



CATÓLICA
LISBON
BUSINESS & ECONOMICS

Mercedes-Benz Group

Equity Valuation

Sara Marinho

Dissertation written under the supervision of Professor José Carlos Tudela Martins

Dissertation submitted in partial fulfilment of requirements for Executive Master in Finance
and Control, at Universidade Católica Portuguesa, November 2024

Abstract

Title: Mercedes-Benz Group – Equity Valuation

Author: Sara Marinho

The aim of this dissertation is to forecast the target price for Mercedes-Benz Group, a premium automotive brand, at the beginning of 2025. The automotive industry is currently experiencing a period of market shifts accompanied by various challenges. The onset of the Covid-19 pandemic marked the beginning of this phase, with semiconductors shortage that led to a scarcity in vehicles supply. Subsequently, the industry faced further difficulties with rising interest rates, which contributed to a global market slowdown. Today, Mercedes-Benz Group and its' industry are focused on advancing electric vehicles technology, consistent with consumers' desires. The Mercedes-Benz Group operates in three segments: Mercedes-Benz Cars, Mercedes-Benz Vans and Mercedes-Benz Mobility, each with distinct specifications and strategies yet facing similar challenges. It is important to note that the first two segments primarily focused on vehicles sales, while the third focuses on financing business. This dissertation employs the Discounted Cash Flow Model, Dividend Discount Model and Multiples as valuation approaches to derive a final target price of 77,5€, supporting a BUY recommendation, consistent with the recommendation in Barclays' investment report. The Discounted Cash Flow Model estimates a share price of 84,9€, weighted at 80% in the final target price calculation. Furthermore, Dividend Discount Model was performed since Mercedes-Benz Group seeks to maintain a dividend payout ratio of 40% throughout the following years, with a share price of 47,1€, weighted as 10% of final target price. Finally, the final target price is complemented by a relative valuation approach, also weighted as 10%.

Key Words: Mercedes-Benz, Equity Valuation, Automotive Industry

Abstrato

Título: Mercedes-Benz Group – Equity Valuation

Autor: Sara Marinho

Esta dissertação foi elaborada com o propósito de prever o preço-alvo da Mercedes-Benz Group para o início de 2025. A indústria automóvel atravessa atualmente um período de mudanças no mercado, acompanhado por vários desafios. O início da pandemia COVID-19 marcou o começo desta fase, gerando uma escassez de semicondutores que levou a uma diminuição na oferta de veículos. Posteriormente, a indústria enfrentou dificuldades com o aumento das taxas de juros, o que contribuiu para uma desaceleração no mercado. Atualmente, a Mercedes-Benz e o setor automóvel, estão focados no desenvolvimento de tecnologia para veículos elétricos, de acordo com as preferências dos consumidores. A Mercedes-Benz opera através de três segmentos: Cars, Vans e Mobility. É importante destacar que os dois primeiros segmentos assentam principalmente na venda de veículos, enquanto o último tem como foco o negócio de financiamento. Esta dissertação utiliza o *Discounted Cash Flow Model*, o *Dividend Discount Model* e o método Múltiplos como abordagens de avaliação para alcançar um preço-alvo final de €77,5, destacando uma recomendação de COMPRA, em linha com a recomendação do relatório de investimentos do Barclays. O *DCF* apresenta um preço estimado por ação de €84,9, ponderado em 80% no cálculo do preço final. Foi ainda utilizado o *DDM*, que considera o objetivo de a Mercedes-Benz manter um rácio de distribuição de dividendos de 40% nos próximos anos, indicando um preço por ação de €47,1, ponderado em 10% do preço-alvo final. Por fim, o preço-alvo é complementado por uma abordagem de avaliação relativa, também ponderada em 10%.

Palavras-Chaves: Mercedes-Benz, Avaliação de Empresa, Industria Automóvel

Acknowledgements

Completing my academic journey has been one of the most challenging yet rewarding experiences of my life.

First and foremost, I want to express my deepest gratitude to my parents and Pedro for their unwavering support and words of encouragement throughout both my academic and personal journey.

I am also profoundly grateful to my advisor, Professor José Carlos Tudela Martins, for his invaluable support and guidance throughout the process of this dissertation, which proved to be indispensable.

Finally, I extend my heartfelt thanks to Gabriela Alves, a friend and colleague, whose assistance was instrumental in a critical aspect of my research.

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1. Literature Review

The following literature review discusses the most commonly used company valuation techniques and evaluates their effectiveness. The purpose of this dissertation is to determine the most suitable methods for valuing Mercedes-Benz Group.

2. Introduction to Valuation

As Oscar Wilde said in 1892, a cynic is “a man who knows the price of everything and the value of nothing”. Similarly, this also applies nowadays to investors who do not understand valuation process. Broadly speaking, valuation can be defined as “the estimation of an asset’s value based on variables perceived to be related to future investment returns” (Pinto, Henry, Robinson, Stowe and Cohen, 2010).

In summary, value can be distinguished into four different categories: intrinsic value, which is seen as the real value of an asset to an investor; going-concern value, that is the company’s value if it continues operations; liquidation value, which is important for companies in financial distress and reflects the value of their assets; and fair market value, that is the amount that an investor is willing to pay.

According to Damodaran (2012), several myths in valuation should be pointed out. While there are several quantitative valuation methods, it is crucial to understand that valuation is not objective, as these methods rely on assumptions about the future of the market or the company. Since the foundation of any valuation method is based on assumptions without absolute certainty, it is important to recognize that a method will not provide a “precise estimate of value” due to an inherent margin of error. There is high sensitivity to new information revealed, so that the value perceived by an investor can change easily.

Valuation methods can be divided into two groups - Cash Flow Valuation approach and Relative Valuation approach. Cash Flow Valuation is seen by Fernández (2001) as “the only conceptual correct valuation method”. Cash Flow Methodology can follow two different paths, Firm’s perspective, also known as enterprise value including Free Cash Flow to the Firm (FCFF) or Adjusted Present Value (APV) or Equity’s perspective, also known as equity value including Free Cash Flow to Equity (FCFE) or Dividend Discount Model (DDM).

3. Discounted-Cash Flow (DCF) Valuation

As Damodaran (2012) states, Discounted Cashflow Model “relates the value of an asset to the present value of expected future cashflows on that asset”. The foundation of the DCF model lies in future expectations for the company and relevant market. Therefore, the model’s accuracy depends on the quality of the assumptions used, namely Future Cash Flows, Discount Rate, Growth Rate and Terminal Value (Damodaran, 2011).

$$Value = \frac{CF_1}{1+r} + \frac{CF_2}{(1+r)^2} + \frac{CF_3}{(1+r)^3} + \dots + \frac{CF_t}{(1+r)^t} + \frac{TV_t}{(1+r)^t}$$

Equation 1: Calculating Value

Where,

CF_t = Cash Flow in period t

r = discount rate

t = period number

If the purpose is to get the total company’s value, Enterprise Value, it should be used FCFF and Weighted Average Cost of Capital (WACC) as discount rate. To Equity Value, it should be used FCFE and required rate of return on equity as discount rate (Fernández, 2007).

3.1. Firm Valuation

3.1.1. Discounted Cash Flow – Enterprise Value

Valuing a firm using FCFF is a common practice, but according to Damodaran (2010), two conditions shall be fulfilled. Firstly, the growth rate should be reasonable and aligned with expectations for the economy. Secondly, the growth rate should be compatible with company’s investments and depreciations.

Free Cash Flow to the Firm measures the amount of cash from operations available to all claimholders after accounting taxes, depreciations, working capital and capital expenditure. It can be calculated as follows:

$$FCFF = EBIT (1 - Tax Rate) + Depreciations \& Amortizations \\ - Capital Expenditure - \Delta Working Capital$$

Equation 2: Free Cash Flow to the Firm Calculation

Enterprise value for the company will be the following:

$$Enterprise\ Value = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{Terminal\ Value}{(1 + WACC)^t}$$

Equation 3: Enterprise Value Calculation

3.1.1.2. Weighted Average Cost of Capital (WACC)

In 1958, Modigliani and Miller stated that “an efficient market, characterized by the absence of taxes, bankruptcy costs and asymmetries, the financial structure does not affect its value”. Following this study, many researchers recognize that these conditions are not met in real markets, leading to the introduction of complements to this model.

When companies increase their debt and decrease their equity share, they obtain tax savings. and, consequently, the firm value will increase in the present value of tax benefits. It is important to consider that higher levels of debt result in higher costs and greater threat of bankruptcy (Intrigano, Palomba, Michele & Calce, 2016). Therefore, it is crucial to understand the optimal balance between debt share and equity for a given business. According to Fernández (2002), this optimal point should meet three conditions: “maximizing the firm’s value, maximizing share price and minimize WACC”. As a result, WACC has become the commonly used discount rate for valuing enterprise value.

For a business, the Weighted Average Cost of Capital is the expected cost of debt and equity taking into consideration the business’ capital structure:

$$WACC = \frac{D}{D + E} * K_d * (1 - T) + \frac{E}{D + E} * K_e$$

Equation 4: Weighted Average Cost of Capital Calculation

Where:

D = Market Value of Debt

E = Market Value of Equity

K_d = Cost of debt

K_e = Cost of Equity

T = Tax Rate

3.1.1.3. Cost of Debt

According to Damodaran (2012), the cost of debt is “the current cost to the firm of borrowing funds to finance projects”. Three variables determine the cost of debt: the market level of interest rates, the risk of default (also known as the default spread) and the tax benefits related to debt. The last variable is already included on WACC formula forementioned in section 3.1.1.2. Therefore, we can present cost of debt as the following:

$$K_d = \text{risk free rate} + \text{Default Spread}$$

Equation 5: Cost of Debt Calculation

3.1.1.4. Cost of Equity

Capital Asset Pricing Model (CAPM) arises in the early 1960s by William Sharp, Jack Treynor John Lintner and Jan Mossin. Accordingly to Koller, Goedhart & Wells (2005), CAPM “defines a stock’s risk as its sensitivity to the stock market”. This model is used to calculate cost of equity, which is the required return to shareholders:

$$r_e = r_f + \beta_i * (r_m - r_f)$$

Equation 6: Cost of Equity Calculation

Where:

r_e = cost of equity

r_f = risk free rate

β_i = Beta of security

r_m = Market return

Note: $r_m - r_f$ also known as Market Risk Premium

The risk-free rate is the speculative rate of return on an investment that carries no default risk. An example of such investments can be government default-free bonds. Koller, Goedhart & Wells (2005) states that 10 year zero-coupon bond should be used because longer maturities “might match the cash flow stream better, but their illiquidity can cause stable price and yields premiums”. Gupta et al. (2023) add that bond’s currency is an important factor and that the chosen bond should be in the same currency as company’s operations.

According to the Capital Asset Pricing Model, Beta determines the expected return for a given stock. In other words, and according to McKinsey (2010), Beta “measures how much the stock and the entire market move together”. It also measures the sensitivity of a stock’s return to the overall market movements. A Beta lower than 1 means that the stock has lower systematic risk and vice-versa. Beta can be calculated as follows:

$$\beta_i = \frac{\text{Covariance}(r_i, r_m)}{\text{Variance}(r_m)}$$

Equation 7: Beta Calculation

The surplus return of the market compared to the risk-free rate is referred to as Market Risk Premium (MRP). There is no consensus on how to calculate MRP, but Damodaran (2012) identifies three fundamentals factors that define this measure. First, variance in the underlying economy is a factor; emerging markets with high volatility will result in a higher market risk premium. Political risk is the second fundamental factor described by Damodaran, as it translates into economy instability. The last fundamental criteria is the market structure; if a market has large, diversified and stable companies, the risk of investing will be lower than in markets with smaller companies.

3.1.1.5. Terminal Value

The value of a company is the present value of its expected future cash flows. Since is not feasible to estimate cash flows indefinitely, Terminal Value represents the company value after this period (Viebig et al., 2008). According to Damodaran (2012), Terminal Value can be calculated using three different approaches:

- Liquidation Value: This approach has the fundamental assumption that the company will close their operations in a certain time in future, therefore liquidation value will be:

$$\text{Liquidation Value} = \text{Book Value of Assets} * (1 + \text{inflation rate})^{\text{aver.asset life}}$$

Equation 8: Liquidation Value Calculation

- Stable Growth Model: This approach assumes that the company will reinvest its earnings into new assets, thereby expanding its operations with a constant growth rate infinitely:

$$\text{Terminal Value} = \frac{FCFF_{n+1}}{WACC - g}$$

Equation 9: Terminal Value using Stable Growth Model Calculation

- Multiple: In this approach, the company's revenue for a given year is multiplied by a specific multiple. While this method is straightforward, it is more commonly used in relative valuation rather than in discount model valuation.

3.1.2. Adjusted Present Value

Adjusted Present Value (APV) is a valuation method introduced by Stewart Myers in 1974 and consists of a variant of the Discounted Cash Flow Model. According to Luerhrman (1997), "APV unbundles components of value and analyzes each one separately. In contrast, WACC bundles all financing side effect into the discount rate.". The APV model allow us to compute the value of a business without debt, assuming that the business is 100% equity financed, and then consider the impact of borrowing on business' value. It is important to understand that, although debt creates tax savings, it also increases risk of bankruptcy. So, the enterprise value (EV) can be calculated as follows:

$$EV = V^{unlevered} + PV(\text{interest tax shields}) - PV(\text{Financial Distress Costs})$$

Equation 10: Enterprise Value Calculation using Adjusted Present Value

When a company's capital structure is frequently changing, it is desirable to use Adjusted Present Value approach for valuation, as it is more reliable and flexible. However, some analysts may overestimate the business' value by overlooking the expected bankruptcy costs, which are challenging to estimate (McKinsey, 2010).

3.2. Equity Valuation

3.2.1. Discounted Cash Flow – Equity Value

The goal of this model is to determine Equity Value instead of Enterprise value. There are two primary distinctions in this model: the utilization of Free Cash Flow to Equity rather than Free Cash Flow to the Firm, and the application of cost of equity (explained in section 3.1.1.4.) as discount rate instead of WACC. Free Cash Flow to Equity (FCFE) can be calculated as described below:

$$FCFE = Net\ Income + Depreciations\&Amortizations - CAPEX - \Delta NWC \\ + \Delta Net\ Debt$$

Equation 11: Free Cash Flow to Equity Calculation

In this context, Equity Value can be shown as follows:

$$Equity\ Value = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + r_e)^t} + \frac{Terminal\ Value}{(1 + r_e)^t}$$

Equation 12: Equity Value Calculation

3.2.2. Dividend Discount Model

Damodaran (2012) defines Dividend Discount Model (DDM) as a valuation method in which “the value of a stock is the present value of expected dividends”. For an equity holder, dividends are the sole source of income over the years. Therefore, the value per share is the following:

$$Value\ per\ share\ of\ stock = \sum_{t=1}^{t=\infty} \frac{Dividend\ Per\ Share_t}{(1 + r_e)^t}$$

Equation 13: Dividend Discount Model: Value per share

In DDM, expected dividends are calculated based on assumptions about future growth rates in earnings and payout ratios. Since it is difficult to forecast dividends indefinitely, there are several variants in the dividend discount model in order to forecast dividends in the most accurate approach.

3.2.2.1. Gordon Growth Model

Gordon Growth Model is the simplest version of DDM. It assumes that a company's dividend will grow at a constant rate, making it suitable only for companies in a steady state. Therefore, equity value will be as follows:

$$Equity\ Value\ of\ a\ firm = \frac{Dividend\ Per\ Share_t}{r_e - g}$$

Equation 14: Gordon Growth Model - Equity Value Calculation

Analysts using Gordon Growth Model should consider that, as dividends grow at a constant rate, earnings must grow at a rate that allows maintaining the same payout ratio. For example, if growth rate for dividends exceeds the expected growth rate for earnings, the absolute dividend payment will eventually surpass the company's earnings in the long term.

Analysts should also consider a reasonable growth rate since a company cannot grow at a rate significantly higher than economy growth rate. Expected growth rate for a firm should take into consideration expected inflation and the expected real growth for the business.

3.2.2.2. Two-Stage Growth Model

Two-Stage Growth Model is slightly more complex than the Gordon Growth Model because it allows using two different growth rates. The first growth rate is typically higher and applies to an initial period, when the company is growing fast, while the second growth rate reflects the long-term period in which the company is expected to be in a steady state.

$$Equity\ Value = \sum_{t=1}^{t=n} \frac{Dividend\ Per\ Share_t}{(1 + r_e)^t} + \frac{Terminal\ Value}{(1 + r_e)^t}$$

Equation 15: Equity Value Calculation Using Two-Stage Growth Rate

Where:

$$Terminal\ Value = \frac{Dividend\ Per\ share}{r_e - g}$$

Equation 16: Terminal Value Calculation applied to Dividend

According to Damodaran (2012) there are three limitations in the two-stage growth model:

- Length definition of the initial growth period;
- Assumption that the company's growth rate will decline overnight (shift to second period);
- Terminal Value is very sensitive to growth rate and can easily lead to significant constraints in equity Value.

Regarding the second limitation presented, Fuller and Hsia (1984), presented the H Model. This model assumes that the growth rate will decline over the initial period until it reaches the steady growth rate for the long-term period.

4. Relative Valuation

Discounted Cash Flow Valuation approach estimates firm value by taking into consideration future expected cash flows. In contrast, Relative Valuation approach estimates firm value by

comparing to similar firms priced in the market. According to Esty (2000), the fundamental concept behind this valuation approach is that in an efficient market similar assets will be traded at similar prices. Relative Valuation is also an effective tool to compare business' performance to its competitors (Koller, et al., 2010).

4.1. Peer Group

Peer Group consists of firms that share similarities with the firm under valuation. Nevertheless, defining this can have challenges, as there is no consensus regarding which specific characteristics should be considered. According to Koller et al. (2010), analysts usually use company's industry in order to find the most accurate peer group. Sometimes, identifying peer group is straightforward, for example, when a company has the list of competitors publish in its annual report. Albuquerque (2009), even adds that peer group should include firms with similarities in size, diversification, financing issues, operating leverage and growth options.

4.2. Multiples

In order to use multiples approach, an analyst should decide from two different types of multiples:

- Multiples based on Capitalization, for example Price to Earnings, Price to Sales, Price to Book Value;
- Multiples based on Enterprise Value (EV), such as EV to EBITDA, EV to Sales or EV to unlevered FCF.

Furthermore, the analyst should understand if the best option is to use backward-looking, current or forward-looking multiples. Goedhart et al., (2010) states that “forward-looking multiples are indeed more accurate predictors of value”, due to the fact that they are aligned with the principle that a firm's value is the present value of expected future cash flows.

5. Industry Overview

The automotive industry contributes 3,6% to the world Gross Domestic Product (GDP). In 2023 there were produced almost 76 million of vehicles. Toyota Group was the main player

with 11 million of sold vehicles, followed by Volkswagen and Hyundai-Kia, with 9 million and 7 million cars, respectively.

As shown in Figure 1, nearly 50% of the global automotive market is accounted for by the top 10 automotive companies. Toyota and Volkswagen are market leaders in terms of market share and in units sold alike. Moreover, it is important to highlight that BYD, which sells exclusively fully electric cars, is among the top 10, demonstrating that electric vehicles represent the future for the market. Mercedes-Benz Group is also present in the top 10, with 2,6% market share, but there is a significant gap compared to the leader, Toyota, which has a 10,7% market share.

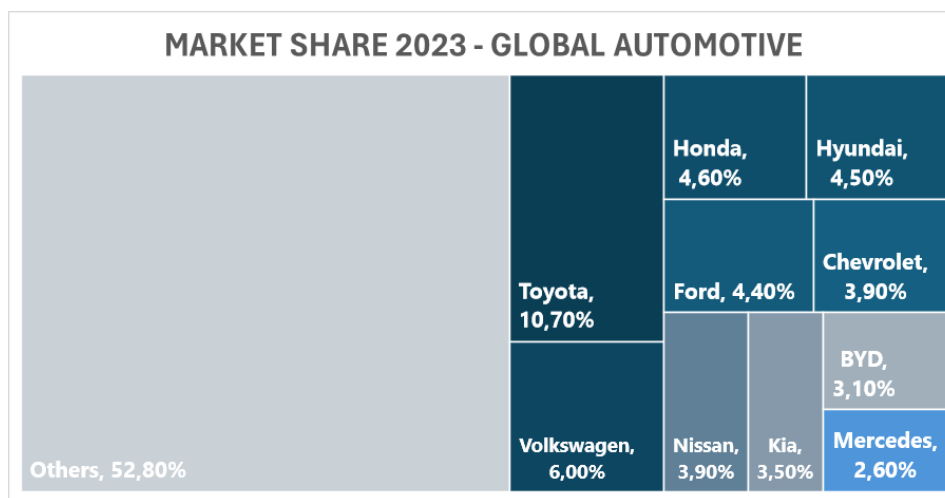


Figure 1: Global Automotive Market Share 2023 – Information from Statista

In the past few years, automotive industry has been facing several challenges, beginning with COVID-19 pandemic that led to two major constraints in the automotive sector. Initially, potential automotive customers delayed their decision to purchase new cars due to all the uncertainty that the world was facing at that time. Additionally, the pandemic caused several lockdowns, leading to production stoppages, including microchips (semiconductor) production in China. At that time, global automotive industry was highly dependent on Chinese microchips which slowed down global production and resulted in a vehicle supply deficit.

Furthermore, since early 2022, the industry has been dealing with high inflation rates and consequently high interest rates, partially due to the war between Russia and Ukraine. It is important to note that automotive industry is particularly sensitive to economic crisis.

In response to customers desires, the development of electric vehicles has become a central concern in automotive industry.

As illustrated in Figure 2, the number of electric cars sold has been increasing annually, exhibiting exponential growth in recent years. From 2013 to 2023, electric car sales showed a significant upward trend, indicating increasing market adoption and consumer interest in electric cars. In 2013, the automotive industry sold 200 000 electric cars, and 10 years later, in 2023, nearly 14 million electric cars were sold. Non-electric car sales show a slight decline over the period between 2016 and 2023. Despite this decline, non-electric vehicles still constitute the majority of new car sales, although their dominance is decreasing as electric car sales rise. Concerning the total number of cars sold, between 2016 and 2018, an average of 85 million cars were sold per year, marking the highest figures in the past 13 years. Additionally, in recent years, it is evident that the market is gradually recovering from the COVID-19 pandemic and high inflation rates.

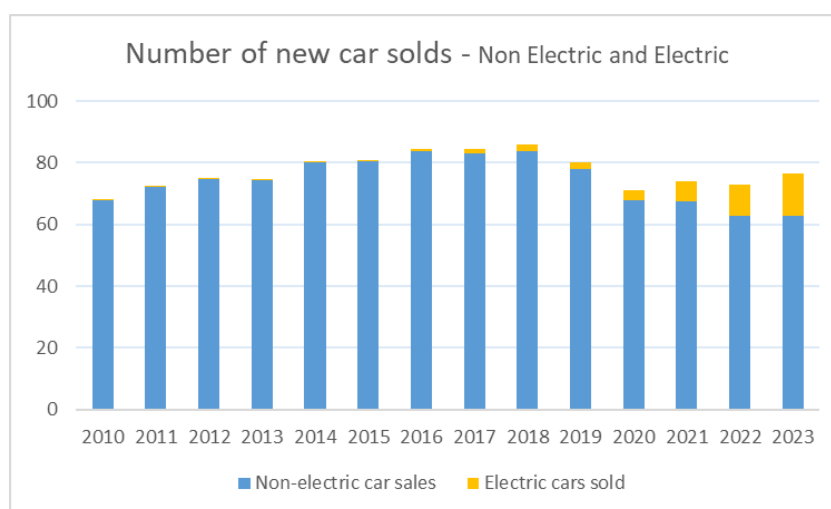


Figure 2: Number of new cars sold. Info from: <https://ourworldindata.org/grapher/car-sales>

Nowadays, electric vehicles are seen as the future of automotive industry, aiming to eradicate fossil fuels. Global industry is focused on developing PHEVs (Plug-in Hybrid Electric Vehicles) and BEVs (Battery Electric Vehicles – also known as Full Electric Vehicles). However, PHEVs are considered as a transition phase to fully electric vehicles as they use electric power consumption, for short distances, and fossil fuel, for longer routes.

Currently, some companies are attempting to develop hydrogen vehicles as an alternative to electric vehicles. While many studies suggest that hydrogen will be overly expensive, it is also seen as a disruptive chance to refuel vehicles much faster than current electric vehicles.

6. Company Overview

Currently, Mercedes-Benz ranked seventh place on “Best Global Brands 2023” outstanding as the most valuable luxury automotive company in the world. The history of Mercedes-Benz dates back to 1882, linked to the Engine Development. Nevertheless, there are many people who believe that such company was established in 1886, when the milestone of producing the first automobile in the world was achieved.

As a result of the automotive market evolution, in February of 2022, Daimler company spun off into two companies, Mercedes-Benz Group and Daimler Truck. As Ola Källenius, Chairman of the Board Management for Mercedes Benz Group, states these two companies have “specific customer groups, technology path and capital needs”, therefore the strategic split allowed each segment, trucks and passengers vehicles, to address their specific challenges.

Nowadays Mercedes Benz Group is split into three different segments: Mercedes-Benz Cars, Mercedes-Benz Vans and Mercedes-Benz Mobility (Appendix 1) and is present across all continents in the world (Figure 3). In a brief summary, Mercedes-Benz Cars and Vans aims to produce and sell vehicles worldwide and Mercedes-Benz Mobility target is to support sales (financial or leasing agreements) of the others group segments.

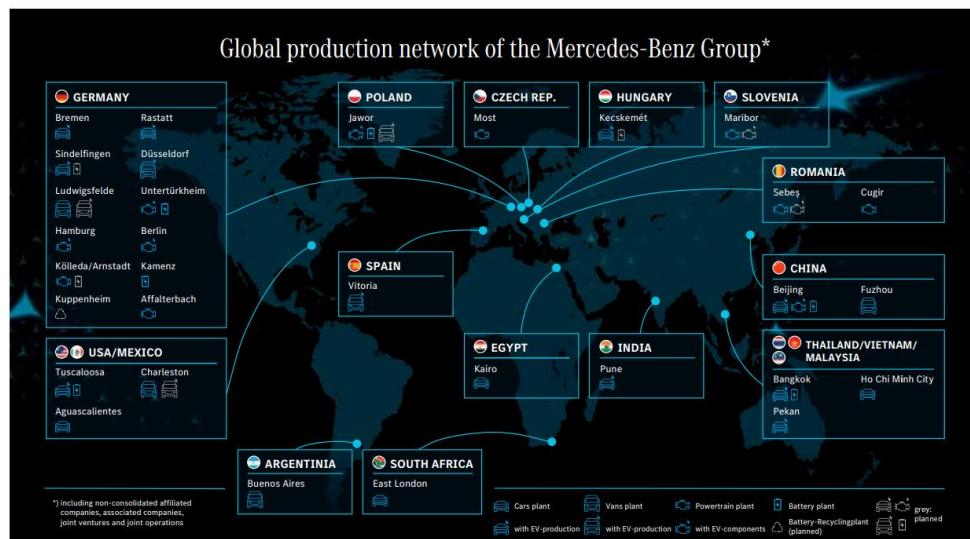


Figure 3: Global Production Plants

As shown in Figure 4, over the past 3 years, Mercedes-Benz Group’s total revenue has been increasing, but it is important to note the split between segments. From 2022 to 2023, Mercedes-Benz Vans was the segment that showed most significant growth, with 17,3% increase in revenue – an absolute variation of 2,9 million euros – and a 7,8% increase in units

sold (Figure 5). The impact of scarcity of semiconductors was most pronounced in 2021. Consequently, the variation in Mercedes-Benz Group's performance between 2022 and 2021 (a 12% increase in revenue and a 5,4% increase in units sold) could be attributed to delays in purchases caused by the lack of car availability. Overall, variations in revenue are higher than units sold variation. This reflects an increase in prices that could be attributed to higher inflation rates.

Revenue in millions €	2023	var yoy%	2022	var yoy%	2021
Mercedes-Benz Cars	108 137	0,6%	107 478	15,7%	92 899
Mercedes-Benz Vans	19 457	17,3%	16 581	17,1%	14 154
Mercedes-Benz Mobility	25 624	-1,3%	25 958	-3,3%	26 840
Mercedes-Benz Group	153 218	2,1%	150 017	12,0%	133 893

Figure 4: Revenue Mercedes-Benz Group and Segment 2023, 2022, 2021 – Information from Annual Report.
Assumption: Intragroup Reconciliation split according to revenue weight

Units Sales	2023	var yoy%	2022	var yoy%	2021	var yoy%	2020
	2 044		2 040		1 943		2 087
Mercedes-Benz Cars	100	0,2%	700	5,0%	900	-6,9%	200
Mercedes-Benz Vans	447 800	7,8%	415 300	7,5%	386 200	3,1%	374 700
Mercedes-Benz Group	2 491 900	1,5%	2 456 000	5,4%	2 330 100	-5,4%	2 461 900

Figure 5: Units Sales Mercedes-Benz Group and Segment – 2023 to 2020 – Information from Annual Report

Despite the total number of cars sold by Mercedes-Benz Cars remain similar in 2023 and 2022 (2,04 million of cars, with a variation of 0,1% between the two years), the structure of electric and non-electric vehicle sales changed. In 2022 Mercedes sold 0,3 million electrified vehicles (Fully Electric vehicles and Plug-Ins) and in 2023 this number rose to 0,4 million (Appendix 2). Notably, the number of plug-in vehicles decrease compensated by an increase in fully electric vehicles. This shift likely reflects the development of the electric technology, signaling plug-in vehicles may phase out. According to the change in sales structure, company's strategy will increasingly focus on electric vehicles.

6.1. Strategy

Mercedes-Benz has a clearly defined goal: "Build the world's most desirable cars" (Appendix 3) and in order to achieve this goal the company outlines eight strategic facts that are aligned with this goal.

Firstly, Mercedes invests around 7 billion Euros per year in research and development with the purpose of develop new software and features (Cutting edge technology) for the continuous positioning in the vanguard of the market. In addition, Mercedes is also focused on the continuous development of safety road traffic systems. Another key factor of the company strategy is the spotlight on markets segments with stable and high returns. Nowadays, Mercedes has 7 models, and the goal is to reduce to 4 in order to simplify production.

In terms of Electric Vehicles, Mercedes emphasizes that “Luxury and sustainability belongs together”. Going green involves not only using power electric solutions but also sourcing sustainable solutions, for example for raw materials that are used on vehicles production. Mercedes-Benz enforces “Responsible Sourcing Standards”, requiring business partners to follow sustainable practices throughout the value chain. Moreover, electric business is defined by a high pressure in costs consequently Mercedes has been focus on creating a desire on the brand.

With the aim of accomplish long term success and since Mercedes is an important part for their employees’ well-being, the company is also interested in the development of education, human and employees’ rights.

7. Mercedes-Benz Group Discounted Cash Flow Valuation

The first valuation model presented in this analysis is Discounted Cash Flow (DCF). As stated in literature review chapter, this model embraces several issues that are important in valuation, such as long-term perspective on Mercedes-Benz, flexibility in assumptions which leads to an accurate model, taking into consideration for example market development and time value of money which distinguishes the value of one euro today versus in the future.

7.1. Revenues Forecast

Mercedes-Benz Group, following its spin-off from Daimler, is organized into three different segments, Mercedes-Benz Cars, Mercedes-Benz Vans and Mercedes-Benz Mobility, therefore revenues forecast have been calculated separately for each segment reflecting the different growth rates and business specifications.

From 2021 to 2023 Mercedes-Benz Cars and Vans, had a positive evolution in Revenues results, driven by an increase in both units sold and average selling price. The upward trend contributed significantly to the overall revenue growth in millions of euros.

In order to forecast 2024, as showed in figure 6, several key assumptions were made. Firstly and based on the quarterly report of Mercedes-Benz Group, there are no major fluctuations expected in selling price. The company aims “to hold and defend pricing at current levels”, implying that the average price forecast for the second semester of 2024 will match the average price recorded in the first semester. Secondly, in the second semester of 2024 Mercedes-Benz Cars is expecting to have full availability in all new E-Class models leading to an increase in units sold comparing to the first semester. Lastly, for 2024 Mercedes-Benz Group expects that revenue will be aligned with prior-year levels, thus forecast for this year was taking into consideration a slightly increase (0,3% in Mercedes-Benz Cars and 0,5% in Mercedes-Benz Vans) consistent to the global automotive market expectations. Additionally, for 2024 there is no relevant information regarding Mercedes-Benz Mobility and reconciliation line.

Mercedes Benz Cars	1st Semester 2023	2nd Semester 2023	Full Year 2023	1st Semester 2024	2nd Semester 2024	Full Year 2024
Revenue in Million €	56 056	56 700	112 756	52 883	60 179	113 062
% on FY	36,6%	37,0%		34,4%	39,1%	
Units	1 019 229	1 024 871	2 044 100	959 690	1 088 835	2 048 525
% on FY	40,9%	41,1%		38,6%	43,7%	
Average Price	110 003	110 632	220 635	110 238	110 538	220 776

Mercedes Benz Vans	1st Semester 2023	2nd Semester 2023	Full Year 2023	1st Semester 2024	2nd Semester 2024	Full Year 2024
Revenue in Million €	9 738	10 550	20 288	9 667	10 724	20 391
% on FY	6,4%	6,9%		6,3%	7,0%	
Units	218 390	229 410	447 800	208 860	231 710	440 570
% on FY	8,8%	9,2%		8,4%	9,3%	
Average Price	89 539	92 132	181 671	92 567	92 567	185 133

Figure 6: Revenue Mercedes Benz Cars and Vans 2023 and 2024. Information from Annual Report - own analysis

To forecast revenue from 2025 to 2033, figure 7, it is crucial to account for the expected trends in the automotive market and inflation rate. Under a conservative approach it is assumed that Mercedes-Benz Cars will retain its 3,6% market share and Mercedes-Benz Vans 1,6% market share, and that the number of units sold each year will align with the market growth rate of the market forecasted by Statista. It should be noted that with the ongoing expansion of the electric vehicle market Mercedes-Benz Group could potentially increase its market share.

Regarding the average sales price, the assumption is that prices will rise with the inflations rates for the Euro Zone as projected by the International Monetary Fund. This analysis focuses on the Euro Zone exclusively, as all data considered in this dissertation is expressed in euros.

Mercedes Benz Cars	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenue in Million €	113 062	116 623	119 045	120 913	124 320	127 809	131 397	135 086	138 878	142 776
% of Change	0,3%	3,2%	2,1%	1,6%	2,8%	2,8%	2,8%	2,8%	2,8%	2,8%
Average Price	55 192	56 335	57 436	58 548	59 684	60 836	62 011	63 209	64 429	65 673
% of Change	0,1%	2,07%	1,95%	1,94%	1,94%	1,93%	1,93%	1,93%	1,93%	1,93%
Units	2 048 525	2 070 182	2 072 667	2 065 212	2 082 963	2 100 867	2 118 925	2 137 139	2 155 508	2 174 036
% of Change	0,2%	1,1%	0,1%	-0,4%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%
Automotive Market Units Sales	57 700 000	58 310 000	58 380 000	58 170 000	58 670 000	59 174 298	59 682 930	60 195 935	60 713 348	61 235 210
Mercedes Market Share	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%	3,6%
Market Growth	2,5%	1,1%	0,1%	-0,4%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%
Mercedes Benz Vans	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenue in Million €	20 391	20 875	21 259	21 528	22 019	22 518	23 029	23 552	24 086	24 632
% of Change	0,5%	2,4%	1,8%	1,3%	2,3%	2,3%	2,3%	2,3%	2,3%	2,3%
Average Price	46 284	47 242	48 166	49 098	50 051	51 018	52 003	53 007	54 030	55 074
% of Change	2,2%	2,07%	1,95%	1,94%	1,94%	1,93%	1,93%	1,93%	1,93%	1,93%
Units	440 570	441 861	441 377	438 472	439 924	441 382	442 844	444 311	445 782	447 259
% of Change	-1,6%	0,3%	-0,1%	-0,7%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Automotive Market Units Sales	27 300 000	27 380 000	27 350 000	27 170 000	27 260 000	27 350 298	27 440 895	27 531 793	27 622 991	27 714 492
Mercedes Market Share	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%
Market Growth	1,1%	0,3%	-0,1%	-0,7%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%

Figure 7: Revenue Mercedes Benz Cars and Vans forecast 2024-2033. Own analysis

For Mercedes-Benz Mobility, a year-on-year growth rate of 0,2% is assumed. While this may appear to be a modest growth rate, it is important to recognize that this business primarily focuses on leasing contracts, which typically span an average of five years. As a result, any price increases take time to materialize. Additionally, the financing business part is closely tied to interest rates. When interest rates are high, customers are more likely to postpone their decision to purchase a car, which can slow growth.

In conclusion and as showed in figure 8, revenues outlook for Mercedes-Benz Group has a consistent growth year over year.

Mercedes Benz Group	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenue	153 915	157 591	160 334	162 436	166 225	170 104	174 087	177 857	182 052	186 360
% of change	0,5%	2,4%	1,7%	1,3%	2,3%	2,3%	2,3%	2,2%	2,4%	2,4%

Figure 8: Revenue Mercedes Benz Group forecast 2024-2033 - Own Analysis

7.2. EBIT Forecast

7.2.1. Cost of Sales

Comparing to the previous years, in 2024 Mercedes-Benz Group had higher costs of sales due to expenses related with product life-cycles. Accordingly to this, for 2024 it is

assumed that the full year weight of cost of sales in revenues is in line with the first semester (actuals – 79,4%). Due to the evolution of technology and brand image it is assumed that every three years Mercedes-Benz Group will face higher expenses due to the necessary renew in vehicles.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cost of sales	103 218	115 997	118 839	122 270	124 497	126 664	129 039	131 318	134 382	138 295	140 507	143 821	148 044
% of Revenues	77,1%	77,3%	77,6%	79,4%	79,0%	79,0%	79,4%	79,0%	79,0%	79,4%	79,0%	79,0%	79,4%

Figure 9: Cost of Sales - Actuals and Forecast. Information from Annual Report - own analysis

7.2.2. Research and non-capitalized development costs

In 2024 Mercedes-Benz Group expects a reduction in research and non-capitalized development costs caused by a decrease in expenses in connections with existing vehicles models. Therefore, for this year it is assumed that this costs will be 3,9% of total revenues and for 2025 to 2033 will be aligned with 2023 (4,1%).

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Research and non-capitalized development costs	5 467	5 602	6 230	6 003	6 408	6 519	6 605	6 759	6 917	7 079	7 232	7 402	7 578
% of Revenues	4,1%	3,7%	4,1%	3,9%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%

Figure 10: Research and non-capitalized development costs Actuals and Forecast. Information from Annual Report - own analysis

7.2.3. SG&A – Selling General & Administrative Expenses

Selling Expenses includes all direct selling expenses and General Administrative Expenses includes expenses which are not correlated with production, sales and research and development departments. Along these lines it is not expected major fluctuations in SG&A costs, therefore, outlook from 2024 until 2033 is made under the assumption that the % in total revenues is the average between 2021 to 2023.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
SG&A	12 002	12 066	12 416	12 883	13 191	13 420	13 596	13 913	14 238	14 571	14 887	15 238	15 599
% of Revenues	9,0%	8,0%	8,1%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%

Figure 11: SG&A Actuals and Forecast. Information from Annual Report - own analysis

7.2.4. Other costs for EBIT Calculation

Regarding other operation income/expense, profit/loss on equity method investments and other financial income/expense the forecast from 2024 to 2033 take into consideration the average percentage of revenues between 2021 to 2023. The other financial income/expenses includes income and expense from changes in discount rates of provisions and income/expenses from equity instruments. In 2023, Mercedes-Benz Group had a total of 7 joint-ventures and 10 associated companies. Mercedes-Benz Group investments in Daimler Truck and Beijing Benz Automotive Co, Ltd represents a significant portion of the profits on equity method investments. It is also important to note that in 2023 there was an increase in this profits due to the sale of shares of Mercedes-Benz Grand Prix Ltd.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Other Operating Income/Expense	-1 153	-2 034	-1 690	-1 703	-1 744	-1 774	-1 798	-1 840	-1 882	-1 927	-1 968	-2 015	-2 062
% of Revenues	-0,9%	-1,4%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%
Profit/Loss on equity method investments (-/+)	-1 352	-1 732	-2 129	-1 823	-1 867	-1 899	-1 924	-1 969	-2 015	-2 062	-2 107	-2 157	-2 208
% of Revenues	-1,0%	-1,2%	-1,4%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%
Other Financial income/ expense,net (-/+)	-317	-340	-108	-108	-111	-113	-114	-117	-120	-123	-125	-128	-131
% of Revenues	-0,2%	-0,2%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%

Figure 12: Other Costs Actuals and Forecast. Information from Annual Report - own analysis

7.2.5. EBIT Conclusion

From 2021 to 2023, Mercedes-Benz Group had an average of 12,8% EBIT (Earnings before interests and taxes) as a percentage of revenue, reflecting a period of relative stability in terms of operational efficiency. In 2024 there is a slight reduction in EBIT, which is attributed to increased costs, particularly in the Cost of Sales. The extra costs are linked to product life cycles, likely indicating that new models or upgrades required significant investment, which squeezed margins despite ongoing revenue growth. with extra costs due to product life cycles. Every 3 years, a small decrease in EBIT is observed, which can be tied to business cycles. The analysis assumes there is no expected crisis in the sector, which implies a stable macroeconomic environment. However, the note on the Electric Vehicle Market is crucial. This market is rapidly changing, presenting both opportunities and risks, potentially revenue growth and/or unexpected development costs.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenues	133 893	150 017	153 218	153 915	157 591	160 334	162 436	166 225	170 104	174 087	177 857	182 052	186 360
Cost of sales	103 218	115 997	118 839	122 270	124 497	126 664	129 039	131 318	134 382	138 295	140 507	143 821	148 044
% of Revenues	77,1%	77,3%	77,6%	79,4%	79,0%	79,0%	79,4%	79,0%	79,0%	79,4%	79,0%	79,0%	79,4%
SG&A	12 002	12 066	12 416	12 883	13 191	13 420	13 596	13 913	14 238	14 571	14 887	15 238	15 599
% of Revenues	9,0%	8,0%	8,1%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%	8,4%
Research and non-capitalized development costs	5 467	5 602	6 230	6 003	6 408	6 519	6 605	6 759	6 917	7 079	7 232	7 402	7 578
% of Revenues	4,1%	3,7%	4,1%	3,9%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%	4,1%
Other Operating Income/Expense	-1 153	-2 034	-1 690	-1 703	-1 744	-1 774	-1 798	-1 840	-1 882	-1 927	-1 968	-2 015	-2 062
% of Revenues	-0,9%	-1,4%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%
Profit/Loss on equity method investments (-/+)	-1 352	-1 732	-2 129	-1 823	-1 867	-1 899	-1 924	-1 969	-2 015	-2 062	-2 107	-2 157	-2 208
% of Revenues	-1,0%	-1,2%	-1,4%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%	-1,2%
Other Financial income/ expense,net (-/+)	-317	-340	-108	-108	-111	-113	-114	-117	-120	-123	-125	-128	-131
% of Revenues	-0,2%	-0,2%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%	-0,1%
EBIT	16 028	20 458	19 660	16 394	17 218	17 517	17 033	18 161	18 585	18 254	19 432	19 890	19 541
% of Change		27,6%	-3,9%	-16,6%	5,0%	1,7%	-2,8%	6,6%	2,3%	-1,8%	6,5%	2,4%	-1,8%
% of Revenues	12,0%	13,6%	12,8%	10,7%	10,9%	10,9%	10,5%	10,9%	10,9%	10,5%	10,9%	10,9%	10,5%

Figure 13: EBIT Actuals and Forecast. Information from Annual Report - own analysis

7.3. Free Cash Flow to the firm – FCFF - Calculation

7.3.1. Capital Expenditure – CAPEX

Mercedes-Benz Group has established a plan for capital expenditure (CAPEX), with a strong focus on Electric Vehicles development. The company is committed to creating its own green high power charging stations from 2023 to 2030, aiming to establish 2 000 charging hubs and 10 000 charging points worldwide. The first hubs were already opened in 2023 in China, USA and Germany. Aligned with this, Mercedes-Benz Group is implementing short term initiatives to boost vehicles sold. For instance, EQ Vehicles can be charged for free during 6 months and all 2024 EQ Vehicles models can be charged for free during 2 years in USA on Mercedes-Benz's charging stations. Another important part in the CAPEX plan is Mercedes' ambition to achieve carbon neutral value chain until 2039. Therefore, significant investments are expected in the coming years, with a gradual reduction projected by 2030.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
CAPEX	27 946	18 369	21 471	23 087	23 639	22 447	22 741	21 824	22 333	22 856	22 232	21 846	21 431
% of Revenues	20,9%	12,2%	14,0%	15,0%	15,0%	14,0%	14,0%	13,1%	13,1%	13,1%	12,5%	12,0%	11,5%

Figure 14: CAPEX Actuals and Forecast. Information from Annual Report - own analysis

7.3.2. Depreciation & Amortization – D&A

To calculate Depreciation and Amortizations, the gross value of non-current assets was determined by reflecting only the assets that are subject to depreciation/amortization, specifically Property, Plant & Equipment and Intangible Assets. In 2023, the D&A as a percentage of total Gross Non-Current Assets was 8,7%, and it is assumed that this percentage

will remain constant throughout the forecast period. From 2024 to 2033, the Non-Current Assets Gross assets are calculated by summing the previous year's assets, adding current year's CAPEX, and subtracting the current year's D&A.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
D&A	15 066	13 865	13 697	14 450	15 220	15 805	16 365	16 805	17 250	17 650	18 000	18 300	18 440
<i>% of Non Current Assets</i>	9,8%	8,9%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%	8,7%
Non-Current Assets Gross	153 054	155 273	157 018	165 655	174 074	180 716	187 092	192 110	197 193	202 399	206 631	210 178	213 169

Figure 15: D&A Actuals and Forecast. Information from Annual Reports - own analysis

7.3.3. Net Working Capital

Working Capital is an operational metric that reflects the amount of cash that a company as available after settling all liabilities.

Mercedes-Benz Group divides inventories into three categories: Raw Materials, Work in Progress and Finished Goods. It should be noted that the increase in inventory from 2022 to 2023 was primarily due to the inclusion of more expensive vehicles in the finished goods category. Therefore, to predict inventories, days inventory outstanding (DIO) is assumed to be the average of 2022 and 2023 (82 days), excluding 2021, as it appears to be too low in comparison to the most recent trend and market development.

Regarding Receivables, it is assumed that number of Days Sales Outstanding (DSO) will remain in line with 2023 levels, as it is expected that Mercedes-Benz will attempt to minimize this metric as much as possible without negatively impacting business operations. From 2021 to 2023, Days Payable Outstanding (DPO) has been constant, therefore, it is assumed that there will be no significant changes in this metric during the forecast period.

It is important to note that Cash & Cash Equivalents only includes cash flow from operating activities, excluding all financing activities.

Mercedes-Benz Group is currently executing a disinvestment plan that includes the sale of operational assets from its Russia operations, which is reflected in Assets Held for Sale/Discontinued Operations. For forecasting purposes, the primary assumption is that in 2024, a portion of these assets will be available for sales, stabilizing at 0,1% of revenues from 2025 onwards.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2032
Inventories	21 466	25 621	27 294	27 544	28 046	28 534	29 069	29 583	30 273	31 154	31 653	32 399	33 350
DIO as a % of COGS	76	81	84	82	82	82	82	82	82	82	82	82	82
Cash & Cash Equivalents	3 300	1 900	700	1 326	1 358	1 382	1 400	1 432	1 466	1 500	1 533	1 569	1 606
% of Revenues	2,5%	1,3%	0,5%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%
Income Tax - Receivable	2 873	3 086	3 419	3 300	3 379	3 438	3 483	3 564	3 648	3 733	3 814	3 904	3 996
% of Revenues	2,1%	2,1%	2,2%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%	2,1%
Receivables	7 673	8 100	7 281	7 314	7 489	7 619	7 719	7 899	8 083	8 273	8 452	8 651	8 856
DSO as a % of Revenues	21	20	17	17	17	17	17	17	17	17	17	17	17
Loans - Receivables	33 670	37 312	38 469	38 644	39 567	40 256	40 783	41 735	42 709	43 709	44 655	45 708	46 790
DSO as a % of Revenues	92	91	92	92	92	92	92	92	92	92	92	92	92
Receivables - Others	3 100	2 717	2 513	2 524	2 585	2 630	2 664	2 726	2 790	2 855	2 917	2 986	3 057
DSO as a % of Revenues	8	7	6	6	6	6	6	6	6	6	6	6	6
Prepaid Expenses - Short-Term	445	451	445	447	458	466	472	483	494	506	517	529	541
% of Revenues	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Assets Held for Sale/Discontinued Operations -	3 142	0	795	799	158	160	162	166	170	174	178	182	186
% of Revenues	2,3%	0,0%	0,5%	0,5%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Other Current Assets	568	761	425	427	437	445	451	461	472	483	493	505	517
% of Revenues	0,4%	0,5%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Deferred Tax - Asset - Long-Term	3 434	3 725	4 127	3 984	4 079	4 150	4 204	4 302	4 403	4 506	4 603	4 712	4 824
% of Revenues	2,6%	2,5%	2,7%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%
Prepaid Expenses - Long-Term	121	83	169	170	174	177	179	183	188	192	196	201	206
% of Revenues	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Payables	15 169	17 136	17 837	18 352	18 686	19 011	19 368	19 710	20 170	20 757	21 089	21 587	22 220
DPO as a % of COGS	54	54	55	55	55	55	55	55	55	55	55	55	55
Income Tax - Payable	1 457	1 416	948	1 203	1 231	1 253	1 269	1 299	1 329	1 360	1 390	1 422	1 456
% of Revenues	1,1%	0,9%	0,6%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%
Other Current Liabilities	18 247	19 393	18 194	19 087	19 543	19 883	20 143	20 613	21 094	21 588	22 056	22 576	23 110
% of Revenues	13,6%	12,9%	11,9%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%
Deferred Tax - Liability - Long-Term	4 488	6 910	7 714	7 419	7 765	7 815	7 961	8 124	8 325	8 514	8 701	8 905	9 117
% of Revenues	3,4%	4,6%	5,0%	4,8%	4,9%	4,9%	4,9%	4,9%	4,9%	4,9%	4,9%	4,9%	4,9%
Customer Advances - Long-Term	408	424	454	456	467	475	481	493	504	516	527	539	552
% of Revenues	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Deferred Revenue - Long-Term	5 155	4 890	4 737	4 759	4 872	4 957	5 022	5 139	5 259	5 382	5 499	5 628	5 762
% of Revenues	3,9%	3,3%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%	3,1%
Working Capital	34 868	33 587	35 753	35 204	35 164	35 862	36 342	37 157	38 013	38 967	39 749	40 688	41 711
Net Working Capital		-1 281	2 166	-549	-40	698	480	815	856	954	782	939	1 024

Figure 16: Net Working Capital Calculation Actuals and Forecast. Information from Annual Reports - own analysis

7.3.4. Taxes on EBIT

Mercedes-Benz Group calculates taxes in accordance with local tax regulations applicable for each plant. In this analysis, it is assumed that for the outlook period, the percentage of taxes on total EBIT is the average of the percentages recorded in 2021, 2022 and 2023. However, this percentage may change due to several factors. Firstly, changes in local regulation could modify the tax percentage presented. Secondly, in the long-term, the establishment of new facilities across different countries may result in a shift in the average tax percentage.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
EBIT	16 028	20 458	19 660	16 394	17 218	17 517	17 033	18 161	18 585	18 254	19 432	19 890	19 541
Taxes on EBIT	-4 761	-5 495	-5 553	-4 635	-4 867	-4 952	-4 815	-5 134	-5 254	-5 160	-5 493	-5 623	-5 524
<i>% of EBIT</i>	29,7%	26,9%	28,2%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%

Figure 17: Taxes on EBIT Actuals and Forecast. Information from Annual Report - own analysis

7.3.5. FCFF Conclusion

In conclusion, Free Cash Flow to the Firm (FCFF) is in line with the assumptions that were used before. In order to maintain the business and company growth, it is possible to see in figure 18, that FCFF is slightly lower in years with major investments to develop vehicles that are in the end of their life cycle. Mercedes-Benz Group forecast shows a stable company growth throughout the years.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
EBIT	16 028	20 458	19 660	16 394	17 218	17 517	17 033	18 161	18 585	18 254	19 432	19 890	19 541
Taxes on EBIT	-4 761	-5 495	-5 553	-4 635	-4 867	-4 952	-4 815	-5 134	-5 254	-5 160	-5 493	-5 623	-5 524
% of EBIT	29,7%	26,9%	28,2%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%	28,3%
D&A	15 066	13 865	13 697	14 450	15 220	15 805	16 365	16 805	17 250	17 650	18 000	18 300	18 440
CAPEX	27 946	18 369	21 471	23 087	23 639	22 447	22 741	21 824	22 333	22 856	22 232	21 846	21 431
Change in Net Working Capital	0	-1 281	2 166	-549	-40	698	480	815	856	954	782	939	1 024
FCFF	-1 613	11 740	4 167	3 671	3 972	5 225	5 361	7 193	7 392	6 934	8 924	9 782	10 002

Figure 18: FCFF Actuals and Forecast. Information from Annual Report - own analysis

7.4. Weighted Average Cost of Capital Estimation

7.4.1. Cost of Debt

Mercedes-Benz Group's cost of debt is the weighted average of its Traded Debt (Bonds) and Non-Traded Debt, as these two categories are traded at different rates.

Regarding Traded Debt, and according to detailed information from Refinitiv, Mercedes-Benz has bonds issued in several countries. Therefore, the market value of these bonds in euros and the cost of traded debt in euros were calculated (Appendix 4).

First, the market value of Mercedes' bonds, totaling 50 133 million euros, was determined based on the amount outstanding, the bond's last price and exchange rate between local currency and euro.

Second, the yield to maturity (YTM) in Euros was calculated for each bond. This calculation considered the YTM in the issued currency, from which the government bond yield (with corresponding maturity of 2, 5 or 10 years) in the issuing country was subtracted, and the government bond yield for Euro Zone was added (Appendix 5). This resulted in a cost of traded debt of 2,67%.

Regarding Non-Traded Debt, the cost of debt is calculated by adding the risk-free rate and spread based on the company's credit rating. The risk-free rate used was 2,3%, reflecting the 10-Year German Bond as of end of August 2024. According to appendix 6, Mercedes-Benz Group is classified as a A2/A rating company. Using Damodaran's information for the spread

of large non-financial firms, the applicable spread is 1,07% (appendix 7). Therefore, cost of debt for non-traded debt is 3,37%.

To calculate Market Value of Non-traded Debt, Damodaran formula (equation 17) was applied:

$$MV \text{ Non-traded Debt} = \text{Interest Expenses} \times \frac{1 - \frac{1}{(1 + k_d)^T}}{k_d} + \frac{BV \text{ Non Traded Debt}}{(1 + k_d)^T}$$

Equation 17: Damodaran Formula: Calculation Market Value Non Traded Debt

After analyzing the annual report, the Book Value of Non traded Debt is determined to be 50 648 million euros. The following step involved understanding the average maturity of Non-traded debt. Using appendix 8, which contains information as of the end of June 2024, an analysis was conducted comparing the maturity of all financial liabilities to bonds maturities, in order to collect non traded debt maturity. This resulted in an average maturity of 1,03 years for non-traded debt. The forecast for interest expenses in 2024 is 213 million euros, assuming that the percentage of EBIT (1,3%) remains constant when compared to 2023. Consequently, Market Value of Non-traded Debt is 50 650 million euros, representing approximately 50% of all financial liabilities.

As reflected in figure 19, the estimated 3,02% cost of debt of Mercedes-Benz Group is the weighted average between Non-traded debt and Traded Debt.

Cost of Debt	3,02%
Non Traded	3,37%
Spread	1,07%
Rf	2,30%
MV Non traded Debt	50 650
Traded	2,67%
MV Traded Debt	50 133

Figure 19: Cost of Debt – own analysis

7.4.2. Cost of Equity

In alignment with section 3.1.1.4, the cost of equity was calculated using Capital Asset Pricing Model (CAPM). The Mercedes-Benz Group operates globally, but its manufacturing plants are not located in every country where Mercedes conduct business. Therefore, for the Equity Risk Premium estimation, only vehicles manufacturing plants are considered (appendix 9), excluding spare parts plants, to assess the combine the risks associated with the various manufacturing locations. A weighted average of units produced, relative to each country's risk

premium, was calculated to arrive at an overall exposure to country-specific risks, namely equity risk premium of 6,7% (figure 20).

	Units Produced	Country ERP
Argentina	17 500	18,8%
South Africa	90 000	7,8%
Mexico	295 000	6,4%
USA	51 600	4,1%
Germany	835 700	4,1%
Hungary	174 000	6,4%
Spain	157 500	6,1%
Egypt	30 000	13,3%
India	16 497	6,8%
China	606 000	5,0%
Thailand	200 000	6,1%
Vietnam	17 500	7,8%
Malasia	10 000	5,6%
Weighted Average ERP		6,7%

Figure 20: Equity Risk Premium (ERP) Estimation - Own Analysis

According to Koller et al., the industry Beta should be used instead of specific beta for the company, since “companies in the same industry face similar operating risk”. Therefore, to measure the company’s volatility relative to the market, namely Beta, a value of 1,52 was used. This information was sourced from Damodaran Industry Betas for automotive industry with respect of January 2024 (most recent information).

As a result, the estimated cost of equity, or the required rate of return for an investment in Mercedes-Benz Group, is 12,5%.

7.4.3. WACC Final Considerations

It is important to note that for WACC (Weighted Average Cost of Capital) calculations, the assumed tax rate is 27,6% which reflects the effective tax rate reported in Mercedes-Benz Group’s Annual Report.

As of 27 of August 2024, Mercedes-Benz’s share price was 62,31€ with 1041 million shares outstanding. Therefore, equity market value used for this valuation is 64 683 million euros. Accordingly, equity accounts for 40% of total firm value while debt represents 60% (as shown in figure 21).

The WACC, which incorporates the variables estimated in section 7.4, is 6,2% for Mercedes-Benz Group.

WACC	6,2%
Cost of Debt	3,02%
Cost of Equity	12,5%
Effective tax rate	27,60%
D/V	60,8%
E/V	39,2%

Figure 21: WACC Calculation – own analysis

7.5. Discount Cash Flow Model – Final Considerations

The enterprise value of Mercedes-Benz Group is calculated as the sum of future discounted FCFF and the Terminal Value (Figure 22). The discounted FCFF accounts for the forecasted FCFF (as explained in section 7.3.5) and the discount factor, which is reflected by WACC (6,2%) taking into consideration time value of money.

According to the Mercedes-Benz Group's Annual Report, the firm is not expected to experience significant growth, as its goal is to remain a premium brand with limited access to its vehicles. Therefore, to estimate the Terminal Value, a perpetuity model with a growth rate of 1,9% was applied. This growth rate is based on the forecasted inflation rate by the International Monetary Fund for the year 2030. Consequently, the enterprise value is 172 991 million euros.

	2025	2026	2027	2028	2029	2030	2031	2032	2033	Terminal Value
FCFF	3 972	5 225	5 361	7 193	7 392	6 934	8 924	9 782	10 002	231 894
Discount Factor	0,94	0,89	0,83	0,78	0,74	0,70	0,65	0,62	0,58	0,55
Discounted FCFF	3 738	4 629	4 471	5 646	5 461	4 822	5 841	6 026	5 799	126 558
										Enterprise Value
										172 991

Figure 22: Enterprise Value – own analysis

The final step in the Discounted Cash Flow Model involves bridging the enterprise value and equity value, which represents the portion available for equity shareholders (Figure 23). A key assumption is that the Mercedes-Benz Group will not change its number of outstanding shares in 2024, when compared to June of 2024.

In conclusion, based on the analysis conducted through the application of Discounted Cash Flow Model, it is expected that Mercedes' Share Price will rise 36,3%, reaching 84,91€ per share.

Enterprise Value	172 991
Total Debt	100 782
Cash and Cash Equivalent	15 972
Pension	1 122
Non-Controlling Interests	270
Equity Value	86 789
Shares	1 022 100 000
Share Price	84,91
Base Price	62,31
Gains	36,3%

Figure 23: DCF Results

7.6. Sensitive Case Analysis

A sensitive case analysis is essential to be performed, as even slightly changes in assumptions within the DCF Model can significantly change the initial results.

WACC and Growth Rate for terminal value calculation plays an important role in model assumptions and have a substantial impact on the enterprise value. Therefore, the first sensitive case analysis involves adjusting both WACC and Growth Rate in +/- 10bps (basis points) to evaluate their effect on the final share price (Figure 24).

Share Price 84,91		WACC								
		5,8%	5,9%	6,0%	6,1%	6,2%	6,3%	6,4%	6,5%	6,6%
Growth Rate	1,5%	90,09	85,83	81,76	77,86	74,13	70,56	67,13	63,84	60,68
	1,6%	93,20	88,78	84,55	80,52	76,66	72,96	69,42	66,02	62,76
	1,7%	96,46	91,86	87,48	83,29	79,29	75,46	71,79	68,28	64,91
	1,8%	99,88	95,10	90,54	86,19	82,04	78,07	74,27	70,64	67,16
	1,9%	103,47	98,49	93,74	89,22	84,91	80,80	76,86	73,10	69,50
	2,0%	107,25	102,05	97,11	92,40	87,92	83,65	79,57	75,67	71,94
	2,1%	111,23	105,79	100,64	95,74	91,07	86,63	82,39	78,35	74,48
	2,2%	115,42	109,74	104,35	99,24	94,38	89,76	85,35	81,15	77,14
	2,3%	119,84	113,89	108,26	102,92	97,85	93,03	88,45	84,08	79,92

Figure 24: Sensitive Analysis - WACC and Growth Rate – own analysis

The automotive Industry is currently navigating a challenging period due to the global development of electric vehicles. Firstly, there is uncertainty regarding the rate of consumer adoption as electric vehicles are typically more expensive than traditional fuel powered vehicles. Secondly, electric vehicles a significant path of development ahead, meaning that the cost of sales could be higher or lower than the expected, depending on the efficiency of ongoing research. Consequently, it was performed a sensitive case analysis with 10bps variations in both Revenue and Cost of Sales. It is crucial to note that with variations of a total of 20bps in both variables share price can fluctuate between 76,11€ and 93,72€ (figure 25).

Share Price 84,91		Revenues								
		-0,4%	-0,3%	-0,2%	-0,1%	0,0%	0,1%	0,2%	0,3%	0,4%
Cost of Sales	-0,40%	82,88	85,34	87,79	90,25	92,70	95,16	97,61	100,07	102,52
	-0,30%	80,94	83,39	85,85	88,30	90,76	93,21	95,66	98,12	100,57
	-0,20%	78,99	81,44	83,90	86,35	88,81	91,26	93,72	96,17	98,63
	-0,10%	77,04	79,50	81,95	84,41	86,86	89,31	91,77	94,22	96,68
	0,0%	75,09	77,55	80,00	82,46	84,91	87,37	89,82	92,28	94,73
	0,10%	73,15	75,60	78,06	80,51	82,96	85,42	87,87	90,33	92,78
	0,20%	71,20	73,65	76,11	78,56	81,02	83,47	85,93	88,38	90,84
	0,30%	69,25	71,71	74,16	76,61	79,07	81,52	83,98	86,43	88,89
	0,40%	67,30	69,76	72,21	74,67	77,12	79,58	82,03	84,49	86,94

Figure 25: Sensitive Analysis - Revenue and Cost of Sales – own analysis

8. Dividend Discount Model

A part of Mercedes-Benz Group strategy is based on maintaining a constant dividend payout ratio of 40% over time, which is why the Dividend Discount Model (DDM) is used as a complementary valuation method to Discounted Cash Flow Model. However, it is important to recognize that DDM application has some limitations. Specifically, this method does not account for asset's future growth, which is crucial to consider, as it means that investments, for example development of Electric Vehicles, are not reflected in future. Consequently, this method may not fully capture the company's upcoming growth potential. In other words, Mercedes-Benz has a business model of capital-intensive business, meaning the company's value is not only tied do dividends paid to shareholders, but also to its asset's value.

The Dividend Discount Model valuation process was divided into four phases: first, the calculation of net profit, second, the estimation of the number of outstanding shares, third, the estimation of dividends per share and finally, the assessment of terminal value.

For the net profit calculation, the same assumptions as those used in discounted cash flow model (Appendix 10) were applied. Regarding Interest Income/Expenses and profit attributable to non-controlling interests, it is assumed that the percentage relative to EBIT and Net Profit, respectively, would remain consistent with that observed in 2023.

From January 2023 until July 2025, Mercedes-Benz Group has been engaged in a share buyback process. In 2023, there was approximately 29 million treasury shares, and by June 2024 this number had increased to 48 million. For the purpose of this analysis, it is assumed that there will be no further share buyback in 2024 and that, by 2025, the number of treasury

shares will reach approximately 50 million. Therefore, the number of outstanding shares is estimated to be 1 022 million in 2024, and 1 019 million from 2025 onwards.

Under these assumptions, it is expected that dividend per share over the next 10 years will be on average 5,2€ per share (figure 26).

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Dividend to Shareholders	4 755	4 994	5 081	4 940	5 268	5 391	5 295	5 636	5 769	5 668
Total Shares	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447	1 069 837 447
Treasury Shares	47 737 447	50 000 000	50 000 000	50 000 000	50 000 000	50 000 000	50 000 000	50 000 000	50 000 000	50 000 000
Shares Outstanding	1 022 100 000	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447	1 019 837 447
DPS - Dividend Per Share	4,7	4,9	5,0	4,8	5,2	5,3	5,2	5,5	5,7	5,6
Dividend Payout Ratio	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

Figure 26: Dividend Per share - own analysis

For the Terminal Value estimation, the cost of equity (12,5%) and growth rate (1,9%) are based on the assumptions outlined in sections 7.4.2 and 7.5. As illustrated in figure 27, the estimated Mercedes-Benz share price using Dividend Discount Model is 47,1€

Dividend Discount Model	2025	2026	2027	2028	2029	2030	2031	2032	2033
Dividend Per Share (DPS)	4,9	5,0	4,8	5,2	5,3	5,2	5,5	5,7	5,6
(1+Ke)^n	113%	127%	143%	160%	181%	203%	229%	257%	290%
DPS Present Value	4,4	3,9	3,4	3,2	2,9	2,6	2,4	2,2	1,9
Terminal Value									58,5
Present Value of Terminal Value									20,2
Share Price									47,1

Figure 27: Dividend Discount Model Summary - own analysis

Assumptions regarding cost of equity and growth rate are an important factor to dividend discount model valuation results. Due to this fact, a sensitive analysis was performed and as illustrated in figure 28, with a change of 20bps Mercedes' share price can vary from 45,9€ to 48,41€.

Share Price		Cost of Equity								
47,11		12,1%	12,2%	12,3%	12,4%	12,5%	12,6%	12,7%	12,8%	12,9%
Growth Rate	1,5%	48,12	47,67	47,24	46,81	46,39	45,97	45,56	45,16	44,77
	1,6%	48,31	47,86	47,42	46,99	46,56	46,14	45,73	45,33	44,93
	1,7%	48,51	48,06	47,61	47,17	46,74	46,32	45,90	45,50	45,10
	1,8%	48,72	48,26	47,81	47,36	46,93	46,50	46,08	45,67	45,26
	1,9%	48,93	48,46	48,00	47,55	47,11	46,68	46,26	45,84	45,43
	2,0%	49,14	48,67	48,20	47,75	47,30	46,87	46,44	46,02	45,60
	2,1%	49,35	48,88	48,41	47,95	47,50	47,06	46,62	46,20	45,78
	2,2%	49,57	49,09	48,62	48,15	47,70	47,25	46,81	46,38	45,96
	2,3%	49,80	49,31	48,83	48,36	47,90	47,45	47,00	46,57	46,14

Figure 28: DDM Sensitive Analysis - own analysis

9. Relative Valuation

In this dissertation, a relative valuation approach was applied to assess the value of Mercedes-Benz in comparison to the industry. The first step in this valuation model is to define the peer group. According to section 4.1, the peer group should include firms with connections in size, business and financial characteristics. Therefore, Refinitiv's peer group selection was used, which includes five companies: Bayerische Motoren Werke (BMW), Volkswagen, Stellantis, Renault and Continental (figure 29). These companies operate in the global automotive market and face similar challenges related to market evolution. For example, Continental, which operates a spare part business rather than selling vehicle business, faces challenges similar to those arising from the development of electric market. It is important to note that BMW, Volkswagen and Stellantis are comparable market capitalizations (average of 60 billion). In contrast, Renault and Continental have lower market capitalizations (average of 15 billion), but they are not excluded in this analysis as they are mature companies. The peer group is also similar in terms of operating margin, averaging 10% (between 7% and 12%). The median of these five companies is used to derive multiples for Enterprise Value to Revenue, Price to Earnings per Share and Enterprise Value to EBITDA. It is important to note that the median is chosen, since it excludes outliers.

Company Name	EV / Revenue	EV / EBITDA	Price / EPS
Mercedes-Benz Group AG	1,02	7,23	5,32
Bayerische Motoren Werke AG	0,87	5,68	5,28
Volkswagen AG	0,74	5,32	3,22
Stellantis NV	0,21	1,53	3,47
Renault SA	1,11	8,56	3,54
Continental AG	0,44	3,67	6,67
Multiple Median Peer Group	0,74	5,32	3,54

Figure 29: Peer Group - Multiples, own analysis information from Refinitiv

For enterprise value compared to revenue (EV/Revenue), a multiple of 0,74 is used, assuming that this multiple is applicable to the three divisions (Cars, Vans and Mobility) and the reconciliation of Mercedes-Benz Group. Nevertheless, it should be noted that the multiple may slightly change for Mobility division, as it is not part of Mercedes' core business and operates under a different business model. In summary, using the multiple EV/Revenue approach, the share price is estimated to be 27,84€ (figure 30).

	Revenue	EV/Revenue	Valuation
Mercedes-Benz Cars	113 062	0,74	83 397
Mercedes-Benz Vans	20 391	0,74	15 041
Reconciliation	-6 272	0,74	-4 626
Total Core Business	127 181	0,74	93 812
Mercedes-Benz Mobility	26 734	0,74	19 720
Enterprise Value	153 915		113 531
Total Debt			100 781
Cash & Equivalents			15 972
Non- Controlling Interests			270
Equity Value			28 452
Shares Outstanding			1 022 100 000
Per Share (€)			27,84

Figure 30: Multiple Valuation: EV/Revenue - own analysis

For the valuation using price to earnings per share (P/E) a multiple of 3,5 is applied. The net income forecast is based on the same assumptions as those used in the dividend discount model approach, ensuring comparability and consistency in the analysis. Using this method, it is estimated that share price is 42€ (figure 31).

	Net Income	P/E	Valuation
Net Income	12 113	3,5	42 923
Shares Outstanding			1 022 100 000
Per Share (€)			42,00

Figure 31: Multiple Valuation: P/E - own analysis

Regarding valuation using enterprise value to EBITDA a multiple of 5,32 is applied and the assumptions are in line with the approach used in enterprise value to revenue approach. Consequently, it is estimated that Mercedes' share price is 77,4€ (figure 32).

	EV/EBITDA	Valuation
EBITDA	30 844	5,32
Total Debt		100 782
Cash & Equivalents		15 972
Non- Controlling Interests		270
Equity Value		79 070
Shares Outstanding		1 022 100 000
Per Share (€)		77,36

Figure 32: Multiple Valuation: EV/EBITDA - own analysis

In conclusion, the multiple valuation approach estimates the share price of the Mercedes-Benz Group to be approximately 49€. It is important to note that Tesla is not considered a peer of Mercedes, as Tesla operates exclusively in the electric vehicle business, whereas Mercedes is still transitioning in that direction. Tesla has a EV/Revenue, P/E and a EV/EBITDA, respectively, of 6,38, 78,77 and 39,83, which represents a significant difference compared to Mercedes' peer group. It is expected that in the future, Tesla ratios will stabilize,

and Tesla may be considered a peer of Mercedes. If the multiple analysis were conducted including Tesla, while keeping all other assumptions constant, the estimated share price would increase to 58€.

10.Target Price

In conclusion, as illustrated in figure 33, football field valuation representation, the estimated share price of Mercedes using the Discounted Cash Flow Model is 84,9€. With a variation of +/- 40bps in WACC and growth rate, the share price may fluctuate between 60,6€ and 119,8€. The share price calculated using the Dividend Discount Model Valuation is 47,1€, which is lower than the DCF estimate. In comparison to the DCF Model, the DDM is less sensitive to changes in the cost of equity and growth rate. With a variation of +/- 40bps in these variables, the share price may range from 44,8€ to 49,8€. Lastly, the share price using multiples approach is 49,1€, with a potential variation from 27,8€ to 77,4€.

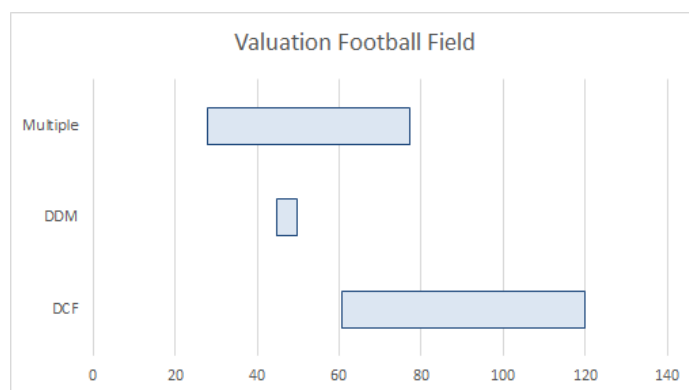


Figure 33: Valuation Football Field - own analysis

The target price for Mercedes-Benz Group presented in this dissertation is 77,5€ (figure 34), reflecting the weighted average of the three valuation models discussed in previous sections. A weight of 80% was assigned to the Discounted Cash Flow Model, as it emphasizes the intrinsic value Mercedes creates through its long-term competitive advantages and captures the impact related with transition to electric vehicle. A weight of 10% was assigned to both Dividend discount model and Multiples approach to account for the impact of income generation to shareholders and also Mercedes' market position. The target price represents an upside of 24,5%, therefore, the recommendation is to buy Mercedes-Benz share.

Valuation Model	Share Price	Weight
DCF	84,9	80%
DDM	47,1	10%
Multiples	49,1	10%
Target Price	77,5	
Current Share Price	62,31	
Upside	24,5%	

Figure 34: Target Price - Own analysis

11. Equity Report Comparison

As noted in sensitivity analysis section, assumptions within valuation methods can significantly change the resulting outcomes. This section focuses on comparing the valuation results obtained in this dissertation with those in Barclays' Equity Report for Mercedes-Benz, issued in July 2024.

Barclays' target price for Mercedes-Benz share is 76,5€, reflecting a buy recommendation (overweight). This price remains unchanged from the previous report, which set the target price at 80€. The slight reduction is due to Mercedes-Benz's performance in the first semester, which was below the initial forecast. The target price is set for July 2025, and when discounted to the beginning of 2025, it results in a target price of 72,11€.

Barclays' valuation approach focuses primarily on a multiples-based method rather than Discount Cash Flow Model.

In its multiples valuation model, Barclays applies a price-to-earnings multiple of 6,5x, which is nearly double than the one used in this dissertation. This difference could stem from the variations in peer group selection and/or the choice of using average rather than the median for calculating multiples.

For the discount cash flow model, Barclays divides the analysis in three periods: an explicit estimation period (2024-2028), a semi-explicit period (2029-2033), and a terminal period. Barclays assumes a terminal EBIT margin of 8%, compared to 10,5% used in this dissertation. However, Barclays is more optimistic regarding terminal growth rate, assuming 5%, which may be considered high given that Mercedes-Benz aims to position itself as an exclusive brand with limited accessibility.

In conclusion, Barclays arrives at a blended valuation of 91€ per share, applying a 15% discount to reach a target price of 72,11€ for early 2025. In this dissertation, however, the target price is 77,5€, reflecting a 7,5% upside compared to Barclays' results.

12.Appendix

Appendix 1 – Mercedes-Benz Group Split



Appendix 2 – Mercedes-Benz unit Sales

Mercedes-Benz Cars unit sales

	2023	2022	23/22
In units			% change
Total unit sales	2,044,100	2,040,700	.
Top-End	328,300	328,200	.
% share of unit sales	16	16	
Core	1,096,900	1,116,600	-2
% share of unit sales	54	55	
Entry (incl. smart)	618,900	595,900	4
% share of unit sales	30	29	
thereof			
Electrified vehicles (xEV)	401,900	333,500	21
BEVs	240,600	149,200	61
PHEVs	161,300	184,300	-12
Share of electrified vehicles in % of unit sales	20	16	

Appendix 3 – Mercedes-Benz Cars Strategy



Appendix 4 – Cost of traded debt - Bonds

Description	Maturity Date	Amount Outstanding	Issued Amount	Coupon	Coupon Class	Country of Issue	Currency	Issue Date	Yield	Last Price	FV	YTM	YTM in Euros	Market Value	% of Total Mtn	Weighted YTM
MBGBC / MBG 17-Sep-2024 MTN	17-sep-2024	150 000 000	150 000 000	0	Discount/Zero Coupon	Eurobond	Euro	17-sep-2021	4,159	99,781	100	0,0007311	0,07%	149 671 500	0,30%	0,00002%
MBGZA / MBG 9-340 17-Sep-2024 FRN MTN	17-sep-2024	50 571 887	50 571 887	9,34	Floating Coupon	South Africa	South African Rand	17-sep-2021	8,806	100,027	100	0,09932927	4,04%	2 579 863	0,01%	0,0002%
MBGMRD / MBG 3.300 27-Sep-2024	27-sep-2024	251 636 540	251 636 540	3,3	Fixed Coupon	China	Chinese Yuan	23-sep-2021	2,003	100,105	100	0,03026276	4,14%	32 746 968	0,07%	0,00027%
MBGMF / MBG 1.000 06-Nov-2024	06-nov-2024	500 000 000	500 000 000	1,0	Fixed Coupon	Italy	Euro	06-nov-2017	4,268	99,385	100	0,03020923	1,09%	49 691 500	0,10%	0,0011%
MBGZA / MBG 8.958 08-Nov-2024 FRN	08-nov-2024	25 265 943	25 265 943	8,958	Floating Coupon	South Africa	South African Rand	08-nov-2023	9,048	99,989	100	0,0897034	3,78%	1 289 437	0,00%	0,0001%
MBGMRD / MBG 1.625 11-Nov-2024 MTN	11-nov-2024	413 627 811	413 627 811	1,625	Fixed Coupon	Eurobond	British Pound	11-nov-2019	5,477	99,205	100	0,0172965	4,01%	488 303 969	0,97%	0,0004%
MBGBC / MBG 2.270 12-Nov-2024 MTN	12-nov-2024	49 189 726	49 189 726	2,27	Fixed Coupon	Eurobond	Hong Kong Dollar	12-nov-2019	4,233	99,573	100	0,0236154	2,26%	5 877 562	0,01%	0,0003%
MBGNF / MBG 5.500 27-Nov-2024	27-nov-2024	761 580 504	761 580 504	5,5	Fixed Coupon	Eurobond	US Dollar	28-nov-2022	5,506	99,98	100	0,0551068	5,51%	685 284 684	1,37%	0,0753%
MBGMRD / MBG 2.500 29-Nov-2024	29-nov-2024	62 900 155	62 900 135	2,5	Fixed Coupon	China	Chinese Yuan	24-nov-2022	1,963	100,229	100	0,0271643	3,66%	8 156 883	0,02%	0,0006%
MBGMRD / MBG 3.625 16-Dec-2024	16-dec-2024	500 000 000	500 000 000	3,625	Fixed Coupon	Eurobond	Euro	16-jun-2023	3,759	99,932	100	0,0366105	3,66%	499 660 000	1,00%	0,0356%
MBGBC / MBG 20-Jan-2025 MTN	20-jan-2025	60 000 000	60 000 000	0	Fixed Coupon	Eurobond	Euro	20-jan-2022	4,169	98,375	100	0,0054761	0,55%	95 025 000	0,12%	0,0006%
MBGMRD / MBG 0.850 28-Feb-2025 MTN	28-feb-2025	1 250 000 000	1 250 000 000	0,85	Fixed Coupon	Eurobond	Euro	28-feb-2017	3,658	98,606	100	0,0102344	1,03%	1 232 575 000	2,46%	0,0254%
MBGBC / MBG 1.125 10-Mar-2025	10-mar-2025	403 189 678	403 189 678	1,125	Fixed Coupon	Eurobond	US Dollar	10-mar-2020	5,211	98,386	100	0,0247167	1,34%	357 021 597	0,71%	0,0096%
MBGBC / MBG 4.950 30-Mar-2025	30-mar-2025	627 183 944	627 183 944	4,95	Fixed Coupon	Eurobond	US Dollar	30-mar-2023	5,14	99,886	100	0,0501148	3,50%	563 820 365	1,12%	0,0393%
MBGBC / MBG 6.284 30-Mar-2025 FRN	30-mar-2025	268 793 119	268 793 119	6,284	Floating Coupon	Eurobond	US Dollar	30-mar-2023	5,867	100,263	100	0,0613983	4,62%	242 550 282	0,48%	0,0224%
MBGBC / MBG 4.950 30-Mar-2025	30-mar-2025	627 183 944	627 183 944	4,95	Fixed Coupon	United States	US Dollar	30-mar-2023	5,136	99,888	100	0,0501024	3,50%	563 833 348	1,12%	0,0393%
MBGMRD / MBG 2.625 07-Apr-2025 MTN	07-apr-2025	1 500 000 000	1 500 000 000	2,625	Fixed Coupon	Eurobond	Euro	07-apr-2020	3,673	99,928	100	0,0276511	2,77%	1 490 110 000	2,97%	0,0822%
MBGMS / MBG 1.290 08-Apr-2025 MTN	08-apr-2025	41 241 752	41 241 752	3,29	Fixed Coupon	Malaysia	Malaysian Ringgit	08-apr-2021	3,673	99,763	100	0,0333463	2,39%	8 607 327	0,02%	0,0004%
MBGMRD / MBG 3.400 13-Apr-2025 MTN	13-apr-2025	500 000 000	500 000 000	3,4	Fixed Coupon	Eurobond	Euro	13-abr-2023	3,558	99,876	100	0,0346524	3,47%	499 380 000	1,00%	0,0345%
MBGBC / MBG 3.100 21-May-2025 MTN	21-mai-2025	46 800 644	46 800 644	3,1	Fixed Coupon	Eurobond	Norwegian Krone	21-abr-2020	5,655	98,4	100	0,0345391	2,85%	3 960 458	0,01%	0,0002%
MBGBC / MBG 3.300 19-May-2025	19-mai-2025	582 385 091	582 385 091	3,3	Fixed Coupon	Eurobond	US Dollar	18-mai-2015	4,962	98,821	100	0,0344129	1,85%	571 966 894	1,03%	0,0191%
MBGBC / MBG 1.561 30-May-2025	30-mai-2025	67 494 581	67 494 581	1,561	Fixed Coupon	South Korea	South Korean Won	30-mai-2023	4,254	103 138	10000	0,006146	1,30%	46 508	0,00%	0,0000%
MBGZA / MBG 9.432 31-May-2025 FRN MTN	31-mai-2025	50 571 887	50 571 887	9,432	Floating Coupon	South Africa	South African Rand	31-mai-2022	8,766	100,39	100	0,092779	4,09%	2 589 216	0,01%	0,0002%
MBGMRD / MBG 2.780 12-Jun-2025	12-jun-2025	125 818 270	125 818 270	2,78	Fixed Coupon	China	Chinese Yuan	07-jun-2023	2,053	100,557	100	0,0249264	3,37%	16 447 513	0,03%	0,0011%
MBGMRD / MBG 3.250 10-Jul-2025	10-jul-2025	377 454 809	377 454 809	3,25	Fixed Coupon	China	Chinese Yuan	15-jun-2022	2,043	100,956	100	0,0291378	3,79%	49 538 324	0,10%	0,0037%
MBGBC / MBG 1.728 28-Jul-2025	28-jul-2025	67 742 955	67 742 955	1,728	Fixed Coupon	South Korea	South Korean Won	02-aug-2023	4,265	100,939	10000	0,003447	1,03%	46 513	0,00%	0,0000%
MBGBC / MBG 5.918 01-Aug-2025 FRN	01-aug-2025	358 390 825	358 390 825	5,918	Floating Coupon	Eurobond	US Dollar	03-aug-2023	6,11	99,864	100	0,0599240	4,68%	322 111 450	0,64%	0,0288%
MBGBC / MBG 5.375 01-Aug-2025	01-aug-2025	627 183 944	627 183 944	5,375	Fixed Coupon	Eurobond	US Dollar	03-aug-2023	4,843	100,473	100	0,0511912	3,80%	567 135 472	1,13%	0,0408%
MBGBC / MBG 3.500 03-Aug-2025	03-aug-2025	447 988 531	447 988 531	3,5	Fixed Coupon	Eurobond	US Dollar	03-aug-2015	4,915	98,722	100	0,0365487	2,06%	398 036 914	0,79%	0,0163%
MBGAF / MBG 1.900 14-Sep-2025	14-sep-2025	125 818 270	125 818 270	2,8	Fixed Coupon	China	Chinese Yuan	12-sep-2023	2,035	100,888	100	0,0246493	3,32%	16 501 387	0,03%	0,0011%
MBGBC / MBG 1.650 22-Sep-2025	22-sep-2025	332 163 218	332 163 218	1,65	Fixed Coupon	Canada	Canadian Dollar	22-sep-2020	4,176	97,382	100	0,0222988	1,51%	216 723 014	0,43%	0,0062%
MBGMRD / MBG 3.922 29-Sep-2025 FRN MTN	29-sep-2025	500 000 000	500 000 000	3,922	Floating Coupon	Eurobond	Euro	29-sep-2023	3,771	100,016	100	0,0391333	3,91%	500 080 000	1,00%	0,0390%
MBGZA / MBG 9.422 30-Sep-2025	30-sep-2025	75 857 830	75 857 830	9,422	Floating Coupon	South Africa	South African Rand	30-sep-2022	8,832	100,503	100	0,092227	4,03%	3 888 202	0,01%	0,0003%
MBG 1.600 01-Oct-2025 MTN	01-okt-2025	51 500 000	51 500 000	1,6	Fixed Coupon	Eurobond	Euro	01-okt-2015	3,63	97,86	100	0,018362	1,84%	50 397 900	0,10%	0,0018%
MBGMRD / MBG 1.000 11-Nov-2025 MTN	11-nov-2025	1 250 000 000	1 250 000 000	1,0	Fixed Coupon	Eurobond	Euro	11-nov-2020	3,614	99,962	100	0,0213614	1,21%	1 217 737 500	2,43%	0,0131%
MBGMRD / MBG 0.850 14-Nov-2025 MTN	14-nov-2025	195 651 271	195 651 271	0,85	Fixed Coupon	Switzerland	Swiss Franc	14-nov-2018	1,217	99,56	100	0,0091518	2,99%	206 477 830	0,41%	0,0123%
MBGBC / MBG 3.974 20-Nov-2025 FRN MTN	20-nov-2025	87 729 077	87 729 077	3,974	Floating Coupon	Eurobond	Swedish Krona	20-nov-2023	3,785	100,217	100	0,0385918	4,37%	7 736 912	0,02%	0,0007%
MBGBC / MBG 5.375 26-Nov-2025	26-nov-2025	582 385 091	582 385 091	5,375	Floating Coupon	Eurobond	US Dollar	28-nov-2022	4,544	100,989	100	0,0501076	-1,27%	529 331 964	1,06%	-0,0135%
MBGMRD / MBG 4.108 02-Dec-2025 FRN MTN	02-dec-2025	600 000 000	600 000 000	4,108	Floating Coupon	Eurobond	Euro	02-dec-2023	3,751	100,478	100	0,0401261	4,01%	601 068 000	1,21%	0,0481%
MBGBC / MBG 5.900 04-Dec-2025 MTN	04-dec-2025	199 297 931	199 297 931	5,2	Fixed Coupon	Canada	Canadian Dollar	04-dec-2023	4,176	101,248	100	0,0453326	3,58%	135 196 063	0,27%	0,0096%
MBGBC / MBG 4.900 09-Jan-2026	09-jan-2026	627 183 944	627 183 944	4,9	Fixed Coupon	Eurobond	US Dollar	11-jan-2024	4,514	100,5	100	0,0463136	3,12%	567 289 006	1,13%	0,0353%
MBGBC / MBG 6.027 09-Jan-2026	09-jan-2026	582 385 091	582 385 091	6,027	Floating Coupon	Eurobond	US Dollar	11-jan-2024	6,25	99,788	100	0,0614244	4,63%	523 034 867	1,04%	0,0483%
MBGBC / MBG 4.750 19-Jan-2026 MTN	19-jan-2026	90 999 910	90 999 910	4,75	Fixed Coupon	Eurobond	Australian Dollar	19-jan-2023	4,44	100,385	100	0,0406966	3,33%	55 723 658	0,11%	0,0373%
MBGBC / MBG 1.450 02-Mar-2026	02-mar-2026	895 977 063	895 977 063	1,45	Fixed Coupon	Eurobond	US Dollar	02-mar-2021	4,551	99,513	100	0,0241361	1,28%	770 189 858	1,54%	0,0197%
MBGMRD / MBG 1.500 09-Mar-2026	09-mar-2026	1 000 000 000	1 000 000 000	1,5	Fixed Coupon	Eurobond	Euro	09-mar-2016	3,042	97,725	100	0,0174997	1,75%	977 250 000	0,95%	0,0341%
MBGMS / MBG 3.620 18-Mar-2026 MTN	18-mar-2026	72 173 066	72 173 066	3,62	Fixed Coupon	Malaysia	Malaysian Ringgit	18-mar-2022	3,762	99,771	100	0,0368262	2,72%	15 064 030	0,03%	0,0008%
MBGBC / MBG 4.800 30-Mar-2026	30-mar-2026	895 977 063	895 977 063	4,8	Fixed Coupon	Eurobond	US Dollar	30-mar-2023	4,513	100,433	100	0,0464217	3,13%	809 868 500	1,62%	0,0595%
MBGBC / MBG 3.902 03-May-2026 FRN MTN	03-mai-2026	500 000 000	500 000 000	3,9	Fixed Coupon	Eurobond	Euro	03-mai-2023	3,795	99,962	100	0,0392212	3,92%	499 810 000	1,00%	0,0391%
MBGMRD / MBG 3.500 30-May-2026 MTN	30-mai-2026	1 000 000 000	1 000 000 000	3,5	Fixed Coupon	Eurobond	Euro	30-mai-2023	2,996	100,839	100	0,0320223	3,20%	1 008 300 000	2,01%	0,0446%
MBGZA / MBG 9.392 31-May-2026 FRN	31-mai-2026	50 571 887	50 571 887	9,392	Floating Coupon	South Africa	South African Rand	31-mai-2023	9,271	100,004	100	0,0939029	4,20%	2 579 277	0,01%	0,0002%
MBGBC / MBG 4.650 05-Jun-2026 MTN	05-jun-2026	75 833 259	75 833 259	4,65	Fixed Coupon	Eurobond	Australian Dollar	05-jun-2023	4,546	100,155	100	0,0459352	3,32%	46 329 988	0,09%	0,0031%
MBGBC / MBG 1.067 10-Jun-2026	10-jun-2026	67 494 581	67 494 581	1,067	Fixed Coupon	South Korea	South Korean Won	10-jun-2024	4,084	100,038	10000	0,0037324	-1,06%	46 278	0,00%	0,0000%
MBGMRD / MBG 3.819 11-Jun-2026 FRN MTN	11-jun-2026	500 000 000	500 000 000	3,819	Floating Coupon	Eurobond	Euro	11-jun-2024	3,795	99,895	100	0,0397465	3,97%	499 475 000	1,00%	0,0396%
MBGMRD / MBG 1.375 26-Jun-2026 MTN	26-jun-2026	1 000 000 000	1 000 000 000	1,375	Fixed Coupon	Eurobond	Euro	27-fev-2019	3,084	97,005	100	0,0181463	1,81%	970 050 000	1,93%	0,0151%
MBGBC / MBG 5.140 29-Jun-2026	29-jun-2026	332 163 218	332 163 218	5,14	Fixed Coupon	Canada	Canadian Dollar	27-jun-2023	4,053	101,902	100	0,0444973	3,49%	226 782 245	0,45%	0,0158%
MBGAF / MBG 2.800 20-Jul-2026	20-jul-2026	377 454 809	377 454 809	2,8	Fixed Coupon	China	Chinese Yuan	18-jul-2023	2,035	101,406	100	0,0233147	3,19%	49 758 841	0,10%	0,0032%
MBGBC / MBG 5.200 03-Aug-2026	03-aug-2026	671 982 797	671 982 797	5,2	Fixed Coupon	Eurobond	US Dollar	03-aug-2023	4,445	101,381	100	0,0460517	3,18%	613 117 861	1,23%	0,0389%
MBGZA / MBG 9.250 10-Aug-2026 FRN	10-aug-2026	50 571 887	50 571 887	9,25	Floating Coupon	South Africa	South African Rand	10-aug-2023	9,237	99,99	100	0,092539	4,06%	2 578 913	0	

Appendix 5- Government Bonds Yield – 10, 5 and 2 years

Currency	10-Year Bond Yields	5-Year Bond Yields	2-Year Bond Yields
Dollar	3,85%	3,67%	3,90%
South African Rand	9,35%	8,32%	7,58%
Hong Kong Dollar	2,90%	2,64%	2,94%
Chinese Yuan	2,19%	1,85%	1,51%
British Pound	3,96%	3,92%	3,69%
Malaysian Ringgit	3,82%	3,50%	3,25%
Norwegian Krone	3,28%	3,14%	3,53%
South Korean Won	3,08%	3,01%	3,07%
Turkish Lira	26,73%		42,14%
Canadian Dollar	3,14%	3,24%	3,34%
Swiss Franc	0,44%	0,47%	0,52%
Swedish Krona	2,04%	1,84%	1,87%
Australian Dollar	3,96%	3,59%	3,66%
Japanese Yen	0,89%	0,50%	0,37%
Hungarian Forint	6,42%	5,98%	5,99%
EURO	2,25%	2,54%	2,39%

Appendix 6 – Rating for Mercedes-Benz

Current rating classifications of the Mercedes-Benz Group AG

	long-term rating	outlook	short-term rating
Standard & Poor's	A	stable	A-1
Moody's	A2	stable	P-1
Fitch	A	stable	F1+
DBRS	A	stable	R-1 (low)
Scope	A+	stable	S-1+

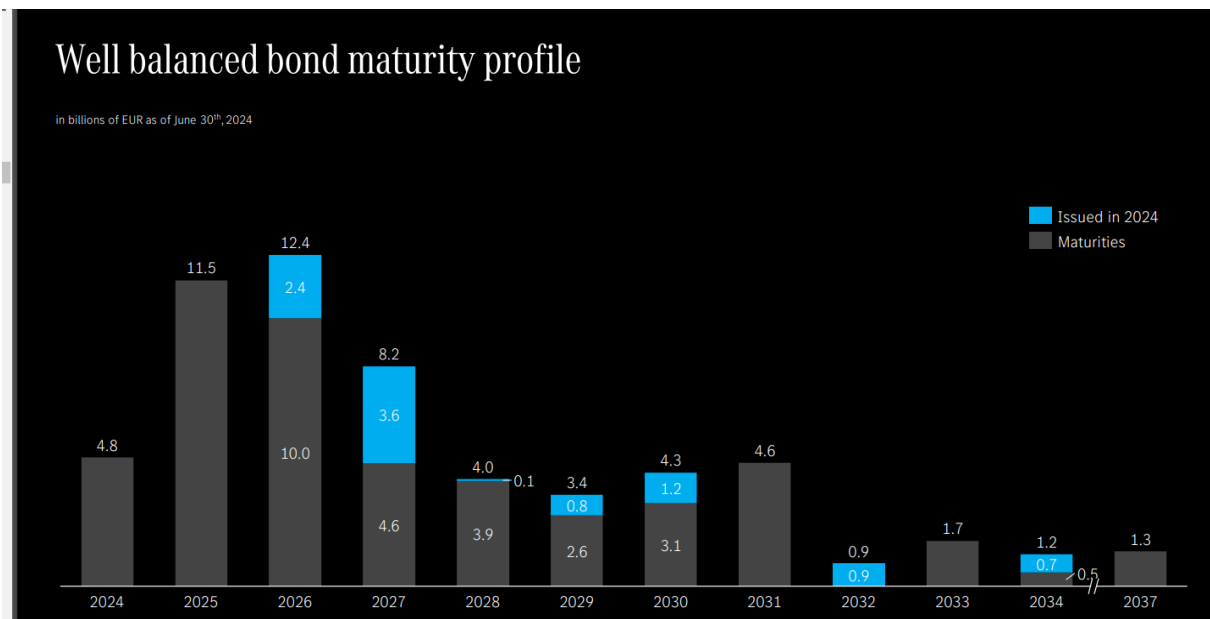
Appendix 7 – Damodaran Spread vs Firm Rating

Date of Analysis: Data used is as of January 2024

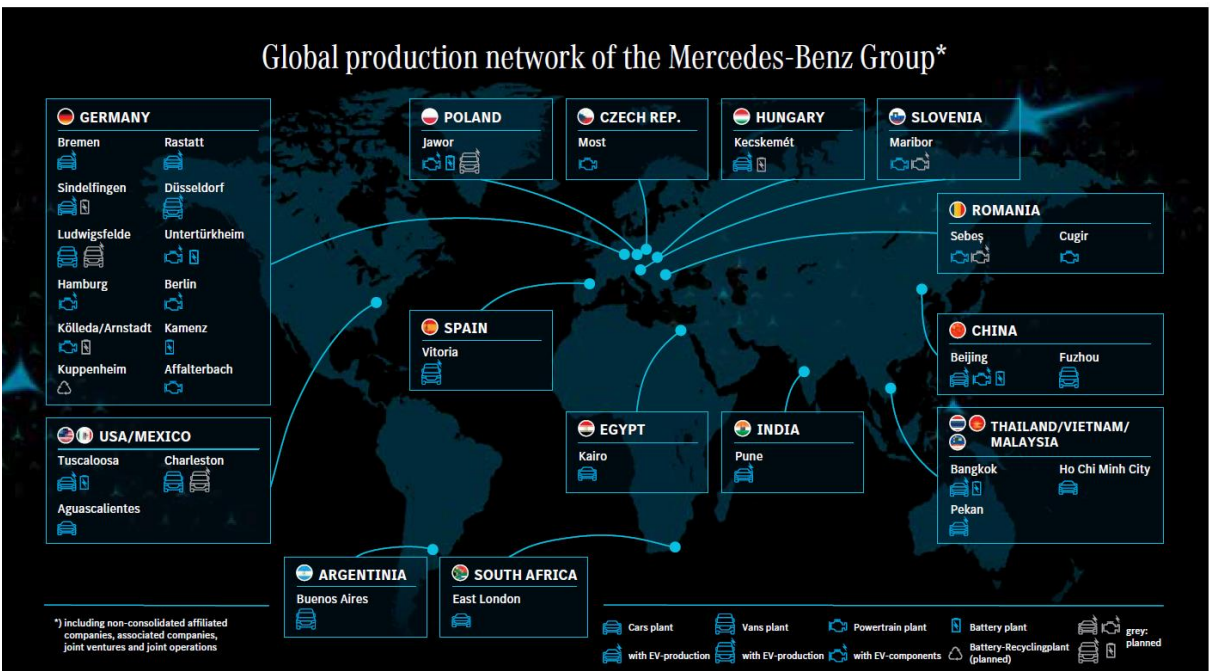
For non-financial service firms only

For larger firms (market cap > \$5 billion)			
If interest coverage ratio is			
>	≤ to	Rating is	Spread is
-100000	0.199999	D2/D	20.00%
0.2	0.649999	C2/C	17.00%
0.65	0.799999	Ca2/CC	11.78%
0.8	1.249999	Caa/CCC	8.51%
1.25	1.499999	B3/B-	5.24%
1.5	1.749999	B2/B	3.61%
1.75	1.999999	B1/B+	3.14%
2	2.249999	Ba2/BB	2.21%
2.25	2.499999	Ba1/BB+	1.74%
2.5	2.999999	Baa2/BBB	1.47%
3	4.249999	A3/A-	1.21%
4.25	5.499999	A2/A	1.07%
5.5	6.499999	A1/A+	0.92%
6.5	8.499999	Aa2/AA	0.70%
8.50	100000	Aaa/AAA	0.59%

Appendix 8 - Mercedes-Benz Debt Maturity



Appendix 9 – Production Plants of Mercedes-Benz Group



Appendix 10 – Mercedes-Benz Forecast for DDM approach

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Revenue	133 893	150 017	153 218	153 915	157 591	160 334	162 436	166 225	170 104	174 087	177 857	182 052	186 360
Cost of sales	103 218	115 997	118 839	122 270	124 497	126 664	129 039	131 318	134 382	138 295	140 507	143 821	148 044
Gross profit	30 675	34 020	34 379	31 645	33 094	33 670	33 397	34 907	35 722	35 793	37 350	38 231	38 316
SG&A	12 002	12 066	12 416	12 883	13 191	13 420	13 596	13 913	14 238	14 571	14 887	15 238	15 599
Research and non-capitalized dev	5 467	5 602	6 230	6 003	6 408	6 519	6 605	6 759	6 917	7 079	7 232	7 402	7 578
Other Operating Income/Expense	-1 153	-2 034	-1 690	-1 703	-1 744	-1 774	-1 798	-1 840	-1 882	-1 927	-1 968	-2 015	-2 062
Profit/Loss on equity method inve	-1 352	-1 732	-2 129	-1 823	-1 867	-1 899	-1 924	-1 969	-2 015	-2 062	-2 107	-2 157	-2 208
Other Financial income/ expense,	-317	-340	-108	-108	-111	-113	-114	-117	-120	-123	-125	-128	-131
Earnings Before Interest and Tax	16 028	20 458	19 660	16 394	17 218	17 517	17 033	18 161	18 585	18 254	19 432	19 890	19 541
Interest Income/Expense	-217	-154	424	354	371	378	367	392	401	394	419	429	421
%	-1,4%	-0,8%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%	2,2%
Profit before income taxes	15 811	20 304	20 084	16 748	17 589	17 895	17 400	18 553	18 986	18 648	19 851	20 319	19 963
Income taxes	-4 761	-5 495	-5 553	-4 635	-4 867	-4 952	-4 815	-5 134	-5 254	-5 160	-5 493	-5 623	-5 524
Profit from continuing operations	11 050	14 809	14 531	12 113	12 722	12 943	12 585	13 419	13 732	13 488	14 358	14 696	14 438
Profit/Loss from discontinued opt	12 346	0	0	0	0	0	0	0	0	0	0	0	0
Net profit	23 396	14 809	14 531	12 113	12 722	12 943	12 585	13 419	13 732	13 488	14 358	14 696	14 438
thereof profit attributable	390	308	270	225	236	240	234	249	255	251	267	273	268
to non-controlling interests	1,7%	2,1%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%	1,9%
thereof profit attributable	23 006	14 501	14 501	11 888	12 485	12 703	12 351	13 169	13 477	13 237	14 091	14 423	14 170
to shareholders of Mercedes Benz Group AG													
Earnings per share (in euros) for profit attributable to shareholders of Mercedes Benz AG													
Basic	21,5	13,55	13,46	11,63	12,24	12,46	12,11	12,91	13,21	12,98	13,82	14,14	13,89
Diluted	21,5	13,55	13,46	11,63	12,24	12,46	12,11	12,91	13,21	12,98	13,82	14,14	13,89

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