of 69.9.

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Inventories	215.556	237.496	296.005	295.436	301.618	312.229	323.041	333.560	343.423	355.455	369.663	383.978
% of Total Revenues	9.7%	10.2%	10.7%	10.4%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%
Acc. Receivables	939.849	1.069.986	1.411.104	1.347.359	1.430.348	1.480.669	1.531.940	1.581.823	1.628.595	1.685.657	1.753.033	1.820.919
% of Total Revenues	42.2%	45.8%	51.1%	47.2%	46.6%	46.6%	46.6%	46.6%	46.6%	46.6%	46.6%	46.6%
Other current assets	50.567	39.163	52.052	46.477	57.279	59.294	61.347	63.344	65.217	67.502	70.201	72.919
Current financial assets	29.120	74.759	8.747	8.626	20.081	20.774	21.618	22.476	23.345	24.326	25.369	26.459
% of Cars&Spare Parts Revenues	1.7%	4.5%	0.5%	0.4%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
Deposits in FCA Group cash management pools	457.161	683.672	942.469	139.172	-	-	-	-	-	-	-	-
Cash and cash equivalents	100.063	113.786	134.278	182.753	165.146	170.848	177.784	184.843	191.986	200.057	208.634	217.598
% of Total Revenues	4.5%	4.9%	4.9%	6.4%	5.4%	5.4%	5.4%	5.4%	5.5%	5.5%	5.5%	5.6%
Total current assets	1.792.316	2.218.862	2.844.655	2.019.823	1.974.472	2.043.813	2.115.729	2.186.047	2.252.566	2.332.998	2.426.900	2.521.873

Table 2: Total Current Assets Forecast (in t Euro)

Other current assets are assumed to grow in line with the company's sales and therefore. The historical average determines a fixed 1.87% of total sales.

Current financial assets can be divided into two attributes: cash flow hedges and financial derivatives. The cash flow hedges are mostly related to the car selling to foreign currency markets. Thus this item will be attached to sales with a historical percentage of IPO levels from 2014 until Q3 2016. The historical average approach derives at 0.9% of total sales.

5.2.3 Long Term Liabilities

According to the 2015 annual report of Ferrari, the expenses for employee benefits and provisions are distributed to the several cost items on the income statement, therefore the average percentage of employee benefits and provisions, according to the year's total costs is taken into account when forecasting the balance sheet value in the particular year. Employee benefits and provisions account for 3.8% and 5.6% of total costs respectively.

Deferred tax liabilities are forecasted in line with deferred tax assets, with 15.1% of total income taxes in the forecasted period. Simultaneous to the asset side it is estimated based on the average during the years after the IPO, where they started to pay taxes as an autonomous entity and not as part of the FCA Group.

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Employee benefits	79.429	65.479	76.814	78.373	93.349	100.187	103.656	107.031	110.196	114.057	118.616	123.209
Historical Average	4.2%	3.3%	3.2%	3.3%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
Provisions	119.135	103.785	134.774	141.847	163.195	145.641	150.684	155.590	160.191	165.804	172.431	179.108
Historical Average	6.3%	4.4%	4.9%	5.0%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%
Deferred tax liabilities	18.087	27.958	21.612	23.345	23.094	23.682	24.488	25.272	26.006	26.903	27.961	29.028
% of Income Tax expenses	17.9%	23.2%	16.2%	16.2%	15.1%	15.1%	15.1%	15.1%	15.1%	15.1%	15.1%	15.1%
Debt	261.347	20.519	18.900	2.260.390	2.176.946	2.155.176	2.133.624	2.112.288	2.091.165	2.070.254	2.049.551	2.029.056
Reimbursement	49.2%	7.6%	4.3%	84.1%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%
Other liabilities	29.962	46.768	87.915	79.359	58.458	58.458	58.458	58.458	58.458	58.458	58.458	58.458
% of Total Revenues	5.6%	17.4%	19.8%	2.8%	1.9%	1.8%	1.8%	1.7%	1.7%	1.6%	1.6%	1.5%
Other financial liabilities	23.186	4.485	104.093	103.332	20.663	20.663	20.663	20.663	20.663	20.663	20.663	20.663
% of Total Revenues	4.4%	1.7%	23.4%	3.6%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%	0.5%	0.5%
Total long term liabilities	531.146	268.994	444.108	2.686.646	2.535.704	2.503.807	2.491.573	2.479.302	2.466.679	2.456.138	2.447.680	2.439.522

Table 3: Total Long Term Liabilities Forecast (in t Euro)

Ferraris debt can be broken down into four components: syndicated loan, bond, securitizations and other financial liabilities. The syndicated loan with a maturity of four years

was set up in order to pay down the financial liabilities with FCA group. It now consists of a term loan and a revolving credit facility. The bridge loan was paid down and replaced by issuing a long-term bond with a maturity of seven years. The securitization has a five-year maturity. Other financial liabilities are associated with Ferrari Financial Service business on the same level with different maturities. According to its maturity and tendency to recover the debt with new debt Ferrari is subject to keep its current debt level stable over the forecasted period.

Other liabilities that are considered to be non-current liabilities are subject to stay at a constant level at Q3 2016 level.

5.2.4 Current Liabilities

In line with current assets, accounts payables, and other liabilities are closely connected to cost of sales. Thus, the relative value of the cost of sales will be applied to estimate the future balance sheet values of these items. Accounts payables are broken down into days and amount to 135.8 days of cost of sales until they will be paid for the forecasted period.

Other liabilities are measured as percentage of total cost of sales at historical average level at 34.2%. Other liabilities are seen as one block and are not broken down into the specific items as they are all attached to cost of sales.

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Other Liabilities	304.026	423.557	582.463	575.425	538.525	557.471	576.774	595.555	613.165	634.649	660.016	685.575
% of COGS	25,4%	34,3%	38,7%	38,4%	34,2%	34,2%	34,2%	34,2%	34,2%	34,2%	34,2%	34,2%
Current Tax payables	108.732	103.909	109.516	125.232	139.072	142.616	147.467	152.186	156.611	162.010	168.384	174.807
% of Income Tax Paid	107,5%	86,4%	82,2%	86,9%	90,8%	90,8%	90,8%	90,8%	90,8%	90,8%	90,8%	90,8%
Accounts payable	479.974	485.948	535.707	507.499	586.149	606.771	627.781	648.223	667.390	690.774	718.384	746.204
% of COGS	40,0%	39,4%	35,6%	33,9%	37,2%	37,2%	37,2%	37,2%	37,2%	37,2%	37,2%	37,2%
Total current liabilities	892.732	1.310.199	1.719.006	1.208.156	1.263.746	1.306.857	1.352.022	1.395.965	1.437.166	1.487.432	1.546.784	1.606.585

Table 4: Total Current Liabilities Forecast (in t Euro)

The item current tax payable is also seen on historical average regarding real total income taxes paid according to the income statement at the specific end of the year.

5.2.5 Equity

Based on the above-stated assumptions of the Balance Sheet development during the explicit period, Equity is growing accordingly at profit retention rate. The company has not paid any dividends since its IPO but announced to pay dividends dependent on business conditions, financial conditions, earnings, cash balances, etc. At the moment of this valuation the company has not announced any dividend payments nor any dividend plan for the future, thus dividends will not be considered in this work.

Non-controlling interest was mainly attributable to the subsidiary Ferrari Financial Services and the Chinese distribution company, Ferrari International Cars Trading (Shanghai). Ferrari has acquired the remaining 10% of Ferrari Financial Services at the end of 2015 to

derive at the full ownership of 100%. This affects the payments in non-controlling interests. Thus, payments in non-controlling interest will be kept at the same level as interim 3Q 2016.

5.3 Cash Flow Statement

The cash flow statement is one of the most essential components for the financial reporting of a company. It breaks down the sources of cash inflow and outflow. Thus, it is essential to forecast this overview of future cash movements and its allocation. The most important input comes from the capex, depreciation, and net working capital prediction.

5.4 Capital Expenditures (Capex) and Depreciation

Capital expenditures were calculated based on the historical development of the company's investments in PP&E and externally acquired intangible assets. Historically around 57% of total intangible assets were either externally purchased or patents with useful life and therefore subject to amortization. As observable in the Prospectus (2015) the company just made “significant investments” in their facilities in Italy between 2002 and 2015. Therefore Capex is subject to decrease and depreciation is profoundly influenced of that as the useful life is set to 20 years.

- Capex -
Euro thousand

	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Property, Plant & Equipment												
Beginning of period	512.548	544.606	604.454	585.185	626.130	640.468	649.803	658.927	666.863	672.958	682.674	695.776
End of period	544.606	604.454	585.185	626.130	640.468	649.803	658.927	666.863	672.958	682.674	695.776	708.296
Percentage increase	6,07%	10,43%	-3,24%	6,76%	2,26%	1,45%	1,39%	1,20%	0,91%	1,43%	1,90%	1,78%
Net Increase in PP&E	32.058	23.208	17.371	40.945	14.338	9.335	9.124	7.936	6.095	9.716	13.102	12.520
Intangible Assets												
Beginning of period	276.577	265.066	242.167	265.262	307.810	346.566	351.618	356.555	360.849	364.147	369.404	376.494
End of period	265.066	242.167	265.262	307.810	346.566	351.618	356.555	360.849	364.147	369.404	376.494	383.268
Percentage increase	-4,25%	-9,04%	9,11%	14,88%	11,86%	1,45%	1,39%	1,20%	0,91%	1,43%	1,90%	1,78%
Net increase Intangible assets	-11.511	-22.899	23.095	42.548	38.756	5.052	4.937	4.294	3.298	5.258	7.090	6.775
Investments in PP&E	-161.380	-161.653	-169.363	-184.910	-169.327	-171.777	-174.172	-176.257	-177.861	-180.410	-183.840	-187.118
Investments in intangible assets	-96.972	-109.250	-160.635	-171.033	-134.473	-136.418	-138.321	-139.976	-141.250	-143.275	-145.998	-148.602
Capital Expenditures	-258.352	-270.903	-329.998	-355.943	-303.799	-308.195	-312.493	-316.234	-319.111	-323.685	-329.838	-335.721

Table 5: Capex Forecast

Depreciation is calculated as percentage of PP&E and intangible assets that were acquired externally at historical values and carried forward at a slightly lower level than sales growth during the explicit period.

5.5 Net Working Capital

The precise forecast of the items to calculate the net working capital can be found above in the chapter of the balance sheet. The general approach of matching inventories, trade payables, and trade receivables regarding days to cost of goods sold or sales, respectively. Other items that have to be considered are estimated at a historical percentage of total revenues. The historical average of the years 2012-Q3 2016 were deemed to determine the explicit period.

- Working capital -												
<i>Euro thousand</i>												
	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Operating current assets												
Inventories	215.556	237.496	296.005	295.436	301.618	312.229	323.041	333.560	343.423	355.455	369.663	383.978
Trade receivables	135.641	205.925	183.642	158.165	167.907	173.814	179.833	185.689	191.179	197.877	205.787	213.756
Receivables from financing activities	803.205	862.764	1.224.446	1.173.825	1.246.125	1.289.965	1.334.633	1.378.091	1.418.839	1.468.552	1.527.250	1.586.392
Current tax receivables	1.003	1.297	3.016	15.369	16.316	16.890	17.474	18.043	18.577	19.228	19.996	20.771
Acc. Receivables	939.849	1.069.986	1.411.104	1.347.359	1.430.348	1.480.669	1.531.940	1.581.823	1.628.595	1.685.657	1.753.033	1.820.919
Other current assets	50.567	39.163	52.052	46.477	57.279	59.294	61.347	63.344	65.217	67.502	70.201	72.919
Total current assets	1.205.972	1.346.645	1.759.161	1.689.272	1.789.245	1.852.192	1.916.328	1.978.728	2.037.235	2.108.615	2.192.897	2.277.816
Operating current liabilities												
Other current liabilities	304.026	423.557	582.463	575.425	538.525	557.471	576.774	595.555	613.165	634.649	660.016	685.575
Current Tax payables	108.732	103.909	109.516	125.232	139.072	142.616	147.467	152.186	156.611	162.010	168.384	174.807
Accounts payable	479.974	485.948	535.707	507.499	586.149	606.771	627.781	648.223	667.390	690.774	718.384	746.204
Total current liabilities	1.196.758	1.013.414	1.227.686	1.208.156	1.263.746	1.306.857	1.352.022	1.395.965	1.437.166	1.487.432	1.546.784	1.606.585
Working Capital	9.214	333.231	531.475	481.116	525.498	545.334	564.305	582.763	600.069	621.183	646.113	671.231
Net change in WC		324.017	198.244	-50.359	44.382	19.836	18.971	18.458	17.306	21.114	24.930	25.119

Table 6: Working Capital forecast

The net working capital can be calculated by subtracting current liabilities from current assets as presented in detail in *Graph 6*.

5.6 Cost of Capital

At the beginning of 2016 the company just went through a recapitalization in order to separate completely from FCA Group. The cost of capital is based on current market conditions and is therefore highly influenced by the current low-interest rate phase both in cost of equity as well as a cost of debt.

5.6.1 Cost of Equity

For a reasonable estimation of the returns that investors require in order to provide Ferrari with equity capital the CAPM model was used. As Ferrari's primary operations and major part of the sales are taken place in Europe, the risk-free rate is assumed to match the ten years German Government Bond. Even though government bonds also carry a certain amount of risk, the German AAA rated government bonds can be considered as risk-free.

The beta of Ferrari is estimated by using the market model regression, comparing the returns of Ferrari to the returns of the market. To measure the performance of Ferrari compared to the market in which the company operates and its main competitors are listed it is more reasonable to use a supranational market index of Europe, namely the STOXX 600, than any national Italian market index or even global index. Due to the short period of Ferrari being listed it was only possible to use one-year daily returns data for the regression. The outcome of the market model was a beta estimation of 0.96, after adjusting the raw beta with the Blume formula the beta accounted for 0.98.

Due to consistency reasons, the same market index was used in the calculation of the market risk premium as in the beta regression. The returns of the STOXX 600 were observed for the last 12 years in order to match the average yield in comparison with the risk-free rate during the same period. The extreme market situations during the crisis 2008 were taken out of the average to avoid outliers in the calculation and to come up with reliable assumption.

BETA Regression EURO STOXX 600	
Beta	
Raw	0,96353
Adjusted	0,97569
Alpha	0,00010
Risk Free-Rate	
10Y German Bund	0,282%
Return Market	
Euro Stoxx 600 Yearly	5,84%
Equity Risk Premium	5,70%
Cost of Equity	5,98%

Table 7: Cost of Equity calculation

The CAPM calculation with the above-stated assumptions results in a 5.98% cost of equity for Ferrari. This seems reasonable because Ferrari is a strong European company with corporate performance history.

5.6.2 Cost of Debt

The cost of debt is calculated based on the interest rates that Ferrari discloses in its annual report and the debt information of Thomson Reuters Eikon. Ferrari's debt can be broken down as presented in the appendix. As Ferrari has just recently acquired its debt, the interest rates resemble the current market conditions. Thus, the average yield and the average maturity are taken into consideration when calculating the current cost of debt. Based on this calculation the current cost of debt is about 2.09%, which seems adequate at the moment of low-interest rates and the high interest coverage ratio of Ferrari.

The interest coverage ratio of Ferrari links to a "synthetic" rating of AAA (Damodaran 2016), and an estimated pre-tax cost of debt of 0.75% plus risk-free rate. Nonetheless, the rate calculated on recent borrowings better resembles the market conditions for Ferrari and is therefore used in the valuation.

5.6.3 Weighted Average Cost of Capital (WACC)

After computing the required rate of return on equity and the cost of debt, respectively the capital structure of Ferrari has to be projected to derive at an adequate cost of capital for the valuation. Because Ferrari just recently entered into long-term debt contracts and aimed to replace them with a debt of longer maturity it is assumed that the capital structure will stay at constant levels as there is no equity increase planned in the explicit period.

Assuming a constant capital structure the market value (MV) of equity, also known as market capitalization, is based on the share price at 16th of November 2016, €50.10, multiplied by the outstanding number of common shares as of the same date 2016, 193,923,499 shares, and derives from a value of €9.72bn.

Market Value Debt	BV	MV
The facility		
Term Loan	1.195.622	1.193.382
Bridge Loan	0	0
RCF	500.000	496.214
Other financial Liabilities	242.343	243.803
Securitization	224.000	281.000
Bond	500.000	494.750
Total	2.661.965	2.709.149
Cash and Cash equivalents		482.000
Net Debt		2.227.149
PV Operating Lease		18.448
Total incl. Lease		2.245.596

Table 8: Market Value of Debt Calculation (in t Euros)

The MV of debt is calculated using the average maturity and the cost of capital to apply it on the current debt amount as presented in *Table 8*. It accounts for €2.25bn and includes €18mio in operating lease.

6 Valuation

The valuation of this work is conducted as of 16th November 2016, and all relevant assumptions and financial data have been taken from the information available at this point. The company has released an interim report of the first three-quarters of FY 2016 on the 3rd of November. The financial year is considered to follow the normal calendar year, starting on the 1st of January until the 31st of December of the particular year. As the data cut-off period is close to the end of the fiscal year 2016, the valuation will be performed based on the forecasted years from 2017-2023, when the company is to be considered in a steady state.

6.1 Relative Valuation Approach

In the following, the relative valuation based on a thoroughly selected peer group will be presented. The assessment is not based on fundamental data but more on the perception of the market at current conditions. The financial data of the peer companies was taken from Thomson Reuters Eikon as of 16th of November 2016. The valuations will be based on leading- and forward-looking multiples.

6.1.1 Peer Group

As described in the previous chapters, Ferrari is not only another car manufacturer among others, and this, in particular, makes it hard to select a reliable peer group. In order to come up with the closest relatives, a pre-selected group of car manufacturer and luxury companies was selected. At first glance at *Graph 9*, it is already observable that Ferrari is much more comparable to luxury peers than automotive peers. A cluster analysis was performed to match the closest relatives regarding EBIT margin and future expected growth rate. Ferrari is performing at the top end of comparable companies of the luxury sector.

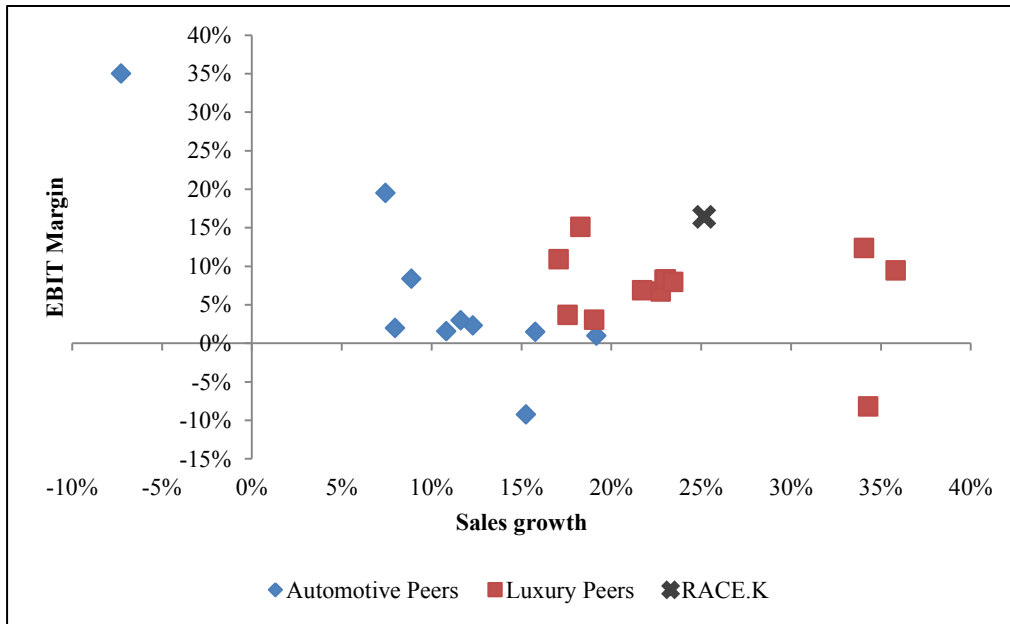


Figure 9: Cluster analysis peer group

The logic behind the cluster analysis is to compare key features, specifically EBIT Margin and Sales growth, of the peer companies to compare their similarity to Ferrari. For the main valuation, the ten closest companies based on the standard deviation of the key ratios to Ferrari’s EBIT Margin of 25.2% and a sales growth of 16.4% as estimated by Thomson Reuters were taken into account. Due to consistency of data, the estimates of Thomson Reuters Eikon were considered over own assumptions for all companies.

The detailed list of the peer group is presented in the Appendix 1. It turns out that Ferrari is much more a luxury player than a single car manufacturer and therefore the company characteristics of Ferrari match with companies with a very different product range like Hermes, LVMH, and Moncler that are mainly companies that produce luxury textiles and apparel. A so-called “perfect comparable company” cannot be identified.

6.1.2 Multiples Valuation

Multiples were calculated by financial data, extracted from Thomson Reuters Eikon for the years 2016, 2017 and 2018 to compute forward and leading multiples. Both enterprise value and equity value multiples were used in the analysis. The projection for the share price was calculated by dividing the equity value by the current amount of outstanding common shares.

The Price-to-Earnings (P/E) ratio was taken from Thomson Reuters consensus and delivers a ratio of 22.9x in 2016. When applying this multiple to the earnings of Ferrari projected for the end of 2016, this derives at a share price of €41.52, which is way below the current trading price of €50.10. Forward multiples indicate that the P/E ratio is about to decrease over the next two years, but the higher earnings of Ferrari will offset this.

SUMMARY	2016E	2017E	2018E
EV/EBITDA	12,36	11,31	10,29
EV/Sales	3,30	3,05	2,80
P/E	22,89	21,51	19,67

Table 9: Leading multiples overview

Two types of EV multiples were applied to estimate the value of Ferrari, namely the very commonly used EV/EBITDA ratio and the EV/Sales ratio. To derive at the Equity value the calculated amount for the EV multiples were multiplied by the Equity-to-Total Value ratio that was set for the explicit period, as presented in the wacc. Forward multiples range around €40 for the observed periods at 12.4x EV/EBITDA and 3.3x EV/Sales in 2016, while leading multiples arrive at a share price value of around €45 in 2018, at the multiples calculated for 2016. By looking at leading multiples at constant P/E ratio of 2016, the share price of Ferrari will increase to €50.10 in 2018.

Multiples	2016E	2017E	2018E
Forward Multiples			
EV/EBITDA	42,47	39,43	37,31
EV/Sales	42,34	40,47	38,59
P/E	41,52	43,97	43,04
Leading Multiples			
EV/EBITDA	42,47	43,08	44,82
EV/Sales	42,34	43,80	45,58
P/E	41,52	46,81	50,10

Table 10: Multiple Valuation Overview

These values seem too small for the developments of the current stock price and investors consensus for Ferrari. It is profoundly affected by the fact, that Ferrari is a single player with very few comparable companies in its business. Not only regarding offered products but also in terms of the main financial ratios. Based on the current share price Ferrari is traded on the market on multiples of 25.34x P/E and 13.68x EV/EBITDA, which indicates that Ferrari is traded at a premium to its peers.

6.2 Discounted Cash-Flow (DCF)

The fundamental valuation approach is performed by a discounted free cash flow to the firm method discounted at the wacc as Ferrari is subject to a constant capital structure. Due to their small volume strategy, future cash flows can be predicted reliably by sticking to the strategic production plan and future outlook based on prospectus, annual and quarterly reports. The explicit period is set to 2023 when the company is assumed to be at a steady state and a terminal growth rate expected to be at a level of 1.5% in perpetuity. This is due to the

response on new regulations to continue to be considered an independent manufacturer of a few cars and therefore not as strictly regulated as the usual car manufacturer. The value of 1.5% is slightly below the expected inflation rate of as of estimations from the IMF for 2021. The IMF expects the inflation rate for 2021 for the Euro area to be 1.675% and for the G7 countries 2.011%.⁷

For the terminal growth neither GDP nor HNWI growth was taken into consideration as Ferrari has reached its 10k limit by 2023. Thus, Ferrari is subject to inflation only. Due to the fact that the wacc is at a significant low rate because of historical low interest rates the differences in economic growth and expected interest rate growth will be assumed to partially compensate each other.

The FCFF is presented in *Graph 11* and shows a stable growth throughout the explicit period. At the end of the period it can be observed that depreciation and capex converge closer together, which is an indication that the company only reinvests its depreciated assets to keep the business running. No significant investments are planned for the near future as Ferrari renewed its plants and machinery in Maranello and Modena in the last decade from 2002-2012.

- Free Cash Flow to the Firm -								
<i>Euro thousand</i>								
	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
EBIT	547.383	557.798	577.113	595.905	613.525	635.021	660.403	685.977
Tax	28,8%	27,9%	27,9%	27,9%	27,9%	27,9%	27,9%	27,9%
Depreciation	267.882	277.145	286.579	295.762	304.380	314.862	327.202	339.634
Δ Net Working Capital	44.382	19.836	19.297	18.468	17.316	21.126	24.944	25.133
Capex	303.799	308.111	313.179	317.872	321.990	327.560	334.189	340.750
Free Cash Flow to the Firm	309.529	351.370	370.201	389.069	407.425	424.026	444.220	468.341

Table 11: Free cash flow to the Firm forecast

Change in NWC is at a high level in 2016 but is subject to a lower amount for the explicit period matched with the overall growth of sales. Thus it is observable that NWC is slightly increasing over the next seven years.

The FCFF is discounted by a wacc of 5.14% to compute the present value (PV) for future cash flows. At the end of the explicit period, Ferrari has arrived at a threshold regarding sales, as it has reached the critical amount of cars sold, namely 10,000. At this point Ferrari has reached its full capacities and also new regulations in the form of environmental and efficiency announcements will decrease their aggressive growth of the present. Therefore Ferrari is valued with a relatively low terminal growth rate of 1.5%. Thus, the terminal value

⁷ <https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx>

accounts for €12.87bn, presented in Graph 12, which is around 86% of the total computed enterprise value, which is estimated to have an intrinsic value of around €14.77bn.

<i>Euro thousand</i>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Free Cash Flow to the Firm	309.529	351.370	370.201	389.069	407.425	424.026	444.220	468.341
wacc	5,14%	5,14%	5,14%	5,14%	5,14%	5,14%	5,14%	5,14%
Growth Rate								1,50%
Discount Factor	0,9511	0,9046	0,8604	0,8183	0,7783	0,7403	0,7041	0,6697
Present Value	294.397	317.856	318.521	318.390	317.113	313.901	312.774	
Terminal Value								12.867.519
Enterprise Value	14.766.073							
Net Debt	2.775.792							
Equity	11.990.281							
Share count	193.923							
Price per share (in Euro)	61,83							

Table 12: Discounted Cash Flow Analysis

Net debt is calculated at the constant level of 18.20% of total EV and is subtracted to derive at the equity value. Based on this valuation the fair equity value as of 16th November 2016 is estimated with €11.99bn. To develop a valuation per share, the equity value is divided by the expected amount of outstanding shares, which generates a target price of €61.83.

The terminal value implies an EV/EBITDA of 14.26x, which indicates a higher premium to its peer companies than it already is trading currently.

6.2.1 Sensitivity Analysis

The critical factor in the DCF approach is the impact of the terminal value, which represents 86% of the enterprise value. Already small changes in this calculation can have a significant influence on the valuation. To challenge the assumptions and to better understand the significance of this value a sensitivity analysis is performed regarding the wacc and the long-term growth rate. The scenarios are computed as an increase/decrease of 0.25% in the growth rate and an increase/decrease of 0.5% for the wacc, as presented in *Table 13*.

Sensitivity Analysis								
<i>Share Price in Euro</i>		<i>wacc</i>						
	61,83	3,64%	4,14%	4,64%	5,14%	5,64%	6,14%	6,64%
Growth Rate	1,0%	82,24	70,41	61,83	55,32	50,22	46,11	42,72
	1,3%	90,01	75,81	65,80	58,37	52,62	48,06	44,34
	1,5%	99,60	82,24	70,41	61,83	55,32	50,22	46,11
	1,8%	111,73	90,01	75,81	65,80	58,37	52,62	48,06
	2,0%	127,55	99,60	82,24	70,41	61,83	55,32	50,22

Table 13: Sensitivity Analysis for wacc and long-term growth (*own calculations*)

It can be observed that the share price of Ferrari shows the anticipated movement according to the changes in the two factors. Especially the reaction to the evolution in the wacc has to be observed carefully as they are highly influenced by the low levels of current interest rates that

are subject to change over the next years. The target price benefits from this low level of the wacc.

By holding the wacc at a constant rate, the influence of the growth rate can be measured. This is also a critical factor as it highly depends on the strategy that Ferrari is following.

7 Comparison with UBS Equity Research

In the following, the UBS equity research is compared to this paper's analysis. UBS was chosen as this investment bank operated as the head book runner in the IPO of Ferrari in 2015. Thus, the bank is in close contact with the company, and they have a thorough understanding of the business and the company itself. Since the initial coverage report, UBS published three announcements of re-valuation. The most recent equity research of UBS on Ferrari was released on the 11th of October and will be used in this work to make the comparison of the two valuation approaches. The investment advice is a buy strategy with a target price set to \$60.00 in regards to the price of \$53.32 at this time, which indicates an upside of around 12.5%.

UBS based their initial coverage as of 16th November 2015 on a DCF approach with an explicitly forecasted period until 2020 and a multiple approach with forward multiples for the years 2017 and 2018, P/E and EV/EBITDA respectively. The latest review of the investment bank on 11th of October they limited their re-measurement on an EV/EBITDA valuation. Given the fact that they have to provide a frequently updated equity research it is entirely understandable that they have chosen a fast and easy approach to give a current indication of the price development, having the fundamental valuation covered in their initial coverage.

Head-Analyst for Ferrari NV, Michael Binetti has conducted an interview session with Ferrari dealers around the world in order to create a kind of consensus about the future development. Thus, this work is highly influenced by qualitative data based on the perception of the potential that Ferrari dealers predict the future. The presented dissertation, on the contrary, is solely based on quantitative figures with qualitative influence based on the strategy announced from Ferrari itself. Furthermore, the research of UBS builds on the underlying financial data of October before the third quarter interims report was published.

The investment bank started off with a peer group of eight luxury peer companies, computing an average to apply it to the figures of Ferrari. By comparing the multiple valuation approaches it is observable that both UBS and this research based their assessment on the EV/EBITDA, which is nothing unusual as it is counted among to the most used multiples in the area of firm valuation. UBS presents a forward multiple of 12.5x in 2017E and 11.7x in 2018E, whereas this paper's estimation came up with a 12.4x EV/EBITDA for 2016 and an 11.3x and 10.3x multiple for 2017E and 2018E, respectively. In line with this, the investment bank presented higher EBITDA estimates for the future as this report does. *Figure 10* shows the EBITDA assumptions for the period of 2016-2020 of both reports.

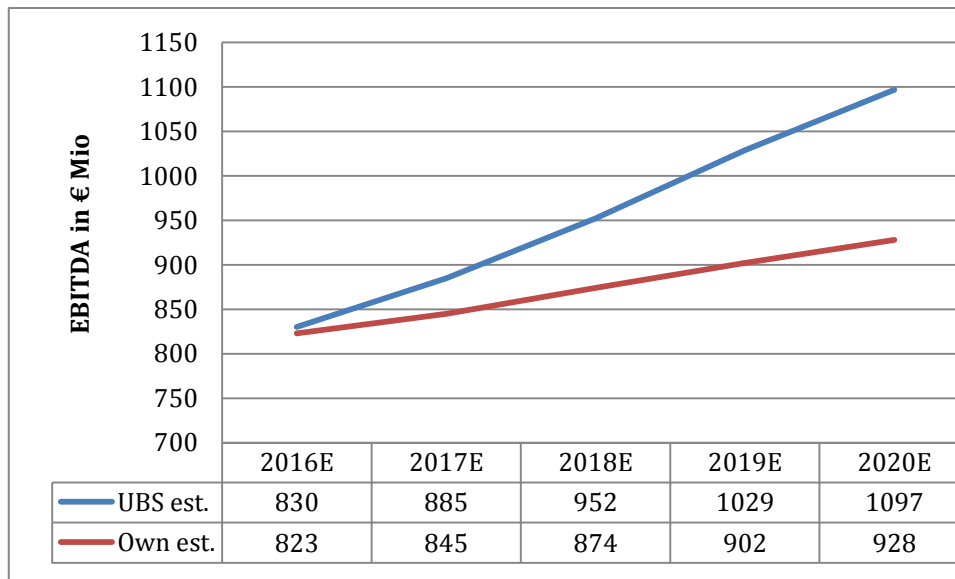


Figure 10: EBIT forecast comparison UBS vs. Own Estimates

It can be observed that UBS expects a significantly higher growth potential than this report. In this work, a more conservative approach is followed based on the strategy of Ferrari and the economic and regulatory limitations that apply to the company. This is also driven by the higher EBITDA Margin of the investment banks assumptions, which is estimated at around 28% in comparison to the 26.6% of this analysis. Thus, UBS presented a target price of \$60 (€57.4), while this multiple valuation came up with a target share price of €42.5 as of EV/EBITDA for 2016.

In conclusion, both values differ significantly based on the fact that UBS is using higher EBITDA Margin and higher multiples. This work, in contrast, focuses more on the fundamental DCF model that comes up with a value of €61.83. This value is closer to the estimation of UBS and developed in a more sophisticated approach, and it indicates that Ferrari would trade at an EV/EBITDA of 18x, well above most of the peer group.

When comparing the DCF to the investment bank initial coverage, where they also used this approach, it can be observed that UBS is using a higher wacc as well as a higher terminal growth rate. The discount rate employed by UBS was 8% on 16th of November 2015, comparing to 5% of this report as of 16th November 2016. A comparison of these two reports cannot be done, as Ferrari went through a recapitalization at the beginning of 2016 and therefore changed their capital structure significantly for the future.

8 Conclusion

The estimation of the fair value of Ferrari NV (RACE.MI) was the primary goal of this work. By starting with the determination of the most suitable valuation techniques to yield the best and most appropriate value estimations, the DCF and the multiple approach were identified to produce the most accurate results. Bearing in mind that there is nothing such as the best approach, due to the assumptions that are taken are the most critical factor, and when applied correctly all valuation models should develop comparable values. Thus, the major part of this work is about the forecasted development of the business operations that are significantly influenced by the fact that Ferrari just went through a separation of its mother company by being just recently listed on the stock market.

The DCF valuation is estimating a fair value of €61.83 per share, which accounts for an equity value of €11.99bn. By comparing it to the current share price of €50.10, it represents an upside of 21.04% and therefore yields to a BUY recommendation. The leading multiples approach, in contrast, develops share price values on average for P/E, EV/Sales and EV/EBITDA for 2016E, 2017E and 2018E of €44.5 and is well below the current and the developed DCF value. The implied EV/EBITDA for the terminal value in 2023 is 14.26x. This is representable to the situation that Ferrari is currently in; the market does not know how to categorize the company within the right peer companies, as Ferrari is on paper a car manufacturer but based on financials more among luxury players. When comparing the companies in the peer group there is nothing such as a perfect comparable company. Therefore the value based on the multiples approach should have lower impact on the target price than the fundamental approach.

In order to develop a reliable target price the DCF valuation has a higher weight as the multiple approaches and therefore the lower end of the range is calculated as follows: weights are distributed as 80% DCF value, and 20% multiples average deriving at a target price of €58.36. Thus the potential upside in comparison to its current share price of €50.10 is at 15.26%, and a clear BUY recommendation is set out.

Potential limitations of the presented work are the assumptions that are considered in the valuation. Mainly the trade-off for Ferrari to either grasp the worldwide HNWI growth, especially in Asia or sticking to its well-established exclusivity and scarcity strategy. Furthermore, the strong regulations that would apply to the company when they produce a higher amount of 10k cars per annum is a major challenge that Ferrari has to face in the future.

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Appendix

Appendix 1: Investment Note



Investment Note

Ferrari NV

16th Nov 2016

The prancing horse is about to break through the top of the luxury sector, 15% upside predicted

The strategic goal and the high demand growth due to the HNWI market outlook gives ahead a promising future for Ferrari NV. The company is already enjoying a high momentum on its stock since February 2016. Strong financial data as presented in the just recently published third-quarter interims report in the confirm the brilliant performance of the RACE.MI stock. Predicted growth of more than 4% over the next five years and an EBITDA margin of above 25% result in a fundamental analysis with a clear buy recommendation and a 15% upside to its current share price.

Ferrari trades well above automotive peers and can be clearly valued among global luxury companies

Based on the current share price Ferrari trades at an EV/EBITDA of 13.68x and has a P/E ratio of 25.34x. By comparing this to the peer group that is selected among the top-end of the luxury sector, Ferrari already trades at a slight premium to its comparables. The peer group currently trades at an EV/EBITDA of 12.34x and a P/E of 22.89x. The fundamental analysis indicates an even higher premium for the future with an implied EV/EBITDA of 14.26x in 2023.

Aggressive volume growth endangers key strategy of exclusivity and scarcity

Major limitations on the long-run are the changes in environmental regulations that become stricter as soon as Ferrari hits 10k sales per annum as they are then not protected by the small vehicle manufacturer benefits and are subject to stricter rules.

Key Financial Forecasts (in t Euro)

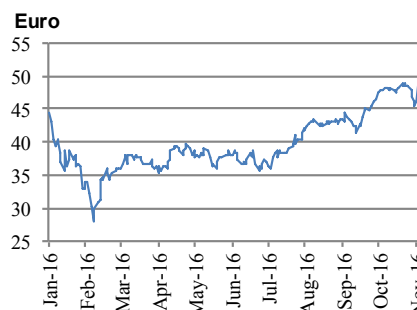
	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Revenues	3.070.377	3.178.395	3.288.454	3.395.534	3.495.933	3.618.422	3.763.052	3.908.775
EBITDA	822.736	844.943	873.692	901.667	927.905	959.884	997.606	1.035.611
EBIT	547.383	557.798	577.113	595.905	613.525	635.021	660.403	685.977
FCFF	309.529	351.370	370.201	389.069	407.425	424.026	444.220	468.341

RACE.MI

Europe
Milan SE, Italy

Rating	BUY
Target Price	€58.36
Current Price	€50.10
Potential	15.26%
52-week high	€50.10
52-week low	€28.00
Market Cap	€9.7bn
Share outstanding	193.923.499
Free Float	66.5%

Share Price Performance



Peer Analysis

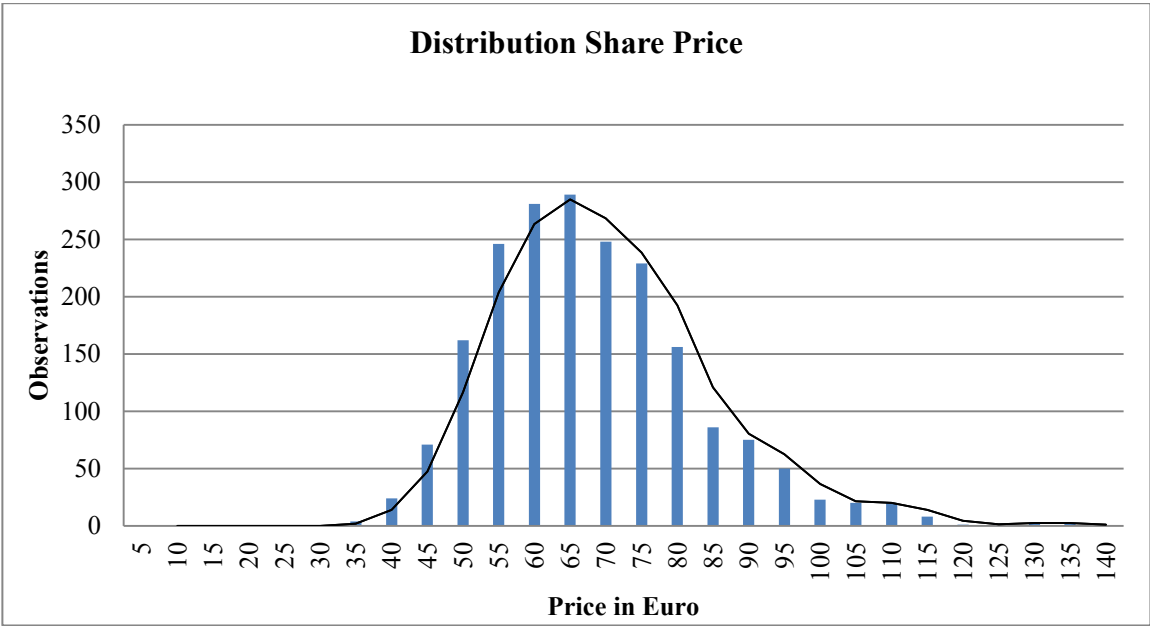
	2016E	2017E	2018E
EV/EBITDA	12,36	11,31	10,29
EV/Sales	3,30	3,05	2,80
P/E	22,89	21,51	19,67

DCF (in Mio Euro)

NPV FCFF (in Mio)	1.898
NPV TV (in Mio)	12.868
Growth	1.5%
wacc	5.14%
EV (in Mio)	14.766
Net Debt (in Mio)	2.776
Equity Value (in Mio)	11.990
Share count	193.923
Target Price	€61.83

Author: Fabio Giacomo Müller

Appendix 2: Monte Carlo Simulation



Outcome of the DCF analysis based on 2,000 sales simulations as this item is the most important in the financial forecasting. All relevant factors for the DCF method are attached to the revenue simulation. Therefore the Monte Carlo Simulation represents a valid method to make the forecasting more robust to economic ups and downs.

Summary	
Mean	65,46 €
Median	63,63 €
Min	32,22 €
Max	132,53 €
Downside Scenario	13,05%
Upside Scenario	86,95%

To summarize the outcome it shows that in 87% of the outcomes the DCF derives in an upside value when comparing with the current share price. This is quite a strong outcome and confirms the clear BUY recommendation.

Appendix 3: Forecasted Consolidated Statement of Financial Position

- Consolidated Statement of Financial Position -

Euro thousand

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
ASSETS												
Goodwill	787.178	787.178	787.178	787.178	785.182	785.182	785.182	785.182	785.182	785.182	785.182	785.182
Intangible assets	265.066	242.167	265.262	307.810	346.566	351.618	356.555	360.849	364.147	369.404	376.494	383.268
Property, plant and equipment	544.606	604.454	585.185	626.130	640.468	649.803	658.927	666.863	672.958	682.674	695.776	708.296
Investments and other financial assets	41.032	1.271	47.431	11.836	12.275	12.275	12.275	12.275	12.275	12.275	12.275	12.275
Deferred tax assets	34.793	41.543	111.716	122.622	129.956	133.268	137.801	142.211	146.346	151.391	157.347	163.349
Total fixed assets	1.672.675	1.676.613	1.796.772	1.855.576	1.914.447	1.932.146	1.950.740	1.967.380	1.980.908	2.000.926	2.027.074	2.052.370
Inventories	215.556	237.496	296.005	295.436	301.618	312.229	323.041	333.560	343.423	355.455	369.663	383.978
Acc. Receivables	939.849	1.069.986	1.411.104	1.347.359	1.430.348	1.480.669	1.531.940	1.581.823	1.628.595	1.685.657	1.753.033	1.820.919
Other current assets	50.567	39.163	52.052	46.477	57.279	59.294	61.347	63.344	65.217	67.502	70.201	72.919
Current financial assets	29.120	74.759	8.747	8.626	20.081	20.774	21.618	22.476	23.345	24.326	25.369	26.459
Deposits in FCA Group cash management pools	457.161	683.672	942.469	139.172	-	-	-	-	-	-	-	-
Cash and cash equivalents	100.063	113.786	134.278	182.753	165.146	170.848	177.784	184.843	191.986	200.057	208.634	217.598
Total current assets	1.792.316	2.218.862	2.844.655	2.019.823	1.974.472	2.043.813	2.115.729	2.186.047	2.252.566	2.332.998	2.426.900	2.521.873
TOTAL ASSETS	3.464.991	3.895.475	4.641.427	3.875.399	3.888.919	3.975.960	4.066.469	4.153.427	4.233.473	4.333.924	4.453.974	4.574.243
EQUITY	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
(Deficit)/Equity attributable to owners of the par	2.018.992	2.289.506	2.469.618	-25.123	89.468	165.296	222.874	278.160	329.628	390.354	459.510	528.136
Non-controlling interest	22.121	26.776	8.695	5.720	-	-	-	-	-	-	-	-
TOTAL EQUITY	2.041.113	2.316.283	2.478.314	-19.402	89.468	165.296	222.874	278.160	329.628	390.354	459.510	528.136
LIABILITIES	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Employee benefits	79.429	65.479	76.814	78.373	93.349	100.187	103.656	107.031	110.196	114.057	118.616	123.209
Provisions	119.135	103.785	134.774	141.847	163.195	145.641	150.684	155.590	160.191	165.804	172.431	179.108
Deferred tax liabilities	18.087	27.958	21.612	23.345	23.094	23.682	24.488	25.272	26.006	26.903	27.961	29.028
Debt	261.347	20.519	18.900	2.260.390	2.176.946	2.155.176	2.133.624	2.112.288	2.091.165	2.070.254	2.049.551	2.029.056
Other liabilities	29.962	46.768	87.915	79.359	58.458	58.458	58.458	58.458	58.458	58.458	58.458	58.458
Other financial liabilities	23.186	4.485	104.093	103.332	20.663	20.663	20.663	20.663	20.663	20.663	20.663	20.663
Total long term liabilities	531.146	268.994	444.108	2.686.646	2.535.704	2.503.807	2.491.573	2.479.302	2.466.679	2.456.138	2.447.680	2.439.522
Other Liabilities	304.026	423.557	582.463	575.425	538.525	557.471	576.774	595.555	613.165	634.649	660.016	685.575
Current Tax payables	108.732	103.909	109.516	125.232	139.072	142.616	147.467	152.186	156.611	162.010	168.384	174.807
Accounts payable	479.974	485.948	535.707	507.499	586.149	606.771	627.781	648.223	667.390	690.774	718.384	746.204
Total current liabilities	892.732	1.310.199	1.719.006	1.208.156	1.263.746	1.306.857	1.352.022	1.395.965	1.437.166	1.487.432	1.546.784	1.606.585
TOTAL LIABILITIES	1.423.878	1.579.193	2.163.114	3.894.802	3.799.451	3.810.664	3.843.595	3.875.267	3.903.845	3.943.570	3.994.464	4.046.107
TOTAL EQUITY + LIABILITIES	3.464.991	3.895.476	4.641.428	3.875.400	3.888.919	3.975.960	4.066.469	4.153.427	4.233.473	4.333.924	4.453.974	4.574.243

Appendix 4: Forecasted Income Statement

- Income Statement -

Euro thousand

Description	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Cars&Spare Parts	1.738.469	1.647.549	1.923.618	2.225.323	2.173.827	2.250.304	2.328.225	2.404.038	2.475.120	2.561.843	2.664.241	2.767.413
<i>YoY Growth %</i>		-5%	15%	15%	-2%	3%	3%	3%	3%	3%	4%	4%
Sponsorships, Commercial and Brand	384.793	412.004	416.673	441.128	488.190	505.365	522.864	539.890	555.853	575.329	598.325	621.495
<i>YoY Growth %</i>		6,83%	1,13%	5,70%	10%	3%	3%	3%	3%	3%	4%	4%
Engines	76.535	187.915	311.155	218.657	303.967	314.661	325.557	336.158	346.097	358.224	372.542	386.969
<i>YoY Growth %</i>		90%	50%	-35%	33%	3%	3%	3%	3%	3%	4%	4%
Other	68.594	80.166	90.803	114.356	104.393	108.065	111.807	115.448	118.862	123.026	127.944	132.898
<i>YoY Growth %</i>		16%	12%	23%	-9%	3%	3%	3%	3%	3%	4%	4%
Net revenues	2.225.207	2.335.270	2.762.360	2.854.369	3.070.377	3.178.395	3.288.454	3.395.534	3.495.933	3.618.422	3.763.052	3.908.775
<i>YoY Growth %</i>		4,8%	16,8%	3,3%	7,3%	3,5%	3,4%	3,2%	2,9%	3,4%	3,9%	3,8%
Cost of Sales	1.198.901	1.234.643	1.505.889	1.498.806	1.575.371	1.630.794	1.687.264	1.742.205	1.793.719	1.856.567	1.930.774	2.005.543
<i>as of Net Revenues</i>		53,9%	52,9%	54,5%	52,5%	51,3%	51,3%	51,3%	51,3%	51,3%	51,3%	51,3%
Selling, general and administrative costs	242.819	259.880	300.090	338.626	336.761	348.609	360.680	372.425	383.436	396.871	412.734	428.717
<i>as of Net Revenues</i>		10,9%	11,1%	10,9%	11,9%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%	11,0%
Research and development costs	431.456	479.294	540.833	561.582	590.153	625.429	647.086	668.157	687.913	712.016	740.475	769.150
<i>as of Net Revenues</i>		19,4%	20,5%	19,6%	19,7%	19,2%	19,7%	19,7%	19,7%	19,7%	19,7%	19,7%
Other expenses/(income), net	16.534	-2.096	26.080	11.035	20.708	15.765	16.311	16.842	17.340	17.947	18.665	19.388
<i>as of Net Revenues</i>		0,7%	-0,1%	0,9%	0,4%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%	0,5%
(=) EBIT	335.497	363.549	389.468	444.320	547.383	557.798	577.113	595.905	613.525	635.021	660.403	685.977
<i>Ebit Margin</i>	<i>15,1%</i>	<i>15,6%</i>	<i>14,1%</i>	<i>15,6%</i>	<i>17,8%</i>	<i>17,5%</i>	<i>17,5%</i>	<i>17,5%</i>	<i>17,5%</i>	<i>17,5%</i>	<i>17,5%</i>	<i>17,5%</i>
<i>Adjustments for non-recurring items</i>	0	0	15.000	29.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
(=) Adj. EBIT	335.497	363.549	404.468	473.320	557.383	567.798	587.113	605.905	623.525	645.021	670.403	695.977
Add Back: Depreciation & Amortization	237.540	270.250	288.982	274.757	267.882	277.145	286.579	295.762	304.380	314.862	327.202	339.634
(=) EBITDA	573.037	633.799	693.450	748.077	822.736	844.943	873.692	901.667	927.905	959.884	997.606	1.035.611
<i>EBITDA Margin</i>	<i>25,8%</i>	<i>27,1%</i>	<i>25,1%</i>	<i>26,2%</i>	<i>26,8%</i>	<i>26,6%</i>	<i>26,6%</i>	<i>26,6%</i>	<i>26,5%</i>	<i>26,5%</i>	<i>26,5%</i>	<i>26,5%</i>
Net financial (expenses)/income	-898	2.851	8.765	-10.151	-24.996	-4.556	-4.714	-4.867	-5.011	-5.187	-5.394	-5.603
<i>as of EBIT</i>	<i>-0,3%</i>	<i>0,8%</i>	<i>2,3%</i>	<i>-2,3%</i>	<i>-4,6%</i>	<i>-0,8%</i>	<i>-0,8%</i>	<i>-0,8%</i>	<i>-0,8%</i>	<i>-0,8%</i>	<i>-0,8%</i>	<i>-0,8%</i>
(=) Profit before taxes	334.599	366.400	398.233	434.169	532.387	563.242	582.399	601.038	618.514	639.835	665.009	690.374
<i>Profit Margin</i>	<i>15,0%</i>	<i>15,7%</i>	<i>14,4%</i>	<i>15,2%</i>	<i>17,3%</i>	<i>17,7%</i>	<i>17,7%</i>	<i>17,7%</i>	<i>17,7%</i>	<i>17,7%</i>	<i>17,7%</i>	<i>17,7%</i>
Income tax expense	101.109	120.301	133.218	144.115	153.239	157.144	162.489	167.690	172.565	178.514	185.538	192.614
<i>Tax Rate</i>	<i>30,2%</i>	<i>32,8%</i>	<i>33,5%</i>	<i>33,2%</i>	<i>28,8%</i>	<i>27,9%</i>	<i>27,9%</i>	<i>27,9%</i>	<i>27,9%</i>	<i>27,9%</i>	<i>27,9%</i>	<i>27,9%</i>
(=) Net Profit	233.490	246.099	265.015	290.054	379.148	406.097	419.910	433.348	445.948	461.321	479.472	497.760
<i>Net Profit Margin</i>	<i>10,5%</i>	<i>10,5%</i>	<i>9,6%</i>	<i>10,2%</i>	<i>12,3%</i>	<i>12,8%</i>	<i>12,8%</i>	<i>12,8%</i>	<i>12,8%</i>	<i>12,7%</i>	<i>12,7%</i>	<i>12,7%</i>

Appendix 5: Working Capital Calculation

- Working capital -

Euro thousand

	2012A	2013A	2014A	2015A	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Operating current assets												
Inventories	215.556	237.496	296.005	295.436	301.618	312.229	323.041	333.560	343.423	355.455	369.663	383.978
Trade receivables	135.641	205.925	183.642	158.165	167.907	173.814	179.833	185.689	191.179	197.877	205.787	213.756
Receivables from financing activities	803.205	862.764	1.224.446	1.173.825	1.246.125	1.289.965	1.334.633	1.378.091	1.418.839	1.468.552	1.527.250	1.586.392
Current tax receivables	1.003	1.297	3.016	15.369	16.316	16.890	17.474	18.043	18.577	19.228	19.996	20.771
Acc. Receivables	939.849	1.069.986	1.411.104	1.347.359	1.430.348	1.480.669	1.531.940	1.581.823	1.628.595	1.685.657	1.753.033	1.820.919
Other current assets	50.567	39.163	52.052	46.477	57.279	59.294	61.347	63.344	65.217	67.502	70.201	72.919
Total current assets	1.205.972	1.346.645	1.759.161	1.689.272	1.789.245	1.852.192	1.916.328	1.978.728	2.037.235	2.108.615	2.192.897	2.277.816
Operating current liabilities												
Other current liabilities	304.026	423.557	582.463	575.425	538.525	557.471	576.774	595.555	613.165	634.649	660.016	685.575
Current Tax payables	108.732	103.909	109.516	125.232	139.072	142.616	147.467	152.186	156.611	162.010	168.384	174.807
Accounts payable	479.974	485.948	535.707	507.499	586.149	606.771	627.781	648.223	667.390	690.774	718.384	746.204
Total current liabilities	1.196.758	1.013.414	1.227.686	1.208.156	1.263.746	1.306.857	1.352.022	1.395.965	1.437.166	1.487.432	1.546.784	1.606.585
Working Capital	9.214	333.231	531.475	481.116	525.498	545.334	564.305	582.763	600.069	621.183	646.113	671.231
Net change in WC		324.017	198.244	-50.359	44.382	19.836	18.971	18.458	17.306	21.114	24.930	25.119
Accounts receivables to Revenues in days	154,2	167,2	186,5	172,3	170,0	170,0	170,0	170,0	170,0	170,0	170,0	170,0
Inventory turnover in days	65,6	70,2	71,7	71,9	69,9	69,9	69,9	69,9	69,9	69,9	69,9	69,9
Other current assets	2,27%	1,68%	1,88%	1,63%	1,87%	1,87%	1,87%	1,87%	1,87%	1,87%	1,87%	1,87%
Accounts payables in days	146,1	143,7	129,8	123,6	135,8	135,8	135,8	135,8	135,8	135,8	135,8	135,8
Other current liabilities	25%	34%	39%	38%	34%	34%	34%	34%	34%	34%	34%	34%
Income Tax payables of Taxes on Income	108%	86%	82%	87%	91%	91%	91%	91%	91%	91%	91%	91%

Appendix 6: Market Value of Debt

- Cost of Debt -

Cost of Debt	2,09%
Market Value of Debt	2.245.596

The Facility	Amount	Yield (Thomson Reuters)	Coupon	Payment	Maturity (years)	Issue Date
Term Loan	1.550.000	2,04%	0,69%	24.391	4	2015
Bridge Loan	450.000	--				2015
Revolving Credit facility	500.000	1,89%	0,54%	9.450	4	2015
Other Financial Liabilities	242.343	2,70%	2,36%	6.554	1	
Ferrari Financial Services	150.000	2,70%	2,70%		0,75	Jan 16
Term Loan	100.000					Dec 2016
Short and medium-term credit	20.000					
Securitization	224.000	2,30%	1,96%	5.162	5	Jan 16
Bond						
Traded Bond	500.000	1,66%	1,50%		7	2016
Cost of Debt (based on recent issues)	2.924.000	2,09%	1,06%	45.557	4,15	

Appendix 7: Interest Coverage Ratio Table (Damodaran, 2016)

Used in the analysis of Cost of Debt in order to crosscheck outcome of the above stated estimation.

Date of Analysis: Data used is as of January 2016

For large non-financial service companies with market cap > \$ 5 billion

If interest coverage ratio is			
>	≤ to	Rating is	Spread is
8.50	100000	Aaa/AAA	0.75%
6.5	8.499999	Aa2/AA	1.00%
5.5	6.499999	A1/A+	1.10%
4.25	5.499999	A2/A	1.25%
3	4.249999	A3/A-	1.75%
2.5	2.999999	Baa2/BBB	2.25%
2.25	2.499999	Ba1/BB+	3.25%
2	2.2499999	Ba2/BB	4.25%
1.75	1.999999	B1/B+	5.50%
1.5	1.749999	B2/B	6.50%
1.25	1.499999	B3/B-	7.50%
0.8	1.249999	Caa/CCC	9.00%
0.65	0.799999	Ca2/CC	12.00%
0.2	0.649999	C2/C	16.00%
-100000	0.199999	D2/D	20.00%

Appendix 8: Cost of Equity – Market Model

Date	Stoxx 600 Returns	German Bund 10Y Returns	Equity Risk Premium
16.11.04	9,30%	3,77%	5,53%
16.11.05	18,25%	3,48%	14,77%
16.11.06	19,61%	3,74%	15,87%
16.11.07	0,46%	4,10%	-3,63%
14.11.08	-56,79%	3,61%	-60,40%
16.11.09	20,11%	3,25%	16,85%
16.11.10	5,66%	2,63%	3,03%
16.11.11	-11,52%	1,82%	-13,34%
16.11.12	10,34%	1,32%	9,02%
15.11.13	20,60%	1,71%	18,90%
14.11.14	3,84%	0,79%	3,05%
16.11.15	9,92%	0,53%	9,39%
16.11.16	-9,08%	0,30%	-9,38%
Arithmetic Mean		Without 2008	5,84%
Arithmetic Mean		With 2008	0,74%

Appendix 7: Peer Group Selection

		EBITDA Margin	Growth					
RACE.K	Ferrari NV	25,192%	16,400%					
		EBITDA Margin	Std. Dev.(A)	Growth	Std. Dev. (B)	A+B	Ranking	
Automotive	FCHA.MI	Fiat Chrysler Automobiles N'	7,45%	0,125	19,50%	0,022	0,147	12
	F.N	Ford Motor Co	10,82%	0,102	1,57%	0,105	0,206	18
	GM.N	General Motors Co	8,89%	0,115	8,40%	0,057	0,172	14
	TSLA.O	Tesla Motors Inc	-7,27%	0,230	35,00%	0,132	0,361	22
	7267.T	Honda Motor Co Ltd	7,97%	0,122	1,97%	0,102	0,224	19
	BMWG.DE	Bayerische Motoren Werke .	19,18%	0,043	1,00%	0,109	0,151	13
	DAIGN.DE	Daimler AG	12,31%	0,091	2,31%	0,100	0,191	17
	7203.T	Toyota Motor Corp	15,77%	0,067	1,49%	0,105	0,172	15
	VOWG.DE	Volkswagen AG	11,62%	0,096	3,00%	0,095	0,191	16
	RR.L	Rolls-Royce	15,27%	0,070	-9,22%	0,181	0,251	21
Luxury	HRMS.PA	Hermes International SCA	35,84%	0,075	9,45%	0,049	0,124	9
	SFER.MI	Salvatore Ferragamo SpA	22,76%	0,017	6,72%	0,068	0,086	5
	LVMH.PA	LVMH Moet Hennessy Louis	22,98%	0,016	8,28%	0,057	0,073	4
	BRBY.L	Burberry Group PLC	23,04%	0,015	8,30%	0,057	0,072	3
	MONC.MI	Moncler SpA	34,08%	0,063	12,37%	0,029	0,091	6
	CFR.S	Compagnie Financiere Riche	34,30%	0,064	-8,19%	0,174	0,238	20
	BCU.MI	Brunello Cucinelli SpA	17,08%	0,057	10,92%	0,039	0,096	8
	HOG	Harley-Davidson Inc	17,58%	0,054	3,70%	0,090	0,144	11
	TOD.MI	Tod's SpA	19,06%	0,043	3,08%	0,094	0,138	10
	LUX.MI	Luxottica Group SpA	21,72%	0,025	6,87%	0,067	0,092	7
PRTP.PA	Kering SA	18,29%	0,049	15,14%	0,009	0,058	1	
TIF	Tiffany & Co	23,45%	0,012	7,97%	0,060	0,072	2	
		EBITDA Margin		Growth				