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

Sustainable Mobility Ahead

Diogo Jorge Soares Pereira 25975
Maria Margarida Figueirinhas Monteiro de Magalhães 34020

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

Nuno Quartin Bastos de Vasconcelos e Sá

DATE: 03/01/2020

Abstract:

The purpose of this master thesis is to understand the dynamics embedded in the mobility industry that will reshape automobile landscape and how it will influence the viability of Daimler business in the future. The project describes the intrinsic characteristics of Daimler's Corporate Strategy and its vision regarding industry trends and markets risks associated with this changing environment. The project scrutinizes and compares Daimler's plan with competitors 'approach over these issues, underscoring advantages and opportunities while questioning the feasibility of some of those new mobility solutions. The understanding of the overall industry scenario was an important practical step to improve the valuation methods carried out in the final section of this project.

Keywords:

- Mobility
- Digital
- Electric
- Automotive

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

DAIMLER AG

COMPANY REPORT

AUTOMOTIVE

3 JANUARY 2020

STUDENT: DIOGO PEREIRA & MARIA MAGALHÃES

margarida.magalhaes@novasbe.pt
25975@novasbe.pt

Sustainable Mobility Ahead

Leading the clean energy premium mobility

- The investment recommendation for Daimler AG is a **HOLD,** considering the target price **of 53.22** € estimated for the fiscal year of 2020. The yearly return on this investment would be of 7.8%. The negative market sentiment over Daimler is underestimating the brand potential to lead the change in the new mobility landscape.

- The new mobility scenario focus on the **disruptive trends** associated with the increasingly demand for **digital mobility solutions**. The ongoing changes on demographics and the demand over shared mobility, connectivity and automation solutions will positively reshape mobility as a **service industry**.

- By 2022, Daimler plans to have **electric powered options** for each of its fuelled motor vehicles. This clean energy will embrace all of Mercedes brands, including Maybach and AMG, and Smart. This portfolio adjustment moves along with the expectation that by 2030, **30%** of all vehicles sales will be of **clean energy automobiles**.

- R&D Costs: The **large initial expenditure** on the development of electrified solutions will **cut off profit margins** while the units sales are not sufficient to increase economies of scale and cost efficiency in development plants, which is expected to occur until half of the next decade.

- Litigation Risks: Following the recent **Dieselgate scandal** over German producers, global regulatory entities are tightening its scrutiny over antitrust and Cartel violations formed by German OEMs.

Company description

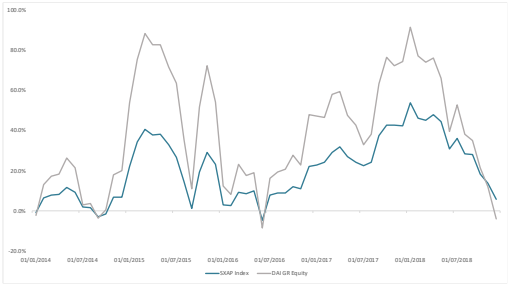
Daimler AG is German-based multinational company engaged in the development and manufacturing of premium passenger cars, trucks, vans and buses, while providing mobility services through its branch Daimler Mobility, which focus on credit management with customers and development of digital mobility solution.

Recommendation:	**HOLD**
Price Target FY20:	**53.22 €**
Price (as of 31-Dec-19)	**49.37 €**

Reuters:DAIGn.DE, Bloomberg: DAI GR Equity

52-week range (€)	40.31- 60
Market Cap (€m)	53,631
Outstanding Shares (m)	1,069

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2018	2019E	2020F
Revenues	167,362	170,103	178,338
EBITDA	19,742	20,774	23073
Net Profit	7,249	3,962	4,034
EPS	6.8	3.71	3.77

Source: Company Report, Analyst Estimates

Table of Contents

Company Overview

Company Description

DAIMLER

Daimler AG is a global leading premium vehicle manufacturer with a diversified portfolio of automobiles, trucks, vans and buses supported by a vast range of financial and mobility services. It is headquartered in Stuttgart, Germany, with a total workforce of more than 298,000 people worldwide and it is present in nearly all countries in the world. With a market capitalization of €53.524 billion as of December 2019 it is part of the DAX 30 share index.

Daimler's goal is to continue to be a **leading vehicle manufacturer** while having a prominent role in the **mobility of the future**, and in shaping it successfully. The current brand portfolio includes the world's first and second most valuable premium automotive brand - Mercedes-Benz – in 2018 and 2019, respectively.

Its origins root back to January 29, 1886, when Carl Benz applied for a patent of his "vehicle powered by a gas engine" - regarded as the birth certificate of the automobile. As a pioneer of automotive engineering, since 1886, Daimler's motivation and **commitment** with its vision has been unbroken.

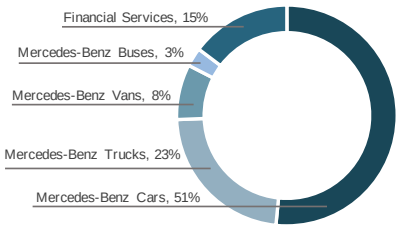
Exhibit 1: Project Future: A new corporate structure (2019)

Source: Company Data

As of November 1st, 2019, the **"Project Future"** approved at the 2019 Annual General Shareholders' Meeting, came into effect. It is responsible for the new flexible and focused corporate structure: three powerful legal entities Mercedes-Benz AG, Daimler Truck AG and Daimler Mobility AG under one common umbrella – the parent company Daimler AG. Mercedes-Benz AG will be responsible for the Mercedes-Benz Cars and Mercedes-Benz Vans divisions; Daimler Trucks and Daimler Buses divisions will be joined in Daimler Truck AG and Daimler Financial Services AG will be named Daimler Mobility AG. The three new business divisions will have the ability to **efficiently focus on their customers**, markets and knowledge providing individual entrepreneurial responsibility and high value creation potential.

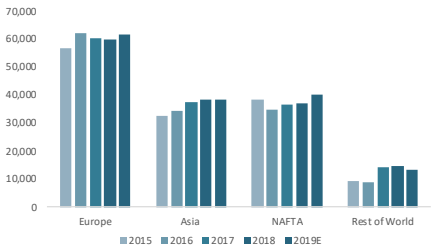
The company's core business is focused in two main categories of products: **vehicles** and **financial and mobility services**. Vehicle products contemplate all the products in the portfolio of Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans and Daimler Buses divisions. The segment in 2019 accounted for around **85%** of total revenue, a proportion that has been decreasing since 2014. Financial and mobility services range from rental, leasing, and financing offers to innovative fleet services, insurance, and e-Payment platforms. In 2019, the

Exhibit 2: Revenue distribution per business unit (2019)



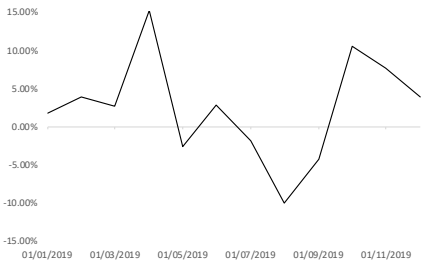
Source: Company Data, Analyst estimates

Exhibit 3: Revenue distribution per geographic area (2019)



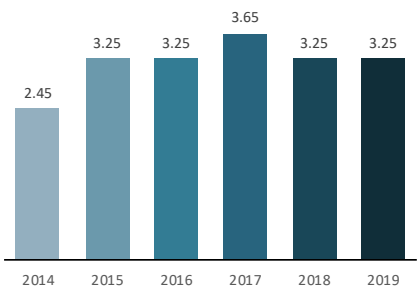
Source: Company Data, Analyst estimates

Exhibit 4: Daimler's cumulative return in 2019



Source: Bloomberg

Exhibit 5: Dividend per share, in euros



Source: Company Data

company's financial services revenue increased to €26 billion, representing around **15%** of total revenue. In the forecasted period it is expected for revenues of financial and mobility services achieve a value of 22% in proportion of revenues, due to the increasingly demand for digital mobility solutions.

Geographically, the company operates in four geographic segments: **Europe**, **NAFTA region**, **Asia** and **Rest of the world**. The major highlight consists on the considerable growth in Asia. In 2019, Asia total revenue reached a 25% share in Daimler's total revenue, an approximate 5% increase when compared to 2017. As of 2019, Europe remains the main revenue contributor, followed by the NAFTA region.

Share Performance

As of January 2014, Daimler Equity was valued at 61,65€ per share and it soared up to 95,79€, in the 1st quarter of 2015, a historical peak in this century. Ever since, Daimler stock performance steadily plunged in a bullish trajectory, because of the uncertainty surrounding the capacity of incumbent players capturing value of new mobility trends introduced by new entrants in the market, as Tesla and Uber. When the capitalization of this digital and clean energy potential in mobility services by OEMs materializes, it will be ensued by an ascending movement of share price.

During the FY19, Daimler's share value fluctuated significantly between the cumulative return of 15,15% in April 2019 (prior month before dividend distribution on 22nd May 2019) and the -9,98% cumulative loss in August (overall negative stock market performance due to intensification in trade war and recession signalled by the bond market). As of 31/12/2019, these oscillations resulted in a Year-End Cumulative Return of 3,87%.

Dividend Policy

With a dividend yield of more than 6 percent and a targeted distribution of 40 percent of the net profit attributable to its shareholders, Daimler's dividend policy has been a distinctive factor in the automotive market. In the forecasted period the target payout ratio is considered to be 40%.

Management Team

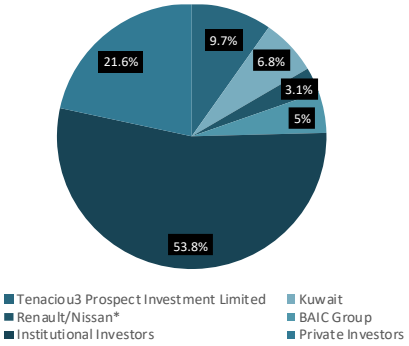
Daimler's board of management is led by Ola Källenius, appointed as Chairman of the Board of Management of Daimler AG on May 21st 2019, at the Annual Shareholders' Meeting, after serving as Head of Group Research & Mercedes-Benz Cars Development. Ola Källenius has been at the company for

more than 26 years, having first joined the firm as a trainee in 1993. Dr. Dieter Zetsche resignation was approved by the Supervisory Board on May 21st 2019, after serving as Daimler's Chairman since 2006.

The Board of Management is composed by 7 members and it is expected for Ola Källenius to lead the company until May 2024.

Shareholder Structure

Exhibit 6: Shareholder Structure by investor type (2019)

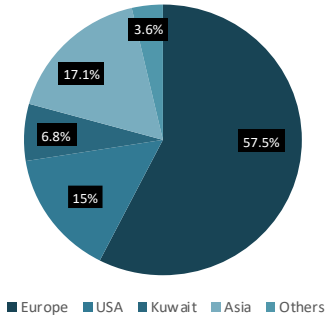


Source: Company Data

Daimler's current ownership structure consists on a broad base of shareholders, counting with more than 1 million. It is mainly composed by **institutional investors**, representing the largest investor group holding **54%** of the equity capital, while **private investors** own **22%**. Its largest individual shareholder, Tenaciou3 Prospect Investment Limited, a company controlled by the Chinese investor Li Shufu, acquired 9.7% of the company's shares in February 2018. The Kuwait Investment Authority (KIA) and the Chinese BAIC Group represent the second and third largest single shareholder, owning 6,8% and 5% of the company's shares, respectively. The Renault-Nissan Alliance continues to hold 3.1% of Daimler's shares. At a geographical level, **58%** of the capital is held by **European investors**, whereas the Asia and USA Market account for 17% and 15% of all investors, respectively.

Each one of the company's shares entitles its owner to one voting right. There are no multiple voting rights nor preferred voting rights nor maximum voting rights.

Exhibit 7: Shareholder Structure by region (2019)



Source: Company Data

Objectives

Over the last years, Daimler has set a range of objectives to pace with the highly fast dynamic changes in the automotive industry. Both **strategical** and **structurally** measures have been taken at a cultural and organizational level to guarantee the satisfaction and trust of the customers. There are four main areas of focus within the objectives: "Sustainable profitable growth", "A leader in innovation", "Inspiring our customers", "The best team".

"We want all our businesses to be the leaders in their respective segments"

The core of sustainable profitable growth is sustained by a **strong product portfolio**, **robust brands** and a **global presence**. The success of the current business operations is the key driver that ensures a solid financial foundation for investments in the future. Nevertheless, the focus on sustainability has a strong presence in the company's strategy. It results from the combination of business achievements with social responsibility, environmentally friendly products and environmentally compatible production.

"To be sure, CASE mobility will ultimately remake the auto industry. No one doubts that."

In order to outstand the future-oriented fields responsible for **disrupting the nature of mobility** - greater vehicle connectivity, advances in automated and autonomous driving, the development of digital mobility and transport services, and electric mobility (**CASE**) - innovating products, services and new business opportunities are playing a role in the satisfaction of customer's requirements and setting new standards to play a leading role in innovation.

Taking into consideration that success is measured by the satisfaction of costumers, "inspiring our costumers" measures consist in remarkable products and services that inspire costumers. Strong brands, wide range of products and services and anticipation of new customer expectations contribute for the placement of Daimler apart from its competitors.

The last objective comprises the adoption of an employee-focused culture. A set of skills, qualifications and learning opportunities are offered to employees to form "the best team". Integrity, diversity and inclusion revealed a long-term factor to achieve success and benefit the society.

Strategy

Daimler's **5C strategy** consists of five closely linked strategic components with the goal to prepare the company for the challenges and opportunities to successfully transform itself in a leading automaker and provider of mobility.

Exhibit 8: The five components of strategy

Source: Company Data

It is based on five critical pillars: strengthening our global core business (**CORE**), leading in new future fields (**CASE**), adapting corporate culture (**CULTURE**), and strengthening divisional structure (**COMPANY**) and focus on costumers (**CUSTOMER**).

To strengthening its core business, Daimler plans to continue expanding the development and production of **innovative products** and strong brands. In the **Mercedes-Benz Cars** segment the main focus is in the expansion and diversification of the portfolio as in the development of a global network. In the Asian Region, China will play a crucial role in regional sales, given the fast growth forecasted for the upcoming years. **Daimler Trucks** segment plans to further safeguard its market leadership position in the segment for heavy-duty Class 6 to 8 trucks. Since 2017 a series of investments in production, in the areas of safety, connectivity and technology have been made. **Mercedes-Benz Vans** segment target focus on the growth and development of vehicles and product strategies for the further expansion of its product portfolio. **Daimler Buses** segment is focus on the development of city buses, an economical and practical concept to operate in cities complying emission targets.

In the area of the **CASE fields** – Connected, Autonomous, Shared & Services, Electric – Daimler is transforming itself and shaping "intuitive mobility". The group is focused on the development in the areas of electric mobility, driving and safety systems for automated and autonomous driving, digitization and connectivity. Connectivity will also be a crucial factor in the future. Internet of things offer customers a broad range of services that simplify and make vehicle operations more intuitive and convenient. In the area of shared & services, the business model relies in the expansion of a comprehensive mobility ecosystem and the further development of mobility services car sharing, ride hailing and mobility-as-a-service. About **31 million customers** use Daimler's **mobility services**, which include car2go, the most widely used car sharing service, mytaxi, moovel. Most recently, it was announced the cooperation with BMW to create a joint venture that offers even more comprehensive mobility services - from car-sharing and ride-hailing up to parking und charging of electric vehicles.

"We at Daimler are convinced that the future is electric."

The path towards complete **emission-free driving** is being pursued. By 2025, it is predicted that up to **25%** of Mercedes-Benz Cars unit sales will be from **electric** models. Until the same year, all of the Mercedes-Benz Cars portfolio will be available in electric version. The investment costs required for this transformation can reach up to **€10 billion** in the expansion of the electric fleet and more than **€1 billion** in the development of battery production.

At a corporate level, the Leadership 2020 program was developed to reinforce the entrepreneurial spirit, create more space for innovation, promote new development methods and knowledge sharing.

The last pillar, the reinforcement of the divisional structure, consists on the recent approach to pace with the development of the business environment. In November 2019, a new corporate structure was implemented with the goal of **strengthening the focus on markets and costumers**, **boost entrepreneurial activities**, and **generate and safeguard synergies**.

Industry Overview

The automotive industry is one of the **largest global economic sectors** in terms of revenue and it embraces all the companies involved in the design, development and commercialization of motor vehicles. In 2017, the production of vehicles peaked at **95 million units**, trailing the considerable growth experienced since the subprime crisis. In the subsequent year of 2018, the production remained nearly unchanged, a consequence of unfavourable growth conditions triggered by

pessimist market sentiment, political instability in emerging markets and conflicts between crucial sovereign nations, whose uncertainty will affect Daimler's profitability through exchange rates, tariffs on foreign products, increase in customers' credit default probability and loss of consumer purchase power.

The demand backdrop in customers from key regions is reflected in **shrinking** volume sales amounting to **81 million** vehicles sold worldwide as of 2018, less 4 million units compared to the previous year. This demand backdrop will, as well, contract operating margins that will influence its R&D spending on electric-powered vehicles and self-driven cars delaying these aspiring plans to succeed in the market for electrified vehicles when worldwide demand revives back and stimulates the electric-power/autonomous vehicles momentum.

Automakers are considering different ways to enter the autonomous and shared driving markets, developing joint ventures with direct competitors and tech companies and incorporating non-driving products to its portfolio range such as shared mobility software. Thus, revenue pools of OEMs are expected to have a **greater share of income** from shared mobility and connectivity goods that will expand overall profitability of the industry by 30%, an absolute expansion of **$1.5 trillion in a decade.** This portfolio expansion aims to embody the change in mobility preferences: higher acceptance of shared vehicles and more concentrated urban centres which will diminish the individual car ownership over shared services and public transportations.

Beyond Daimler, other players on this market are the European manufacturers: Volkswagen Group, BMW Group, Renault, Fiat-Chrysler and PSA, which is commonly recognized by its Peugeot and Citroen brands; the Asian producers: Toyota, Nissan, Hyundai and Geely and the American duopoly of General Motors and Ford. This new era of mobility is shaped by **cooperation** within and across industries to develop advanced software to conceive autonomous driving and other technological benefits. Partnerships go beyond the car sectors, as tech giants such as Amazon and Google are receptive to enter this market while other ventures concern the development of autonomous vehicles, which depending on technical, infrastructure, and regulatory issues is expected to represent 15% of all sold vehicles in a decade. This cooperation has also enhanced the viability of **electrified vehicles**, hence increasing the speed of their adoption that will amount to **30%** of all new vehicles sold in **2030**.

Nonetheless, environmental concerns about the over-exploration of lithium, fundamental to electric batteries, may lead to a step back in electric revolution and even if no nature concerns were considered, the estimation point out that the **lithium exploration** would only be able to support 10% to 20% of all vehicles

circulating as of 2018. A significant risk considering the high level of R&D necessary to invest in these new eco-friendly vehicles.

As of 2018, **55,3%** of **world population** was concentrated in urban settlements and the prospective estimations point out to an intensification of this concentration to **60%** by **2030**. Supranational organizations have been implementing policies to make cities more inclusive, safe and sustainable, including the dissuasion of car ownership over public transportation, as local governments are striving to establish an efficient network of transportation services to overcome overpopulation issues in large cities. Opposite to these megacities, characterized by the burden related to car ownership, low population density areas present barriers to scale that wouldn't provide the ideal conditions to develop a competitive value proposition for the new driving solution, since the regulatory pressure is less intensified in these areas and the cost of technology represent a larger proportion of regional gross domestic product.

Nevertheless, this migration drift to populous urban centres will characterize the **new demographic era**, resulting in an upward demand for car sharing solutions over traditional car ownership. Moreover, the new autonomous solutions will fulfil the forthcoming changes in consumer preferences, considering that the next generation drivers look forward minimizing time wasted in traffic since self-driven vehicles will optimize their driving experience. Connectivity applications to locate and secure available parking lots will be developed to improve user's experience. However, the implementation of these new transportation alternatives will differ across different geographies, in accordance to each nation emission targets, propensity for investments in structural requirements and economy growth.

The world economy growth **slowdown** characterized the year of 2019. Weaker results are led mostly by industrialized countries while the emerging markets are expected to develop at similar rates as the previous years, which have outcome in an overall growth of less than 3%. The **trade conflict** between US and China, particularly the US tariffs on imports have the potential to **distort** the global value chain, as expectations of protectionist measures (barriers and quotas) will impact inflation, market sentiment and worldwide economy growth. Chinese credit growth expansion since the subprime crisis would eventually hit a ceiling as debt tops 300% of GDP and credit accessibility would vanish. Uncertainty surrounding **Brexit's** outcome creates potential risk that would jeopardizes trade conditions in Europe and diminish the consumption and investment decision by individuals and corporations in one of the most important markets of Daimler.

Industry Trends

Despite of the negative expectations of a global market slowdown aggravating the sales of vehicles, new opportunities are arising for car manufacturers, as these companies have been pursuing **organic growth**, moving from hardware providers to integrated developers of automotive services.

Understanding the market trends most likely to unfold in the years to come will be the **key success** determinant for automotive players. Shared mobility, automatization, electrification and connectivity are the four disruptive trends that will shape the mobility landscape in the near future. However, other exogenous factors as the environmental strict legislation and demographic movements will, as well, redefine the car manufacturer's portfolio range and business plans.

- Shared Mobility

China and the United States are currently the 2 largest markets for shared mobility, followed distantly by Europe, mostly due to European strict taxi legislation and shared mobility regulations. In these three key regions, shared mobility services revenue amount for more than **$100 billion** in 2018. In the most optimistic scenario it is forecast that this revenue will grow **28%** in the next half a decade, however the diminishing awareness regarding the benefits of such solutions may restrain the growth over the forecasted period to **9%** per year.

Individual behaviour will involuntarily change through tightening regulation, demographic concentration and tech breakthroughs. In 2030, it is expected that a **tenth** of all cars sold to be a shared vehicle because of this mobility transformation. Nowadays, consumers preference over private ownership limits its ability against specific needs. In the future, the optimal mobility solution will be requested through **virtual devices**.

The declining interest in holding a driver's licence by new generations and the increasing interest in e-hailing services in developed countries is pointing to disinterest in private ownership, which in a long-term perspective, 30 years from now, will result in one third of all cars sold to be used as a shared vehicle. Nonetheless, the high replacement rate of this pooled vehicles will offset the decline in privately owned vehicles

- Autonomous Driving

The ambitious challenge of commercializing fully autonomous vehicles grounds on demanding technological issues as advanced driver assistance systems must ensure regulators, consumers and corporations of high levels of

reliance. When these technological and regulatory issues are overcome, the diffusion of self-driven vehicles will reach up to **15%** of all new cars sold by 2030, while **partially autonomous** new vehicles could reach up to **50%** of all new commercialized vehicles. OEMs will accelerate the project by partnering with tech players to solve complexity issues, as the software competences necessary is equivalent to aerospace control systems and it will simultaneously be used to provide a broader range of in-vehicle services.

The key challenges ahead for autonomous mobility, apart from legislation and technological issues, lay on **cost competitiveness** and acceptance by clientele. If the value proposition from this new service is not understood, i.e. a negative viewpoint mostly due to high cost of ownership and distrust on autonomous driving it will result in less than **5%** adoption.

- Electrification

Since the pioneer initiatives to introduce electric vehicles, units sold worldwide escalated from around 50.000 vehicles in 2010 to more than **4 million** in an 8-year interval. Lowering the costs from electric components and developing appropriate infrastructures are necessary to urge the new Era of Mobility, while simultaneously involving governments to develop regulations that smooth the transaction from fuel to clean energy batteries.

Even if the electric vehicles business is becoming more sustainable due to constant improvement in battery efficiency and costs, the adoption of these vehicles will differ at local levels. Penetration of these electric transportations will be highest in developed and more concentrated cities with more direct and indirect incentives (tax breaks, more available charging stations, discounted electricity prices, etc.). However, rural area will be depending largely on traditional means of transportation due to absence of incentives. However, these regional distinctions will vanish gradually and the expectations for 2030 range between a usage share of **20%** to **50%.** Nonetheless, most of these electric vehicles will continue to have engines powered by fossil energy as hybrid solution.

- Connectivity

The vehicle-to-vehicle technologies to create an interconnect mobility ecosystem are expected to be fully functional by 2020, amplified by the development of more efficient communication network, the 5G. However, these technologic expansion goes beyond vehicle manufacturer scope, and this customer demand will be satisfied by new entrants in the market expected to expand its interest in different playgrounds.

In 2030, when revenue, costs and safety are fully optimized, the proceeds from this revenue stream could reach up to **$750 Billion**.

- New Entrants

The strict concept of hardware producers has broadened as consequence of the digital revolution and changes in customer preferences.

The shifting market paradigm is developing a more complex and diverse mobility landscape for the incumbent players that will simultaneously compete against Mobility Providers, Technologic Giants and Emerging OEMs over revenue pools. However, new entrants from different industries have a specific target interest that are economically attractive: Mobility Providers focus on Services, and high-tech companies focus on software development, while automotive players focus their activities on the entire mobility value chain. This pressure OEMs to be more cost efficient will lead to new forms of cooperation between incumbent players, evidence that has already been seen in recent times.

- Partnerships

Daimler, following the recent trend of partnerships, has a **joint venture** with BMW group, which pools their mobility services, a total investment of more than **€1 billion** focusing on multimodal services, charging, taxi ride-hailing, parking and car-sharing. Both companies pretend to launch the next generation of self-driving passenger cars by 2024, cooperating on the development of technology valuable for driving assistance systems and automated driving, enriching the urban mobility experience. However, this joint sharing service withdraw its operations from North America and three major European cities because of the high volatility state of digital mobility, moving its focus to other 18 major European cities where the potential for profitable results is less uncertain and less challenging in term of infrastructure complexity.

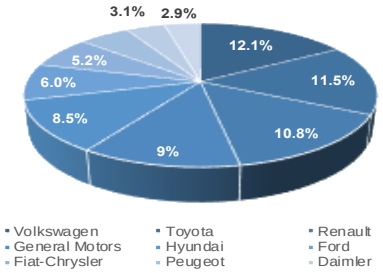
In addition to the mutual influence with BAIC group, Daimler aligned its interest in the Chinese Electrified Market with Geely to seize economies of scale to enhance cost competitiveness and develop the **total electrification** of Smart Brand. This alliance goes from electrification and autonomous driving software development, to ride-hailing services, as plans to launch a shared service mobile app, the Staride, are expected to be finished by late 2020 and grasp the 460 million users Chinese Market, amounting to **€24 Billion** in revenue. The expectation for the next 5 years is expected to rebound powered by growth in lower-tier cities, despite the subsidy cut by the Chinese government.

Moreover, autonomism performance is being enriched in **cooperation** with Bosch Group to develop driverless solution and fully automated vehicles in the beginning of next decade. The objective of this collaboration is the development of software for driving systems, pursuing synergies that ensure the fastest introduction of secure technology, combining expertise of Daimler with the system and hardware expertise of the world's biggest supplier.

Peer Companies

The automobile industry is highly concentrated, as such, it assembles most of car brands in a dozen of corporations. Thus, Daimler competes in a market which its direct competitors have a diversified portfolio of vehicle brands that can challenge every branch of Daimler's business.

Exhibit 9: Global Players market share (2019)



Volkswagen Group holds the Volkswagen brand itself, Audi, Seat and Skoda and other luxury brands as Porsche, Bentley and Lamborghini and the BMW group, the BMW brand, Mini Cooper and Rolls-Royce. Moreover, the Asian car-manufacturers, Nissan, Toyota, Hyundai and Geely concentrate most of the Asian Vehicle's brands, and General Motors and Ford assembles as well most of American brands.

Ultimately this results in a highly concentrated market as represent by the exhibit 7 representing global players market shares in 2019 by unit sales.

Volkswagen, a direct competitor in the European Market is the corporation with more units sold worldwide, however if we consider the premium nature of Daimler's products it is expected that Daimler have a lower market share compared to producers of standard low-to-medium cost cars more accessible to most customers.

Comparative Performance

Prior period reports display information that can be processed into comparative statements useful to identify trends, tracking the company's progress and compare against industry's competitors. Moreover, the comparison with benchmark indexes is useful to assess the performance against the comprehensive industry and adjacent sectors such as car components. As such, we consider useful to compare Daimler's results against the Stoxx 600 Automobiles, MSCI ACWI Automobile and Components Index and NASDAQ OMX Global Auto Index.

In the last couple of years, Daimler's Year-over-Year **returns** have been **outperformed** by the Benchmark Indexes and its German Rivals (BMW and Volkswagen Group). Despite this underperformance, over the past 8 years, Daimler's growth of around **4%** was only slightly below the growth of its German

rivals and the Stoxx 600, while outperforming MSCI ACWI Automobile and Components Index. The 2018 Year-over-Year overall negative performance is the outcome of the **uncertainty** surrounding the industry itself.

Likewise, some investors whose preferences fall on **dividend deliveries** over stock price fluctuations may not expect increments in dividend disbursements until 2025 due to large **investment in R&D** necessary to develop electric vehicles and to be part of the digital transformation suffered by the automobile industry. These large expenditures may also imply the cutback in its pay-out ratio and a contraction of firm's profitability until investment reimbursement emerge.

Investor's considerations when assessing overall performance of any organization goes beyond the share historical price and dividend yield, as investors analyse apprise the historical profitability, liquidity, operational and indebtedness levels equating them against its forecast expectations and market sentiment to conjecture uncertainty.

Exhibit 10: Comparative Performance

YoY Returns	2014	2015	2016	2017	2018	Average 5Y
Daimler	15%	0,0%	15%	6%	-29,9%	1,2%
BMW	15%	-3%	20%	7%	-20,1%	3,7%
Volkswagen	2%	-26%	13%	16%	-16,0%	-2,2%
Peugeot	8%	26%	13%	1%	22,4%	14,1%
Ford	18%	3%	8%	-6%	-34,3%	-2,2%
Toyota	25%	2%	5%	2%	-7,7%	5,3%
General Motors	-7%	23%	8%	7%	-7,9%	4,6%
Fiat-Chrysler	n.a	10%	34%	46%	-28,8%	15,3%
SXAP Index	5%	-2%	15%	12%	-9,3%	4,1%
MSCI ACWI Index	-3,91%	-2%	-4%	22,06%	-24,8%	-2,7%
NASDAQ Auto Index	-4,62%	-1,48%	-2,72%	22,72%	-28,2%	-2,9%

Debt Overview

Daimler's credit rating remained the same since prior year, the financials indicated a **secure** outlook about Daimler's ability to repay its debt, which result in a long-term credit rating of A, A2 and A- from S&P, Moody's and Fitch.

Moreover, the comparison between absolute debt burdens is not an effective measurement of a firm's indebtedness levels. Thus, to understand we should analyse leverage ratios and assess them against the industrial competitors' key metrics.

Exhibit 10: Industry Debt Ratios

	Interest Coverage Ratio	Current Ratio
Daimler	12.97	1.22
Volkswagen	9.00	1.18
BMW Group	21.59	1.14
Peugeot	14.62	0.97
Renault	8.01	1.03
Fiat Chrysler	2.40	0.82
Toyota	94.59	1.06
General Motors	11.18	0.96
Nissan	2.85	1.46
Ford Motor	-0.95	1.17
Industry Median	**10.09**	**1.10**

Source: Bloomberg

Exhibit 11: Industry Debt Ratios

	Debt/EV	Debt/ Assets
Daimler	3.94	55.72
Volkswagen	2.14	41.35
BMW Group	1.12	51.34
Peugeot	0.68	14.94
Renault	4.45	47.68
Fiat Chrysler	0.82	15.01
Toyota	0.50	38.27
General Motors	2.19	45.66
Nissan	4.07	42.82
Ford Motor	5.39	60.19
Industr Median	**2.17**	**44.24**

Source: Bloomberg

Daimler‘s debt comprises mostly outstanding bonds from Asset Backed Securities (ABS) Transactions, Commercial Paper, bank credit. The carrying amounts on these instruments are 88.942€, 2.835€ and 39.400€ while the average interest rate on these refinancing items Is 2,24%, 1,13% and 3,73%, respectively. Additionally, cost of debt was computed for every peer as interest expenses over Total Debt to understand the financing costs incurred in 2018.

Additionally, the Net Financial Assets for the Consolidated Business are €136.695 million for the FY18, while the forecast amount would rise by €10.000 million in the following year.

(Note: Even if marketable debt securities are not as liquid as cash and cash equivalents, we computed net financial debt by subtracting them to Financial Liabilities, because these instruments are used as part of liquidity management and traded in active markets)

Daimler has the 2nd most absolute **debt burden** (2019: **€170,16B**) amongst the selected competitors, only trailed by Volkswagen AG (2019: €202.51B). However, when analysing key financials, our understanding result in a more stable debt condition, even if Daimler’s leverage is higher compared to median Total-Debt-to-Total-Assets which allow to check leverage across companies. (55,72 vs 44,24) and the Total-Debt-to-Enterprise Value display a negative sentiment over Daimler capacity to repay its financing.

However, evidence on interest coverage ratio (ICR) displays Daimler’s ability to service its debt (ICR FY19: 12,97) **better** than the median capacity of its peers (Median ICR: 10,09), meaning that profits available to meet interest payments on the debt are **higher** than the overall industry, reinforcing debtholders’ confidence on repayment. Other indicators as current ratio, which gives information about liquidity over short term liabilities, support our belief that Daimler’s debt level.

Even if our expectations indicate a large level of investment in the following years, these ratios are expected to remain stable considering that investments will be backed up by excess cash reserves. Hence, the goal of maintain the same credit rating as mentioned above will be feasible to achieve.

Final Considerations on the Automobile Industry

Despite these conflicts and new mobility services emerging, the revenue from personal mobility will increase by 2030, however revenue streams for automotive players will be more segmented derived from **non-traditional** income sources.

However, winners in these markets will have to forecast in anticipation uncertainty in the next decade by making precise strategic moves to profit from disruption. The key drivers for success are the ability to rearrange organizational structure, adapting the its value chain process to the introduction of software

development and leverage its necessities on healthy partnerships to redefine its premium products to excel as service providers too. Nonetheless, vehicles unit sales are expected to grow at **2%** per annum until 2030.

Market Risks

As a multinational group, Daimler is exposed to a large series of risks that are in direct connection with its business activities. Hence, an operational risk management team is responsible for assessing the effectiveness, functionality and appropriateness of the internal control to mitigate inner risks. However, the most significant risks arise from external factors:

Regulatory Risks

The legal and political framework, in each of Daimler's active markets, differs widely across different geographies, and it will determine emissions, fuel consumption, and incentives for alternative **non-pollutant** mobility vehicles. The compliance level of each nation will impact the profitability of certain service lines, as the strict regulation on emission will enforce local government to enhance civilian's demand for electric cars and shared mobility products over private vehicles. Moreover, the breakdown or contraction of established trade agreements.

Financial Risk

Fluctuations in **Exchanges Rates** on currencies such as the US dollar, Chinese renminbi and British pound can affect profitability especially due to transaction risk, since most of Daimler production costs are determined in Euros while the revenue stream is denominated in foreign currencies. Other financial risk as fluctuations of **raw material prices** and credit risk from sales financing are eased by hedging gains/losses through derivatives instruments.

Litigation Risk

After the 2016 violation of antitrust rules by Daimler and other 3 peers, that coordinated prices on a cartel scheme. Daimler have been associated with other **violations** related to over **emission** of pollutant gases. Since the dieselgate scandal surrounding Volkswagen, German Authorities have tightened its scrutiny over defeating devices implemented on vehicles to deceive emission detectors. In September 2019, Daimler was fined about **€ 900 million** over 650 thousand vehicles were exceeding the legal threshold of emission per vehicle. Moreover, Daimler was forced to improve its software to **reduce emissions** and recall vehicles sold to modify its specificities to comply with emission legislations. In

addition to monetary losses charged as penalty, Daimler could face serious reputation downfalls that could blur Daimler's future.

Commodity Risk

The price of steel, stainless materials, precious metals and energy sources, which are fundamental for vehicles **production**, have direct effects in manufacturing process, as it will inflate base cost for each vehicle. Additionally, lithium prices which are essentially for the new clean energy policy, fluctuate as a response to environmental subsidies and scarcity of resources over customer's demand, which are profoundly connected to governmental strategic decisions. However, prices for lithium are expected to remain similar to the last couple of years.

Moreover, the price of crude oil has indirect influence over consumer's decision when purchasing new vehicles and it can affect revenue through decreasing sales. Hence, if the demand growth remains stable and the Organization of Petroleum Exporting Countries (OPEC) restrain its production levels, the average price would range between €60-70/bbl until 2020.

Valuation

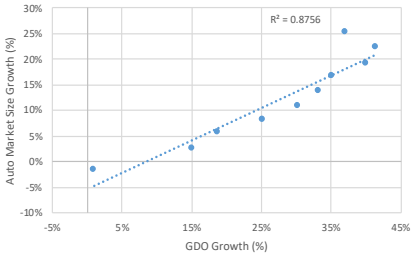
Some accounts in Daimler's Financial Statements were targeted differently accordingly to our expectations on future conditions of the Industry and Daimler Business Strategy to deal with uncertainty:

Revenue Streams

The forecasts on revenue streams differ across distinct time periods. The negative expectations over the next couple of years are the result from worldwide negative momentum on mobility industry. In the next half decade, the diversification of portfolio will inflate the new revenue streams, progressively stagnating this positive driver, until 2030, where our predictions are a steady-state evolution of mobility revenue similar to the long-run convergence expectations over worldwide growth of Gross Domestic Product of 2% yearly.

The considerable growth period between 2020-2025 that will affect the new revenue streams result from electric vehicles, mostly from China and emerging markets.

Exhibit 12: Relationship between GPD growth and Auto market growth (2010-2018)



Source: Company Data, Analyst estimates, International Monetary Fund

GDP growth is considered to be the main driver to express the automotive market performance. The first as a great correlation level of 93% with the market growth since 2010. Thus, the macroeconomic projections by the International Monetary Fund are considered a strong proxy to forecast each region's automotive market size and growth. Nonetheless, new revenue streams are estimated separately using different parameters that will influence digital mobility but will not impact equally conventional business.

Industrial Business

- Europe

The economic activity in Europe is expected to remain expanding until the end of the decade, although at a slower pace than before. In 2019, the GDP growth decreased to 1.1% from 2.3% in 2018, and it is expected to increase again in 2020 until the end of the decade at a rate of 1.15% CAGR. Inflation is also expected to be set at lower values, falling from 1.9% to 1.5% until 2020.

Revenues are forecasted at a 10-year CAGR of 1.56% and units sales at a 10 year CAGR of 1.42%, mainly due to the mature nature of the market, stable economic growth and strong market position.

Exhibit 13: Europe Revenue by product type (values in € millions)

Revenues	2018	2019E	2020F	2021F	2022F
Cars	36,902	37,890	38,781	39,252	39,794
Trucks	10,775	10,744	10,927	11,059	11,212
Vans	8,937	9,504	9,666	9,784	9,919
Buses	2,851	3,250	3,347	3,392	3,443

Revenues	2023F	2024F	2025F	2025F	2025F
Cars	40,593	41,207	41,848	42,500	43,190
Trucks	11,389	11,561	11,742	11,924	12,118
Vans	10,089	10,242	10,401	10,563	10,735
Buses	3,498	3,551	3,606	3,662	3,722

Source: Company Data, Analyst estimates

The demand of passenger cars is expected to remain unchanged in relation to the previous year and expected to grow at a 1.38% CAGR until 2030. Daimler's strategy to enhance sales levels focus on the improvement of customer-favourite models and electrification.

Within Europe, in 2019, the new passenger car registrations were slight lower (-0.3%) than in the previous year. Except for Germany, the region's largest market for Daimler, who presented a stable growth, each one of the biggest European markets – Spain, France, United Kingdom and Italy – contracted. Given the constant uncertainty around United Kingdom's intended withdrawal from the EU, growth of British economy is likely to remain subdued at just over 1%. In 2019, unit sales decreased by 7% the market contracted at a rate of 3%.

Exhibit 14: Europe Unit Sales by product type

Units	2018	2019E	2020F	2021F	2022F
Cars	982,674	993,620	1,012,963	1,025,210	1,038,558
Trucks	85,390	86,128	87,249	88,487	89,680
Vans	278,269	298,116	301,997	306,705	310,840
Buses	9,284	10,037	10,180	10,326	10,465

Units	2023F	2024F	2025F	2025F	2025F
Cars	1,057,723	1,071,986	1,086,940	1,102,103	1,118,195
Trucks	90,931	92,200	93,546	94,912	96,298
Vans	315,177	319,573	324,239	328,974	333,777
Buses	10,611	10,759	10,916	11,077	11,241

Source: Company Data, Analyst estimates

Mercedes-Benz Car's market share increased 1.35 p.p. since 2014 and 0.7 p.p. in 2019, mostly due to the strong performance of the premium segments. The market share it is forecasted to achieve a rate of 5.6% in 2020. **Daimler Trucks** maintained its market leadership in the segment of heavy and medium duty trucks with a market share of 26%, even though units sales were significantly lower in

2019. The performance is expected to increase in the following years at a 10 year CAGR of 1.39%. **Mercedes-Benz Vans** is expected to continue its path of growth in the following years in Europe, its core market. Unit sales achieved a new record level, surpassing the prior year by 4.5%. The performance is expected to increase in the following years at a CAGR of 1.4% for the forecasted period. **Daimler Buses** continued high demand in Europe and maintained its leading market position with a market share of 23.9%. Unit sales achieved a new record high, surpassing the prior year by 4.5%. The market share it is forecasted to achieve a rate of 24.3 % in 2021. The performance is expected to increase in the following years at a 10 year CAGR of 1.42%.

- NAFTA

Exhibit 15: NAFTA Revenue by product type
(values in € millions)

Revenues	2018	2019E	2020F	2021F	2022F
Cars	18,488	19,034	19,432	19,709	20,015
Trucks	16,622	18,664	19,032	19,303	19,603
Vans	1,666	1,939	1,977	2,005	2,036
Buses	255	258	263	266	270

Revenues	2023F	2024F	2025F	2025F	2025F
Cars	20,544	20,913	21,298	21,697	22,109
Trucks	19,960	20,317	20,692	21,080	21,480
Vans	2,248	2,288	2,330	2,374	2,419
Buses	276	281	286	292	297

Source: Company Data, Analyst estimates

Exhibit 16: NAFTA Unit Sales by product type

Units	2018	2019E	2020F	2021F	2022F
Cars	392,607	254,573	117,104	371,677	377,949
Trucks	189,667	155,598	43,567	199,165	202,291
Vans	50,851	38,066	14,465	52,531	53,356
Buses	3,273	1,844	1,070	2,914	2,959

Units	2023F	2024F	2025F	2025F	2025F
Cars	383,311	388,962	398,607	405,104	411,908
Trucks	205,161	208,186	211,636	215,085	218,698
Vans	54,113	54,910	60,507	61,494	62,526
Buses	3,001	3,045	3,104	3,154	3,207

Source: Company Data, Analyst estimates

The American economy is the most representative market considering units sold by Daimler in the NAFTA commercial area. US consumer spending, a significant component of the American GDP, in the first three quarters of 2019

followed the trailing expenditure strength of the last couple of years, demonstrating the economy expansion continues despite slowing global growth and segregation policies pursued by current US administration, harming international relationships with China and EU, while undermining market confidence. However, the Trump administration has pressured FED to boost economy by aggressively **cut** in **borrowing costs**, a reduction on US interest rates that occurred three times in 2019. Particularly, the CAGR of personal consumption

expenditure on motor vehicles and parts was 3,336% between 2014 and 2018, while CAGR of GDP was slightly lower at 3,264% for the same time period.

Revenues are forecasted at a 10-year CAGR of 1.87% and units sales at a 10 year CAGR of 1.77%, mainly due to the mature nature of the market, stable economic growth and strong market position.

This economic environment is reflected in Daimler's performance over the North America continent in 2018: the **Mercedes Benz Cars** lose a 0,2% market share in USA falling to 1,8% representing a sales decrease of approximately 3% in USA, 2% in Canada and an improvement of 7% in Mexico totalizing 392.600, a lower unit sold than the previous year record level; **Mercedes-Benz Vans** Sales registered a new high level of 38.700 units and a market share increase to 8,3%, more 0,8% compared to 2017. **Daimler Trucks** sales in NAFTA contributed

significantly to overall growth of sales in 2018, from 189,700 units, remaining market leader in heaviest classes. The most important traditional market for **Daimler Buses** continues to include Mexico with sales of 3,200 units.

- Asia

Despite the economic asymmetry between Asian Countries, the outcome GDP growth of this region is still significant to explain the projections on automobile industry.

China is the biggest market for Daimler vehicles and the largest automotive market in the world. The economic activity has been gradually slowdown in the recent years and is set to continue in the next couple of years. In 2019, the GDP growth decreased from 5.7% to 5.1% in 2018, and it is expected to decrease until the end of the decade to a value just over 4%.

Uncertainties associated to the trade war conflict with the United States and suspensions of deliveries that were imposed on some diesel models will continue to have a negative impact.

Revenues are forecasted at a 10-year CAGR of 6.85% and units' sales at a 10 year CAGR of 6.84%. The demand of passenger cars is expected to remain unchanged in relation to the previous year and expected to growth at a 4.13% CAGR until 2030. Mercedes-Benz Car's market share increased 1.1 p.p. since 2014 and 0.1 p.p. in 2019, mostly due to the strong performance of the premium segments. The market share it is forecasted to achieve a rate of 2.7% in 2021.

Exhibit 17: Asia Revenue by product type (values in € millions)

Revenues	2018	2019E	2020F	2021F	2022F
Cars	30,859	30,121	33,086	36,204	39,655
Trucks	6,503	6,889	7,251	7,629	8,035
Vans	844	797	839	882	929
Buses	227	230	242	255	269

Revenues	2023F	2024F	2025F	2025F	2025F
Cars	43,471	47,613	51,409	54,389	57,489
Trucks	8,521	8,974	9,317	9,664	10,015
Vans	1,022	1,077	1,118	1,159	1,201
Buses	283	298	309	321	333

Source: Company Data, Analyst estimates

Exhibit 18: Asia Unit Sales by product type

Units	2018	2019E	2020F	2021F	2022F
Cars	921,077	946,977	1,036,068	1,133,628	1,240,739
Trucks	164,737	140,538	147,334	155,007	163,128
Vans	38,779	37,447	39,258	41,303	43,467
Buses	3,172	3,634	3,809	4,008	4,218

Units	2023F	2024F	2025F	2025F	2025F
Cars	1,357,971	1,484,967	1,600,789	1,690,876	1,784,409
Trucks	172,733	181,622	188,257	194,953	201,703
Vans	47,742	50,199	52,033	53,883	55,749
Buses	4,439	4,667	4,838	5,010	5,183

Source: Company Data, Analyst estimates

Exhibit 19: RoW Revenue by product type (values in € millions)

Revenues	2018	2019E	2020F	2021F	2022F
Cars	6,854	5,364	5,350	5,456	5,553
Trucks	4,373	4,528	4,694	4,838	4,977
Vans	2,179	2,248	2,333	2,408	2,480
Buses	1,196	1,207	1,253	1,293	1,332

- Rest of the World

Daimler produces and distributes vehicles worldwide, however, its influence its spread differently across the globe. In addition to the aforementioned commercial areas, the most relevant in terms of current market influence and potential penetration of new revenue streams is Latin America.

These regions have been negatively affected by political and economic instability, for instance, Argentina's revenue stream my shrink considering the currency crisis that result in hyperinflation and Chile and Brazil protest movement have been intensified by outraged feelings at their political institutions of corruption and absence of results on economic promises and equality. The baseline factors endure virtually in every country of Latin America, but it's believed that most

Revenues	2023F	2024F	2025F	2025F	2025F
Cars	5,642	5,828	5,906	6,055	6,208
Trucks	5,112	5,252	5,380	5,516	5,655
Vans	2,568	2,636	2,704	2,773	2,841
Buses	1,371	1,407	1,444	1,480	1,517

Source: Company Data, Analyst estimates

Exhibit 20: RoW Unit Sales by product type

Units	2018	2019E	2020F	2021F	2022F
Cars	6,854	5,364	5,350	5,456	5,553
Trucks	4,373	4,528	4,694	4,838	4,977
Vans	2,179	2,248	2,333	2,408	2,480
Buses	1,196	1,207	1,253	1,293	1,332

Units	2023F	2024F	2025F	2025F	2025F
Cars	5,642	5,828	5,906	6,055	6,208
Trucks	5,112	5,252	5,380	5,516	5,655
Vans	2,568	2,636	2,704	2,773	2,841
Buses	1,371	1,407	1,444	1,480	1,517

Source: Company Data, Analyst estimates

countries would follow same trends as the catalyst factors existent may trigger instability considering many of these countries are on the edge of popular dissatisfaction that cannot be met by new countries administrations in the short term considering the early challenges and resource constraints.

Even though, it is important to understand Daimler current state of affairs in Latin America, especially of segments with relevant commercialization especially commercial vehicles as: **Daimler Trucks** with increasing growth of sales, about 38.200 units sold, more 7.700 vehicles than in the FY18, especially with Brazil's contributions which accounted for 21.400 units, and increase of 60% from the prior low level and the negative weight of decreasing sales in Argentina which only totalled 3,500 units in the year under review (2017: 5,600); **Mercedes-Benz Cars** revenue of €917 Million suffered a significant decrease over the 1 billion revenue from period; **Mercedes-Benz Vans** Sale soared by 14% to 18.700 units and **Daimler Buses** business in Brazil is also the main catalyst of Latin Sales as it rose by 22% to 8.800 units, corresponding to a prominent market position of 51,6% of share , nut argentine market which was the second largest market in South America suffered from market contraction and shrunken sales.

Regarding different geographies, Africa and Oceania have small representation in terms of revenue from vehicles sales, accounting to around 5% of total revenues.

Financial and Mobility Services

This segment of Daimler business is responsible to facilitate the purchase of vehicles through credit lines available to all the clientele. The profit arises from interest charged to credit obligors throughout the credit life cycle, however the core purpose of this service line is to enhance unit sales and develop its digital mobility solutions.

Daimler Financial Services branch continued to perform positively in 2019. The considerable growth in Europe and Americas Region of 2% and 3% respectively, was enough to offset the negative downside from Africa and Asia-Pacific international areas with negative slowdown rate of 3% and 2% respectively.

Following the recent credit's obligation overall expansion, Daimler's Financial Services reached a new record number of contract volume reaching a forecasted value **of €164.3 billions**, which represents 50% of all vehicles sold.

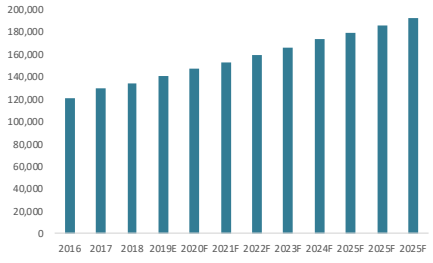
Considering no major monetary policy decisions are expected to affect interest rates on international markets, earnings from this business unit will maintain an EBIT level of **€ 957** millions. Notwithstanding, emerging markets will represent a larger share of unit sales in the subsequent decade, which will expand the ratio between credit contract and unit's sales, a normal consequence of lower domestic income. The negative effects from this low demographic yield regards the increase in credit default and the extension of the collection period.

Moreover, this branch of Daimler's business is responsible for the online apps such as Mytaxi and car2go. In 2018, the ride-hailing services were expanded with the acquisition of a majority stake in Chauffeur Privé, a top provider of ride-hailing transportation in Europe, which ultimately have a positive effect in the number of registers users to around **21.3 million**, an 92% increase over most recent homologous period. The users of mobility services are substantially influenced by ride-hailing, as the total users amount to **31 million**.

Other relevant services that have constantly increase at a reasonable expansion level are Insurance business with 2,3 million policies brokered in 2018 and Fleet Management with 395.000 contracts on the books, which represented **€ 6.5** billion in contract volume.

Operating Costs

Exhibit 21: Cost of sales in € millions (2016-2025)



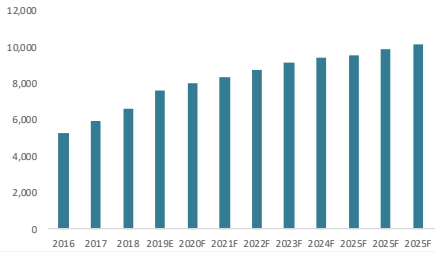
Cost of Sales are expected to increase as a proportion of revenues in the forecasted period. The rise in cost of sales is mainly connected with the diversification of portfolio, more demanding consumer's preferences, business volumes and consequentially higher material expenditures.

The market for new revenue streams is not mature enough to seize economies of scale and scope, to fade the negative effects of increasing competition and regulation. Moreover, the traditional business units must constantly be upgraded to satisfy consumer's desires which inflate the development costs of vehicles, especially by the inclusion of latest software and constant re-design of vehicles, while maintaining margins due to highly competitiveness.

In 2019, **cost of sales increased** by just over 5% to a level of almost 83% as a proportion of revenue. Gross margin decreased from 19.8% to 17.4%. Taking into account the new paradigm shifts in production mentioned above, **gross margins** are **expected to decrease** to 16.7% in the forecasted period.

Research & Development Costs

Exhibit 22: R&D Expenses in € millions (2016-2025)



This balance sheet account is one of the most relevant in terms of impact on the new revenue streams which will further positively influence Daimler's financial statements. These costs are essentially related to the development of new models, renewal of existing ones, as well as in the development of digital solutions applied to the company's portfolio. Moreover, a significant part of this investment is related to the intensive development of fuel-efficient and environmentally friendly driving systems. The successful development of products play a key factor to achieve the ambitious goals and growth strategy that will position Daimler as a pioneer in shaping the mobility of future. This high level of commitment is traduced in the considerable investment expenditures forecasted in the model.

In 2019, the industrial segment increased the investments levels of R&D to 4.4% as a proportion of revenue, in comparison with 3.9% in 2018. In 2020, the company will spend more than **€9 billion** in research and development projects.

In the forecasted period, R&D expenses are going to significantly increase, achieving a 4.6% level until 2023.

Capital Expenditures

The new digital business drivers will require additional infrastructure investment. When the mobility market for this alternative mobility vehicles reaches its maturity, the return on this investment is expect to retrieve positive inflows considering the steady growth moving away from the early stage of production and development process, which will constantly strength economies of scale and improving the learning processes. Between 2019 and 2020 the company will invest almost **€15 billion** in property, plant and equipment.

In the forecasted period, investment in property, plant and equipment will mainly be applied for the production of our new models. In 2020, a total of **€1 billion** will be invested in a new car plant - Factory 56, which is an ultramodern, flexible, fully digitized and CO2-neutral assembly plant. In view of take advantage of the growth potential offered by the Chinese market, Daimler and BAIC will invest more than **€1.5 billion** in a second production facility in Beijing.

Reconciliation

Reconciliation includes corporate items that cannot be allocated to any specific division of Daimler's business and for which the headquarter is accounted as responsible. In the context of consolidating revenue and costs of sales, (and also other types of operational revenue), the transactions between segments are

eliminated and these amounts are included in the reconciliation item on the consolidated statement of financial position.

Contingent Liabilities & Litigation Risks

A footnote on the financial statements depict potential liabilities that may occur depending on the outcome of an uncertain events. These events concern legal proceedings and claims on several topics such as vehicle safety, fuel emissions, intellectual property, environmental matters and collusion. The best estimate for these obligations is **€761 million**, as of 2018, but these forecast does not include unquantifiable liabilities especially from class-action lawsuits. Our outlook on future business management will lead to a simplified assumption that no forecasted contingent liabilities should be considered relying on efficient managerial decisions will shelter Daimler core business from external altercations.

Equity Method Investments

The major equity investments of Daimler comprise BBAC, BAIC Motor, THBV and other minor interests associated companies and joint ventures. The total carrying amount on these equity investments slight increase from €4.818 millions to **€4.860**. However, as of 2018, the stake of profit from strategic investment in other companies was shrunken from €1.5 Billion to €0.7 Billions in 2019. These decreases stemmed on the impairment in BAIC Motors (-0.2€ billions) and the conclusion of the Toll Collect Proceeding with German Federal Agreement (-0.4€ billions).

Inventory Turnover

The inventory turnover amongst luxury car brands tend to be higher than the overall market. Moreover, considering the surplus of production over sales of vehicles in 2018, it is expected that the turnover increases significantly, ceteris paribus. If this trend persists, the cessation of some factories and subsequently decreasing its number of employees. However, as mentioned before, Daimler due to its further product diversification will appoint a considerable part of its investments to improve efficiency in factories and warehouses, thus, it will adapt production more adequately to demand.

WACC

Assuming no significant changes in Daimler's capital structure and creditworthiness during the forecasted period, the weighted average cost of capital (WACC) will be the single rate used to discount future cashflows. As such, this average after-tax cost of capital used to finance Daimlers' assets was computed as a result of its Debt and Equity levels and the proportional weighted interest rate

paid to be financed through each category of capital. (i.e. Equity and Debt). The required inputs are the **cost of equity**, **cost of debt**, **debt to equity ratio** and the **marginal tax-rate**.

Exhibit 23: Unlevered Betas

Company	Unlevered Beta
Daimler AG	0.77
VOLKSWAGEN AG	0.91
BMW AG	0.84
RENAULT SA	1.01
FIAT CHRYSLER AUTOMOBILES NV	1.78
TOYOTA MOTOR CORP	0.47
GENERAL MOTORS CO	0.68
NISSAN MOTOR CO LTD	0.49
FORD MOTOR CO	0.68
Industry Average	**0.86**

Exhibit 24: Cost of debt calculation

Yield to maturity	1.28%
Annualized probability of default	0.21%
Loss given default	0.6
Cost of debt	**1.15%**

The **Capital Asset Pricing Model (CAPM)** – methodology applied to compute the cost of equity - incorporates the **Market Risk Premium (MRP), risk-free rate** and the **beta of equity**. The Market Risk Premium was set at **5.5%,** as suggested by the common literature in relation to the expected return achieved when holding the market portfolio. The **risk-free** rate was considered to be **-0,3%** and inferred from a 10-year German government bond, once it is considered a good proxy for a risk-free asset given its low risk nature and same currency as Daimler's cash flows.

The beta of equity (levered) was computed considering the average

unlevered beta of its competitors and other key financials metrics. In order to test the assertiveness of the equity raw beta, the 95% confidence interval of the comparable companies raw beta (used to infer the unlevered beta) was compute.

The expected value of cost of equity is **10.79%.**

Daimler's cost of debt was calculated taking into consideration the yield to

maturity of a 10-year outstanding corporate bond, the **loss given default** of the security and the equivalent **probability of default**. Therefore, by subtracting the product of the probability of default and the loss given default to the yield to maturity, a **pre-tax cost of debt** was set at **1.15%.**

Given the previous assumptions, the WACC assumes a value of **4.77%.**

Terminal Growth Rate

A 10 year forecast model was computed in order to access the future performance of Daimler. A growth rate for the terminal value of NOPLAT, after achieving a stable state at the end of 2030, assumes a value of **1.9%**. Furthermore, this slowdown period is in line with the world convergence of GDP growth to 2% by 2030 onwards.

Both terminal growth rate and WACC feasibility will be further questioned through a sensitivity analysis.

Discounted Cash Flow Methods

As a mean to estimate Daimler's fair final enterprise value, a forward-looking approach was used as a valuation methodology – Discounted Free Cash Flows Method. This methodology is sustained on the company's past performance, on

industry tendencies and on the expectations for the firm's future cash-flows resulting from the company's defined strategies for the future. The forecasted cash-flows are then discounted at the company's WACC leading to the Core Enterprise Value.

The DCF yielded a total **Enterprise Value** (EV) of $206 billions. By subtracting the Net Financial Assets, the final Equity Value of $56,896 millions was reached and corresponding to a stock price of **$53.22**.

Relative Valuation

This comparative approach is based upon the assumption similar assets are sold at similar prices, as such, when firms are comparable the multiples proposition can be used to determine the value of one based on the value of its identical. Daimler's competitors were chosen based upon peers whose main source of revenue are the same as Daimler and no extraordinary event have recently affected the company's performance (ex: litigations, political instability, etc). Thus, the companies chosen were Volkswagen, BMW Group, Peugeot, Renault, Fiat-Chrysler, Toyota, General Motors, Nissan and Ford. Nevertheless, by enabling a performance analysis of the company based only on past values, results can be misrepresentative, as future performances might differentiate from the historical ones.

Applying the Equity Value Multiple (P/Sales) on the forecast Sales for 2020 it results on a Price per share of **€49.32**, representing the historically valued by the market around 49$ per share. While the Enterprise Comparable based on EV/EBITDA and EV/Sales will outcome enterprise values around **€205-€178** billions reflecting Daimler's current position on the capital markets. Out of these, EV/EBITDA is the most suitable as it allows the comparison between companies with very different capital structures. Furthermore, the results of the last metric are in line with the conclusions achieve in the DCF valuation.

Final Considerations

Daimler's equity value is projected to be € 56,886 millions as of December 2020. With 1,069 million shares outstanding, the company's target share price positions at € 53.22, leading to a total shareholder return of 7.8% with a hold recommendation.

Sensitivity Analysis

In order to test the outcome conclusions of the valuation, a sensitivity analysis of the most impacting inputs and assumptions for the model was conducted. An

analysis to the target price share in relation to the WACC and the growth rate was accessed.

Taking into account the unpredictability and the disruptive trends that are shaping the future of the automotive market, small changes in the most impacting components of the WACC affect the value of the cash flows and therefore in the target price. Moreover, the value of the perpetual growth rate is directly connected with the target share price, once the terminal value counts as much as 60% of the Enterprise Value.

Exhibit 25: Sensitivity Analysis – WACC and growth rate

		Growth Rate				
	53.22	1.82%	1.86%	1.82%	1.92%	1.94%
WACC	4.60%	62.28	64.00	64.00	66.67	67.58
	4.65%	58.77	60.41	60.41	62.95	63.83
	4.70%	55.39	56.96	56.96	59.38	60.22
	4.77%	50.87	52.33	53.22	54.61	55.39
	5.00%	37.50	38.70	38.70	40.56	41.19
	5.20%	27.47	28.49	28.49	30.06	30.59

From this analysis, one can conclude that the target share price is very sensitive to changes in the WACC. This might result from the impact of the unlevered beta, which accesses the risk of the market, nowadays characterised for its high volatility. Given the maturity and nature of the business, small impacts on the growth rate do not cause as drastic variations on the price as the previous input.

Through the analysis of the following values, the target price is in line with the expected rage, and the current investment recommendation is maintained.

References

European Automobile Manufacturers Association.2019. “Economic and Market Report: state of the EU auto industry - First half of 2019.” Retrieved from https://www.acea.be/statistics/article/economic-and-market-report-state-of-the-eu-auto-industry-first-half-of-2019

McKinsey, & Company. 2016. Automotive revolution – perspective towards 2030.

PWC. 2019. “Automotive Trends 2019”. Retrieved from https://www.pwc.com/gx/en/ceo-survey/2019/Theme-assets/reports/automotive-trends-report.pdf

EY - Global Automotive & Transportation Sector. 2016. “ Automotive change drivers for the next decade”. Retrieved from https://www.ey.com/Publication/vwLUAssets/EY-automotive-change-drivers-for-the-next-decade/$File/EY-automotive-change-drivers-for-the-next-decade.pdf

Financials

Statement of Income

Values in millions €, except share and per share an	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core Business																	
Revenue	136,150	155,936	160,142	172,321	175,800	179,056	188,121	195,458	203,463	212,905	222,309	231,380	239,865	248,831	258,181	267,932	278,106
Reconciliation	-6,278	-6,468	-6,881	-8,167	-8,438	-8,953	-9,782	-10,555	-11,394	-12,348	-13,339	-14,808	-16,311	-17,916	-19,622	-21,435	-23,361
Total Revenue	129,872	149,468	153,261	164,154	167,362	170,103	178,338	184,903	192,069	200,556	208,970	216,571	223,554	230,916	238,559	246,498	254,745
Cost of Sales	-101,688	-118,017	-121,298	-129,626	-134,295	-140,595	-147,545	-153,087	-159,116	-166,247	-173,326	-179,739	-185,646	-191,875	-198,345	-205,069	-212,006
Gross Profit	28,184	31,451	31,963	34,528	33,067	29,508	30,794	31,816	32,953	34,309	35,644	36,832	37,908	39,041	40,214	41,429	42,739
Selling expenses	-11,534	-12,147	-12,226	-12,951	-13,067	-13,268	-13,910	-14,422	-14,981	-15,643	-16,300	-16,893	-17,437	-18,011	-18,608	-19,227	-19,870
General administrative expenses	-3,329	-3,363	-3,419	-3,808	-4,036	-4,061	-4,491	-4,666	-4,857	-5,083	-5,307	-5,524	-5,727	-5,941	-6,164	-6,397	-6,639
Depreciation and Amortization	-4,999	-5,384	-5,478	-5,676	-6,305	-7,971	-8,538	-8,664	-9,000	-9,193	-9,366	-9,266	-9,564	-9,879	-9,518	-9,835	-10,164
Research and non-capitalized development costs	-4,532	-4,760	-5,257	-5,938	-6,581	-7,570	-8,025	-8,321	-8,739	-9,125	-9,404	-9,529	-9,836	-10,160	-10,497	-10,846	-11,209
Other operating income (net)	599	1,559	1,052	1,216	868	882	1,223	1,270	1,323	1,384	1,445	1,504	1,559	1,617	1,678	1,742	1,808
Core Result before taxes	9,388	12,740	12,113	13,047	10,251	5,491	5,590	5,677	5,698	5,842	6,078	6,391	6,467	6,546	6,624	6,701	6,828
Adjusted Taxes	2,755	4,112	3,733	3,187	3,010	1,538	1,565	1,590	1,595	1,636	1,702	1,789	1,811	1,833	1,855	1,876	1,912
Core Result	**6,633**	**8,628**	**8,380**	**9,860**	**7,241**	**3,954**	**4,025**	**4,088**	**4,102**	**4,206**	**4,376**	**4,601**	**4,656**	**4,713**	**4,769**	**4,825**	**4,916**
Non-Core Business																	
Profit/loss on equity-method investments, net	897	464	502	1,498	656	665	665	665	665	665	665	665	665	665	665	665	665
Other financial income/expense, net	458	-27	275	-210	210	224	224	226	229	233	238	245	253	263	275	288	303
Non-Core Result Before Taxes	**1,355**	**437**	**777**	**1,288**	**866**	**889**	**889**	**891**	**894**	**898**	**903**	**910**	**918**	**928**	**940**	**953**	**968**
Taxes	379	122	218	361	242	249	249	249	250	251	253	255	257	260	263	267	271
Non-Core Result	**976**	**315**	**559**	**927**	**624**	**640**	**640**	**641**	**643**	**646**	**650**	**655**	**661**	**668**	**677**	**686**	**697**
Financial Business																	
Interest expense, net	-570	-432	-316	-368	-522	-535.1	-548	-558	-568	-579	-589	-600	-611	-622	-633	-645	-656
non-controlling interests income	-328	-287	-258	-339	-333	-343	-353	-364	-375	-386	-398	-410	-422	-434	-448	-461	-475
Financial Result before taxes	-898	-719	-574	-707	-855	-878	-902	-922	-943	-965	-987	-1,009	-1,033	-1,056	-1,081	-1,105	-1,131
Tax Shield	-251	-201	-161	-198	-239	-246	-271	-277	-283	-289	-296	-303	-310	-317	-324	-332	-339
Financial Result	**-647**	**-518**	**-413**	**-509**	**-616**	**-632**	**-631**	**-646**	**-660**	**-675**	**-691**	**-707**	**-723**	**-739**	**-756**	**-774**	**-792**
Comprehensive Result	**6,962**	**8,425**	**8,526**	**10,278**	**7,249**	**3,962**	**4,034**	**4,084**	**4,086**	**4,177**	**4,336**	**4,550**	**4,595**	**4,642**	**4,690**	**4,737**	**4,822**

Statement of Financial Position

Values in millions €, except share and per share amounts	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core Business Invested Capital																	
Inventories	20,864	23,760	25,384	25,686	29,489	36,208	37,189	37,747	38,362	39,171	39,889	39,395	40,690	42,055	43,473	44,947	46,467
Operating Cash	2,597	2,989	3,065	3,283	3,347	3,402	3,567	3,698	3,841	4,011	4,179	4,331	4,471	4,618	4,771	4,930	5,095
Trade receivables	8,634	9,054	10,614	11,995	12,586	16,311	17,008	16,601	16,166	16,916	17,663	18,384	19,058	19,770	20,513	21,288	22,096
Intangible assets	9,367	10,069	12,098	13,735	14,801	16,943	17,581	18,251	18,955	19,693	20,469	21,284	22,140	23,038	23,982	24,973	26,014
Goodwill (Acquired)	740	727	1,188	1,115	1,082	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212	1,212
Other intangible assets (acquired)	1,382	1,553	2,083	2,340	2,462	3,021	3,021	3,021	3,021	3,021	3,021	3,021	3,021	3,021	3,021	3,021	3,021
Development Costs (internally generated)	7,245	7,789	8,827	10,280	11,257	12,710	13,348	14,018	14,722	15,460	16,236	17,051	17,907	18,805	19,749	20,740	21,781
Property plant and equipment	23,182	24,322	26,381	27,981	30,948	39,124	41,909	42,528	44,176	45,125	45,973	45,480	46,946	48,492	50,097	51,765	53,496
Equipment on operating leases	33,050	38,942	46,942	47,074	49,476	52,732	53,501	53,622	54,740	56,156	58,512	60,640	62,595	64,656	66,796	69,019	71,329
Receivables from financial services	61,679	73,514	80,507	86,054	96,740	102,528	102,606	103,850	107,874	109,894	114,504	118,669	122,496	126,529	130,717	135,067	139,586
Other assets	8,277	8,209	9,499	9,061	11,025	14,566	15,093	15,464	15,871	16,372	13,766	14,267	14,727	15,212	15,715	16,238	16,781
Provisions	28,393	26,145	26,810	22,136	24,406	32,704	37,488	41,986	44,925	48,070	51,435	55,035	58,888	63,010	67,421	72,140	77,190
Provisions for pensions and similar obligations	12,806	8,663	9,034	5,767	7,393	9,034	9,034	9,034	9,034	9,034	9,034	9,034	9,034	9,034	9,034	9,034	9,034
Provisions for income taxes	1,608	1,652	1,717	1,606	1,451	1,717	1,717	1,717	1,717	1,717	1,717	1,717	1,717	1,717	1,717	1,717	1,717
Contract and refund liabilities				11,208	12,519	13,181	13,878	14,612	15,385	16,198	17,055	17,956	18,906	19,906	20,958	22,067	23,233
Other liabilities	9,085	12,347	14,923	7,992	9,310	9,462	9,921	10,286	10,684	11,157	11,625	12,047	12,436	12,845	13,271	13,712	14,171
Core Business Invested Capital	**119,994**	**141,819**	**161,190**	**171,082**	**187,992**	**204,572**	**208,979**	**208,100**	**211,553**	**214,605**	**217,271**	**219,190**	**224,073**	**229,159**	**234,309**	**239,520**	**244,779**
Non Core Business Invested Capital																	
Marketable debt securities and similar investments	6,634	8,273	10,748	10,063	9,577	9,577	9,041	8,534	8,056	7,605	7,179	6,777	6,397	6,039	5,701	5,381	5,080
Equity-method investments	2,294	3,633	4,098	4,818	4,860	6,150	6,717	7,336	8,013	8,752	9,559	10,440	11,403	12,454	13,602	14,857	16,227
Assets held for sale	0	0	0	0	531	0	0	0	0	0	0	0	0	0	0	0	0
Liabilities held for sale	0	0	0	0	212	0	0	0	0	0	0	0	0	0	0	0	0
Non Core Invested Capital	**8,928**	**11,906**	**14,846**	**14,881**	**14,756**	**15,727**	**15,758**	**15,871**	**16,069**	**16,357**	**16,738**	**17,217**	**17,800**	**18,493**	**19,303**	**20,238**	**21,306**
Financial																	
Excess Cash	7,070	6,947	7,916	8,789	12,506	14,507	14,507	14,507	14,507	14,507	14,507	14,507	14,507	14,507	14,507	14,507	14,507
Other financial assets	5,987	7,454	5,736	6,806	5,733	6,953	7,309	7,684	8,078	8,492	8,927	9,384	9,865	10,371	10,902	11,461	12,048
Financing liabilities	86,689	101,142	117,686	127,124	144,902	167,105	166,424	160,524	159,098	157,297	155,050	151,932	151,903	152,211	152,733	153,482	154,413
Other financial liabilities	10,706	12,360	12,869	9,275	10,032	10,851	11,736	12,694	13,730	14,851	16,063	17,374	18,792	20,326	21,985	23,779	25,720
Net Financial Assets	**-84,338**	**-99,101**	**-116,903**	**-120,804**	**-136,695**	**-148,700**	**-147,490**	**-141,007**	**-138,939**	**-136,431**	**-133,407**	**-129,436**	**-128,469**	**-127,750**	**-127,144**	**-126,658**	**-126,235**
Assets-Liabilities	**44,584**	**54,624**	**59,133**	**65,159**	**66,053**	**71,599**	**77,246**	**82,963**	**88,683**	**94,531**	**100,601**	**106,971**	**113,404**	**119,903**	**126,468**	**133,100**	**139,850**
Equity Attributable to Shareholders	**44,584**	**54,624**	**59,133**	**65,159**	**66,053**	**71,599**	**77,246**	**82,963**	**88,683**	**94,531**	**100,601**	**106,971**	**113,404**	**119,903**	**126,468**	**133,100**	**139,850**

Disclosures and Disclaimers

Report Recommendations

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

This report was prepared by Maria Margarida Magalhães and Diogo Pereira, a Master in Finance students of Nova School of Business and Economics ("Nova SBE"), within the context of the Field Lab – Equity Research.

This report is issued and published exclusively for academic purposes, namely for academic evaluation and master graduation purposes, within the context of said Field Lab – Equity Research. It is not to be construed as an offer or a solicitation of an offer to buy or sell any security or financial instrument.

This report was supervised by a Nova SBE faculty member, acting merely in an academic capacity, who revised the valuation methodology and the financial model.

Given the exclusive academic purpose of the reports produced by Nova SBE students, it is Nova SBE understanding that Nova SBE, the author, the present report and its publishing, are excluded from the persons and activities requiring previous registration from local regulatory authorities. As such, Nova SBE, its faculty and the author of this report have not sought or obtained registration with or certification as financial analyst by any local regulator, in any jurisdiction. In Portugal, neither the author of this report nor his/her academic supervisor is registered with or qualified under COMISSÃO DO MERCADO DE VALORES MOBILIÁRIOS ("CMVM", the Portuguese Securities Market Authority) as a financial analyst. No approval for publication or distribution of this report was required and/or obtained from any local authority, given the exclusive academic nature of the report.

The additional disclaimers also apply:

USA: Pursuant to Section 202 (a) (11) of the Investment Advisers Act of 1940, neither Nova SBE nor the author of this report are to be qualified as an investment adviser and, thus, registration with the Securities and Exchange Commission ("SEC", United States of America's securities market authority) is not necessary. Neither the author nor Nova SBE receive any compensation of any kind for the preparation of the reports.

Germany: Pursuant to §34c of the WpHG (*Wertpapierhandelsgesetz*, i.e., the German Securities Trading Act), this entity is not required to register with or otherwise notify the *Bundesanstalt für Finanzdienstleistungsaufsicht* ("BaFin", the German Federal Financial Supervisory Authority). It should be noted that Nova SBE is a fully-owned state university and there is no relation between the student's equity reports and any fund raising programme.

UK: Pursuant to section 22 of the Financial Services and Markets Act 2000 (the "FSMA"), for an activity to be a regulated activity, it must be carried on "by way of business". All regulated activities are subject to prior authorization by the Financial Conduct Authority ("FCA"). However, this report serves an exclusively academic purpose and, as such, was not prepared by way of business. The author - a Master's student - is the **sole and exclusive responsible** for the information, estimates and forecasts contained herein, and for the opinions expressed, which exclusively reflect his/her own judgment at the date of the report. Nova SBE and its faculty have no single and formal position in relation to the most appropriate valuation method, estimates or projections used in the report and may not be held liable by the author's choice of the latter.

The information contained in this report was compiled by students from public sources believed to be reliable, but Nova SBE, its faculty, or the students make no representation that it is accurate or complete, and accept no liability whatsoever for any direct or indirect loss resulting from the use of this report or of its content.

Students are free to choose the target companies of the reports. Therefore, Nova SBE may start covering and/or suspend the coverage of any listed company, at any time, without prior notice. The students or Nova SBE are not responsible for updating this report, and the opinions and recommendations expressed herein may change without further notice.

The target company or security of this report may be simultaneously covered by more than one student. Because each student is free to choose the valuation method, and make his/her own assumptions and estimates, the resulting projections, price target and recommendations may differ widely, even when referring to the same security. Moreover, changing market conditions and/or changing subjective opinions may lead to significantly different valuation results. Other students' opinions, estimates and recommendations, as well as the advisor and other faculty members' opinions may be inconsistent with the views expressed in this report. Any recipient of this report should understand that statements regarding future prospects and performance are, by nature, subjective, and may be fallible.

This report does not necessarily mention and/or analyze all possible risks arising from the investment in the target company and/or security, namely the possible exchange rate risk resulting from the security being denominated in a currency either than the investor's currency, among many other risks.

The purpose of publishing this report is merely academic and it is not intended for distribution among private investors. The information and opinions expressed in this report are not intended to be available to any person other than Portuguese natural or legal persons or persons domiciled in Portugal. While preparing this report, students did not have in consideration the specific investment objectives, financial situation or

particular needs of any specific person. Investors should seek financial advice regarding the appropriateness of investing in any security, namely in the security covered by this report.

The author hereby certifies that the views expressed in this report accurately reflect his/her personal opinion about the target company and its securities. He/ She has not received or been promised any direct or indirect compensation for expressing the opinions or recommendation included in this report.

The content of each report has been shown or made public to restricted parties prior to its publication in Nova SBE's website or in Bloomberg Professional, for academic purposes such as its distribution among faculty members for students' academic evaluation.

Nova SBE is a state-owned university, mainly financed by state subsidies, students tuition fees and companies, through donations, or indirectly by hiring educational programs, among other possibilities. Thus, Nova SBE may have received compensation from the target company during the last 12 months, related to its fundraising programs, or indirectly through the sale of educational, consulting or research services. Nevertheless, no compensation eventually received by Nova SBE is in any way related to or dependent on the opinions expressed in this report. The Nova School of Business and Economics does not deal for or otherwise offer any investment or intermediation services to market counterparties, private or intermediate customers.

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

Daimler AG: The Real Costs of Adverse Management

Maria Margarida Figueirinhas Monteiro de Magalhães
34020

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

Nuno Quartin Bastos de Vasconcelos e Sá

DATE: 03/01/2020

Abstract:
German OEMs have been associated with product-related litigations since the Dieselgate case affecting Volkswagen. The precedent effect of these processes outcomes dubious consequences to vehicles producers as it involves monetary shortfalls and reputation loss that are not quantifiable. This report aims to understand previous and imminent lawsuits on Daimler's scope and identify changes in corporate conduct to support predictions related to the absence of future deceitful management.

Keywords:
- Litigation
- Cartel
- Collusion
- Dieselgate

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

This individual report has the objective of performing a more detailed analysis to one of the main risk factors that Daimler AG has been recently and currently exposed - **Trucks Cartel, Diesel Exhaust Gas Emissions** and **Steel Cartel.** In the past, not only these events have undermined the company valuation and brand recognition, but there are also prominent evidences that it will play a decisive role in the company's future.

Trucks Cartel

In July 2016, the European Commission issued the highest antitrust penalty – a cartel record fine – on five leading truck producers, who, together, were responsible for producing more than 9 out every 10 trucks sold in Europe. Daimler, DAF, Iveco, MAN and Volvo/Renault acknowledged their liability for the cartel and reached a settlement with the Commission, benefiting of fine reductions in line with the admissions of guilt and liability. On the other hand, Scania, the last producer to be sentenced, initially denied any involvement in the cartel. One year later, in September 2017, the European Commission conclude that Scania have also participated in the cartel, thus not benefiting from any fine reduction. Collectively, the manufactures were levied a **€ 3.8 billion fine**. MAN received full immunity for revealing the existence of the cartel, thereby avoiding a fine of around €1.2 billion. Daimler was the heaviest sentenced one, with a fine just over **€1 billion**, €400 million more than it originally was planned.

Exhibit 1: Total fines imposed

	Reduction under the Leniency Notice	Reduction under the Settlement Notice	Fine (€)
MAN	100%	10%	0
Volvo/Renault	40%	10%	670 448 000
Daimler	30%	10%	1 008 766 000
Iveco	10%	10%	494 606 000
DAF		10%	752 679 000
Scania	0%	0%	880 523 000
Total			**3 807 022 000**

Source: European Comission

In Europe, these trucks, used by consumers and companies, were responsible for the transport of goods between the internal market (transport sector), playing an essential part on the performance of the European economy. Road Haulage competitiveness highly depends on truck prices and represents a vital mechanism to promote the development of **cost-efficient low-emission technologies**, one of the most important topics of the next decade in the automotive sector, surrounding the desire of a low-emission mobility. Thus, between 1997 and 2011, for 14 years, the illegal collusion between the producers questioned the performance of the sector, fair competition, coordinated manufacturing truck prices in the European Economic Area and passed the costs of new technologies to meet stricter emission rules to the costumers. Moreover, the above allegations have no connection with the Dieselgate scandal associated with the use of defeat devices to surpass the automotive emissions tests, also mentioned in this report.

The collusion between the companies covered the following topics: - **coordination of prices** at "gross list" level: related to the producing price of trucks, set by each company, they are the foundation for setting truck prices in the industry. The final price set to the customers was based on small changes to these gross list prices. Moreover, since 2008, a "unique template" in order to exchange information regarding pricing strategies and price changes was introduced as a communication tool for the cartel. Notwithstanding, upon the introduction of the euro currency, particularly in France, the most competitive European market at the time, prices were extremely inflated; - **timing the introduction of emission technologies** for trucks to fulfil with the demanding rigid European emissions standards; - t**he passing to customers the costs for the emissions technologies** required to comply with the emissions standards.

The claims are made that around **10 million trucks** were sold in the European Union during the 14-year cartel period and each one of the vehicles might have been overpriced by up to **€10 000**. More than 3,200 companies have plead for damage claims, and, in 2020, it is expected for a **€14 billion** claim over more than 85,000 trucks acquired in the overpriced conditions. Given

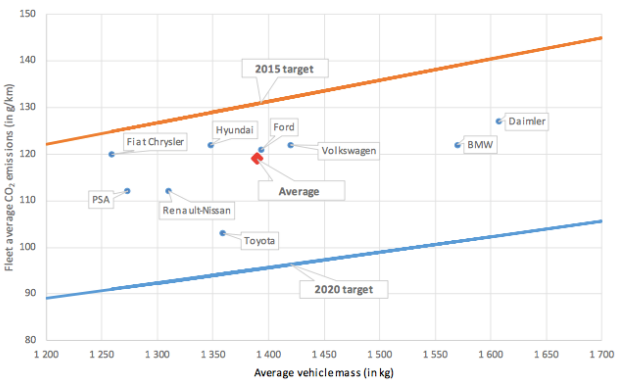
the acknowledged of its liability and the proof of the cartel existence, in the following years, Daimler may face a loss of **€5 billion** in fines related to truck cartel.

Diesel Exhaust Gas Emissions

In September 2015, news surfaced that Volkswagen had intentionally installed a **defeat device** – turbocharged direct injection (TDI) diesel engines – to detect if a vehicle was being tested in laboratory and therefore activate its **emissions control** system to meet the US emissions standards. Controversially, in real world driving, the device was programmed to switch off, therefore emitting up to **40 times more** NOx emissions than the US legal limit. Afterwards, the company admitted to have installed the software in more than 11 million diesel-fuelled vehicles between 2009 and 2015. The United States Environmental Protection Agency (EPA) formally accused Volkswagen on these violations widely known as "**Dieselgate – the emissions scandal**". Up to date, Volkswagen has already incurred in costs of €29 billions.

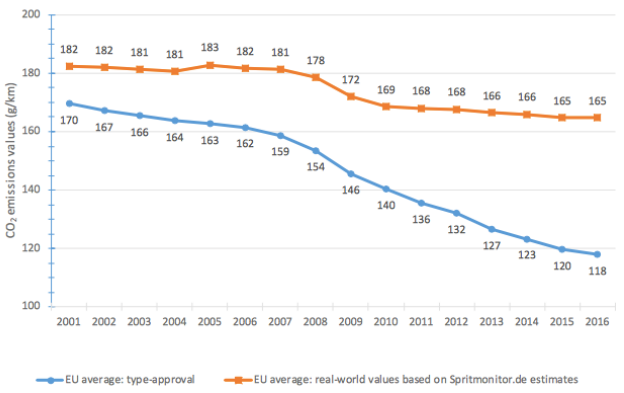
For passenger cars, the EU regulates air pollutants by setting legal emissions limits to the following: carbon monoxide (CO), total hydrocarbons (THC), non-methane hydrocarbons (NMHC) and nitrogen oxides (NOX). Nitrogen oxides (NOx) are produced when fuel is combusted in an engine in the presence of air, in harmful proportions. The EU introduced mandatory CO_2 emission standards for new passenger cars. The first target was set at 130 g/km for 2015, while a second one of 95 g/km was set for 2020-2021.

Exhibit 2: 2017 fleet-average emissions of major manufacturing groups.



Source: ICCT – International Council on Clean Transportation

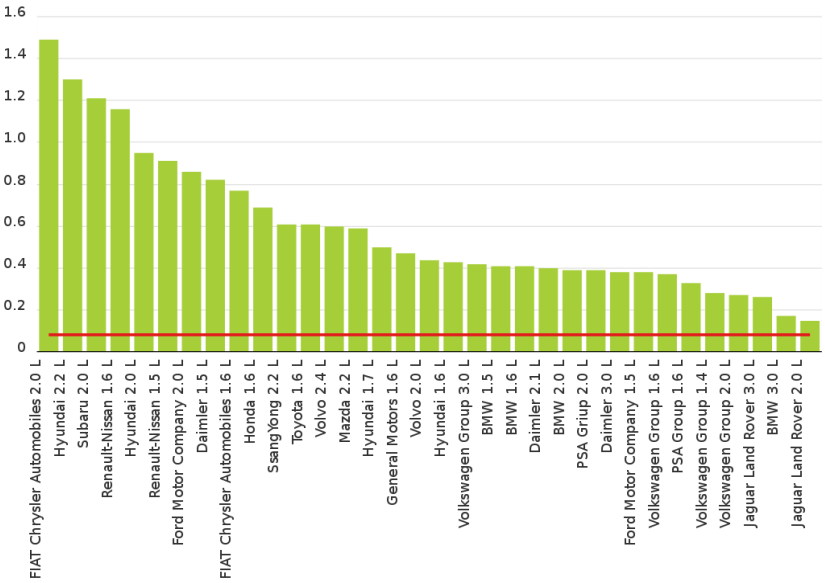
Exhibit 3: Average emissions on real-world value versus type-approval.



Source: ICCT – International Council on Clean Transportation

However, as illustrated in Exhibit 3, the divergence between type-approval emissions measured in laboratory and real-world based values is notable. The ICCT – International Council on Clean Transportation - has estimated that "while the type-approval CO2 values were successfully reduced by almost 31 % from 2001 to 2016, in reality there was only a 9 % reduction in terms of emissions on the road."

Exhibit 4: NOx real-world emissions by manufacturer and capacity in 2018.



Source: ICCT – International Council on Clean Transportation

Moreover, it was also estimated that "two-thirds cars (most on sale since 2015) still produce more than three times the 80g/1,000km limit when driven on the road" as can be seen in exhibit 4.

Volkswagen lawsuit initiated a long investigation towards manipulation of air pollution tests using malicious software.

Four years after the news about the Dieselgate scandal, Daimler was ordered to recall over 700,000 vehicles built between 2012 and 2015, after founding proof of non-compliance with the regulations on emissions of nitrogen oxides. In September 2019, Daimler was fined **€ 870 million** in Germany for "negligent violation of supervisory duties" in relation to not fully complying with emissions regulations. Additionally, the European Commission stated that BMW and Daimler conspired together to delay the introduction of two emissions cleaning systems between 2006 and 2014. Upon the news, Daimler's shares declined 3.6%, corresponding to a loss value of around **€2.1 billion**.

The extent of Daimler's involvement is still under investigations, however the company set aside another **€1.6 billion** to deal with recalls, government fines and lawsuits.

Steel Cartel

In November 2019, news broke the market of a new collusion between German manufactures Daimler, BMW and Volkswagen for creating a cartel to fix steel prices. Dishonest prices subsequent from the cartel activities were paid until at least 2016.

The accusation stated cooperation with steel producers during a 9-year period, between 2004 and 2013, in order to discuss uniform surcharges for buying the material used in the production of the vehicles and also agreeing on non-competition over emissions reduction technologies.

The raw material acquired is used for crankshafts, gearwheels or steering rods and it accounts for less than 1% of a car's final value.

Collectively, the manufactures were levied a **€ 100 million fine** and acknowledged their liability for the cartel. Daimler is set to pay **€ 23.5 million** for the dishonest activities.

These ongoing processes aforementioned, illustrate the damaging role played in Daimler's results and reputation and how impactful they can be for the value and trust on automotive companies. It is believed that in the future the attempts to collude not only with other competitors but with suppliers and other entities will significantly decreased, either caused by the more demanding and strict policies from authorities to control companies and its behaviours, or it is the result of Daimler's code of conduct adjustment.