ISCTE Business School
Instituto Universitário de Lisboa

VALUATION OF FORD MOTOR COMPANY AND A STUDY OF ITS INDUSTRY

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- Spine -

Resumo

A presente tese de Mestrado constitui uma análise da indústria automóvel, com especial ênfase num dos seus principais participantes, a Ford, seguida de uma avaliação da empresa em questão, com o objetivo de estimar um preço alvo e subsequentemente fazer uma recomendação a potenciais investidores.

A indústria automóvel possui características únicas e um impacto considerável na sociedade, não apenas do dia-a-dia das populações mas através do seu impacto económico. As características, fontes de custos e rendimentos são cobertos nos primeiros capítulos da presente tese, com o objetivo de criar uma base de compreensão sustentada que beneficie a qualidade da avaliação.

A avaliação inclui uma análise das demonstrações financeiras e acomoda as características tanto da empresa como do seu setor de atividade.

A informação financeira dos últimos 5 períodos históricos é o ponto de partida para analisar a saúde financeira, performance operacional e rentabilidade da Ford.

O preço alvo apresentado foi estimado por aplicação do método de Fluxos de Caixa Descontados e compreende um período previsional de 4 anos, entre 2017 e 2020.

Paralelamente, foi realizada uma avaliação por Múltiplos de forma a mitigar a subjetividade inerente à aplicação do método de avaliação anteriormente referido.

Como resultado de avaliação realizada, concluímos que o preço alvo de $13.11 sugere a recomendação de MANTER.

Palavras-chave: Ford, Automobile industry, Discounted Cash Flow, Multiples

JEL classification: G30, G32

Abstract

The present thesis presents an analysis of the car manufacturing industry, with especial focus on one of its major players, Ford, followed by a valuation of the company with the goal to achieve a price target and to make a recommendation to potential investors.

The Automobile industry possesses unique characteristics and has a significant impact on society, not only on people's everyday lives, but also on the economic perspective. The characteristics, cost and revenue drivers of the industry are thoroughly covered in the early chapters of this thesis, in order to create a solid framework of understanding that can improve the quality of the valuation.

The valuation includes an analysis of the company's financial statements and bears in mind the specific characteristics of both the company and the sector.

Financial information from the last five historical years is the starting point for assessing Ford's financial health, operational performance and profitability.

The estimation of the price target is performed under the DFC Enterprise Value method and comprehends a 4 year forecast period, between 2017 and 2020.

Alongside with this valuation framework, a multiple analysis is performed, to make a relative comparison with competitors and industry benchmarks, so that, the subjectivity of the valuation process can be somehow mitigated.

Subsequently to the valuation performed, we conclude that the attained price target of $13.11, results in a HOLD recommendation.

Acknowledgements

The following project constitutes the last step in my journey in the Msc in Finance at ISCTE-IUL. This journey was only carried out successfully with the help of my fellow colleges, friends and family whom, in their way, motivated and encouraged me to work hard in order to achieve my academic goals.

Firstly, I would like to express my gratitude to Professor Pedro Leite Inácio, for all the guidance and support provided during the preparation of this thesis and for bearing with me through the delays that arose from this process.

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Finally, I would like to express my gratitude to my family, in particular to my grandmother, Idalina Gaspar, who played, and still plays, a key role in raising me as a man. To my sister, Mónica Pereira, with whom I share a great friendship and a similar academic path, for behaving like an older sister when that is not the case. To my parents, Isabel Gaspar and José Domingos Pereira, who have always went out of their way to unconditionally support me, my academic and professional aspirations, regardless of whatever they would be.

Thank you all.

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GLOSSARY

APV – Adjusted present value

BV – Book Value

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

COGS – Cost Of Goods Sold

D&A – Depreciations and Amortizations

DCF – Discounted Cash Flow

EV – Enterprise Value

EPA – Environmental Protection Agency

FCFF – Free Cash Flow to Firm

GDP – Gross Domestic Product

GM – General Motors

IMF – International Monetary Fund

SG&A – Selling General and Administrative

USD – US Dollar

R&D – Research and Development

VW – Volkswagen

WACC – Weighted Average Cost of Capital

YoY – Year on Year

YTD – Year To Date

1. Introduction

The following project is a practical case study developed in the light of the Masters in Finance thesis, the main goals of which are to make an analysis of the automobile industry, its major players, highlighting Ford, the North American automaker that is currently the world's seventh car manufacturer, in terms of sales. This project, ultimately aims to value Ford and present an investment recommendation to investors based on an estimated price target.

The car industry is both capital and labor intensive, even though technology is increasingly automatizing production through the use of machines and robots, humans still play a defining role in design and engineering cars.

Given the fierce competition within this industry and the fact that this is a sector that is very reliant on consumer desires and market trends, advertising also poses as a significant cost for market players.

According to (Paul, 2017), in 2016 Ford was, the sixth car maker in the world in terms of number of vehicles sold, coming after GM and ahead of Nissan. According to (David Scutt, 2017), based on a report by Macquarie Bank, in 2016, 88.1 million vehicles were sold, a 4.8% increase from 2015.

Furthermore, this project is a practical application of academic valuation methods, such as DCF and Multiples analysis. Valuation methods thrive on their ability to be applied to different companies, from different sectors providing a set of adjustments are made. In this project, these methods will be tested against a company playing its role in a relevant sector of the world's economy, a very competitive one, capital intensive, depended on costumer trends and with a high need for R&D investment.

There are two main issues to be tackled, first of all there has to be a good understanding of the market's characteristics and dynamics as well as Ford's.

Secondly, the acquired knowledge on the company and on the sector should be kept in mind when applying valuation methods, looking at financial ratios and interpreting financial statements. This is only part of the valuation process, the accuracy of the analysis is dependent on the correct application of the valuation procedure, for that matter, a careful study of the literature and of practical examples is required.

2. Literature Review

2.1 Valuation Frameworks

The point in valuing a project or an enterprise is to measure value. The reason value is so important is because it is the most important dimension of economic impact. When an investor buys a share in, let's say Ford, they hope that his investment increases its value so that when they sell, they will gain more than what was initially invested and there is a monetary compensation for the risk undertaken.

A key aspect in valuation and investment decisions is to set apart two distinct concepts; Price and Value.

Price is the amount of money invested in a company project, an acquisition, the purchase of a stock, etc. From a starting point one cannot say without a doubt whether or not an investment was cheap or expensive, there is a counterpart to the price paid, which is the value generated. *"Price is what you pay. Value is what you get."* – Warren Buffet.

It becomes clear that a key aspect in investment and divestment decisions is to measure value in a matter that best fits the characteristics of the decision one will make.

Different valuation models measure value using different frameworks, but they do not add value per se. First of all we need to understand what drives value. There are two major value drivers, (i) sustainable revenue growth and (ii) return on invested capital. The first measures the rate at which income is increasing, the second measures the rate at which investors are being rewarded for the capital they deploy in the company. In the particular case of the Discounted Cash Flow method, a good combination of these two factors will drive Cash Flow up and increase value.

The literature surrounding company valuation is abundant, and provides academics and practitioners with a wide range of models and procedures on how to value an enterprise. Perhaps the most used types of models are the Discounted Cash Flow Models. (Koller et al, 2010) considers five frameworks for DCF-Based Valuation; Enterprise discounted cash flow, discounted economic profit, adjusted present value, Capital cash flow and Equity cash flow.

According to the authors, Enterprise discounted cash flow is more adequate to companies and projects that manage their capital structure in order to sustain a steady debt/equity

ratio. Discounted Economic Profit highlights economic performance and accesses the creation of value *vs* the cost of capital. Adjusted Present Value is a better fit for projects and companies with more volatile capital structures. Equity cash flow is more valuable when applied to financial institutions, while Capital cash flow assembles free cash flow and interest tax shields in one number.

Given the variety of tools available to the process of making investment decisions and their own characteristics, in order to avoid miss pricing, one should deploy the valuation framework that best fits the object of the analysis.

The automotive industry is highly labor and capital intensive, which tilts the industry to having high Debt – to – Equity ratios. The cost structure of automakers, in particular, is becoming more complex. R&D costs, advertising, extended warranties and other credit facilities conceded to clients, are adding to traditional costs such as materials and labor. Therefore it is common to see high leverage ratios, both in established companies like Ford, and in new entrants, like Tesla.

Ford's, debt-to-equity ratio is historically high, however, excluding the financial crisis period, when the industry as a whole came under financial distress, Ford tends to maintain a low volatile capital structure. According to *YCharts*, from January 2014 up to March 2016, Ford's Debt-to-Equity ratio increased 8.52%, if we consider the period between March 2015 and March 2016, the variation is only -3.64%. Its low volatile capital structure, makes Ford a suitable candidate for a DCF valuation, evidence of this fact, is that a series of equity research analysts looking into Ford, apply this methodology.

2.2 Enterprise DCF

(Koller et al, 2010) highlight that "Enterprise DCF remains a favorite of practitioners and academics because it relies solely on the flow of cash in and out of the company, rather than on accounting-based earnings."

Enterprise Discounted Cash Flow discounts the amount of cash in and out of the company, available for all investors, at a weighted average cost of capital, WACC. When an analyst is estimating future cash flow, he is not overly concerned with the priority of the cash claims, cash flow is available to all. Capital structure only matters when we have to estimate an appropriate discount rate for the project or enterprise.

Estimating a realistic WACC is a defining step in corporate valuation. CAPM is the basis for pricing the required return on debt and equity; both these costs applied to the capital structure and considering the value of the tax shields delivers us the appropriate discount rate. In this sense, valuing a company through the Enterprise DCF method is, according to (Koller et al , 2010), a four step procedure.

First we value the cash, deriving from the company's operations and discount it back at a given discount rate. To get FCFF we use EBIT (1-t), add amortizations and subtract variations in Working Capital and Capex. By doing so we get the result coming from operations, plus depreciations and amortizations (which are not a monetary cost) and consider any investment or divestment decisions. At this point we are not including the effect of financial decisions since financing cost and capital structure will impact the valuation at the moment we discount cash flow at the weighted average cost of capital.

Secondly we find the value of non-operating assets. Non-operating assets can include marketable securities, affiliate companies not yet accounted and other non-operating investments. We do so because, obviously, when one buys a company, one gains access to cash flow coming from the whole business and not only operations. By adding up the value of these assets we get the Firm Value.

Thirdly, we have to subtract the value of debt and other non-equity claims. Under this asset class we can find, bond issues, bank loans, stock options etc. From this the value of some liabilities are excluded, for instance, liabilities owed to suppliers, and their variations, are embedded in the free cash flow. By subtracting interest bearing debt we arrive at the equity value.

Finally, we divide the Equity Value by the number of outstanding shares to get the price target. This is a well-accepted method, it is intuitive and rests on a simple reasoning, is cash entering or exiting the company? However, it is not a perfect model, Enterprise DCF valuation assumes a long lasting capital structure, in this sense it works best for companies that have a defined capital structure target. Also, looking at isolated yearly cash flows, we can extract little conclusions. For instance, a company can have a very high cash flow on one year without it having anything to do with its operational performance. It can have divested by selling assets, which in theory will lead to a smaller balance sheet and could lead to less revenue in the future. On the other hand, small or negative cash flows can be attributed to investment and not poor operational performance. A seasoned analyst will

spot unusual shifts in cash flow, but it is hard to measure management performance by using the Enterprise DCF method.

2.3 Economic Value Added

Economic-Profit-Based Models are gaining popularity since they overcome this particular shortfall. (Koller et al, 2010) "Economic profit measures the value created by the company in a single period…"

In an environment where segregation between management and ownership is well established, EVA can be a useful tool for shareholders to assess the quality of managers from a value creating basis, as the focus of this method rests on the direct link between the cost of capital of an investment, against its return.

Economic profit can be expressed like this:

$$\text{Economic Profit} = \text{Invested Capital} * (\text{ROIC} - \text{WACC}) \quad [\text{Eq. 1}]$$

This way we have a clear vison of performance, or value creation. We can explicitly see, year after year, by how much or how little the return on the capital deployed is betting its cost. This reasoning can also be expressed using a familiar input:

$$\text{Economic Profit} = \text{EBIT}^* (1-t) - (\text{Invested Capital} * \text{WACC}) \quad [\text{Eq. 2}]$$

Invested Capital * WACC, can be viewed as the capital charge, which subtracted to the NOPLAT (EBIT*(1-t)) delivers the "EVA – Economic Value Added".

Well applied, both methodologies previously highlighted should yield the same results.

As in any other framework, there are drawbacks associated with Economic Value methods. (Mota, 2012), states that critics raise questions regarding the value of Economic Value valuations in light of the costs of implementing and sustaining these valuation frameworks. According to the authors, the costs related to this methodology arise from the need to make accounting adjustments as well as assessing true link between the economic value created by the company and the changes of its stock price in financial markets.

Ultimately, the choice of the framework to use when valuing a company has to keep into consideration certain characteristics of the company. The car industry is very labor and very capital intensive, non-current assets almost triple current assets, debt values are high

and non-current debt also outweighs current debt. Never the less, it is common for companies to have fairly stable Total Liabilities to Total Assets ratios. In the case of companies with more volatile capital structures, a more appropriate framework for valuation would be the APV, since according to (Koller et al, 2010) "*The adjusted present value model separates the value of operations into two components: the value of operations as if the company were all-equity financed and the value of tax shields that arise from debt financing*."

2.3 Multiples Valuation

A complementary methodology for valuating companies is the Multiples valuation. (Damodaran A. , 2002) states that: "While multiples are easy to use an intuitive, they are also easy to misuse."

In fact, relative valuation, the category where multiples valuation is included, is a widespread a widely used methodology. According to (Damodaran A. , 2002), its popularity arises from factors such as simplicity in application, practicality in presenting and interpreting and connection with real life market sentiment.

First of all, a multiples based valuation is simpler and quicker to perform as it requires less calculations and assumptions. Secondly, since the computation process has less steps and does not depend on complex assumptions such as a DCF valuation does, a multiples valuation is, consequently, easier to understand and to present to a third party. Finally, (Damodaran A. , 2002), states that multiples valuation has a greater chance to capture the current market sentiment, since the pricing of the asset is made on a relative basis against the market, and not a measure of the intrinsic value of said asset.

This later point can also be seen as a structural short coming of this methodology, as history has shown not all bull or bearish markets are based on solid foundations and the market tends to correct itself, sometimes at the expenses of many investors. Given this fact, a valuation framework based on the measurement of intrinsic value can help investors outperform the market.

As stated before, there is a fine line dividing a correct and an incorrect application of multiples valuation. (Koller et al, 2010) highlight three steps for the correct usage of this methodology.

The first of this three-step approach is to choose the right multiple, the authors suggest enterprise value to EBITA (Earnings Before Interest, Taxes and Amortizations) as the best ratio for "…comparing valuations across companies." Many practitioners use enterprise value to EBITDA, however (Koller et al, 2010) state that, although depreciations are, for most companies, a non-monetary cost, in some industries they are a proxy for money that has to be set aside for future capex investment and thus, they should be included in the multiple for better assessment of future value of the company. Another commonly used multiple is the price-to-earnings ratio; this widely implemented formula is applied by a variety of practitioners; from business angels, to investors, in order to study the bullishness or bearishness of financial markets. However, it is influenced by capital structure and companies' financial results.

The second step is to compute the multiple in a consistent fashion. The authors clarify that; both the numerator and the denominator of the multiple should be calculated in reference to the same underlying asset. An experience mentioned by (Koller et al, 2010), highlights that even seasoned analysts have different definitions, and include or exclude certain variables, for the inputs of multiples. The bottom line rule is that all sources of capital should be considered, but only the portion that contribute for EBITDA. The authors present the example of minority interests, these constitute a source of capital that can be deployed into the company's operations, and as such, should be included in Enterprise Value at the prejudice of undervaluing the multiple.

The final step, according to the authors, is selecting the right peer group. Since multiples valuation is a form of relative valuation the goal is to value our company against its a benchmark of other companies. Generically, competitors and other players of the same industry should serve as a pool from which to draw out a peer group, however that may not be the case. Let's take Ford and Tesla, they are both automakers and they both have high debt-to-equity ratios, however they have very different business models, they operate within different geographic ranges and have different cost structures, for example Tesla, in relative terms, spends more on R&D than Ford.

2.4 The rational for Multifactor Models

The CAPM is a broadly accepted tool to value all kinds of assets. In the case of company valuation the Capital Asset Pricing Model is the basis for computing WACC, a key input for the valuation process. Although the rate used to discount back cash flows is a simple

weighted average of a set of variables, return on equity is estimated using the CAPM. If we look at cash flow merely as the return provided by the company and, given that, the corporate income tax and cost of debt are both components easily drawn from the company's income statement and balance sheet; we are left with estimating cost of equity. Cost of equity is estimated using the CAPM by applying the following formula:

$$Re = r_f + (r_m - r_f) * \beta \quad [Eq.4]$$

Since the risk free interest rate (r_f) and the return on the market (r_m) (or on a theoretical market portfolio) are independent from the company or asset one is valuating, the CAPM states that only Systematic Risk (beta) explains the expected return on a large set of assets. Therefore, a reasonable portion of the discount rate used to value cash flow is estimated assuming that the only risk factor that can impact the return (or expected return) on the company's equity is the systematic market risk.

Despite its global acceptance, the CAPM is often pointed out on its overly simplistic assumptions and efficiency, as pointed out by a paper from Tuck School of Business at Dartmouth:

"While the CAPM is an extremely elegant and useful tool, there are concerns about the overall efficacy of the model. Several key criticisms have come to the fore of academic research in recent years" (Borchert A., 2003)

One of the main drawn backs of the CAPM, presented by the authors, is precisely the fact that the use of a single factor to explain the return on a given asset may not lead to accurate and explanatory results.

"In addition, many researchers believe that other risk factors have significant impact on expected returns…" (Borchert A., 2003).

As one can realize, companies face a very broad set of risks, such as: credit risk, demand risk, liquidity risk, currency risk, and of course market risk. Within different industries, specific sets of risks arise and these can offer particular insights on the companies (or on its stock's) expected return.

It is based on this later premise that the belief that more factors can have a better explanatory power then a single factor model arises.

The valuations frameworks presented all fold into the category of the so called fundamental analysis, in which focus on economic factors and financial statements in order to compute the company's intrinsic value with the belief that a given stock can be currently mispriced and eventually it will attain its fair value. In opposition we have technical analysis, whose practitioners disregard fundamentals in the belief that the market price is always the right one and that it prices in everything that is relevant, and therefore the sheer stock price movements contains all the trading information.

Fundamental analysis as described, mostly rests on the companies financials and as explained, on the CAPM, which has certain drawn backs. For instance, companies' financials are only available within certain periods of time. In between account releases, a typical investor can be overly dependent on the price target he has last accessed and not know what to expect from the company's performance. This overdependence on financial releases and on price targets can be very disadvantageous to investors:

(Bradshaw, 2006) conducted a study using a broad data base comprised by First Call to assess the accuracy of 95,852 price targets issued on US companies for the period starting in 1997 and ending in 2002. The analysis revealed that only 45 percent of those price targets were attained within the year of issue. This statistic can illustrate the fact that investors should use a broad set of tools when making investment decisions, and avoid over dependence on factors such as data releases or expert advices.

The idea behind the mentioned multi-factor model is to provide investors with a tool that combines characteristics from both fundamentals and technical analysis, such tool rests on two main assumptions:

(i) The past movements of stocks and the factors that influence them is an important part in predicting future movements.

(ii) The markets price certain several inputs into the prices of stocks, but not all of them are priced in and not all of those who are, are priced with the same importance, therefore understanding the past relations between certain key factors and a given stock is key to predicting the stock's future price.

Whatever the case may be, the choice of exogenous variables for a regression model, or the application of a classic valuation framework, a key step is to have a comprehensive

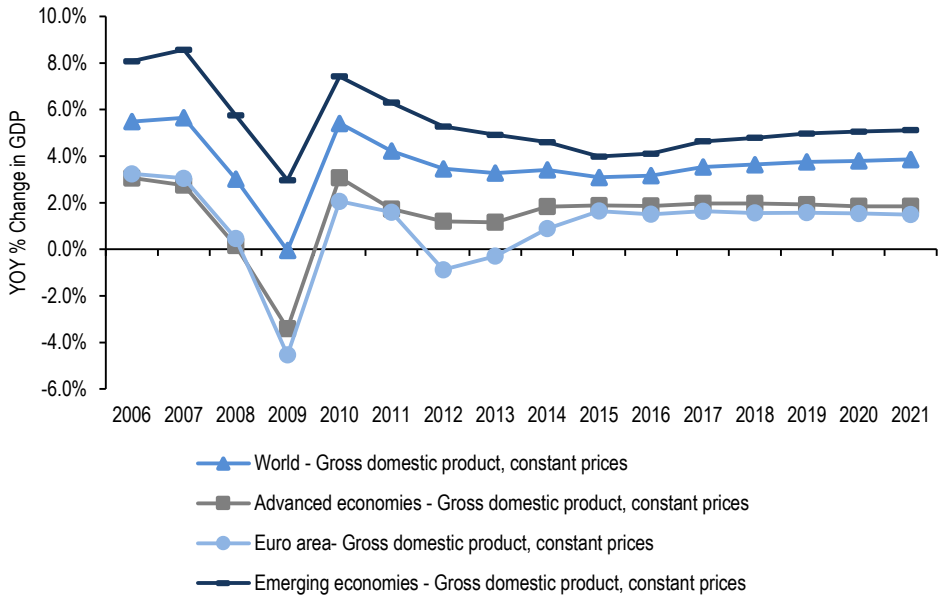
understating of both the company one is looking into, as well as the industry in which it operates.

3. Automobile industry

3.1. Economic set overview

Following the recent economic crisis, according to the International Monetary Fund (IMF), the world economy will recover and GDP growth will be observed in the coming years. The IMF's recent forecasts point to an average GDP growth of 3.62% (at constant prices) for the world economy, between 2016 and 2021, and to a 3.86% GDP growth rate in 2021.

Figure 1 GDP growth 2006 - 2021



Source: (International monetary fund, 2016)

As the graphic above shows, the major growth driver for GDP in the coming years, for the world economy, will come from emerging economies. We should see the Euro Area grow below the average of both the word economy and the average of the advanced economies.

Looking at key countries and regions; the IMF forecasts growth in the US to reach 2.4% in 2016 but to level around 2.0% in the longer-term. This is mainly the result of an ageing population and low total factor productivity growth.

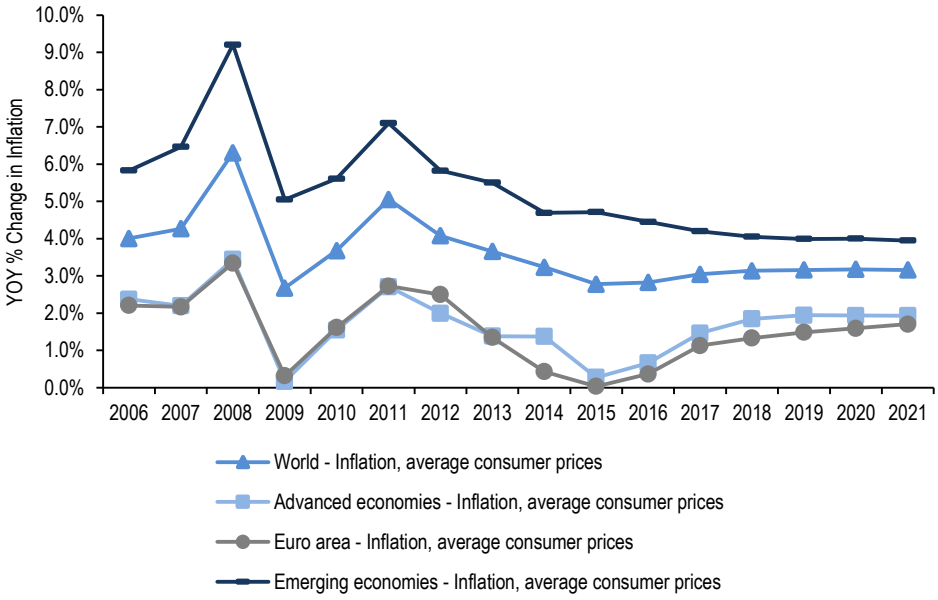
In Europe, the outlook is less favorable; the Euro area is expected to grow 1.51% in 2016 and 1.63% in 2017. According to the IMF, the slowdown in external demand will outweigh the effects of accommodative monetary and financial policies, as well as the benefits of low energy prices. A key issue to bear in mind is the lasting effects of the last financial crisis (i) high public and private debt, (ii) low investment and (iii) high long term unemployment.

The current slowdown in China is expected to persist in coming years, as growth and investment is bound to shift away from manufacturing. Offsetting this movement, economies like Brazil and Russia are expected to somehow recover from negative macroeconomic trends.

The low interest rate environment is likely to drag itself in the coming years, as the European Central Bank, the Bank of Japan and other Central Banks keep pursuing expansionary monetary policies. The exception is observed in the US, where the FED recently began the process of monetary tightening, forecasting several 0.25pp interest rate increases. This low interest rate environment boosts auto sales as loans become cheaper and thus, cars become more affordable.

Inflation is expected to increase, recovering from both, the financial crisis and the deflationary pressures of low oil prices.

Figure 2 Inflation rates 2006 - 2021



Source: (International monetary fund, 2016)

The IMF targets 1.13% inflation, at average consumer prices, for the Euro area in 2016, 1.46% for the advanced economies and 3.04% for the world economy. Despite the monetary stimulus, the Euro area is still not expected to meet its inflation target of 2% by 2021. On the other hand, US inflation levels are expected to return to the 2% target in the near term, backing the FED's decision to begin monetary tightening.

Monetary policy has been a significant macro-economic force in recent years, and one of the aspects that is most influenced by such policies, is the balance of relative forces of currencies.

Exchange rates are a significant macro-economic factor to lookout in an increasingly global economy, for the particular case of Ford and other US car manufactures, a stronger dollar, as the one we see in recent years, as a negative effect on sales, as nearly half of its revenue comes from outside the US, and the stronger dollar diminishes the purchasing power of importers.

3.2 Industry Overview

The automotive industry is divided between two major business areas (i) car manufacturers and (ii) companies that produce and market components. Auto suppliers are gaining increasing relevance in the market, as car manufactures tend to outsource the

majority of their components, this leads to an increasingly high bargaining power of suppliers within the car industry. This dynamic has allowed for car manufactures to focus on other business areas and shift some of the R&D costs over to suppliers. According to (Kallstrom, 2015), in 2013, Bosch (the largest automotive supplier worldwide), spent nearly 10% of sales on research and development, whereas General Motors spent 3.5%.

The automobile industry has branched out into several business segments, besides the typical production and sale of new vehicles, leasing and renting now make up for a significant share of the market. Additionally, car manufactures are expanding to the lending business and replacing traditional loaners in providing financing solutions to their clients and dealers. These business segments are called captive finance units and are a branch of the parent company whose purpose is to finance clients. With traditional banks retrieving from auto loans (particularly subprime loans), automakers are expected to increase market share in this business. In the third quarter of 2014, according to the (Business Insider, 2015), captive units financed 28.0% of all auto loans whereas banks represented 35% of the market. This represents a positive trend for companies like Ford, its captive unit Ford Credit, represents as much as 10% of the manufacture's total revenue.

3.2.1 Competitive framework

Despite the rather constant changes in the industry, the appearance of new business opportunities and the wide range of products available to customers, the automobile industry in amongst the most concentrated industries in the world. According to (Kallstrom, 2015) as at 2013, the top five (Toyota, GM, Volkswagen, Hyundai and Ford) car manufactures, accounted for 49% of the total market. The rationale behind this concentration lays in two major factors, the first being the entry barriers and the second being exit costs.

1. Economies of scale are the main entry barrier into the automobile industry, the cost structure is heavy and for models to become profitable, manufactures need to sell a large number of vehicles to the masses, or a small set of units but at a premium price. Both options represent a challenge since cars are typically the second largest purchase that consumers make (after a house) and in such costly consumption decisions, the brand and the price represent significant aspects in making the purchase decision. Companies in the sector understand this dynamic and invest aggressively in advertising. According to (Business Insider, 2015), as

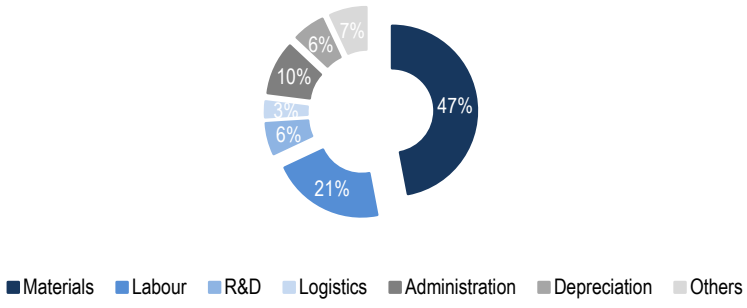
at January 2014, from the top ten companies that most spent in advertising, three of them were auto makers.

2. Scale and profitability are two of the present challenges that Tesla faces, as a new player in the market. Although the company has increased notoriety and it delivers an electric vehicle with technological features ahead of its competitors, production costs are still high and scale is only expected to pick up with the delivery of the model 3. Yet according to (Verhage, 2017) some analysts are split on the company's outlook, with analysts that typically cover tech companies issuing "buy" recommendations and analysts that cover car manufacturers issuing "sell" recommendations.
3. On the other end, exit costs are also a defining factor when keeping the market highly concentrated. Being both capital and labor intensive, divestment costs are very high, for instance, according to (EWING, 2013) Ford reportedly had to pay $750 million in costs associated with closing down a factory it held in Belgium.

3.2.2 Cost structure

Even though the automobile industry is one that pursues technological development, diversifies its operations and branches out into different businesses, production and sales of vehicles are still the core business and the primary source of costs. The cost structure is outlined in the graph below.

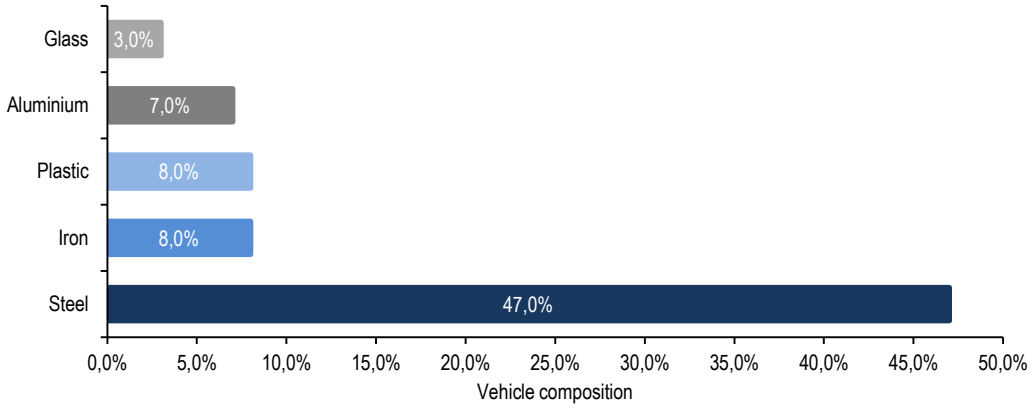
Figure 3 Vehicle cost structure



Source: (Kallstrom, 2015)

Materials such as steel, aluminum, plastic and glass make up for 47% of the total cost of cars. According to (Kallstrom, 2015), typically a car has the following composition:

Figure 4 Vehicle composition



Source: (Kallstrom, 2015)

In terms of value, 22% of the manufactory's operating costs come from steel, making it a defining input and cost driver. Given that steel is such a relevant cost driver in the automobile industry it becomes relevant to highlight the direct impact it has on manufactures'. According to the Market Realist, when steel prices dropped from €15.2 per metric ton in 2008, to €4.8 in 2013, manufactures gross margins increased 2 percentage points. Although, as we have seen, steel represents a major component and cost driver for automakers, recent regulations demanding the improvement of fuel consumption averages are pushing the industry to gradually replace steel with aluminum, a more expensive but lighter component, thus useful in improving fuel efficiency.

Labor follows raw materials as of one the industries major cost drivers, with production being the most relevant part of the value chain when it comes to employment costs. Despite significant technological developments, the car industry is still a significant generator of direct and indirect jobs. Auto sales generate jobs upstream, concretely to companies producing/providing raw materials such as; glass, steel, plastics, aluminum and oil, for example. A large share of personnel costs and job creation arise from the production of components, the assembly of vehicles and other production steps, such as R&D. Finally, sale and post-sale service also account for the total jobs created, in fact the complexity and the web of commercial connections around the auto industry allows for a widespread generation of wealth. According with the (Kallstrom, 2015), an increase of $1million in revenue in the car industry, results in the creation of ten new jobs.

3.2.3 Other cost drivers

As mentioned before, R&D is one of the key aspects of the auto industry however, it is not always a strategic decision, but a formal obligation. $C0_2$ emissions testing, fuel consumption standards and competition are the main factors driving research and development expenditure. The car industry is under constant legislative and regulatory pressure in order to increase full efficiency and companies that overshoot the consumption targets have credits that can be sold to other companies. It is also a market trend that consumers are shifting to more efficient vehicles even in premium segments. By assessing fuel consumption as an important step in the decision process of buying a car, consumers push competition and increase R&D expenditure, which aligned with government regulations make research and development a constant concern for manufacturers.

Despite the modernization of the sector and the costs deployed into production it is not uncommon to observe callbacks in the industry. Callbacks occur when faulty models manage to find their way into the market, eventually leading to accidents of simply unexpected repair needs, which then require that the manufacturer issue a callback in order to repair the flaw in the vehicle and sometimes financially compensate the owner.

We have recently observed the impact that flawed models can have in the profitability, image, and future sales of a company; the VW emissions scandal in the US, unveiled by the EPA (Environmental Protection Agency), has led to the issue of a callback for millions of cars, has a result VW established a provision amounting to €6.7bn, causing the company to record a loss of €2.5bn in October 2015, according to (BBC , 2015), furthermore the EPA can fine the company in as much as $37,000 a vehicle. This is not a novelty in the industry, in 2009 and 2010, Toyota issued a call back on several models. The total process resulted in costs amounting to over $5 billion. These type of evens show that the industry has inerrant risks which are hard to forecast and result in grave costs.

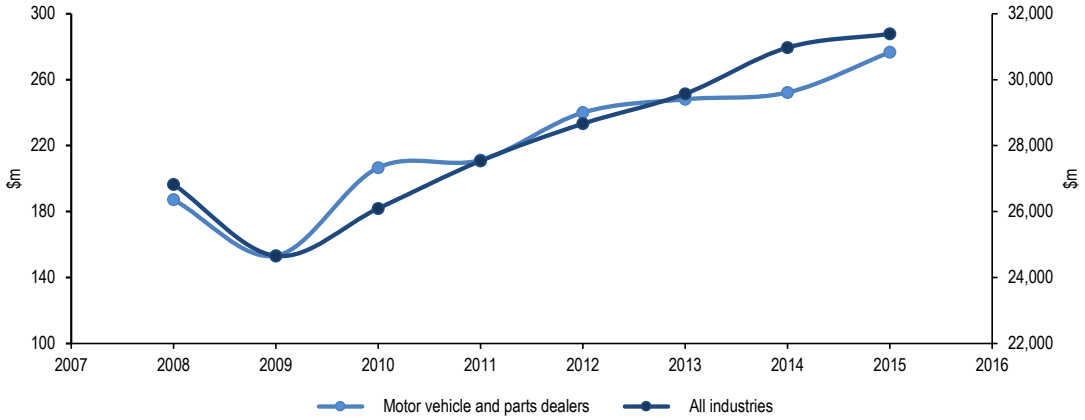
3.2.4 Revenue drivers

In the case of manufacturers, sales volume and vehicle production are the main revenue drivers, according to (S&P Capital IQ, 2016). Manufacturers recognize revenue when vehicles are shipped to dealers, which may lead to short term differences between revenue and sales, although sales stand out as the best indicator for forecasting production needs.

According to (S&P Capital IQ, 2016) and (Kallstrom, 2015), the following represent the most important revenue drivers in the automobile industry:

- GDP and auto sales are positively correlated, which means that when the economy is growing, auto sales increase. The link between the two can be observed in the chart below, which displays the year after year change in gross output for all industries in the US and also for motor vehicle and part dealers. The only period of non-positive correlation occurs between 2012 and mid-2013, when the two indicators moved contrarily.

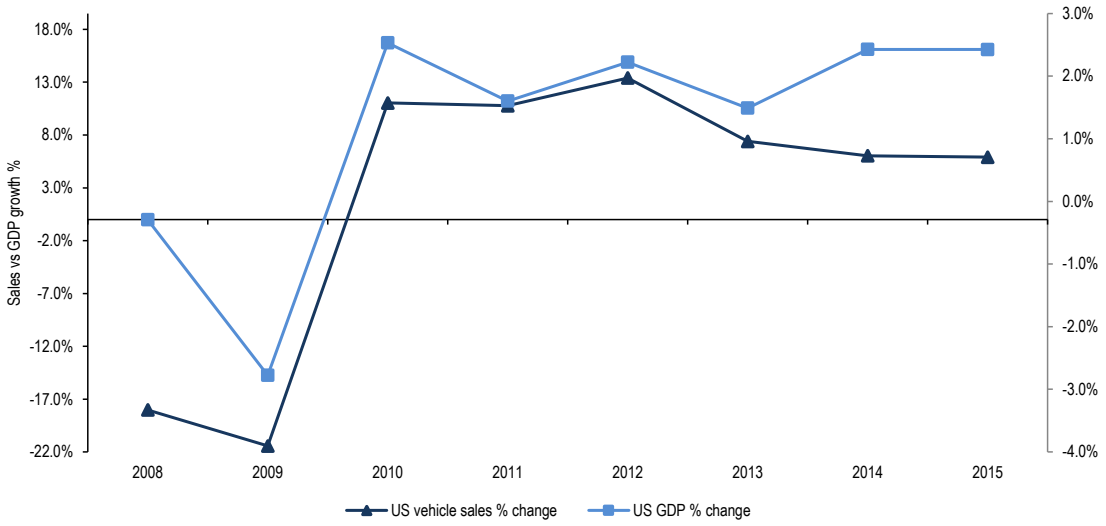
Figure 5 Global output vs Automotive output



Source: (Bureau of Economic Analysis - U.S. Department of Commerce, s.d.)

A similar correlation can be observed when we compare the year on year change in the US GDP and the number of total vehicles sold in the US. We can see that GDP and auto sales track themselves, which leads us to conclude that as income increases, so do auto sales. In fact, the notion that the auto industry and the real economy are highly correlated is reflected on a popular American saying, originated in the 1950s in the Senate confirmation hearing of Charles Wilson former GM President that states that "As GM goes, so goes the nation".

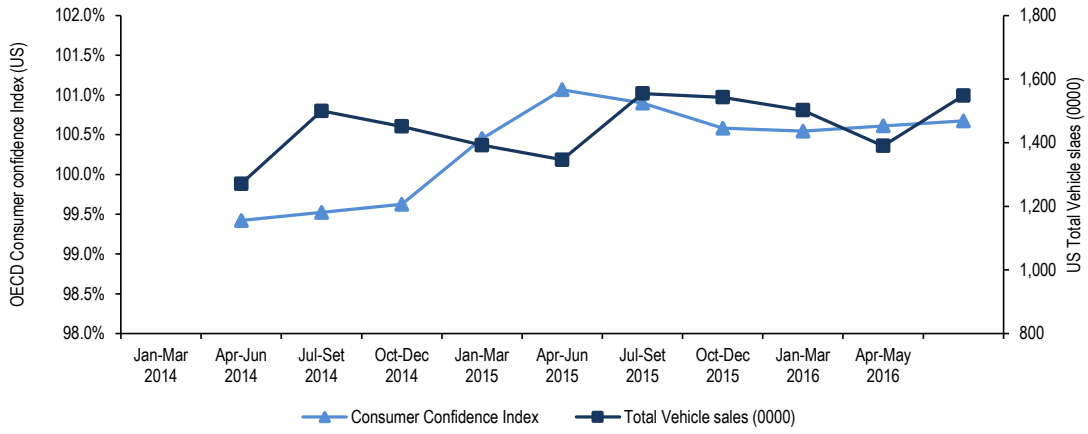
Figure 6 US vehicle sales growth vs US GDP growth



Sources: (i) (International monetary fund, 2016) (ii) (Bureau of Economic Analysis - U.S. Department of Commerce, s.d.) (iii) (OICA- Organisation Internationale des Constructeurs d'Automobiles , s.d.)

- According to (S&P Capital IQ, 2016) consumer confidence is also a defining factor for auto sales. Consumer confidence is the overall sentiment that consumers have on the economy; it is a measure of how people feel about GDP growth, income increase, job stability and other macro-economic factors whose impact is directly felt on the real economy. During periods of high consumer confidence, consumption and investment tend to grow. As the graph below shows, consumer confidence and auto sales tend to track each other.

Figure 7 Consumer confidence vs Total vehicle sales

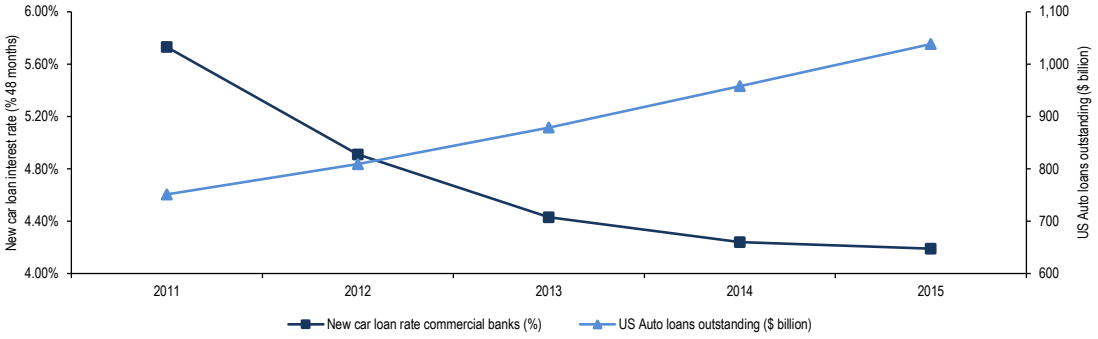


Sources: (i) (OECD , s.d.) (ii) (Bureau of Economic Analysis - U.S. Department of Commerce, s.d.)

This graphic shows the relation between the three month average of total auto sales in the US and the three month average consumer confidence index for the same time frame. With the exception of the period between the last quarter of 2014 and the second quarter of 2015, the two indicators tend to track one another.

- According to (Kallstrom, 2015), in the second quarter of 2014, the percentage of vehicles acquired with financing was 85.0%. This makes credit conditions a significant revenue driver for automakers. In fact the recent decline in interest rates has reduced the borrowing costs which has led to an increase in the total amount in car loans outstanding, this relation can be observed in the chart below.

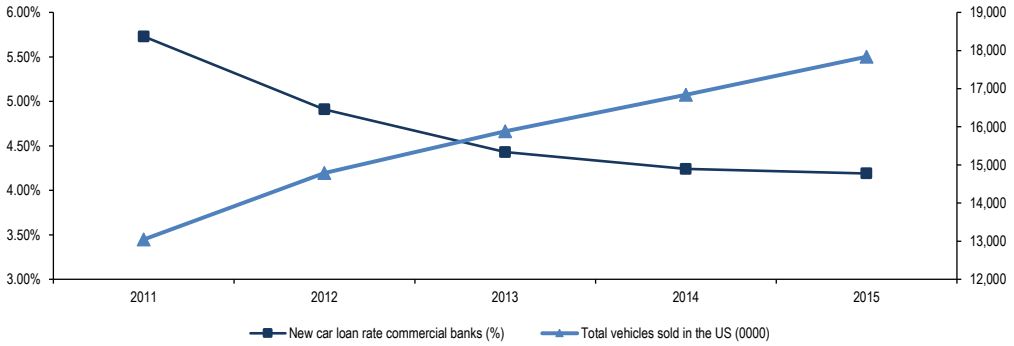
Figure 8 Car loans interest rates vs amount outstanding



Source: (FRED - Federal Reserve Bank of ST.Louis, s.d.)

The link between interest rates and auto sales can also be observed when we compare the movement recorded in the interest rates offered by commercial bank for auto loans, and the total vehicles sold:

Figure 9 Car loans interest rates vs total vehicle sales



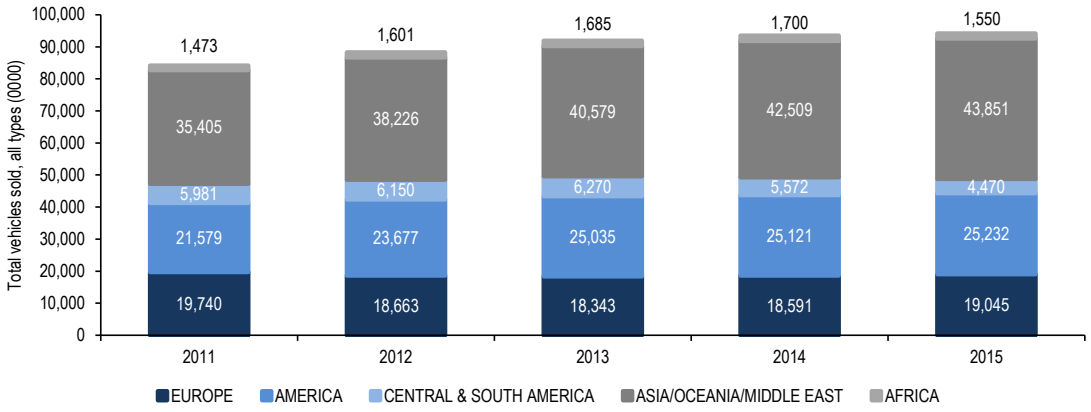
Sources: (i) (Bureau of Economic Analysis - U.S. Department of Commerce, s.d.) (ii) (FRED - Federal Reserve Bank of ST.Louis, s.d.)

- According to (S&P Capital IQ, 2016) and (Kallstrom, 2015) oil (and its derivatives) prices, also weigh on how consumers make their purchasing decisions. An environment with low diesel and gasoline prices is prone to more expenditure in new and used vehicles. When as of December 2014, gasoline prices fell by 35%, used car purchases increased by 19.4% and new cars increased by 7%. A part from the sheer increase in vehicles sold, the prices of diesel and gasoline tend to impact the mix of purchases towards more expensive vehicles such as light trucks, SUVs and CUVs.

3.3 Auto sales per geography

Auto sales, globally, have recovered after the financial crisis showing a CAGR of 2.84% (referring to total vehicles) between 2011 and 2015. However, different geographic regions display contrasting evolutions. Central and South America saw its sales decrease at a CAGR of 7.02%, while the group comprised by Asia, Oceania and the Middle East grew at a CAGR of 5.49%. Additionally, Europe and the US show different growth trend, with the US growing at a CAGR of 3.99% and Europe at a CAGR of -0.89%.

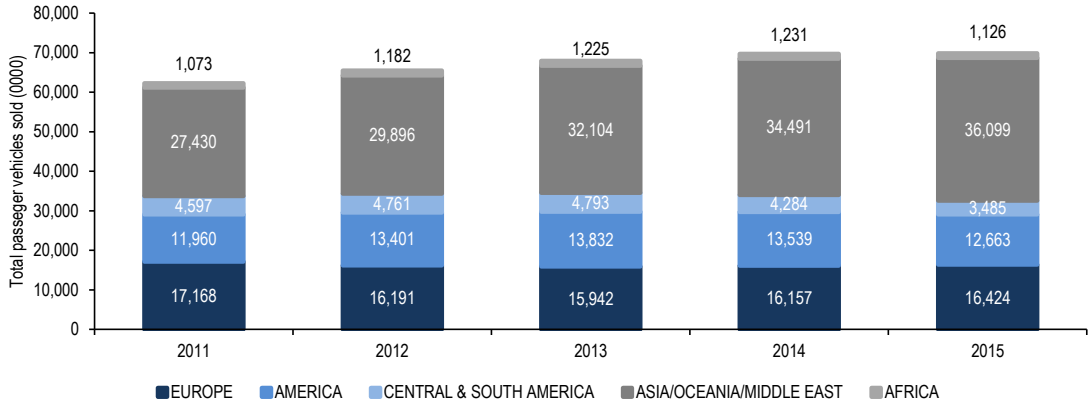
Figure 10 Total vehicle sales (all types) per geographic area



Source: (OICA- Organisation Internationale des Constructeurs d'Automobiles , s.d.)

Looking at the figures for passenger vehicles, globally, unit sales grew at a CAGR of 2.91% between 2011 and 2015. The growth rates for different geographic areas are as follows: Europe 1.10%, US 1.44%, Central & South America -6.68%, Asia/Oceania/Middle East 7.11% and Africa 1.19%.

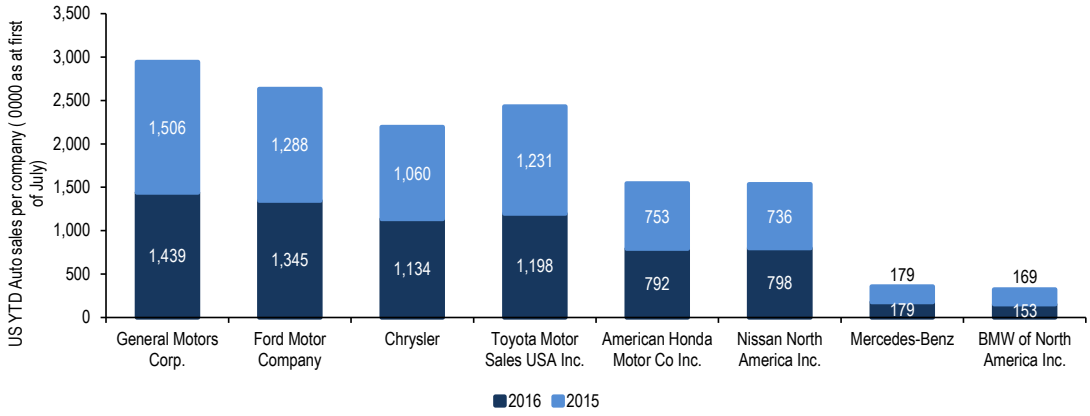
Figure 11 Total passenger vehicle sales per geographic area.



Source: (OICA- Organisation Internationale des Constructeurs d'Automobiles , s.d.)

Regarding the US auto market, below we can see a chart displaying the year-to-date sales, in units, as of the first of July for the some of the major players.

Figure 12 US vehicle sales per company (major players)



Source: (The Wall Street Journal, s.d.)

The chart above supports the view of (Kallstrom, 2015), stating that automakers tend to generate most of their revenue in their own market. Ford and GM are the main players in the US market, followed closely by Chrysler and Toyota. However, Asian manufactures tend to counteract this trend; in 2013 30.8% of Toyota's sales originated in North America. For Honda, the major part of its revenue, in 2013, originated in the US (47%) and only 37.4% came from Japan and Other Asian countries.

3.4 Auto industry – future prospects

The auto industry, globally, displays different growth trends per geographic area. The US market is losing relative predominance in the overall industry; on the other hand, Asia-Pacific is gaining a larger presence in the market, on the back of more favorable demographic trends. In some Asian countries the increasing middle income population has allowed for growth in auto sales. (China Association of Automobile Manufacturers, s.d.) forecasts 26 million vehicles to be sold in China during 2016.

US car makers have capitalized on this global growth shift; Ford's sales growth in China was 19% in 2014, but only 3% in 2015, GM's sales grew by 12% during 2014 and 5.2% during 2015.

In the US, according to (S&P Capital IQ, 2016) the rate hike environment is likely to decrease vehicle sales, since dating back to 1981 there have been seven rate hiking cycles, six of which originated decreases in auto sales.

The main growth drivers for the automobile industry come from both Asia-Pacific and emerging markets, although, some countries show softening growth rates. (LMC Automotive, s.d.) forecasts 6.3% sales growths for China in 2016, and a decline of 1.6% in 2017. South America and Russia auto sales recorded declines of 21.2% and 35.7% respectively. (LMC Automotive, s.d.) forecasts a global growth of 3% during 2016 which is broken into 5.4% for Western Europe, 2.2% for North America and 4.5% in Asia-Pacific.

Growth in the industry is not only dependent on demographics but also on market trends, R&D and costumer expectations. Technology has shaped the industry and the reality experienced by customers. Low consumption, more efficient vehicles, electric cars, developed software interfaces and self-driving cares are the future of the industry.

Several manufactures are investing in more developed and autonomous electric vehicles; Tesla has recently developed a mass market electric vehicle, the Model 3, with autonomy for 346 KMs, selling for $35,000. Other manufactures have also released successful models such as Nissan's Nissan Leaf, GM's Chevy Bolt and BMW's i3 are some of the examples.

Even non-auto companies such as Apple or Google are dwelling into the automobile industry, investing in self-driving vehicles and partnering up with traditional manufactures to develop the technology that would allow for these automobiles and so are other traditional companies such as Ford, Toyota, GM, Volvo, BMW and Audi.

4 Ford overview

4.1 Company overview

Ford Motor Company was founded by Henry Ford in 1903 with the collaboration of 12 investors and the issuance of 1,000 shares. It is said that the urge to found Ford Motor came in 1901, after the founder defeated race car driver Alexander Winton in that year.

Henry Ford, who in 1896 created the Quadricycle, founded the company whose first vehicle was the Model A. The car began selling in July and by that time Ford had spent nearly the whole of the $28,000 cash investment provided by investors, but by October first, the company had already turned a profit of $37,000.

After the success of the first Model A, Ford Motor released the famous Model T, the reliable and easy to maintain Model T, contrasted with the expensive and luxurious first cars of its time. Built with resistant and light metals in its key components, the car was fit for the primitive roads that existed at the time. The Model T was one of the best selling cars of all time, having sold 15 million units between 1908 and May 1927, the year production ceased.

In 1913, Ford introduced the "integrated moving assembly line auto production. A revolution that would change manufacturing, and in the case of the Model T, helped reduce the chassis assembly time from 12.5 hours to 1.5 hours, which allowed for further reduction of the car's price.

The changes made in the manufacturing process originated hard and repetitive tasks for workers, has a result turnover was high, as a response Ford implemented the "$5 Day" policy, which was the double of the amount paid to factory workers at the time, as a result thousands of people queued outside Ford's offices, hoping to be hired. Throw-out the years Ford expanded its portfolio of vehicles; in 1917 it developed the Model TT, the company's first truck, in 1922 Ford bought Lincoln, a manufacturer of more luxurious vehicles, developed several mid-price cars, bridging the gap between Ford's more affordable vehicles and the Lincoln more exclusive offers.

In the years that followed Ford expanded to air travel, produced jeeps for the army, stopped civil manufacturing to assist the WWII war efforts, extended its range of trucks and lighter vehicles and began applying innovative practices such as crash testing.

In the decades that followed Ford Motor released iconic models such as the Mustang, best seller as the Fiesta and high performance sports vehicles, such as the Ford GT. Nowadays the company stands as one of the so called Detroit "big three", although it was somehow lost the dominance of past decades. Even so, with a market capitalization of $50,129.9M, a headcount of 199k employees and with 6.6 million vehicles sold to customers in 2015, Ford is still one of the major players in the automobile industry

4.2 Business segments

Ford is a full concept brand, developing vehicles from the utilitarian Fiesta to the high performant Ford GT. On a very high level it splits its business into two areas, (i) automotive, which is comprised of the auto selling, repairs, services, etc. and (ii) finance

business. The credit business area is responsible for auto financing activities to clients and leasing services. Within the automotive business are, Ford Motor divides its portfolio into 5 segments:

1. Cars: In this category we find 6 different models that subsequently divide themselves into different versions of the same model given changes in characteristics. The six models are the Ford Fiesta, Focus, Fusion, C-Max, Mustang and Taurus and the price of a car within the same model varies from version to version. For example the starting price of a Mustang can vary from the $24,645 of the Mustang V6 Fastback, to the $61,795 of the Mustang Shelby GT350R.
2. Crossovers and SUVs: Within this category we find six models based on the long lasting USA SUV tradition that has recently migrated to Europe and other regions. Within SUVs and Crossovers we find the Escape, the Transit Connect, the Edge, the Flex, the Ford Explorer and the Expedition.
3. Trucks: This category features four models; two are pickups (the F-150 and the Super Duty) and two sliding door commercial trucks (the Transit Connect and the Transit).
4. Hybrids and Electrified: Here we can find Hybrid and Full electric versions for vehicles under the category of cars: four of them are Hybrids and one, the Focus Electric, is a full electricity powered vehicle.
5. Commercial: The commercial segment delivers eight models, ranging from commercial vans to large trucks.

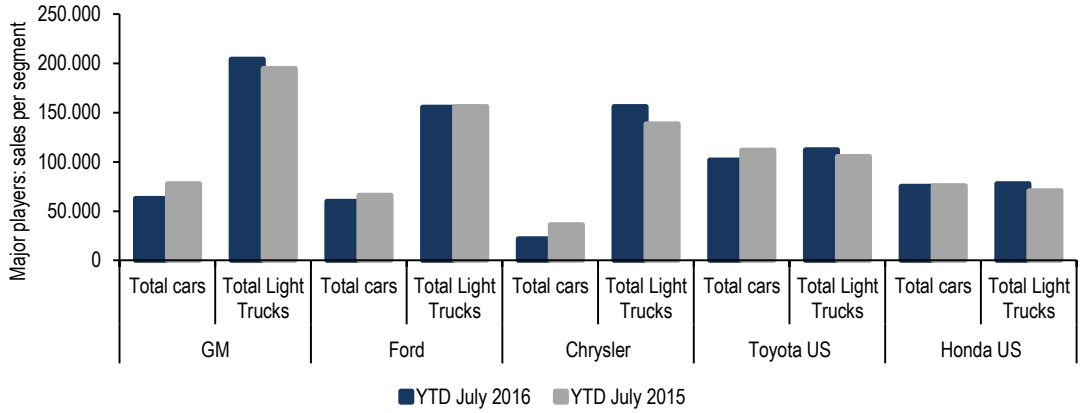
Additionally, Lincoln, the more exclusive branch of Ford offers seven premium models (four SUV's and three cars) with staring prices ranging from the $32,720 Lincoln MKC to the $63.195 of the Navigator.

In recent years, particularly in the US market, costumers have sifted their purchasing choices to pickup trucks and SUV's, according to (Kallstrom, 2015). The major North American manufacturers have responded to this trend with successful releases, Ford's F-Series was the best-selling vehicle as at February 2015 as it has been for the past 32 years, according to (Kallstrom, 2015).

On the other hand Japanese manufacturers dominate the US market in the subcompact and compact segments, since costumers within this fraction of the market value fuel

efficient and cheaper to maintain vehicles. The chart below shows where Ford stands in car and light truck sales, compared with other US major players, the data presented is a year to date unit count up until July 2016.

Figure 13 US Major players: sales per segment



Source: (The Wall Street Journal, s.d.)

As mentioned before the Japanese manufacturers dominate the car segment and the Detroit "Big Three" capitalize on their cultural and historical link to their home market in order to take advantage of their costumers' appreciation for light trucks and SUVs.

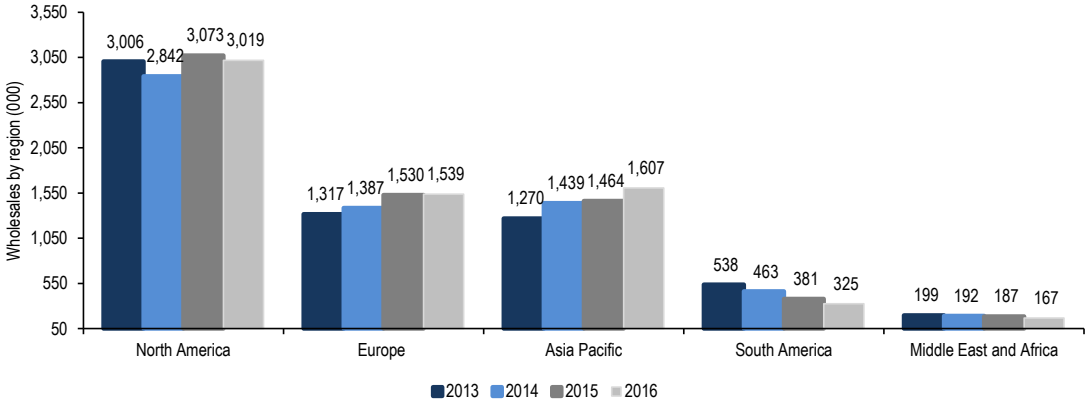
4.3 Ford around the world

Ford is an international company and not only a major player in the US market, but also a manufacturer with presence around the world. The company employs around 201,000 workers around the world (according with the latest annual report) and has plants and development sites in several continents.

According to information found in the latest annual report the company holds 62 plants worldwide. On the company's website we can find a list of all of Ford's 70 operating sites divided by the functions they perform, the list is as follows: 10 sites dedicated to transmission components, 34 to vehicle assembly, 4 to casting and forging, 5 to stamping and 18 dedicated to engine building. From these 70 sites, 27 are held in the United States of America.

Despite its international presence the US is still Ford's major market in terms of wholesales, followed by the Asia and Pacific and European regions. The chart below displays Ford's wholesales per region from 2013 to 2015.

Figure 14 Ford's wholesales per regions in the last four whole periods.

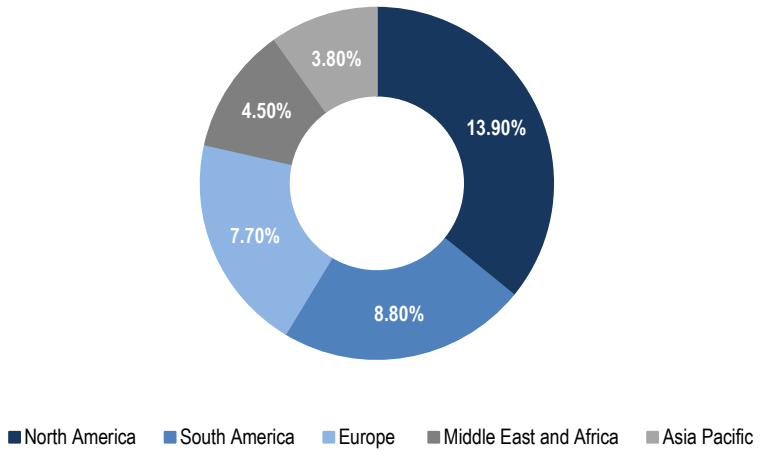


Source: (Ford´s 2016 annual report, 2017)

As the chart above shows, from 2013 to 2016, Ford's sales have, generally increased in its three major markets and declined in their emerging regions.

Despite being Ford's fourth market in terms of wholesales, South America is second in terms of market share, below the North America and just above Europe. The chat below shows the 2015 Ford market share as estimated by the company in their 2015 annual report.

Figure 15 Ford's 2016 market share per geographic region.

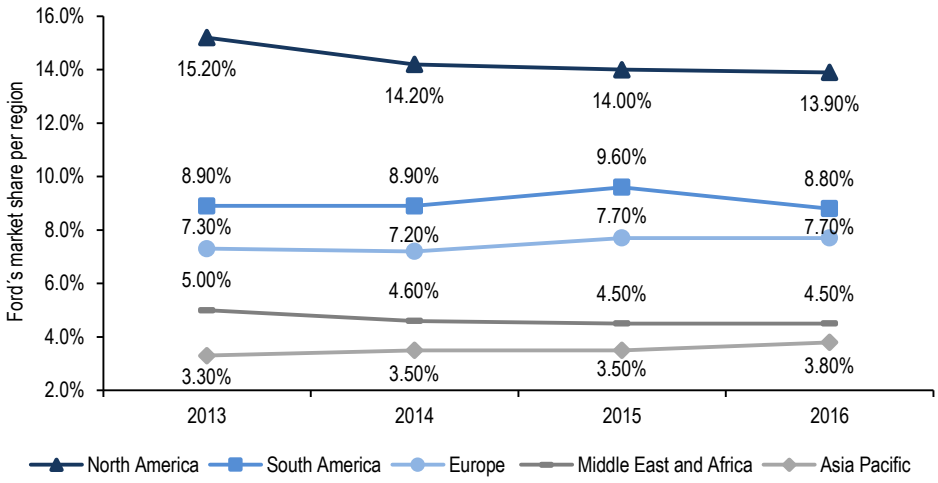


Source: (Ford´s 2016 annual report, 2017)

Despite being Ford's most important region, market share in North America has been slowly declining alongside the Middle East and Africa. These trends have been softened by market share increases mainly in Europe and South America.

The chart below displays the fluctuations in Ford's market share in the past three whole periods.

Figure 16 Ford's market share variations per region.



Source: (Ford´s 2016 annual report, 2017)

4.4 One Ford strategy

In the dawn of the 2008 financial crisis, former Ford CEO Allan Mulally released the One Ford Plan. It was a four-point business plan focused on; (i) aggressively restructure operations to focus on profitability, (ii) speed up development of new products (which included changes in product mix), (iii) improve the balance sheet and (iv) teams working closer and more effectively in order to develop more costumer oriented products.

In the short term Ford's 2007 plan proved effective as it got the company through the 2009-2010 industry's severe slowdown without having to file for bankruptcy, in contrast with its US based competitors GM and Chrysler.

Overall Ford streamlined operations, sold-off non-core businesses and got management, designers and engineers engaged into speeding up the development of new products.

Perhaps the most relevant strategic move of the One Ford strategy was the reduction of global platforms, from 27 in 2007 to 9 in 2016. Platforms are the basis for the

development and construction of vehicles. Ford has managed to consolidate platforms in order to produce several different models and a larger number of vehicles with fewer platforms and the company's is to operate with only eight global platforms.

This streamlining process has allowed for cost saving and optimization of fixed costs, it has also solved the profitability issue of small cars in the US and largely improved Ford's profitability in its home country.

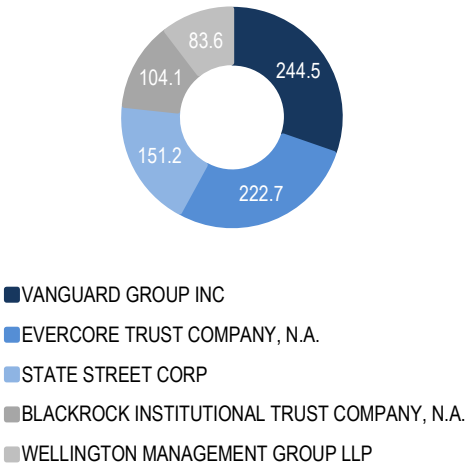
Currently the Ford's strategy focuses on having a global product lineup which has and should continue helping cut market specific costs. In 2014 and 2015 according to (Parker, Market Realist, 2016) Ford released or upgraded 40 vehicles, and should continue to do so in coming years under the One Ford strategy.

4.5 Shareholder structure

According to the NASDAQ website, 58.1% of Ford's shares are held by 1,171 institutional investors, will the remaining capital is held by non-institutional holdings.

The chart below outlines the main institutional investors in millions of shares.

Figure 17 Ford's main institutional shareholders in millions of shares.



Source: (NASDAQ, 2017)

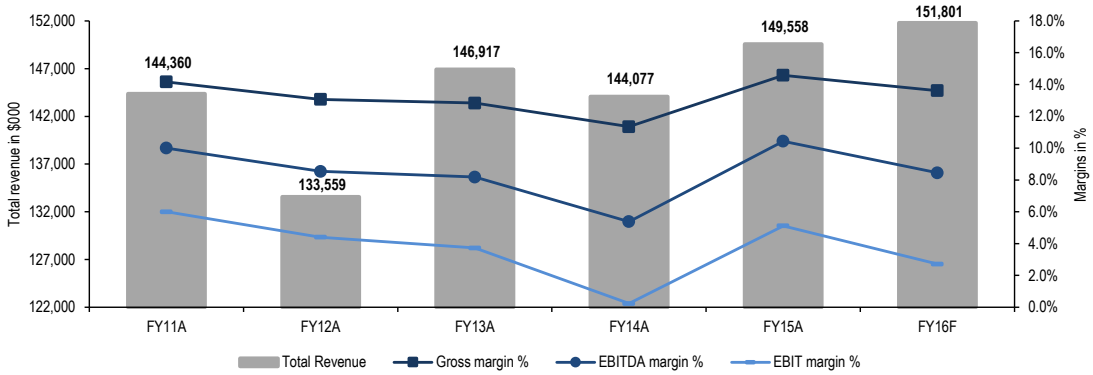
5. **Financial statement analysis**

5.1 Sales growth and margins analysis

Below we will see an analysis of Ford's sales for the period between 2011 and 2016; however the CAGRs per region will refer to the period between 2012 and 2016 since in 2011 sales were reported differently. The CAGR of sales for the Middle East and Africa refers to the period between 2013 and 2016, since 2013 is the first year with reported sales for that geographic region.

Revenue peaked in 2016, when it totaled $151,801m, boosted by the highest values of revenue coming from auto sales and automotive services, and revenue from the financial business, $141,547m and $10,254m respectively. For the analyzed period, CAGR of revenue was 2.18%, displaying a globally positive trend in revenue that saw negative movements from 2011 to 2012 and from 2013 to 2014. Revenue growth is supported by both the automotive business (CAGR of 2.01%) and the lending business (CAGR of 4.84%). The lending branch of Ford saw revenue decrease only once for the period under (2011 – 2012) analysis and as at 2016 it represented around 6.75% of the company's total revenue.

Figure 18 Ford's sales and margins analysis.



Source: Bloomberg

Within the periods under analysis 2012 was the worst performing year in terms of sales with a recorded decrease of 2.0% against the previous year. This was due to a nearly 25% decrease in sales in Europe and a close to 10% sales decrease in other regions (excluding North America, South America and Europe). These negative performances were partially offset by a 9.6% aggregated sales growth in the North and South America. The

disappointing sales results in Europe were associated with the financial crisis and since then sales have rebounded, although they are still below the 2011 highs.

In 2015 Ford was able to improve its operational margins and pre-tax margins, after a year that saw significant decline, particularly in EBIT and Pre-Tax margins. Unlike 2012, in 2014 when Ford recorded a decrease in revenue its margins decreased sharply. If we break down the company's income statement in 2014 we can see that against the previous year, revenue was down by €2,800m (2%) but EBIT was down by $5,146m (94%). This was due to the fact that the cost of revenue only decreased by $331m (0.3%), which tells us that the company was not as operationally agile as it should have been in mitigating the effects of the decrease in sales, in fact the inventories-to-revenue ratio increased from 5.53% in 2013 to 5.80% in 2014, which means that the company produced more than it should have for the given level of sales. On the other hand, other operating expenses recorded an increase of $2,637m (19.7%), mainly boosted by selling, general & administrative costs (43% increase) and depreciations and amortization costs (28% increase). Overall, the sharp decrease in Ford's ability to turn revenue into operating and pre-tax profits arose from COGS not falling in line with revenue, and operating expenses showing an opposite trend to sales.

However, 2015 saw a turnaround in the company's operational efficiency with Ford's Gross Margin going from 11.4% (2014) to 15.4% (2015), EBITDA Margin improving from 5.4% (2014) to 10.4% (2015), EBIT margin sharply surging from 0.2% (2014) to 5.1% (2015) and Pre-tax margin going from 0.9% in 2014 to 6.9% in 2015. Accordingly with (Ryan Brinkman and Samik Chatterjee, CFA, 2016), part of Ford profitability improvements relate to the aggressive pursuit of the One Ford plan previously discussed that has allowed for the streamlining of operations and subsequent increase in profitability, particularly in the North American operations, where according to Ford's 2015 annual report, operating margin rose from 9.0% (in 2014) to 10.2% (in 2015). The productivity increase is explicit in the opposing trends in revenue (3.8% increase) and COGS (1% decrease). Additionally the EBIT margin benefited from a reduction of $1,340m in selling and administrative costs.

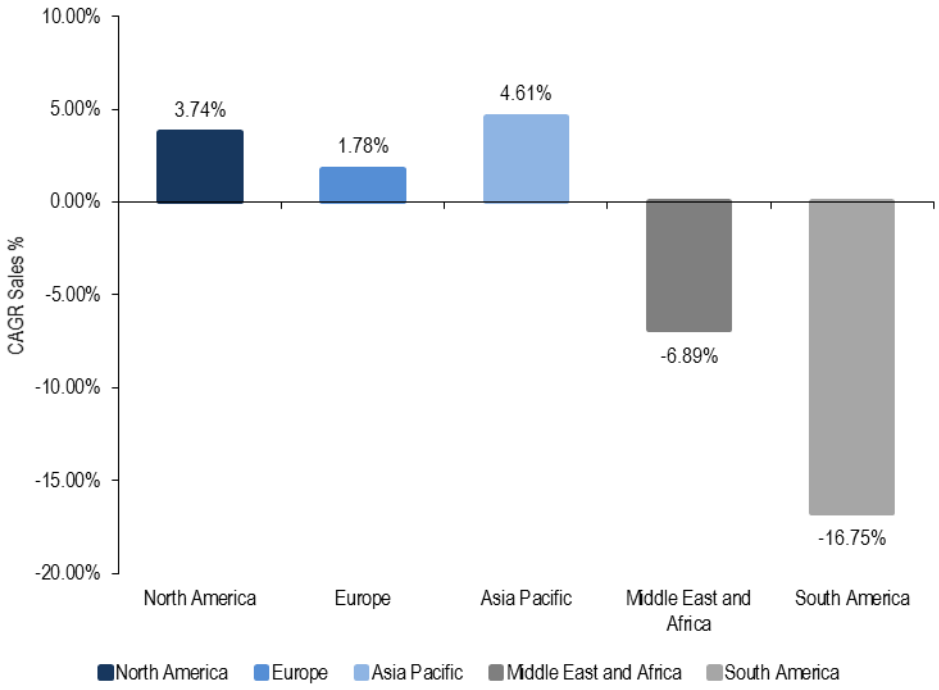
In 2016, in spite of a recorded 1.5% revenue growth, there was a general margin deterioration. The decrease in gross margin was manly prompted by a 22.7% increase in the cost of financing revenue, whilst the aggravation in the EBIT margin was mainly

originated in the increases in SG&A costs and depreciations and amortizations, 28.8% and 19.0%, respectively.

After having looked at operational efficiency and at the performance of Ford's operational margins we will now see which geographic regions contributed more to revenue and our Ford's geographical presence is impacting its results.

On the chart below we can see the sales developments from 2012 to 2016 for the different geographic regions. (with the exception of Middle East and Africa for which the period is 2013-2015).

Figure 19 Sales growth per geographic region.



Source: Bloomberg

Sales in North America, Europe and Asia Pacific have displayed a growing trend for the period under analysis, with Asia and Pacific leading sales growth. Wholesales (units) in North America increased by 231,000 units between 2014 and 2015 and decreased by 54,000 between 2015 and 2016. In the period under analysis, North America was the second fastest growing market.

The best performing region, in terms of wholesales growth, was the Asia Pacific which has been one of the Ford's most recent goals. The company was able to capitalize on the

industry growth and maintained its market share in the region; furthermore Ford achieved record highs for sales volume, revenue, operating margin (7.1%) and pre-tax margin in 2015. In 2016 operating margin decreased to 5.2% and pre-tax results decreased by 18%. The company's Chinese joint venture participations yielded results attributable to Ford amounting to $1,514m in 2015, an increase of $234m from the $1,280m recorded in 2014. In 2016 this contribution decreased by $75m.

Europe was the third best performing region in wholesales growth for the period under analysis; whole sales improved by 143,000 units (between 2014 and 2015), revenue suffered a decrease of $1.3 billion but on the other hand operation margin grew back to positive territory from -2.0% in 2014, to 0.9% in 2015. Pre-tax results rose from $-598m to $259m. In 2016 the number of vehicles sold in Europe increased by 9,000 units, whilst revenue increased by $3m and operating margin recorded and improvement from 0.9% in 2015 to 4.2%in 2016. Furthermore, Ford's market share in Europe recorded a soft increase and stood at 7.7% as at December 2015 and December 2016 with highlight to the commercial vehicle segment where the company became the best-selling brand on the back of the success of the Transit models and the strength of the dealership networks.

Africa and the Middle East presented with a CAGR of sales of -6.89% for the period between 2013 and 2016. In this relatively flat market, Ford slightly lost market share in 2015, staying rather flat in 2016. Operating margin has increased from -0.5% in 2014 to 0.8% on the back of higher pricing, although this was offset by a decrease in wholesales volume. Nevertheless, pre-tax income rose from $-20m in 2014 to $31m in 2015. From 20105 to 2016, operating margin and pre-tax income decreased sharply on the back of negative external pressures, such as negative exchange rate fluctuations and less sales volume.

South America was the worst performing region in terms of sales growth, presenting with a CAGR of 16.75% between 2012 and 2016. Revenue decreased by $5,239m, never the less Ford increased its foothold in the region, mostly due to the success of the Ka model in Brazil. The overall market fallout was partially due to the political and economic turmoil in Brazil, the region's largest economy. In South America wholesales decreased by 82,000 units between 2014 and 2015 and by 56,000 units between 2015 and 2016, revenue decreased by $3,033m and $925m in 2015 and 2016, respectively. Operating margin further deteriorated from 13.2% in 2014 to (14.4%) in 2015, nevertheless pre-tax

income improved by $332m, from $-1,164 in 2014, to $-832m in 2015, leaving South America, by far, as the least profitable region in Ford portfolio. This trend was aggravated in 2016, with operating profit sliding to -23.0% and pretax results decreasing to $1,109m.

5.2 Profitability analysis

The table below presents historical ratios focused on Ford's economic profitability. As gross profit reached a high of 15.42% in 2015, for the period under analysis.

Figure 20 Ford Motor's economic profitability

Currency: $ 000	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
Gross profit %	14.17%	13.07%	12.84%	11.35%	15.42%	10.75%
ROS	6.00%	4.40%	3.73%	0.23%	5.11%	2.71%
ROA	4.56%	3.08%	2.69%	0.16%	3.36%	1.73%
Asset Turnover	0.76	0.70	0.72	0.68	0.66	0.64
Invested Capital	106,848	115,598	127,294	136,913	147,367	174,723
Invested Capital turnover	1.28	1.16	1.15	1.05	1.01	0.87
ROIC	7.65%	5.09%	4.30%	0.24%	5.19%	2.36%

Source: Author's estimates

Return on sales (ROS) presented with a decreasing trend between 2011 and 2014, from 6.00% (in 2011) to 0.23% (in 2014). For this period, Ford's ability to turn sales into operational revenue was declining. This trend was inverted in 2015 when revenue grew by $5,481m (3.80%), COGS fell by $1,229m (0.96%) and operating expenses declined by $605m (3.78%). This recovery was partially offset in 2016 when ROS decreased to 2.71% on the back of COGS increasing by $4,079m (3.10%), at a faster pace than revenue, which has grown $2,242m (1.50%).

Return on assets (ROA) shows a similar trend to ROS, with a downward trend in the first four years of the analysis and an inversion in the later year. In 2015, the growth in operational revenue surpassed the growth in total assets, which means that Ford was able to increase its operational profits with fewer capital deployed into assets. Looking at the asset turnover ratio we can see a slight decrease within the period under analysis, from 0.76 in 2011, to 0.66 in 2015. This means that the company was less effective into turning asset investment into revenue, however as we have seen, ROA was increased in the last year of the analysis. This means that ROA was majorly boosted by an increase in ROS, rather than by an increase in asset turnover. ROA's 2015 increase was partially offset by a decrease in 2016 (1.73%) mostly explained by a decrease in return on sales, since asset turnover has remained fairly steady around 0.65, between 2015 and 2016.

By looking, not at the variation, but at the relative figures of ROA <10% and Asset Turnover < 1, we can validate the notion that Ford indeed operates in a capital intensive industry.

ROIC has also shown a decreasing trend until the later year of the analysis, however unlike other ratios, the ROIC figures for 2015 and 2016 still fall relatively short of its prior highs, with the expectation of the 4.15% recorded in 2015, a 4 year high.

The decreasing trend in ROIC denotes a relative loss of efficiency in turning capital deployed to operations (invested capital) into operational revenue. As we have seen, EBIT as increased (in 2015) and so did operating margins, this also lead to a significant increase in ROIC in 2015, since operational results grew at a faster rate than invested capital. In 2016 this tendency was inverted and ROIC decreased from 4.15% to 2.36% as a result of the decrease in return on sales, since that invested capital turnover presented with a slight increase.

The table below displays the breakdown analysis of ROE, a significant measure of how the company is rewarding its shareholders.

Figure 21 Ford Motor's economic profitability (ii)

Currency: $ 000	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
ROIC	7.65%	5.09%	4.30%	0.24%	4.15%	2.36%
EBT/EBIT	1.06	1.31	1.29	3.72	1.34	1.65
Invested Capital/Total Equity	7.09	7.09	4.81	5.52	5.13	5.97
Financial leverage	7.53	9.30	6.18	20.51	6.87	9.85
Tax effect	2.33	0.73	1.02	1.00	0.72	0.68
ROE	134%	35%	27%	5%	26%	16%
ROE control	134%	35%	27%	5%	26%	16%

Source: Author's estimates

The EBT/EBIT ratio is always above 1, meaning that Ford consistently has a positive financial result, mainly on the back of gains from affiliates. Invested capital to total equity ratio presents with an average of 6.15 which means that on average terms only 16.8% on invested capital is funded with equity, this hints that Ford deploys high debt levels to finance its investments. The product of the former two ratios delivers the financial leverage effect, which represents the degree of debt used to fund assets and investments.

Financial leverage can have a positive effect on ROE. As high debt amounts, the cost of financing rate can be mitigated and thus return on investments can be maximized. Also

as shareholders have a relative smaller stake in a company, with a higher financial leverage, shareholders earn a higher rate of return.

Tax effect ratio is a result of net income divided by EBT and also poses a contribution to ROE, although not in the same way as financial leverage effect. In a lucrative state a company pays taxes, leaving a smaller piece of the pie to shareholders. A smaller tax rate increases ROE, however this is a fictitious increase since the increasing net income doesn't come from operational or financial efficiency. Ford is a good example, since in 2 of the 6 years of the analyzed period it was had > 1 net income/EBT ratios, meaning that they have benefited from tax losses carryforward, a situation that is not likely to be recurrent for a long period for any company.

The combined result of ROIC, financial leverage and tax effects delivers ROE and in the case of Ford we can see the direct impact of each of the components.

Ford's ROE has changed dramatically during the period under analysis, although it has tracked ROIC in terms of movement. The high values for ROE are explained by the high financial leverage deployed by Ford; nevertheless the tax effect has at times been a factor influencing ROE. In 2011 Ford benefited from nearly $12 million in deferred tax income which prompted up shareholder return to 134%. Of course this is an abnormal rate of return that was not expected to last, as we can see in the following years. In 2014, ROE suffered a sharp decrease, mainly caused by the pre-mentioned fallout in operational revenue. In 2016, despite an increase in financial leverage, ROE presented with a decrease.

5.3 Debt and liquidity analysis

The total liabilities/total assets ratio remained around 90% for the period under analysis. This means around 90% of Ford's assets and/or activity is funded with liabilities and despite it being common in the automobile to have high leveraged capital structures, Ford has one of the highest debt ratios in the industry.

Figure 22 Financial ratios (i)

Financial ratios	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
Total Liabilities/Total Assets	91.59%	91.47%	87.02%	88.22%	87.22%	87.69%
Debt-to-Equity	10.89	10.72	6.70	7.49	6.82	7.13
Net Debt/EBITDA	8.42	8.43	5.27	6.16	5.60	5.80
Solvency ratio (Total Equity/Total Liabilities)	0.09	0.09	0.15	0.13	0.15	0.14

Source: Author's estimates

Debt-to-Equity ratio verifies the point made before, as at 2015 Ford had nearly seven times as many debt as it had equity, a threshold that was surpassed in 2016. In 2011 the ratio was nearly 1 to 11.

Net debt/EBITDA measures how many years it would take Ford to payout its net debt (total liabilities minus cash and short term investments) with the proceedings from its operational activity. This measure has shown an improvement trend between 2011 and 2016, currently it would take Ford 5.80 years to repay all its liabilities (financial and others) with its operational proceeding.

Ford's solvency ratio has improved through the period under analysis; however it remains well below 1, much like it was expected since the leverage ratio (Debt/Equity presented with values between 10.9 and 7.1 for the period under analysis.

Figure 23 Financial ratios (ii)

Financial ratios	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
Quick ratio	0.70	0.74	0.72	0.64	1.25	1.20
Acid test	0.62	0.64	0.61	0.54	1.14	1.10
Times interest earning (interest expense)	10.58	10.49	6.86	0.72	10.29	4.29
Times interest earning (debt service)	16.68	16.00	14.50	9.73	20.20	14.35
Liabilities structure	0.45	0.42	0.42	0.42	0.42	0.43
Equity/Assets	0.08	0.09	0.13	0.12	0.13	0.12

Source: Author's estimates

Ford presents with a quick ratio around 0.87 throughout the period under analysis. This ratio compares the amount of current assets against current liabilities, and in this case we can see that current liabilities outweigh current assets and therefore net working capital is negative. For American companies it is recommended to have a quick ratio above 1.5 or 2 however Ford scores least than half of the ideal mark.

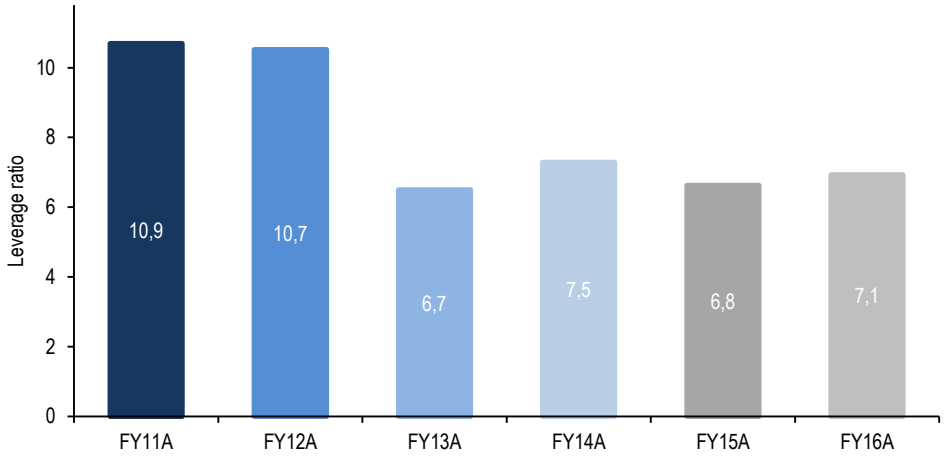
The acid test resembles the former ratio in the way that it measures the proportion of current assets (excluding inventories) regarding current liabilities; Ford presents a ratio

around 0.78 for the period under analysis. The recommended values should be around 1.2 and 1.5 so that net working capital would cover inventories but has we have seen with the quick ratio that is not the fact for Ford.

Times interest earned (TIE) displays AAA rating whether in terms of interest expense coverage as in terms of debt service. These ratios state Ford's capability to service debt payments and interest expenses, despite its high leverage ratio.

Liabilities structure reveals a relative prevalence of long term liabilities of around 60%, which is a common ratio, since large and established companies can get easy access to long term debt.

Figure 24 Leverage ratio



Source: Author's estimates

Ford has been reducing its financial ratio, since although it has benefited from financial leverage and that its liquidity and debt coverage ratios present with satisfactory figures, high financial leveraged companies are proven to incur in greater credit and liquid risk.

5.4 Risk analysis

The table below displays a risk analysis of Ford slit between degree of operation leverage (DOL), degree of financial leverage (DFL) and degree of combined leverage (DCL), on an Ex-Ante / Ex-Post basis.

Figure 25 Risk analysis

Risk analysis	FY12A	FY13A	FY14A	FY15A	FY16A
DOL					
DOL (Ex-Ante)	2.97	3.44	49.26	2.37	3.96
DOL (Ex-Post)	19.24	(0.81)	786.34	26.10	(58.08)
DFL					
DFL (Ex-Ante)	0.76	0.78	0.27	0.75	0.61
DFL (Ex-Post)	6.59	(2.87)	0.31	0.87	0.70
DCL					
DCL (Ex-Ante)	2.26	2.68	13.25	1.33	(1.57)
DCL (Ex-Post)	126.80	2.32	245.25	22.73	(40.91)

Source: Author's estimates

The DOL measures the sensitivity of a company's EBIT to small changes in its revenues. The ex-ante analysis stands as a prediction for the level of risk, as the ex-post measures the level of risk actually observed on a given period.

The DOL ex-ante and ex-post present with far raging values for the period under analysis but both measures show that Ford has high operational leverage. Operational risk proved particularly high in 2014 when the company showed high exposure to its high fixed costs profile. In the mentioned year revenue fell just under 2% whereas EBIT fell nearly 94%.

The DFL measures a company's net income sensitivity to changes in operating income (EBIT), the ratio is largely influenced by the changes in the amount of debt within the capital structure, since more debt should mean higher interest expenses and therefore increase the gap between EBIT and EBT.

The ex-ante and ex-port figures for Ford's DFL have a narrower gap than does for the DOL and in spite of having high debt levels, Ford's interest expenses are relatively low, and therefore the company has a low financial risk profile.

The degree of combined leverage is a summarized measure of the previously mentioned ratios and it measures the sensitivity of a company's net income to soft changes in revenue. For the period under analysis Ford's DLC ex-ante and ex-post figures do not match, meaning that the breakeven assumptions did not hold, which can be observed by looking at the contribution margin that sifted between a minimum of 10.75% and a maximum of 14.17%.

As we can see in the table above, Ford's DCL figures reveal a large exposure of net income to small changes in revenue. This case was particularly clear in 2014 when the

DCL soured to 245.25, in this period, has we have seen, the company was highly exposed to its fixed charges as it saw revenue decrease by 2% and net income fell by 83%.

5.5 Dividend analysis

Figure 26 Dividend analysis

Currency: $ 000	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
Market capitalization	47,623	50,950	60,695	64,482	44,339	48,664
DPS	-	0.20	0.40	0.50	0.60	0.60
EPS (gaap)	4.94	1.42	1.77	0.31	1.84	1.84
P/E	4.97	8.69	7.31	9.90	7.12	7.12
Payout ratio	NA	14.1%	22.6%	161.3%	32.6%	32.6%
Shares outstanding	3,801	3,922	3,944	3,956	3,970	3,970

Source: Bloomberg and author's estimates

Along the period under analysis Ford has increased its dividend per share (DPS), coming from the later periods of the economic crisis and as the company returned to profitability it was able to reward its shareholder with an average dividend of $0.43 per share for the period between 2012 and 2015.

Earnings per share (EPS) have been far from the 2011 highs of $4.94 per share, however the YoY increase in the number of shares outstanding had a diluting effect in this ratio.

Ford has been cautious in terms of its payout ratio, with the exception of 2014, when after a sharp decrease in the company's results, however it chose to maintain its dividend policy which lead to the payout ratio to sour to 161.3%.

Figure 27 Ford's share price vs NASDAQ

Source: Bloomberg

Ford's share price as in a way, tracked the NASDAQ index and the same is true for the S&P500. The company share and those of other established players in the industry are expected, in the long term, to track the major indexes.

As we have seen some of the major revenue drivers for the auto industry are directly correlated with the economy, such as GDP, employment, disposable income and consumer confidence. Therefore, since most companies are correlated with the economy, it is expected that Ford's share price tracks the indexes in which it trades.

Having analyzed Ford's share price movement against the NASDAQ index it is important to note a larger degree of negative correlation after the first quarter of 2016 and volatility has also increased on the back of uncertainty regarding global growth and instability of oil prices.

6. Valuation

The valuation of an automobile manufacturer implies both a deep knowledge of the company and the industry, the product mix, revenue and cost divers and the regulations that cover the sector.

For a manufacturer or an investor in the industry it is relevant to value the mix of products sold against the trends in the market, foresee future market tendencies, design changes, technology improvements and the geographic characteristics. Manufacturers are somehow constricted to theirs brand's positioning in regards to design and technology used, but on the other hand they should remain flexible enough to ride out certain market trends, such as utility gas efficient town cars, or city mix between trucks and light cars or SUVs.

Given the complexity of the industry, in the way that it is divided among many business segments not in a standard fashion and the lack of information on consumer behavior per product segment and geography, revenue growth was estimated on a geographical basis based on: i) Ford's historical performance on the region, ii) Ford's outlook for the region and iii) the forecasted GDP growth rate for that particular market.

Gross margin for the auto business and financial business were estimated in a downward trend against the last two historical year's average (in the first forecasted year) for different reasons: i) the auto segment showed recent margin improvement on the back of the One Ford Strategy, a trend that both the company and analysis don't expect to continue onward. The financial business is likely to lose margin as risk free rates increase and banks further step in the car loan business.

The recommendation to either BUY, SELL or HOLD was made on the favorable/unfavorable outlook of the share as at December, 30th 2016, the last trading day of the year, in which the stock traded at $12.13.

6.1 – Cost of capital

A key element of a valuation through the FCFF method is the weighted average cost of capital, used in discounting the cash flow available for debt and equity holders, this is also a measure of risk as it states the rate of return investors require to invest in the company.

6.1.1 – Beta

Beta is a measurement of how a specific stock relates to, for example, an index of stocks in terms of correlation of movements. Hence, correlation can be viewed as a measure of risk.

Beta was estimated based on a regression in which the inputs were Ford's daily share prices at closing and the S&P 500's daily closing price from March, 28th 2014 to December 30th 2016, totaling 688 observations. The regression resulted in a Beta of 1.11, which translates into a positive direct correlation between Ford and the benchmark considered.

6.1.2 – Capital Structure

As we have seen, Ford operates with high debt ratios. Between 2011 and 2016 Ford's Debt - to - Total Assets has remained steady around 88.9%, presenting with a CAGR of -0.87%. Ford's 2016 annual report is remiss to whether or not this capital structure should remain steady or not. For lack of information and taking into account the last 6 years it was assumed that the 2016's capital structure should remain stable in the foreseeable future. For the purpose of the estimation of WACC, equity was considered at the market value of equity as at December, 31st 2016, according to S&P Capital IQ and debt was considered on a net debt basis as estimated by the author.

6.1.3 – Cost of Debt

The cost of debt used in the estimation of the discount rate corresponds to the average cost of debt for companies in the auto and truck industry, according to Damodaran, 3.50%, which for an effective tax rate for Ford of 20.81%, according to S&P Capital IQ, delivers a 2.77% after tax cost of debt rate.

6.1.4 – Cost of Equity

Ford's cost of equity was estimated using the CAPM taking into account the risk free interest rate, the estimated Beta and the market risk premium.

The risk free interest considered amounted 2.45% and it corresponds to the rate demanded on the 10 year US government bond as at December, 30th 2016.

The equity risk premium for the US market, according to Damodaran is 5.69% to which a 1.5% premium was added to accommodate the risk in which Ford incurs by generating

half of its revenue markets outside the US. This methodology implies a cost of equity of 9.88%.

6.1.5 – Weighted Average Cost of Capital (WACC)

Figure 28 Ford's WACC

WACC	
Cost of Equity	10.44%
After tax cost of debt	2.77%
E/E+D	29.66%
D/E+D	70.34%
Tax rate	20.81%
1 - Tax rate	79.19%
US long time inflation	2.32%
Adjustment for weighted average inflation	2.68%
WACC local currency	**5.00%**

Source: Author's estimates and (Damodaran, 2017)

Based on the aforementioned assumptions, taking into account an effective tax rate of 20.81%, the longtime inflation for the USD and a weighted average inflation estimated based on Ford´s revenue per region and on the forecasted inflation per region, the discount rate totals 5.00%.

The rationale behind taking the into account of the USD inflation expectations and the World's expected inflations is as follows: i) growth expectations, that influence cash flow, take into account the forecasted inflation Ford's main operating regions, ii) Ford's stock trades in USD in the United States and iii) Ford has operations and or generates revenue in all continents and as such its risk is linked to currency and inflation risks around the globe.

6.2 – Discounted Cash Flow Valuation

Ford's revenue for the auto business and for the financial operations, were projected separately. Auto revenue was projected by geographical according to; (i) Ford's own estimated performance per region, (ii) historical performance per region and (iii) keeping in mind estimated GDP growth in each region.

The financial operations were projected as a separate region taking into account; (i) Ford's growth expectations, (ii) historical performance and (iii) the estimated inflation rate for the US as this constitutes Ford's main market of operation.

Based on the company's outlook per region and the forecasted GDP growth, the real growth rate on sales was projected. Furthermore the inflation rates, estimated by the IMF, per region were added to the real growth rates, to project revenue.

As such, in the forecasted period, Ford's total revenue is expected to display a CAGR of 3.0%, a rate considered reasonable for a mature business.

Cost of goods sold (GOGS) were also projected separately for the auto business and for the financial business. These costs were projected as a percentage of revenue, based on the average gross margin observed in FY15A and FY16A and considering a global margin deterioration for the auto business in the periods of FY17F and margin improvement in FY18F, FY19F and FY20F. These estimates are based on Ford's own outlook for margin performance. For the financial business, margin deteriorations were projected for the entire forecasted period, as interest rates are expected to rise and Ford will likely face competition for traditional banks in the auto loan business.

As such, in the forecasted period, Ford's total COGS is expected to display a CAGR of 2.5%. On the other hand, gross profit should present with a CAGR of 6.4% benefiting from the aforementioned margin improvement.

Figure 29 Historical and forecasted gross profit

Currency: $ 000	FY15A	FY16A	FY17F	FY18F	FY19F	FY20F
Auto revenue	140,566	141,546	143,878	149,351	155,142	160,747
% change	3.5%	0.7%	1.6%	3.8%	3.9%	3.6%
Financial revenue	8,992	10,253	10,150	10,242	10,329	10,417
% change	8.4%	14.0%	-1.0%	0.9%	0.8%	0.8%
Total revenue	149,558	151,799	154,028	159,593	165,470	171,164
% change	3.8%	1.5%	1.5%	3.6%	3.7%	3.4%
COGS	(127,748)	(131,132)	(133,675)	(137,566)	(141,338)	(144,688)
% change	0.0%	2.6%	1.9%	2.9%	2.7%	2.4%
Gross profit	21,810	20,668	20,353	22,027	24,133	26,476
% change	33.4%	-5.2%	-1.5%	8.2%	9.6%	9.7%

Source: Author's estimates

Figure 30 Historical and forecasted operational results

Currency: $ 000	FY15A	FY16A	FY17F	FY18F	FY19F	FY20F
EBITDA	16,017	13,304	8,687	10,057	11,834	13,847
% change	106.5%	-16.9%	-34.7%	15.8%	17.7%	17.0%
D&A	(3,661)	(4,356)	(4,201)	(4,594)	(5,017)	(5,471)
% change	18.2%	19.0%	-3.6%	9.4%	9.2%	9.1%
EBIT	7,647	4,116	4,486	5,463	6,817	8,376
% change	2,303%	-46.2%	9.0%	21.8%	24.8%	22.9%
NOPLAT	n.a.	n.a.	3,552	4,326	5,399	6,633
% change	n.a.	n.a.	n.a.	21.8%	24.8%	22.9%

Source: Author's estimates

Figure 31 Ford's discounted cash flow

Currency: $ m	FY17F	FY18F	FY19F	FY20F	Cruise Year
EBITDA	8,687	10,057	11,834	13,847	14,288
(-) D&A	(4,201)	(4,594)	(5,017)	(5,471)	(5,645)
EBIT	4,486	5,463	6,817	8,376	8,643
Operating taxes	(933)	(1,137)	(1,418)	(1,743)	(1,798)
NOPLAT	**3,552**	**4,326**	**5,399**	**6,633**	**6,844**
(+) D&A	4,201	4,594	5,017	5,471	5,645
Change in NWC	10,794	(1,105)	(1,221)	(1,229)	(1,269)
Operating CF	**18,547**	**7,816**	**9,195**	**10,875**	**11,221**
Capex	(6,260)	(6,727)	(7,229)	(7,759)	(8,005)
FCF	**12,287**	**1,089**	**1,966**	**3,116**	**3,215**
WACC	5.00%	5.00%	5.00%	5.00%	5.00%
Prepetual growth rate	n.a.	n.a.	n.a.	n.a.	3.2%
Discount factor	0.98	0.93	0.89	0.84	
Discounted FCF	**11,991**	**1,012**	**1,740**	**2,627**	
Σ Discounted FCF	17,370				
Discounted TV	148,617				
Ford Enterprise Value	**165,988**				
Net Debt	(115,398)				
Non operating assets	1,516				
Ford Equity Value	**52,105**				
Ford share price	**13.11**				

Source: Author's estimates

Figure 32 Recommendation

Currency: $	Central scenario
Price target	13.11
Ford's share price @ 31/12/2016	12.37
Upside potential $	0.74
Upside potential %	6.0%
Recommendation	**Hold**

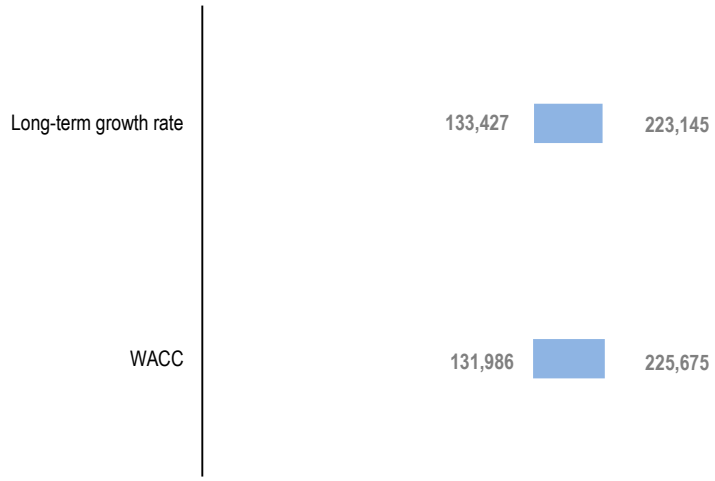
Source: Author's estimates

7. Sensitivity and scenario analysis

7.1 Sensitivity analysis

As a result of the valuation performed under the DCF methodology, it is possible to conclude that Ford's Enterprise value has a minimum value of $111,203m and a maximum value of $353,724m with a central value of $165,988m.

Figure 33 Enterprise value's sensitivity analysis



Source: Author's estimates

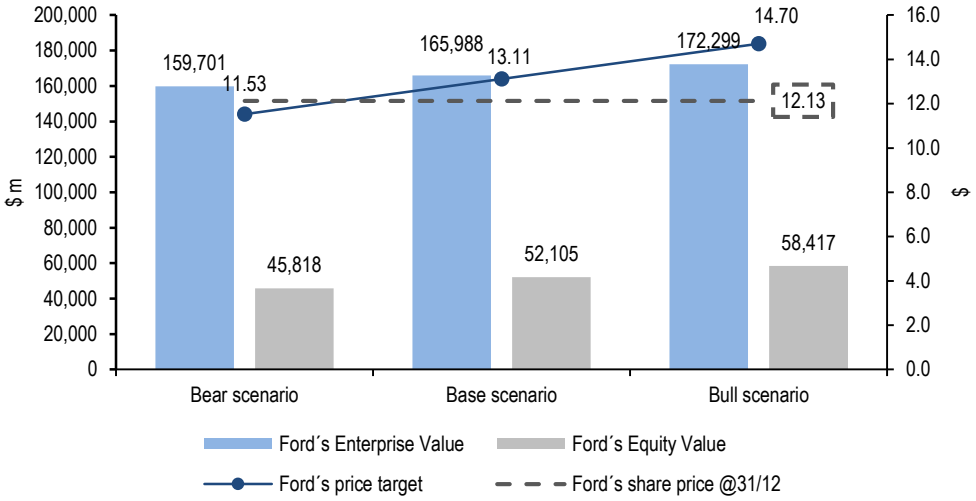
To study the impact that a +/- 0.5 pp change in the long-term growth rate and in the discount factor (WACC) has on Ford's enterprise value a sensitivity analysis was performed on these factor.

As a result it is possible to observe that a +/- 0.5 pp increase/decrease in the long term growth rate will result in $57,158m/$-32,560m increase/decrease in the company's enterprise value. Furthermore, a +/- 0.5pp increase/decrease in the WACC is expected to result in a $59,687m/$-34,001m decrease/increase in Ford's enterprise value.

7.2 Scenario analysis

Following the study of Ford's equity value, a scenario analysis was performed, in order to measure how certain variations in key assumptions would result in deviations from a central scenario and from Ford's share price as at Dec16A.

Figure 34 Scenario analysis



Source: Author's estimates

The assumptions being changed consisted of; (i) the real growth rates for the auto business and financial business per geography and (ii) the percentage of cost of sales over revenue used to project gross margin in the forecasted period.

Figure 35 Real growth rates per scenario

	Bear scenario				Central scenario				Bull scenario			
Key Assumptions	FY17F	FY18F	FY19F	FY20F	FY17F	FY18F	FY19F	FY20F	FY17F	FY18F	FY19F	FY20F
Real sales growth												
North America	-1.3%	0.6%	0.7%	0.7%	1.0%	0,9%	1.0%	1.0%	-0.7%	1.2%	1.3%	1.3%
Europe	-1.3%	0.7%	0.8%	0.8%	1.0%	1.0%	1.1%	1.1%	-0.7%	1.3%	1.4%	1.4%
South America	2.5%	1.6%	0.9%	0.5%	2.8%	1.9%	1.2%	0.8%	3.1%	2.2%	1.5%	1.1%
Asia and Pacific	5.2%	3.2%	2.2%	1.5%	5.5%	3.5%	2.5%	1.8%	1,3%	1,1%	1,0%	0,8%
Middle East and Africa	3.0%	1.6%	0.6%	0.5%	3.3%	1.9%	0.9%	0,8%	3.6%	2.2%	1.2%	1.1%
Financial	-1.3%	0,6%	0.6%	0.6%	-1.0%	0.9%	0,9%	0,9%	-0.7%	1.2%	1.2%	1.2%

Source: Author's estimates

7.2.1 Bear scenario

In a bear scenario Ford's revenue per vehicle growth is limited to the inflation estimations for each geography and real revenue growth, which is used to forecast sales in quantity, would be less 0.5pp than in the central scenario. Furthermore, in the bear scenario, a 0.5% deterioration of the forecasted central gross margin is estimated to occur every year in homologous terms. This deterioration is estimated both for the automobile and financial businesses.

Figure 36 Ford's DCF valuation, bear scenario

Currency: $ m	FY17F	FY18F	FY19F	FY20F	Cruise Year
EBITDA	8,618	9,921	11,612	13,525	13,955
(-) D&A	(4,201)	(4,594)	(5,016)	(5,469)	(5,643)
EBIT	4,417	5,327	6,596	8,057	8,313
Operating taxes	(919)	(1,108)	(1,372)	(1,676)	(1,730)
NOPLAT	**3,498**	**4,218**	**5,224**	**6,380**	**6,583**
(+) D&A	4,201	4,594	5,016	5,469	5,643
Change in NWC	10,872	(1,023)	(1,131)	(1,132)	(1,168)
Operating CF	**18,571**	**7,789**	**9,109**	**10,717**	**11,058**
Capex	(6,253)	(6,714)	(7,208)	(7,729)	(7,975)
FCF	**12,317**	**1,075**	**1,901**	**2,988**	**3,083**
WACC	5.00%	5.00%	5.00%	5.00%	5.00%
Prepetual growth rate	n.a.	n.a.	n.a.	n.a.	3.2%
Discount factor	0.98	0.93	0.89	0.84	
Discounted FCF	**12020**	**999**	**1683**	**2518**	
Σ Discounted FCF	17,220				
Discounted TV	142,480				
Ford Enterprise Value	**159,701**				
Net Debt	(115,398)				
Non operating assets	1,516				
Ford Equity Value	**45,818**				
Ford share price	**11.53**				

Source: Author's estimates

By reducing the real growth rates per geography and by projecting a higher percentage of cost of sales over revenue, Ford's enterprise value registers a decline of $-6,287m (3.8%) against the central scenario. Furthermore, Ford's price target observed a decrease of $1.6 per share (12.1%).

Figure 37 Recommendation @ bear scenario

Currency: $	Bear scenario
Price target	11.5
Ford's share price @ 31/12/2016	12.4
Upside potential $	(0.84)
Upside potential %	-6.8%
Recommendation	**Sell**

Source: Author's estimates

7.2.2 Bull scenario

In a bull scenario Ford's revenue per vehicle growth consists of the inflation estimations for each geography and a real revenue growth with a 0.3pp markup on the central scenario. Furthermore, in the bull scenario, a 0.5% improvement of the forecasted central gross margin is estimated to occur every year in homologous terms. This improvement is estimated both for the automobile and financial businesses.

Figure 38 Ford's DCF valuation, bull scenario

Currency: $ m	FY17F	FY18F	FY19F	FY20F	Cruise Year
EBITDA	8,756	10,195	12,058	14,173	14,623
(-) D&A	(4,201)	(4,595)	(5,018)	(5,474)	(5,648)
EBIT	4,555	5,600	7,040	8,699	8,975
Operating taxes	(948)	(1,165)	(1,465)	(1,810)	(1,868)
NOPLAT	**3,607**	**4,435**	**5,575**	**6,889**	**7,108**
(+) D&A	4,201	4,595	5,018	5,474	5,648
Change in NWC	10,716	(1,187)	(1,312)	(1,328)	(1,371)
Operating CF	**18,524**	**7,842**	**9,281**	**11,034**	**11,385**
Capex	(6,266)	(6,740)	(7,250)	(7,789)	(8,036)
FCF	**12,258**	**1,102**	**2,032**	**3,246**	**3,349**
WACC	5.00%	5.00%	5.00%	5.00%	5.00%
Prepetual growth rate	n.a.	n.a.	n.a.	n.a.	3.2%
Discount factor	0.98	0.93	0.89	0.84	
Discounted FCF	**11962**	**1024**	**1798**	**2736**	
Σ Discounted FCF	17,520				
Discounted TV	154,779				
Ford Enterprise Value	**172,299**				
Net Debt	(115,398)				
Non operating assets	1,516				
Ford Equity Value	**58,417**				
Ford share price	**14.70**				

Source: Author's estimates

By increasing the real growth rates per geography and by projecting a lower percentage of cost of sales over revenue, Ford's enterprise value registers an increase of $6,312m (3.8%) against the central scenario. Furthermore, Ford's price target observed a decrease of $1.6 per share (12.1%).

Figure 39 Recommendation @ bull scenario

Currency: $	Bull scenario
Price target	14.7
Ford's share price @ 31/12/2016	12.4
Upside potential $	2.3
Upside potential %	18.8%
Recommendation	**Buy**

Source: Author's estimates

8. Multiples valuation

As described before, the valuation of a company through multiples can be a useful tool, as it is simpler than most methods and delivers a relative valuation in opposition to an absolute one. This allows for the confirmation of the results achieved with other methodologies.

The following multiples analysis was based on the auto industry main players in the North America.

Figure 40 Equity Multiples

Industry players	P/E ratio	P/BV ratio	Diluted EPS
Ford	10.2	1.6	1.15
GM	5.9	1.2	6.00
Chrysler	8.7	0.8	1.18
Daimler	9.1	1.3	8.58
Honda	14.5	0.8	2.14
Toyota	10.1	1.1	5.45
BMW	8.1	1.2	11.24
Main players mean	**9.5**	**1.1**	**5.1**

Source: (S&P Capital IQ, 2017)

Regarding the price earnings ratio, the average of the players researched find their shares trading at 9.5x P/E, whereas Ford's shares trade at 10.2x P/E, meaning that Ford's shares are slightly more expensive that those of most of its main competitors, as willing investors have to pay $10.2 for each revenue unit.

Ford's shares trade at a 1.6x P/BV ratio, above the 1.1x P/BV of the average researched players. This means that the market could be over pricing Ford's shares, an indicator that investors are pricing in an improvement in Fords outlook.

Figure 41 Enterprise Multiples

Industry players	Enterprise value	EV/Revenue	EY/EBITDA	EV/EBIT
Ford	162,033	1.10	10.80	25.60
GM	116,504	0.70	5.30	9.60
Fiat Chrysler	22,442	0.2	2.2	3.9
Daimler	191,559	1.2	10.3	13.5
Honda Motor Co	104,531	0.8	9.2	15.2
Toyota Motor Co	297,756	1.2	8.3	13.6
BMW	148,447	1.5	10.4	14.3
Main players mean	**149,039**	**1.0**	**8.1**	**13.7**

Source: (S&P Capital IQ, 2017)

Ford's enterprise value is above the average of the considered peer group and it ranks third in the seven considered players, making it one of the most valuable enterprises in the industry.

Looking at the enterprise multiples Ford appears to be overvalued, presenting with ratios above industry average, however the EV/EBITDA and EV/EBIT ratios above industry average can hint that investors are pricing in an improvement in operational results.

The gap between EV/EBITDA and EV/EBIT reveals that, as it could be perceived, depreciations and amortizations, are a key characteristic of Ford's business. The valuation results are confirmed but the multiples analysis.

9. Future outlook

Ford's future outlook presents with both opportunities and risks, as the industry in which the company operates is facing changes and challenges.

The general outlook for the auto industry remains favorable, with global sales of light vehicles hitting new highs of 93.5 million units in 2016 according to (focus2move, 2017), with the first 2 months of 2017 presenting a 4.1% increase from the same period of 2016.

In 2016, Ford kept the third place in the top 50 best car selling brands, with about 6.2 million units sold, trailing Volkswagen by about 300 thousand vehicles. Ford's 2016 sales constitute an increase of 2.3% from 2015 and place the North American manufacturer with a 6.8% market share, below Volkswagen's 7.1% and Toyota's 9.2%.

Ford's legacy portfolio is also a strong asset going forward, as the brand's F – 150 series is, as of several decades, the bestselling vehicle in the United States. In addition, the return of the Ford GT constitutes a firm's bet in Ford's full portfolio positioning.

Global growth is, according to (focus2move, 2017), arising from North America and Europe, Ford's two main markets, where the company is best positioned.

On the political and regulatory fields, Ford should, in the short term, benefit from the new United States administration's views on looser regulations on carbon emissions and foreseeable international trade rules, favoring national manufacturers.

Despite having a strong market position, particularly in the US market, Ford faces increasingly strong competition, with i) Volkswagen, in spite of recent emission scandals, maintaining its foothold in the region, ii) Toyota, a first mover in hybrid vehicles, remains the market leader globally. And iii) Tesla, a disruptive new market player, investing in the electric segment.

In fact, despite recent margin improvements under the One Ford strategy, both EBIT and EBITDA margins suffered a setback in FY16, which can constitute a challenge going forward. Ford faces increasing competition, both in the US and globally, with new players such as Tesla entering the market.

10. Conclusions

The present is a report on the automobile industry and a proposed fundamental valuation on Ford, with the intent to present a recommendation based on an estimated price target.

As a result of this report's scope, it constitutes an addition to existing literature on the automobile industry and on a specific player in this industry.

Through the application of the discounted cash-flow methodology, Ford's 12 month price target amounts to $13.11 per share, a $0.28 (2.19%) above against the 12 month consensus price target of $12.83 ,according to (Parker, Market Realist, 2017). According to the same source, citing Reuters, 58% recommended a "HOLD" on the share, 29% recommending "buy" and 3 out of 24 analysts covering the stock recommended "sell". As a result of the comparison between the stock's close price as at December 30th 2016 of $12.13 and this report's price target estimation of $13.11, the resulting recommendation is to hold Ford's shares.

The North American car manufacturer, Ford, is a multinational company, marketing its products in all continents with the United States of America being its oldest and most significant market. In 2016, US auto sales accounted for 65.4% of Ford's automobile revenue.

Between 2012 and 2016, auto sales in the United States have grown at a CAGR of 3.7%, whilst in South America they presented with a CAGR of -16.8%. In Europe Ford's auto revenue rose at a CAGR of 1.8%, Asia and Pacific revenue grew at a CAGR of 4.6%. Between 2013 and 2016 Ford's revenue in the Middle East and Africa grew at a CAGR of -6.9%. Overall auto revenue grew at a CAGR of 2.0% between 2011 and 2016.

Ford's gross margin has remained steady around 13.3%, presenting a CAGR of 1.4% between 2011 and 2016. On the other hand, operating income margin averaged 3.7% in the historical period, presenting a CAGR of -12.8%. This deterioration in the operating

profit margin was mainly prompted by an in increase in depreciation and amortization expenses.

Financial revenue has grown at a CAGR of 4.84% between 2011 and 2016 and as at 2016 it corresponded to 6.8% of Ford's total revenue. Since the financial crisis, car manufacturers and other credit institutions have increasingly replaced traditional banks in the auto loan business, a reality prompted by the low interest rate environment, which according to (Mersch, 2016), has been putting pressure on bank's profitability.

The multiples valuation performed reveals that Ford's shares are more expensive than the average of their competitor's shares given their respective earnings. This could hit that either Ford's shares are overpriced or investors have priced in a positive outlook. The DCF analysis implies an EV/EBITDA of 19x, whereas the research performed on Capital IQ reveals a multiple of 11X. However, the enterprise value resulting from both analysis is similar, which hits that different sources have different costs allocation criteria for EBITDA, which in fact was noted during the research stage.

The auto industry has recovered from the negative period of the financial crisis which nearly resulted in the bankruptcy of the industry, particularly in the United States. The rebound of the sector followed the recovery of the economy, as the industry is correlated with the overall performance of the economy.

With mature markets showing smaller increases in sales, growth opportunities can be found in emerging economies such as China and India.

However, the growth displayed in recent years was partially generated with the raising of debt by costumers and credit risk exposure by non-traditional lenders such as car manufacturers. Consequently, delinquencies are rising, a trend that according to (The New York Times, 2016), citing the Federal Reserve of New York, has cause the institution to air "significant concern".

Going forward, Ford should; (i) measure capital structures carefully, as it remains one of the most financially levered market players, (ii) improve gross and operating margins through the efficient application of their ONE Ford Strategy, focusing on key models and making production leaner and more cost effective, (iii) gradually shift their supply portfolio to include the industry's trends of more ecofriendly vehicles and high-performing electric vehicles.

11 Future research

Performing this project was a gratifying and rewarding experience, although it was definitely challenging to balance it with a time consuming professional life. Had it not been the case and the project would have evolved into an attempt to create a more technical leaning valuation framework that would aim to beat the CAPM in predicting Ford´s share price.

Building, both on the final topics mentioned on the literature review of the present project and on the industry analysis, focusing on revenue and cost drivers, further research would is tempting.

It would be interesting for future researchers to build a multi-factor model, with inputs such as expected market return, oil price indexes, steel indexes, credit availability benchmarks and consumer confidence, just to state a few options, and try to create a tool capable of estimating Ford´s share price and test it against past consensus of analysts covering the company.

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12 ANNEXES

Annex 1 – Ford´s Income Statement 2011 – 2016 (Bloomberg)

Currency: $ m	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
Revenue	**136,264**	**133,559**	**146,917**	**144,077**	**149,558**	**151,800**
Product/Brand Segments	**136,264**	**133,559**	**146,917**	**144,077**	**149,558**	**151,799**
Automotive Sector	128,168	126,567	139,369	135,782	140,566	141,546
Financial Services Sector	8,096	6,992	7,548	8,295	8,992	10,253
Ford Credit	7,764	7,189	7,805	8,606	9,280	1
Other	332	267	192	135	-	
Eliminations	-	(464)	(449)	(446)	(288)	**-**
Other	-	-	-	-	-	1
North America	-	79,943	86,494	82,376	91,870	92,588
South America	-	10,080	10,847	8,799	5,766	4,841
Europe	9,486		27,255	29,457	28,170	28,488
Asia Pacific	-	9,998	10,240	10,744	10,755	11,971
Financial Services	-	6,992	7,548	8,295	8,992	10,253
Middle East & Africa	-	-	4,533	4,406	4,005	3,659
+ Sales & Services Revenue	128,168	126,567	139,369	135,782	140,566	141,546
+ Financing Revenue	8,096	6,992	7,548	8,295	8,992	10,253
other	-	-	-	-	-	1
- Cost of Revenue	**(116,959)**	**(116,107)**	**(128,055)**	**(127,724)**	**(127,748)**	**(131,132)**
+ Cost of Goods & Services	(113,345)	(112,992)	(125,195)	(125,025)	(124,041)	(126,584)
+ Cost of Financing Revenue	(3,614)	(3,115)	(2,860)	(2,699)	(3,707)	(4,548)
Gross Profit	**19,305**	**17,452**	**18,862**	**16,353**	**21,810**	**20,668**
+ Other Operating Income	-	-	-	-	-	-
- Operating Expenses	**(11,132)**	**(11,571)**	**(13,384)**	**(16,021)**	**(14,163)**	**(16,552)**
+ Selling, General & Admin	(3,760)	(3,506)	(3,597)	(5,142)	(3,802)	(4,896)
+ Research & Development	(5,300)	(5,500)	(6,400)	(6,700)	(6,700)	(7,300)
+ Depreciation & Amortization	(1,843)	(1,795)	(2,411)	(3,098)	(3,661)	(4,356)
+ Prov For Doubtful Accts	33	(77)	(208)	(305)	-	-
+ Other Operating Expense	(262)	(693)	(768)	(776)	-	-
Operating Income (Loss)	**8,173**	**5,881**	**5,478**	**332**	**7,647**	**4,116**
- Non-Operating (Income) Loss	**508**	**1,839**	**1,562**	**902**	**2,605**	**2,680**
+ Interest Expense, Net	**(346)**	**886**	**(616)**	**(553)**	**(464)**	**(608)**
+ Interest Expense	(817)	(713)	(829)	(797)	(773)	(894)
- Interest Income	471	1,599	213	244	309	286
+ Foreign Exch (Gain) Loss	-	-	-	-	-	-
+ (Income) Loss from Affiliates	500	588	1,069	1,275	1,818	1,780
+ Other Non-Op (Income) Loss	354	365	1,109	180	1,251	1,508
Pretax Income	**8,681**	**7,720**	**7,040**	**1,234**	**10,252**	**6,796**
- Income Tax Expense (Benefit)	**11,541**	**(2,056)**	**135**	**(4)**	**(2,881)**	**(2,189)**
+ Current Income Tax	(270)	(277)	(394)	(365)	(664)	(520)
+ Deferred Income Tax	11,811	(1,779)	529	361	(2,217)	(1,669)
+ Tax Allowance/Credit	3.11%	3.59%	5.60%	29.58%	6.48%	7.65%
Income (Loss) from Cont Ops	**20,222**	**5,664**	**7,175**	**1,230**	**7,371**	**4,607**
Income (Loss) Incl. MI	**20,222**	**5,664**	**7,175**	**1,230**	**7,371**	**4,607**
- Minority Interest	(9)	1	7	1	2	(11)
Net Income, GAAP	**20,213**	**5,665**	**7,182**	**1,231**	**7,373**	**4,596**

Annex 2 – Supplementary information 2011 – 2016 (Bloomberg)

Supplementary information	FY11A	FY12A	FY13A	FY14A	FY15A	FY16A
EBITDA	13,629	11,410	12,022	7,755	15,613	12,833
EBITDA Margin (T12M)	10	9	8	5	10	8
EBITA	11,786	9,615	9,611	4,657	11,973	10,703
EBIT	8,173	5,881	5,478	332	7,647	4,116
Gross Margin	14	13	13	11	12	11
Operating Margin	6	4	4	0	5	3
Profit Margin	15	4	5	1	5	3
Sales per Employee	831	809	812	770	752	755
Dividends per Share	-	0	0	1	1	1
Total Cash Common Dividends	-	763	1,574	1,952	2,380	3,376
Capitalized Interest Expense	31	4	18	21	20	27
Depreciation Expense	1,843	1,795	2,411	3,098	3,640	2,130
Rental Expense	540	510	516	524	460	474

Annex 3 – Inflation estimates per region

	Dec17F	Dec18F	Dec19F	Dec20F
North America (US)				
Inflation	2.65%	2.38%	2.64%	2.32%
Europe				
Inflation	1.69%	1.46%	1.65%	1.77%
Asia and Pacific				
Inflation	3.28%	3.29%	3.44%	3.64%
Middle East and Africa Middle East and northern Africa)				
Inflation	7.63%	7.36%	5.66%	5.21%
South America (Latin America and the Caribbean)				
Inflation	4.20%	3.66%	3.62%	3.61%
Financial Services				
Inflation	2.65%	2.38%	2.64%	2.32%

Annex 4 – Historical balance sheet

Currency: $ 000	Dec11A	Dec12A	Dec13A	Dec14A	Dec15A	Dec16A
+ Cash, Cash Equivalents & STI	**37,323**	**37,358**	**37,952**	**32,849**	**35,176**	**38,827**
+ Cash & Cash Equivalents	17,148	15,659	14,468	10,757	14,272	15,905
+ ST Investments	20,175	21,699	23,484	22,092	20,904	22,922
+ Accounts & Notes Receiv	**4,219**	**5,361**	**5,641**	**5,789**	**56,179**	**57,368**
+ Accounts Receivable, Net	4,219	5,361	5,641	5,789	56,179	57,368
+ Inventories	**5,901**	**7,362**	**7,708**	**7,870**	**8,319**	**8,898**
+ Raw Materials	2,847	3,697	3,628	3,859	4,005	3,843
+ Finished Goods	3,982	4,614	5,081	5,026	5,254	5,943
+ Other Inventory	(928)	(949)	(1,001)	(1,015)	(940)	(888)
+ Other ST Assets	**3,722**	**4,612**	**2,608**	**3,397**	**2,913**	**3,368**
+ Deferred Tax Assets	1,791	3,488	1,574	2,050	-	-
+ Misc ST Assets	1,931	1,124	1,034	1,347	2,913	3,368
Total Current Assets	**51,165**	**54,693**	**53,909**	**49,905**	**102,587**	**108,461**
+ Property, Plant & Equip, Net	**22,229**	**24,813**	**27,492**	**29,795**	**30,163**	**32,072**
+ Property, Plant & Equip	55,103	57,648	58,968	58,929	57,966	59,876
- Accumulated Depreciation	(32,874)	(32,835)	(31,476)	(29,134)	(27,803)	(27,804)
+ LT Investments & Receivables	**84,844**	**89,658**	**100,140**	**108,156**	**72,647**	**78,753**
+ LT Investments	11,482	13,888	18,600	21,518	27,093	28,829
+ LT Receivables	73,362	75,770	81,540	86,638	45,554	49,924
+ Other LT Assets	**21,010**	**22,054**	**22,364**	**22,675**	**19,528**	**18,665**
+ Total Intangible Assets	**100**	**102**	**85**	**133**	**124**	**198**
+ Other Intangible Assets	100	102	85	133	124	198
+ Deferred Tax Assets	13,932	13,325	13,436	13,705	11,509	9,705
+ Derivative & Hedging Assets	1,593	1,541	1,165	1,376	1,852	1,516
+ Investments in Affiliates	2,936	3,246	3,679	3,357	3,224	3,304
+ Misc LT Assets	2,449	3,840	3,999	4,104	2,819	3,942
Total Noncurrent Assets	**128,083**	**136,525**	**149,996**	**160,626**	**122,338**	**129,490**
Total Assets	**179,248**	**191,218**	**203,905**	**210,531**	**224,925**	**237,951**
Liabilities & Shareholders' Equity						
+ Payables & Accruals	**31,608**	**33,927**	**36,051**	**37,594**	**2,410**	**21,033**
+ Accounts Payable	17,425	19,179	19,932	20,395	20,029	21,296
+ Interest & Dividends Payable	253	277	-	222	-	-
+ Other Payables & Accruals	13,930	14,471	16,119	16,977	(17,619)	(263)
+ ST Debt	**40,311**	**38,762**	**38,063**	**39,172**	**42,975**	**49,669**
+ ST Borrowings	17,173	18,229	15,556	36,671	41,196	46,984
+ Current Portion of LT Debt	23,138	20,533	22,507	2,501	1,779	2,685
+ Other ST Liabilities	**1,159**	**1,072**	**1,191**	**1,150**	**36,951**	**19,579**
+ Derivatives & Hedging	1,119	991	924	880	17,862	263
+ Deferred Tax Liabilities	40	81	267	270	-	-
Other liabilities	-	-	-	-	19,089	19,316
Total Current Liabilities	**73,078**	**73,761**	**75,305**	**77,916**	**82,336**	**90,281**

Total Current Liabilities	**73,078**	**73,761**	**75,305**	**77,916**	**82,336**	**90,281**
+ LT Debt	**59,378**	**66,296**	**76,625**	**79,999**	**89,879**	**93,301**
+ LT Borrowings	59,378	66,296	76,625	79,999	89,879	93,301
+ Other LT Liabilities	**31,721**	**34,850**	**25,499**	**27,809**	**23,959**	**25,086**
+ Pension Liabilities	21,243	24,798	14,790	16,189	14,888	15,666
+ Deferred Revenue	1,739	2,044	2,534	2,686	3,285	3,687
+ Deferred Tax Liabilities	1,556	2,201	2,057	2,216	502	691
Hedging derivatives	-	-	-	-	-	425
+ Misc LT Liabilities	7,183	5,807	6,118	6,718	5,284	4,617
Total Noncurrent Liabilities	**91,099**	**101,146**	**102,124**	**107,808**	**113,838**	**118,387**
Total Liabilities	**164,177**	**174,907**	**177,429**	**185,724**	**196,174**	**208,668**
+ Share Capital & APIC	**20,943**	**21,016**	**21,462**	**21,129**	**21,462**	**21,671**
+ Common Stock	38	40	40	40	41	41
+ Additional Paid in Capital	20,905	20,976	21,422	21,089	21,421	21,630
- Treasury Stock	(166)	(292)	(506)	(848)	(977)	(1,122)
+ Retained Earnings	12,985	18,077	23,386	9,422	14,414	15,634
+ Other Equity	(18,734)	(22,854)	(18,230)	(5,265)	(6,257)	(7,013)
Equity Before Minority Interest	**15,028**	**15,947**	**26,112**	**24,438**	**28,642**	**29,170**
+ Minority/Non Controlling Interest	43	364	364	369	109	113
Total Equity	**15,071**	**16,311**	**26,476**	**24,807**	**28,751**	**29,283**
Total Liabilities & Equity	**179,248**	**191,218**	**203,905**	**210,531**	**224,925**	**237,951**
DSO	**11**	**15**	**14**	**15**	**137**	**138**
DPO	**54**	**60**	**57**	**58**	**57**	**59**
DIO	**16**	**20**	**19**	**20**	**20**	**21**

Annex 5 – Nature of costs per vehicle

Cost drivers	*%*
Materials	47%
Labour	21%
R&D	6%
Logistics	3%
Administration	10%
Depreciation	6%
Others	7%

Annex 6 – Average vehicle composition

Components	*%*
Steel	47%
Iron	8%
Plastic	8%
Aluminium	7%
Glass	3%

Annex 7 – All industries' output *vs* Motor vehicle and part dealers

Currency: $ m	2008	2009	2010	2011	2012	2013	2014	2015
All industries	26,826	24,657	26,094	27,536	28,663	29,572	30,971	31,387
%change YOY all	-	-8.1%	5.8%	5.5%	4.1%	3.2%	4.7%	1.3%
Motor vehicle and parts dealers	187	153	207	211	240	248	252	277
%change YOY motor	-	-18.2%	34.9%	2.2%	13.6%	3.4%	1.7%	9.7%

Annex 8 – US vehicle sales % change *vs* US GDP % change

Units: %	2008	2009	2010	2011	2012	2013	2014	2015
US vehicle sales % change	-18.0%	-21.4%	11.0%	10.8%	13.4%	7.4%	6.0%	5.9%
US GDP % change	-0.3%	-2.8%	2.5%	1.6%	2.2%	1.5%	2.4%	2.4%

Annex 9 – Consumer confidence index *vs* Total vehicle sales

Units: % and 000	Jan-Mar 2014	Apr-Jun 2014	Jul-Set 2014	Oct-Dec 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Set 2015	Oct-Dec 2015	Jan-Mar 2016	Apr-May 2016
Consumer Confidence Index %	99%	100%	100%	100%	101%	101%	101%	101%	101%	101%
Total Vehicle sales	1,271	1,500	1,451	1,392	1,346	1,554	1,543	1,502	1,390	1,548

Annex 10 – Credit conditions *vs* vehicle sales and loans outstanding

Credit conditions vs vehicle sales	2011	2012	2013	2014	2015
US Auto loans outstanding ($ billion)	751	809	879	958	1,038
New car loan rate commercial banks (%)	5.7%	4.9%	4.4%	4.2%	4.2%
Total vehicles sold in the US (0000)	13,041	14,788	15,883	16,842	17,836

Annex 11 – Total vehicles sold per geography

Geographies	2011	2012	2013	2014	2015
EUROPE	19,740	18,663	18,343	18,591	19,045
AMERICA	21,579	23,677	25,035	25,121	25,232
CENTRAL & SOUTH AMERICA	5,981	6,150	6,270	5,572	4,470
ASIA/OCEANIA / MIDDLE EAST	35,405	38,226	40,579	42,509	43,851
AFRICA	1,473	1,601	1,685	1,700	1,550

Annex 12 – Total passage vehicles sold per geography

Geographies	2011	2012	2013	2014	2015
EUROPE	17,168	16,191	15,942	16,157	16,424
AMERICA	11,960	13,401	13,832	13,539	12,663
CENTRAL & SOUTH AMERICA	4,597	4,761	4,793	4,284	3,485
ASIA/OCEANIA / MIDDLE EAST	27,430	29,896	32,104	34,491	36,099
AFRICA	1,073	1,182	1,225	1,231	1,126

Annex 13 – One year period, US sales per brand

Manufacturers	7mFY15A	7mFY16A
GM	1,439	1,506
Ford	1,345	1,288
Chrysler	1,134	1,060
Toyota NA	1,198	1,231
Honda NA	792	753
Nissan NA	798	736
Mercedes-Benz	179	179
BMW of North America Inc.	153	169

Annex 14 – Ford´s sales per geography

Units: 000	2013	2014	2015	2016
North America	3,006	2,842	3,073	3,019
Europe	1,317	1,387	1,530	1,539
Asia Pacific	1,270	1,439	1,464	1,607
South America	538	463	381	325
Middle East and Africa	199	192	187	167
Total	**6,330**	**6,323**	**6,635**	**6,657**

Annex 15 – Ford´s market share per geography

Units: %	2013	2014	2015	2016
North America	15.20%	14.20%	14.00%	13.90%
South America	8.90%	8.90%	9.60%	8.80%
Europe	7.30%	7.20%	7.70%	7.70%
Middle East and Africa	5.00%	4.60%	4.50%	4.50%
Asia Pacific	3.30%	3.50%	3.50%	3.80%

Annex 16 - Major players, sales per segment

Major players	Segment	YTD July 2016	YTD July 2015
	Total cars	62,892	77,785
GM	Total Light Trucks	204,366	194,727
	Total cars	59,854	66,004
Ford	Total Light Trucks	155,414	156,010
	Total cars	21,801	36,261
Chrysler	Total Light Trucks	156,129	138,483
	Total cars	101,991	111,816
Toyota US	Total Light Trucks	112,242	105,365
	Total cars	75,059	75,711
Honda US	Total Light Trucks	77,740	70,613