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ADIDAS AG VALUATION: BUY, HOLD OR SELL?

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Master in Finance

Supervisor:
PhD Pedro Manuel de Sousa Leite Inácio, Assistant Professor
ISCTE-IUL Business School

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BUSINESS
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Department of Finance

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Resumo

Adidas, AG. é o segundo maior *player* mundial na indústria do vestuário e calçado desportivo, reconhecida pelo seu forte desempenho financeiro e sólida representatividade numa indústria florescente e competitiva. Não obstante, atualmente, o grupo está passar por uma fase controversa com o desinvestimento da Reebok enquanto, simultaneamente, tenta adaptar o seu negócio a uma realidade pandémica. Desta forma, é importante analisar se a cotação de mercado da ação da Adidas representa o seu valor justo tendo em conta as perspetivas/desafios futuros da empresa ou se haverá uma oportunidade de investimento.

O principal objetivo desta dissertação é estimar o justo valor da Adidas a 31 de dezembro de 2020 e compará-lo com o preço de mercado para produzir uma recomendação de investimento de venda, compra ou detenção. Aplicou-se, por isso, várias metodologias de avaliação: O *Free Cash Flow to the Firm, o Free Cash Flow to the Equity, Economic Value-Added* e os Múltiplos. Todos os pressupostos aplicados aos modelos de avaliação seguem uma abordagem conservadora e são suportados por dados históricos, macroeconómicos e da indústria.

Com base nos resultados das diferentes metodologias de avaliação, atingiu-se um preço de variação por ação de €329.30 – €340.40, implicando um potencial de valorização de 11% – 14%. Conclui-se, que a Adidas se encontrava subvalorizada e desta forma foi emitida uma recomendação de compra para potenciais investidores.

Subsequentemente, foi realizado uma análise de sensibilidade, uma simulação monte carlo e uma comparação com uma *equity research* emitida pela J.P. Morgan para aumentar a robustez dos resultados desta avaliação de empresa.

Palavras-chave: Adidas AG; Avaliação de empresa; Fluxos de Caixa Descontados; Múltiplos
JEL Classification System: G30 - Corporate Finance; G32 – Value of Firms

Abstract

Adidas, AG. is the second world's leading player in the sportswear industry, a well-known company for its strong financial performance and solid representativeness within a booming and fierce industry. Notwithstanding, the group is currently going through a controversial phase with Reebok divestiture while, simultaneously, tries to adapt its business to a pandemic reality. Thus, it is important to analyze if the market is accurately pricing the future prospects/challenges into Adidas' stock price or if this could be an investment opportunity.

The main purpose of this master thesis is to estimate Adidas' fair price as of 31st December of 2020 and compare it with the market price to produce an investment recommendation of either sell, buy or hold. Hence, several valuation methodologies were applied: The Free Cash Flow to the Firm, the Free Cash Flow to the Equity, the Economic Value-Added model, and Relative Valuation. All assumptions applied to the valuation models follow a conservative approach and are supported by historical, macroeconomic, and industry data.

Based on the results of the different valuation methodologies, a share price range of €329.3 – €340.4 was established, implying an upside potential of 11% – 14%. Therefore, it is concluded that Adidas was undervalued, and a buy recommendation was issued for potential investors.

Subsequently, sensitivity analysis, a monte carlo simulation and a comparison to an equity research note issued by J.P. Morgan were performed to increase the robustness of this equity valuation results.

Keywords: Adidas AG; Company Valuation; Discounted Cash-Flows; Multiples
JEL Classification System: G30 - Corporate Finance; G32 – Value of Firms

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Glossary

APV – Adjusted Present Value

BV – Book Value

CAGR – Compounded Annual Growth Rate

CAPEX – Capital Expenditure

CAPM – Capital Asset Pricing Model

COGS – Cost of Goods Sold

CRP – Country Risk Premium

D&A&I – Depreciation, Amortization and Impairments

DCF – Discounted Cash Flow

DDM – Dividend Discount Model

DIO – Days Inventory Outstanding

DPO – Days Payables Outstanding

DPS – Dividends per Share

DSO – Days Sales Outstanding

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interest, Taxes, Depreciations and Amortizations

EBT – Earnings Before Taxes

EPS – Earnings per Share

EQV – Equity Value

EV – Enterprise Value

EVA – Economic Value Added

FCFE – Free Cash Flow to Equity

FCFF – Free Cash Flow to the Firm

GDP – Gross Domestic Product

IMF – International Monetary Fund

MRP – Market Risk Premium

MV – Market Value

NOPLAT – Net Operating Profit Less Adjusted taxes

NPV – Net Present Value

PP&E – Property, Plants & Equipment

ROA – Return on Assets

ROE – Return on Equity

ROIC- Return on Invested Capital

WACC – Weighted Average Cost of Capital

WC – Working Capital

1. Introduction

The importance of valuation is bigger than ever. Nowadays, we live in a world that has become a dynamic market, where investors are increasingly tempted to make investments throughout different financial areas. To make successful investment decisions, investors must master valuation as a financial analytical skill (Luehrman,1997a; Pinto et al., 2010). This knowledge will create advantages to investors by assisting them in making wiser strategic and resource allocation decisions, which in turn will maximize the investment's value and minimize its risks. All these findings have been based on the financial theory and supported by several equity valuation methodologies.

The main purpose of this master project is to assess if Adidas, AG could be an investment opportunity. Adidas is the company chosen for this study due to its strong historical financial performance and solid representativeness in a booming and fierce industry. But especially, because the group is currently going through a controversial phase with the Reebok divestiture decision while, simultaneously, trying to adapt its business to a pandemic reality. For these reasons, one critical question that poses is if the market is accurately pricing the future prospects of Adidas into its stock price or if these challenges are being overlooked.

Therefore, the research question this thesis aims to answer is: What is Adidas, AG.'s fair value on the 31st of December 2020? Meticulously, we will provide an accurate storytelling process built on a profound analysis of Adidas, AG., estimate the company's fair price based on different valuation models and compare the estimated outcome with the market price to issue an investment recommendation. To perform this empirical analysis, all macroeconomic context, industry information, news, as well as public information of the company published until 31st of March 2021 will be reflected.

This master project starts with the Literature Review, where the most important valuation methodologies are presented, their theoretical foundations, applicability, advantages, drawbacks, as well as the ones that will be employed in this thesis. The second and third sections assess the macroeconomic and the sportswear industry conditions, respectively, to forecast future trends, outlooks and understand the current industry dynamic. Thereafter, it is given an overview of Adidas' business, describing the company's history, business model, and its historical performance. In the following section, is presented the explanation behind all the assumptions made and the outputs of the four valuation methods that were applied to assess Adidas' fair value: the Free Cash Flow to the Firm (FCFF), the Free Cash Flow to the Equity (FCFE), the Economic Value-Added (EVA) model, and Relative Valuation. Moreover, sensitivity analysis, a Monte Carlo simulation and a comparison of the estimated share values from the different models were performed. The last section will compare the fair price obtained to the one reported by J.P. Morgan, to assess the robustness of the valuation methods applied and issue a reliable investment recommendation for potential investors.

2. Literature Review

"Valuation lies at the heart of much of what we do in finance" (Damodaran, 2005:693), due to its fundamental role in supporting investment decisions in the field of corporate finance, portfolio management, and acquisition analysis.

Concerning the corporate finance domain, valuation is the study responsible for the estimation of a firm's value. In this subject, analysts have a key task of maximizing the firm's value and shareholder's wealth, but how? According to Luehrman (1997a) and Damodaran (2012), the making of value-increasing decisions can be directly related to how a company allocates resources. In this sense, it is important to provide valuable insights that support resource allocation and to do so, it is fundamental to delineate the relationship between a company's fair value, its financial decisions, and its corporate strategy.

Furthermore, and in line with Pinto, et al. (2010), corporate valuation plays a very important role in selecting stocks, inferring market expectations, evaluating corporate events – such as mergers, acquisitions, divestitures, spin-offs, and leveraged buyouts -, appraising initial public offerings (IPOs), or even for evaluating business strategies and models.

One of the main questions that equity analysts debate to answer is what type of valuation approach should be used to wisely measure a company's fair value. Since there is no absolute approach to determine the fair value of a company, analysts use different valuation approaches according to the company-specific characteristics or the availability and quality of the data (Pinto et al., 2010).

In the view of Benninga and Sarig (1997) and several other researchers, it is preferable to use more than one valuation method to perform an accurate corporate valuation analysis. For that reason, this master thesis starts with a literature review of the state-of-the-art valuation methods, discussing three basic approaches of how to perform a valuation exercise: Discounted Cash Flow Valuation, Relative Valuation, and Contingent Claim Valuation (Damodaran, 2015). Additionally, a fourth valuation approach will be discussed in this literature review, the Economic Value-Added Model, in order to create a tailor-made path to perform an accurate equity valuation on Adidas.

2.1 Valuation Methodologies

2.1.1 Discounted Cash Flow Valuation

The Discounted Cash Flow (DCF) methodology is a financial model created in the 1970s and is a fundamental approach to equity valuation. It is also known as "(…) the most accurate and flexible method for valuing projects, divisions, and companies" (Koller et al., 2010:313).

The basic idea behind this methodology is that the value of any asset is related to the expected stream of future cash flows generated from holding that asset (Damodaran, 2015). As such, the DCF valuation estimates the value of an asset by computing the present value of the expected future cash flows discounted at a rate that reflects the asset's overall risk, as synthesized in the following formula:

$$Value\ of\ an\ Asset = \sum_{t=1}^{n} \frac{Cash\ Flow_t}{(1+r)^t} + \frac{Terminal\ Value_n}{(1+r)^n} \tag{1}$$

Where:

n = life of the asset

$Cash\ Flow_t$ = Cash Flow in period t

r = Discount rate

Based on the formula displayed above, three key variables must be wisely estimated in this method: the future cash flows, the terminal value, and the discount rate.

The Terminal Value

When assessing a firm's value through the DCF method, it is impossible to predict every future cash flow indefinitely, as a result, this methodology splits the timeframe into two main periods: the explicit forecast period and the terminal value. The explicit forecast period is defined as the timeframe in which an equity analyst can make more accurate and precise projections of a company's cash flows. As per Mota, et al. (2012), this period persists until the company's cash flows reach a steady state, typically three to five years. Regarding the second main period, the terminal value represents the present value of all future cash flow beyond the explicit period. This is a critical point in a company's valuation since it represents a substantial component of the total value of the expected future cash flows in a company (Young, 1999).

As stated by Damodaran (2012), the terminal value can be estimated by three different approaches: the multiples approach, the liquidation value, and the stable growth model, which is the most widely applied approach. To compute a company's terminal value through the stable growth model, one must assume that a firm's cash flows will grow at a constant perpetual growth rate. Nevertheless, the author defends that the perpetual growth rate should be lower or, in the best-case scenario, equal to the nominal growth rate of the economy in which the company operates since no business company can produce significant growth over the economy forever. In numerical terms, the terminal value is given as follows:

$$Terminal\ Value_n = \frac{Cash\ Flow_{n+1}}{(Discount\ Rate - Perpetual\ growth\ rate)} \tag{2}$$

The Discount Rate

In DCF theory, Damodaran (2012) states that the discount rate is the appropriate rate used to estimate the present value of a company's future cash flows, considering the inherent risk of the company's business. The higher the associated risk, the higher the discount rate.

There are several methodologies of calculating a company's cost of capital when assessing its intrinsic value, however, the weighted average cost of capital (WACC) is the most commonly used

(Pinto et al., 2010). The WACC represents the investor's minimum required rate of return to invest in the firm's projects, and can also be defined as the weighted average of the cost of equity and the after-tax costs of debt, weighted by their respective participation in the firm's capital structure (Fernandéz, 2007):

$$WACC = \frac{MV(Equity)}{MV(Equity) + MV(Debt)} * r_e + \frac{MV(Debt)}{MV(Equity) + MV(Debt)} * r_d * (1 - Tax\ rate) \quad \textbf{(3)}$$

As it is understood, the WACC concept depends on three key components: the target capital structure, the cost of debt, and the cost of equity.

A company's capital structure is how a company has financed its operations, along with Frykman and Tolleryd (2003). Furthermore, and according to these authors, there are several approaches to determine the target capital structure to use in the company's WACC, being these two the most generally applied: analyze the current capital structure based on market values and analyze the capital structure of comparable firms.

The cost of debt (r_d) represents the interest rate that a firm has to pay due to the current debt it holds, which in turn, reflects the company's default risk. Analysts estimate this cost in different ways, depending on if the firm's debt is publicly traded or not. According to Koller, et al. (2010), for firms with publicly traded debt, the cost of debt is equal to the yield-to-maturity (YTM), computed through the present value of the bond's price and promised cash flows. In contrast, if the firm's debt is not tradable on market or is infrequently traded, the cost of debt is given by "(…) adding a default spread to the risk-free rate, with the magnitude of the spread depending upon the credit risk in the company" as Damodaran (2008:4) states. Nevertheless, on the WACC equation, the rate used is the after-tax cost of debt, to capture the tax benefit resulting from corporate borrowing – the interest tax shield.

Regarding the cost of equity (r_e), it is the rate of return investors require on an equity investment in a firm (Damodaran, 2012). In a valuation exercise, there are three methods to estimate the cost of equity for the WACC: The Arbitrage Pricing Theory (APT), the Fama and French three-factor model and for last, the Capital Asset Pricing Model (CAPM), which is highlighted as the better model to use (Koller et al., 2010). The CAPM developed by Sharpe (1964) and several other researchers, determines the cost of equity as the relationship between the expected stock's return and the systematic risk.

$$CAPM:\ r_e = r_f + \beta * (r_M - r_f) + CRP \quad \textbf{(4)}$$

Hence, this model comprises the shareholder's required return in four main parameters: the risk-free rate, the market risk premium (MRP), the country risk premium (CRP) and the firm-specific beta.

The risk-free rate (r_f) – Represents the investor's expected return in an investment with no default risk neither reinvestment risk (Damodaran, 2008). Under this criterion, the best proxy for the risk-free rate is a 10- or 15-years government bonds of the company's country being valued (Frykman and

Tolleryd, 2003). Moreover, the bond should be expressed in the same currency as the financial statements of the company and preferably have the same maturity as the investor's investment horizon.

The market risk premium $(r_M - r_f)$ – Represents the incremental premium over the risk-free rate required by the investors for investing in a risky security. Mathematically, is the difference between the market's expected return and the risk-free rate. As per Damodaran (2009), there are three main approaches to estimate this variable: (i) survey subsets of investors and managers to get a sense of their expectations about equity returns in the future; (ii) assess the returns earned in the past on equities relative to riskless investments and use this historical premium as the expectation; (iii) estimate a forward-looking premium based on the market rates or prices on traded assets today and categorize these as implied premiums.

The beta (β) – Is a measure of systematic risk, that quantifies how risky security is relative to the market. The beta reveals how securities' returns will respond to market fluctuations. The higher the beta, the more exposure the company has to the market´s risk (Jacobs & Shivdasani, 2012). There are two different paths to estimate a company's beta, depending on it concerns an untraded firm or not. For firms that have been publicly traded for a length of time, the conventional approach for estimating the levered beta is a linear regression analysis applied to the historical stock market returns data against returns on a market index, following Perold (2004) and Damodaran (2012).

$$R_j = \alpha + \beta * R_m + \varepsilon \tag{5}$$

However, the levered beta is a historical measure, and it cannot predict the future. According to Blume (1975), the company future levered beta – the adjusted beta – will move towards the market average of $\beta = 1$, as follows:

$$Adjusted\ Beta = 0.33 + \beta * 0.67 \tag{6}$$

Concerning firms that are not publicly traded or with no relevant return history, it is common practice to infer the beta by using the unlevered betas of firms that face similar operating risks (Perold, 2004; Koller et al., 2010). Thereafter, the unlevered beta obtained must be adjusted to the impact of the firm's capital structure, as synthesized in the following equation (Fernández, 2004):

$$\beta_L = \beta_U + (\beta_U - \beta_D) * (1 - t) * \frac{D}{E} \tag{7}$$

Where:

β_L = Levered beta

β_U = Unlevered beta

t = Tax rate

$\frac{D}{E}$ = Debt-to-Equity ratio

β_D = Debt Beta

Nonetheless, Damodaran (2012) argues that if all business risk is borne by the stockholders and debt has a tax benefit to the firm, one should assume that the firm's debt has a zero beta ($\beta_D = 0$).

The country risk premium (CRP) –Represents the additional return claimed by investors, to compensate the risk of investing in firms outside his domestic market.

The Future Cash Flows

In the field of the DCF method, there are several alternative streams of expected cash flows depending on the nature of the cash flows, which lead to the creation of some variations of the Discounted Cash Flow valuation model. The most important ones are the Dividend Discount Model (DDM), Free Cash Flow to the Firm Valuation (FCFF), Free Cash Flow to Equity Valuation (FCFE), and Adjusted Present Value (APV) Model. In the following sections, these models will be analyzed.

2.1.1.1 Dividend Discount Model

The Dividend Discount Model (DDM) is the oldest valuation technique in the DCF theory and is the "(…) most conservative way of valuing a stock because it counts only those cash flows that are actually paid out to stockholders" (Damodaran, 2015:520). Hence, from a stockholder's perspective, investing in the stock market has two sources of income: (i) the difference between the market price and purchase price when the stockholder sells his shares; (ii) the possibility of receiving dividends while keeping the owned shares. Since the market price is itself determined by future dividends, a company's stock value is the present value of the perpetual stream of expected future dividends discounted at the cost of equity.

Several versions of DDM were developed based on the pattern used for the future growth of dividends: the Gordon Growth Model – the simplest path – and the Multi-Stage Model – an adaption of the latter one. The Gordon Growth Model developed by Gordon and Shapiro (1956), was designed to value firms in a "steady state", to sustain the assumption that dividends grow at a constant rate in perpetuity. Therefore, the value of stock can be defined as follows:

$$Value\ of\ stock = \frac{Expected\ Dividends\ in\ Next\ Period}{Cost\ of\ equity - Expected\ Growth\ in\ Perpetity} \qquad \textbf{(8)}$$

Although this may be true in some cases, the common reality is that dividends do not have a constant growing pattern forever (Fuller, 1979). To make the model more realistic, Multi-Stage DDM (two-stage model and three-stage model) must be applied since they allow analysts to incorporate two or three different stages of dividend growth forecast through the company's life. For instance, the three-stage model assumes an initial phase of stable high growth, followed by a declining linear growth rate phase until it reaches a stable growth phase that is expected to persist in the long run (Molodovsky et al., 1965). In accordance, this model can be defined as follows:

$$Share\ Price = \sum_{t=1}^{n} \frac{Expected\ Dividend\ per\ Share_t}{(1 + r_e)^t} + \frac{Terminal\ Value_n}{(1 + r_e)^n} \qquad \textbf{(9)}$$

The dividend approach is often criticized for its limitations that easily lead to a misleading valuation. Two standard limitations in this approach concern not taking into consideration the effect of stock buybacks (Damodaran, 2012) as well as time-varying factors, such as risk-free rate, risk-premium, and firm's risk profile (Ang & Liu, 2004). Nonetheless, because of DDM´s simplicity and its intuitive logic, this approach is often used as a complement to other valuation models.

2.1.1.2 Free Cash Flow to The Firm Valuation

The Free Cash Flow to the Firm (FCFF), also known as the DCF-WACC method, represents the cash flow available to the company's capital suppliers – stockholders and debtholders – after paying all operating expenses and reinvestment needs. In other words, this approach considers all operating flows, but dismisses all financing flows and investing flows beyond the reinvestment needs – capex and working capital. As demonstrated by Modigliani & Miller (1958) and Damodaran (2012), the FCFF can be computed as follows:

$$FCFF = EBIT\ (1 - Tax\ rate) + D\&A - CAPEX - \Delta\ Working\ Capital \qquad \textbf{(10)}$$

The DCF-WACC method's core idea is composed of a two-step process: starting with the computation of the Enterprise Value (EV) and followed by the Equity Value (EQV). The EV reflects the overall current value of a business and is obtained by discounting two main periods – the explicit forecast period and the terminal value – of forecasted free cash flows at the weighted average cost of capital. In this optic, the enterprise value is given by:

$$Enterprise\ Value = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{Terminal\ Value_n}{(1 + WACC)^n} \qquad \textbf{(11)}$$

Thereafter, the equity's value reflects the firm's total value and is obtained by adjusting the enterprise value by the value of non-operating assets and market value of debt, as follows:

$$Equity\ Value = Enterprise\ Value + Non\ opertaing\ assets - Debt\ and\ equivalents \qquad \textbf{(12)}$$

There are some criticisms against the DCF-WACC method, according to Ruback (2002:86), this approach "(…) poses several implementation problems in highly leveraged transactions, restructurings, project financings and other instances in which capital structure changes over time. In these situations, the capital structure has to be estimated and those estimates have to be used to compute the appropriate weighted average cost of capital in each period". As such, this methodology can still produce accurate results but is harder to apply (Koller et al., 2010), being better suited for companies with relatively stable capital structures (Luehrman, 1997a).

2.1.1.3 Free Cash Flow to Equity Valuation

The Free Cash Flow to Equity (FCFE) method is considered the most complete valuation method in terms of cash flows since it contains all operating, financing, and investing flows. As per Pinto, et al. (2010), the FCFE represents the cash flows available for dividend distribution to equity holders after paying all the operating expenses, debt obligations, and reinvestment expenses. In this optic, one way to compute the FCFE is as following:

$$FCFE = Net\ Income + D\&A - CAPEX - \Delta\ Working\ Capital + \Delta\ Debt \qquad \textbf{(13)}$$

Alternatively, the FCFE can be computed by converting the FCFF, if in both approaches the set of assumptions remains the same:

$$FCFE = FCFF - Interest\ Expenses * (1 - t) + \Delta\ Debt \qquad \textbf{(14)}$$

Once the last computation is accomplished, the enterprise value (EV) can be obtained by discounting the FCFE at cost of equity rate (r_e), since all the remaining expenses are already incorporated in the cash flow.

$$Enterprise\ Value = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + r_e)^t} + \frac{Terminal\ Value_n}{(1 + r_e)^n} \qquad \textbf{(15)}$$

Similar to the DCF-WACC method, the firm's total value is obtained by adjusting the enterprise value by the value of non-operating assets.

Some shortcomings regarding the FCFE method are related to the complex implementation of the model since the capital structure is embedded within the cash flows. Besides, the difficult identification of value-creation opportunities due to its aggregate perspective provides less information about sources of value creation (Koller et al., 2010).

2.1.1.4 Adjusted Present Value Model

The Adjusted Present Value (APV) model was first introduced by Myers (1974) and appears in the literature as a better alternative to DCF- WACC method, since "(…) APV always works when WACC does, and sometimes when WACC doesn't", according to Luehrman (1997b:145). Additionally, the author defends that this model is more reliable since it depends on fewer restrictive assumptions.

This methodology relies on the principle of value additivity, which means that equity analysts can evaluate the firm in pieces and analyze where the value is generated (Luehrman, 1997b). Following the reasoning, the firm's value is given by the sum of two components: the value of the firm with no leverage and the value of the interest tax savings generated by debt financing; lastly, it subtracts the value of expected bankruptcy costs.

$$Firm\ Value = Value\ of\ Unlevered\ Firm$$
$$+ PV\ of\ Interest\ Tax\ Shields$$
$$- PV\ of\ Expected\ Bankruptcy\ Costs$$

(16)

Even though the APV approach has advantages over the DCF- WACC method, it has a solid weakness related to the difficulty in estimating bankruptcy costs, which leads to some researchers disregarding it (Damodaran, 2005). For this reason, many researchers still consider the DCF-WACC as the most reliable valuation method.

2.1.2 Economic Value-Added Model

The Economic Value-Added Model (EVA) is another valuation methodology type for being based on the concept of residual income. According to Pinto, et al. (2010), the EVA approach determines the firm's value as the sum of two components: (i) the current book value of equity or of invested capital; (ii) market value-added (MVA).

The MVA is characterized as being the value created by shareholders' investments, that is the market's assessment of the current value of all the company's past activity and of all projects that are expected in its future, at a given moment (Mota et al., 2012). In numerical terms, the MVA is the present value of the expected future residual income discounted at the WACC, as written below:

$$MVA = \sum_{t=1}^{n} \frac{EVA_t}{(1+WACC)^t} + \frac{Terminal\ Value_n}{(1+WACC)^n}$$

(17)

As depicted above, the MVA concept is linked with the performance measure EVA. In detail, EVA represents the excess return on an investment and, therefore indicates if the firm is creating or destroying value. As per Fernández (2007), it can be computed through the following formula:

$$EVA_t = NOPLAT_t - WACC * Invested\ Capital_t$$

(18)

Consistent with Mota, et al. (2012), this methodology is considered to be a simple rearrangement of the DCF model, with the disadvantage of being based on future earnings and not cash flows. Another criticize of the EVA model is driven by the risk of accounting interpretations and manipulations of results, since a firm's manager can easily increase the performance measure, EVA, through reducing capital invested or by making riskier investments (Pinto et al., 2010).

2.1.3 Relative Valuation – Multiples

The relative valuation based on multiples is one of the most popular equity valuation methods, for being a simple and intuitive tool for assessing value. "In relative valuation, the value of an asset is derived from the pricing of comparable assets, standardized using a common variable such as earnings, cash flows, book value, or revenues", consistent with Damodaran (2012:19). Accordingly, the author defends

that the underlying assumption behind this approach is that the market prices correctly on average stocks but makes mistakes when pricing individual stocks.

The multiple method's core idea is composed of a two-step process: starting with the selection of peer group and followed by the decision of which multiples to use. A peer group is a set of a companies that are selected as being comparable to the company being valued. According to Damodaran (2015:565), "(…), a comparable firm is one with cash flows, growth potential, and risk similar to the firm being valued", usually firms operating in the same industry. Consistent with a study led by Alford (1992), proving that valuation errors decrease when comparable firms are selected based on industry SIC (Standard Industrial Classification) codes.

Regarding the second step, Fernandez (2019) defends the existence of a wide range of multiples based on growth, on the company's capitalization, and value – table 2.1 presents five of the most commonly used multiples in valuation.

Table 2.1: Most Popular Multiples in Valuation Divided by Categories

Type of Multiple	Name	Formula
Capitalization	Price-to-Earnings Ratio (PER)	Share Price/EPS
Value	Enterprise-value-to-EBITDA	EV/EBITDA
Growth-Referenced	Price-to-Earnings-to-Growth	PER/Growth of EPS
Value	Enterprise-value-to-Sales	EV/Sales
Capitalization	Price-to-Book Value (P/BV)	Market Capitalization / BV of Equity

Source: Fernandez (2019)

The previous author also states that some multiples are more suitable than others to value a firm on a relative basis, depending on the industry and company-specific contexts. Notwithstanding, the most popular valuation multiples used by Morgan Stanley especially for valuing European companies are the Price-to-Earnings Ratio (PER) and the EV/EBITDA.

The popularity of these two multiples adverts to its complementarity, in the sense that, some limitations of PER are overcome with the EV/EBITDA multiple. In detail, the PER links the firm's share price to its earnings per share, however, it has some drawbacks such as being earnings-based and is distorted by the company's capital structure as well as non-operating gains and losses (Koller et al., 2010). On the other hand, the EV/EBITDA multiple is less volatile to changes in capital structure, is not affected by different tax rules, and is a cash flow based on the company's operations.

Overall, multiples valuation is not always a trustworthy tool when assessing the value of a firm, specifically, it is considered a rather simplistic and static approach. Despite these limitations, some authors argue that this valuation method should be used as a complement to other valuation methods since it calibrates their fair value, helps to obtain the terminal value, and highlights industry insights (Liu et al., 2002; Koller et al., 2010).

2.1.4 Contingent Claim Valuation

The Contingent Claim Valuation is a well-known methodology for measuring a firm's value on the notion of option pricing models, such as the Black & Scholes and the binomial model. The fundamental behind this valuation method is its usefulness to evaluate assets that share option features, in detail, assets that derive their value as a function of the value of an underlying asset, and their payoffs are contingent on the occurrence of a future event (Damodaran, 2012).

Theoretically, the contingent claim valuation is most suitable to value companies with "(…) projects that involve both a high level of uncertainty and opportunities to dispel it as new information becomes available" (Copeland & Keenan, 1998:130) and for companies in specific industry sectors – such as mining, gas, and oil companies, because their valuation is based upon the decision of mining or drilling.

Given the circumstances and its complex applicability in a company's valuation, Luehrman (1997a) states that contingent claim valuation should be used as a complement to other valuation methodologies and not as a replacement.

3. Macroeconomic Overview

The global economy in 2020 contracted 3.3%, witnessing the deepest economic shock since the end of World War II (World Bank, 2021). The pandemic outbreak and associated mitigations –such as the lockdown measures, travel restrictions, closure of non-essential business, etc. – caused a collapse in the global activity, decreasing domestic private consumption that requires social interaction, business investment as well as restricted labor supply and production, which led to elevated unemployment rates across advanced and emerging market economies.

Following the collapse of last year, the global economy in 2021 is projected to expand 6%, supported by an increase in consumer confidence, consumption, trade, the pandemic's management improvement, as well as the COVID-19 containment aided by widespread vaccination (IMF, 2021).
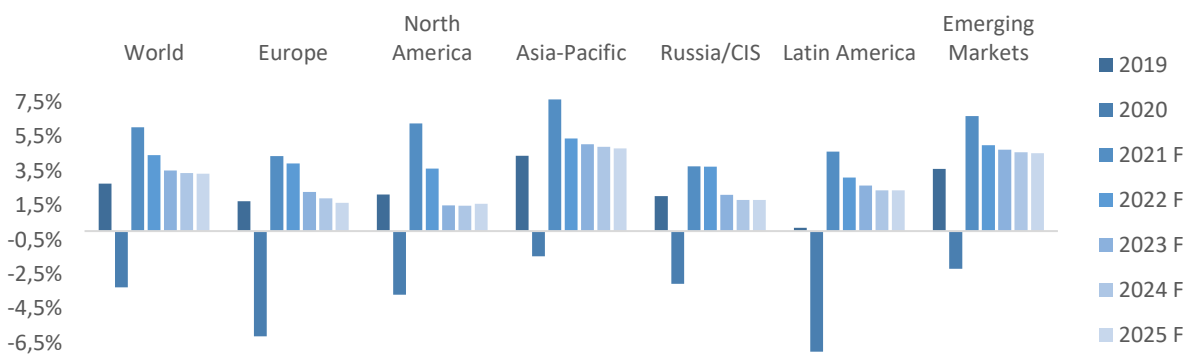
Figure 3.2: Regional GDP Development

Source: Own Elaboration. Based on data from IMF of 2021

Nevertheless, the projected growth for 2021 conceals a different growth pace between advanced and developing economies (EMDEs) – that we will take into account in section 6. In advanced economies, growth is projected to recover 5.1% due to the reasons provided above, and the continuity of unprecedented monetary and fiscal policy support given by major central banks. Similarly, the EMDEs are also expected to expand 6.7% in 2021, where prospects for China are more positive than for most economies in the EMDEs, with the economy forecasted to grow about 8.4% over 2021 due to its effective containment measures, resilient exports, and strong policy support.

Concerning 2022, the global economy is projected to moderate to 4.4%, mainly as a reflection of the pandemic's lasting damage to potential growth and widespread inoculation. In a medium-term outlook, the global growth is expected to gradually slow to about 3.3%, implying that advanced and EMDEs will only catch up towards the 2020-2025 pre-pandemic's path of economic activity. Moreover, this outlook for the global economy comes with the prospect of higher inequality, more poverty, elevated debt, and severe setbacks to human capital accumulation.

As for inflation, it is expected to remain relatively low. Meticulously, in advanced economies inflation is forecasted at 1.6% this year, increasing to 1.7% in the next year as the recovery gains hold, and broadly stabilizing thereafter at 1.9%. Regarding, inflation of EMDEs is predicted at 4.9% in 2021, declining to 4.4% in 2022, and moderating afterward to 3.8% over the medium term.

4. Industry Overview – The Sportswear Industry

Adidas AG operates as a sports manufacture in the Global Sportswear industry, also known as the Global Sporting Goods Industry. This industry was estimated to be worth $346.1 billion in 2019 and counting, according to Euromonitor International. There is no denying that the sportswear industry has become one of the biggest industries around the world and the fastest growing industry in the global market for apparel and footwear in recent years. Specifically, the sporting goods industry verified a CAGR of 4.9% over 2009-2019, thanks in large part to the growing proportion of the world population aspiring to live healthier lifestyles as well as the fashion for athleisure products, driving the demand for sportswear.
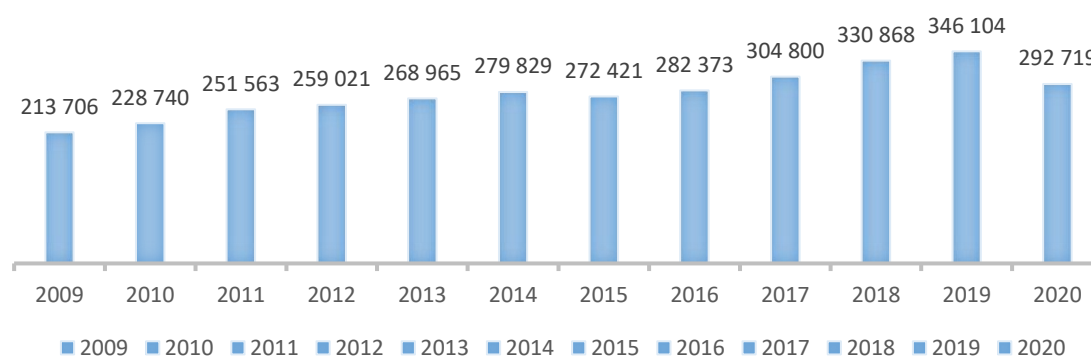
Figure 4.1: Global Sportswear Industry in $ Billion

Source: Own Elaboration. Based on data from Euromonitor International

In 2020, this industry snapshot was quite different due to the coronavirus pandemic. The sportswear industry was among the worst hit by the pandemic, witnessing a contraction of 15.4% in terms of market size. The industry shock started with the weakened consumer spending posed by tight travel restrictions and the slowdown of the global economy, raising the specter of a possible recession. Followed by the strict pandemic-related lockdown measures imposed across the world that forced retailers to close stores or reduce store-opening hours, which lead to excess inventory and the growing consumer's fears about visiting malls. For last, we cannot forget the industry's headwinds caused by the postponement and cancelation of major professional and amateur sports events.

To overcome these obstacles, the industry speeds up the pace of digital transformation towards e-commerce accounting for a 27.2%[1], (vs. 71.9% store-based retailing) value share of the global sporting goods sales in 2020, compared with a 10.9%[1] (vs. 87.8% store-based retailing) in 2015.

There is no doubt that the sportswear industry faces uncertain times given its non-essential nature and its high dependence on consumer spending and confidence. In this sense, Euromonitor International forecasted several future growth scenarios[2] in a five years' timeframe consistent with possible

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[1] Non-store retailing includes the following type of channels: direct selling, home shopping and e-commerce. The missing channel distribution value share concerns to direct selling and home shopping.

[2] More details about each scenario in Appendix A.

developments of the worldwide pandemic: Jan 2020 Pre-C19, Marc 2021 Baseline, Scenario 1,2, and 3. As it is possible to observe in the figure below, this industry will quickly recover the impact in the short term. Meticulously, the sporting goods value sales will see a return to growth in all scenarios already in 2021; however, this growth will not entirely offset the decline observed in 2020. Nevertheless, all scenarios expect revenues to increase approximately at a 5% CAGR rate in the 2021 to 2025 period, which is similar to the growth registered over the 2009-2019 period.
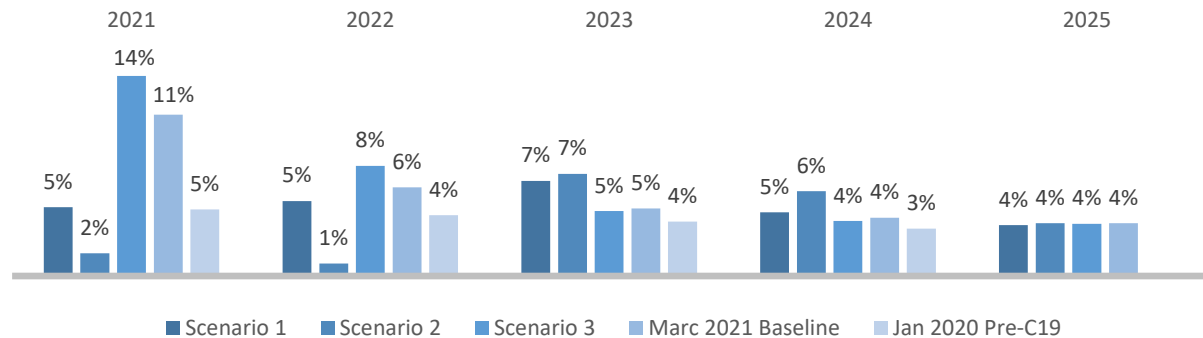
Figure 4.2: Annual Growth Forecast of the Global Sportswear Industry

Source: Own Elaboration. Based on data from Euromonitor International

4.1 Breakdown of the world sportswear industry in 2020 VS 2019

The sportswear industry's product portfolio comprises two main categories the sports apparel with a market share of 59.5% and sports footwear with 40.5% - values registered in both years. From a segmentation perspective, both categories are segmented into performance (products designed for a run), outdoor (items created to enhance the performance of outdoor sports), and sports-inspired products (fashionable and comfortable goods intended for daily use). Regarding the segmentation market share in 2020, performance apparel and footwear remained the cornerstone of the sportswear market with 44%, followed by sports-inspired with 41.6%, and for last, outdoor products with 14.4% (vs a market share of 44.7%, 40.7%, and 14.6% in 2019, respectively).

In 2019, growth in the sporting goods industry was 4.6%. The sports-inspired footwear (6.6%) and apparel (4.5%) had a substantial growth remaining in the top three segments contributors to the industry's growth. Performance footwear also had a robust growth of 5.6%, although, lower than its 5.9% historic CAGR over 2014-2019. Concerning 2020, the sports-inspired footwear and apparel persisted as the top segments contributors in decreasing the industry growth contraction.

As per geographical zones, North America remains by far the largest market in the world, with 36.3% of the global sportswear sales in 2020, followed by Asia-Pacific and Europe with 28.7% and 23.2% respectively. The North America region is predominantly driven by the USA market, which accounts for 95% of its total sales. Nevertheless, Asia Pacific is the fastest-growing region over 2010-2020, with value sales growing by a CAGR of 6.2% (vs 3.7% CAGR in North America). The main drivers for this region are China and India markets, powerhouses where consumers are increasingly seeking a healthy lifestyle, a growing appetite for foreign sportswear brands, and where government

policies are fueling the development of the sports economy. Moreover, this region's growth is expected to be boosted with the next two Olympic Games and FIFA World Cup that will be held in Asia-Pacific.

In terms of geographical performance, all regions witnessed growth contraction in comparison to 2019, highlighting Latin America (-36.6% YOY) and North America (-19.8% YOY) as the biggest regions contributors to the industry shrinking.
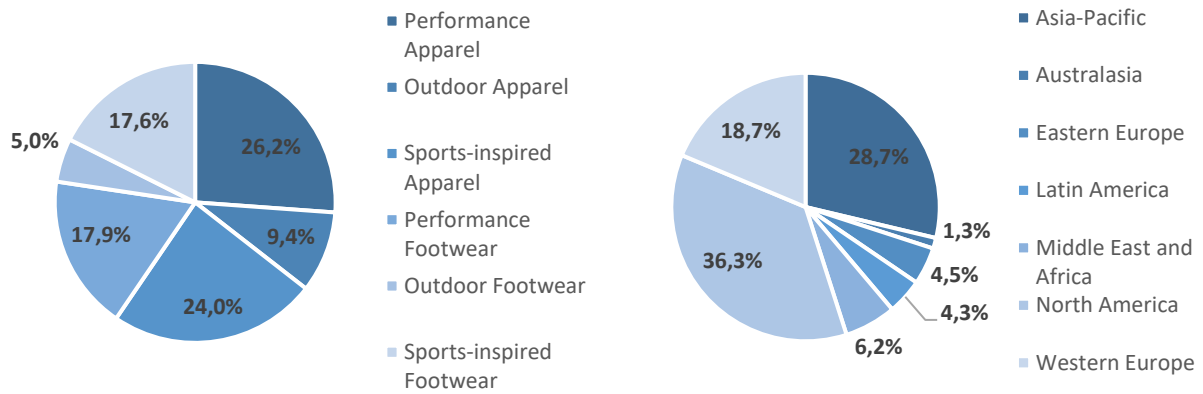
Figure 4.3: Sales Description by product segmentation and geographic zone

Source: Own Elaboration. Based on data from Euromonitor International

To conclude, there are no significant differences between pre (2019) and pos (2020) pandemic times in terms of the industry market share by segment and geographically.

4.2 Main Worldwide Players

Globally, the sporting goods industry is classified as consolidated, since the top ten players have more than 46% of the market share in 2020, compared with 32% in 2010. Nike Inc. is still the leading sportswear company in the world in 2020, with $37.4bn, followed by Adidas Group with $22.7bn, VF Corp $10.5bn, Puma SE, and Anta Co Ltd. both with $5.2bn. The market share of these sports brands has been stable over the past five years. Nonetheless, it is expected a further consolidation of the competitive landscape with the increase of M&A activity because of the growing number of players unable to cope with the financial impact of the pandemic and the recessionary consumer mindset.
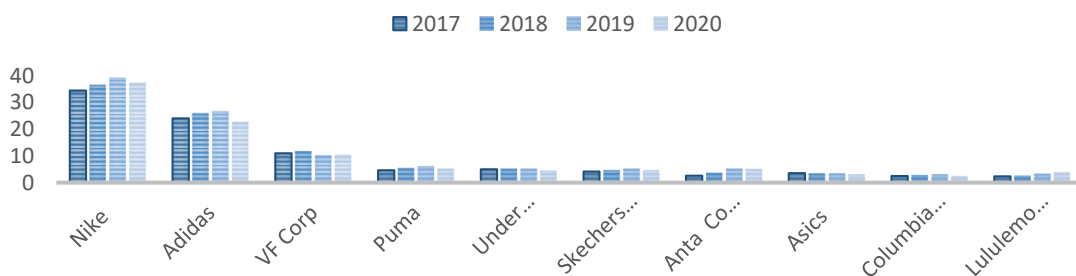
Figure 4.4: Main Player's Revenue in $ Billion

Source: Own Elaboration. Based on data from Bloomberg and Company's annual reports

The competitive landscape of the sportswear market is fierce. It covers a diversified range of players from small to large, local to international, and branded to private labels. Despite the fierce competition, Nike and Adidas stand as the number two giants in this industry, because their retail and product innovation, widespread geographic presence, and solid brand image. Meticulously, being Nike Inc. the number one sportswear company in the last half-decade. Nonetheless, it was Adidas Group that had the strongest growth sales over 2014-2019 with 10,2% CAGR (vs. 7,1% CAGR of Nike), mainly due to the popularity of its athleisure and casual footwear.

There is no doubt that the leading brands of this industry landscape compete with each other, however, we cannot forget the flurry of smaller sportswear brands namely Lululemon Athletica, Kate Hudson's Fabletics, and Sweaty Betty, nor the general apparel brands that are extending into sportswear market through private label offerings, such as Gap, Inditex, H&M and Amazon.

4.3 Top Trends Shaping the Sportswear's Market

Digitalization: As previously stated the pandemic has generated further momentum for the already rapidly growing digital transformation towards e-commerce channels, mainly due to the concerns about safety in visiting shopping malls and retail store closures. It is expected by 64% of industry professionals across various industries that online shopping will be a permanent change in the long-term, in accordance with Euromonitor International's COVID-19 Voice of the Industry Survey (2020). As such, retailers and brands are prioritizing new digital retail strategies, for instance, order delivery, curbside pick-up, livestream shopping, virtual shopping appointment, and digital fashion weeks. Moreover, the evolution of digital offerings such as membership programs or fitness with seamless personal experiences remains a predominant theme.

Sustainable and Ethical: Consumers are more concerned about environmental issues and are prioritizing companies that hold sustainability commitments in the long-term, as well as companies that support social and political issues which are aligned with their values, according to Euromonitor International's Lifestyles Survey (2020). As a result, sports brands are changing their supply chain to launching upcycled garments, reducing waste through resale and rentals, and increasingly taking a stand on social issues. These are key sustainable features that benefit brands by increasing consumers' appeal and loyalty.

Luxury and Sports Team Up: Sportswear brands' collaborations with celebrities and luxury fashion houses are an increasing trend to offer consumers novelty and hype, especially for millennials and generation Z that seek to create an original image on social media and build their "brand me". Moreover, these partnerships increase the brand's credibility.

Smart Closing: The advances felt in clothing production technology, drove athleisure companies to invest increasingly in more customization and smart clothing for their customers as a way to differentiate and to be ahead of the competition landscape. Moreover, smart clothing trends will be boosted with the technological developments that allow customers to monitor their wellness and health.

Wellness, Fashion, and Womenswear: The conjugation of consumers growing prioritizing of health and wellness, the increasingly casual dress standards in social spheres and work across genders and geographies, as well as the rise of casual outfit transformation into a fashion-forward look by social media has been boosting the growth in sportswear in the recent years. Especially among women, that are the gender at the forefront of this athleisure trend and the main gender responsible for the increasing growth felted in the industry. Likewise, sportswear's fashion trend has continued during the pandemic. Consumers' clothing preferences have shifted to versatility and comfort, buying mainly sportswear and casual clothes. In detail, 41% of industry professionals expect that buying more health and wellness-related products is a mid-term change and purchasing will eventually return to pre-crisis levels, while 34% expect this behavior to be a permanent change, along with Euromonitor International's COVID-19 Voice of the Industry Survey (2020).

Price and Value for Money: The raising specter of a possible global recession and the rising unemployment rates are making consumers more price-sensitive and more appreciative of products that offer value for money. Under these conditions, demand for sports private labels and unbranded products with low price offerings are expected to increase. Furthermore, discounts and promotions will have an even more important role in this industry, especially for companies aiming to get rid of excess inventory.

4.4 Porter's Five Forces Analysis

The Sporting Goods industry will be analyzed taking sportswear brands as core players, buyers as individual consumers, and sportswear manufacturers as suppliers.
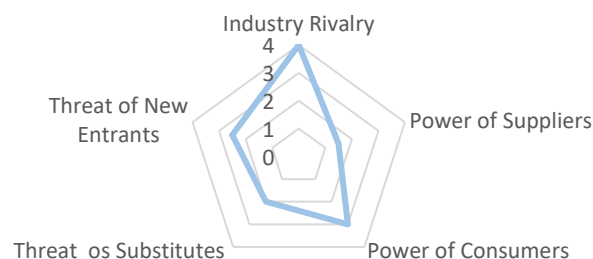
Figure 4.5: Porter's Five Forces Matrix

Source: Own Elaboration

Industry Rivalry: High Threat

The rivalry among the sportswear industry is high and intense. Apart from the sportswear giant's companies such as Nike, Adidas, and VF Corp, there is a flurry of smaller brands, as well as an

increasing number of private-label offerings fiercely competing to increase their market share. Brand identity and customer loyalty are key elements to strengthening their market position in this industry. Consequently, sportswear brands are investing heavily into their research and development departments to create unique product lines, developing new marketing, sponsorships, and advertising strategies.

Suppliers Bargaining Power: Low Threat

The suppliers bargaining power is not significant. The supply of raw material outperforms in numerical terms its demand in the sporting goods industry, as such, brands can easily switch to news suppliers that offer more competitive prices. Nonetheless, the supplier's power is boosted when the buyer's size is lower than the equipment manufacturers. Although suppliers have a fundamental role in the big players' business, their power is rather low to none since singly none of them can exercise any pressure on the firm. This lack of power is because companies like Adidas that outsource almost 100% of their production to several independent manufacturing partners with manufacturing facilities worldwide.

Buyers Bargaining Power: Medium Threat

Despite, the effects of losing one customer not being intensely felt, as a group, sportswear companies can be affected in a significant manner. Consumers are relatively price-sensitive and switching costs are negligible to them due to the endless purchasing options that allow price comparison – currently easier with the growing trend of e-commerce. Hence, the buyers' bargaining power is considerable within this industry. However, customer loyalty and product differentiation are key features that help sportswear's brands mitigate this threat.

Threat of New Entrants: Low/Medium Threat

The barriers to entry in the sportswear industry are generally high due to the existence of some economies of scale, as well as very high investment requirements that new entrants need to be able to compete with larger players such as Adidas and Nike. Moreover, to have a chance of a possible establishment in this industry, newcomers must create new and innovative products – identically to the case of Lululemon Athletica and Under Armour, that had success in their niche and now are able to expand their product portfolio with their position solid in the industry. From a local scale business point of view, capital requirements are small which can be an attractive prospect for newcomers. As such, the strong growth in the Asia-Pacific region is more likely to attract new entrants since the North America and European region's steady growth is offset by the factors outlined above. Yet, the threat of new entrants becomes moderate when strong general apparel brands extend into the sportswear market.

Threat of Substitutes: Low Threat

The athletic apparel and footwear industry have endless choices of sportswear companies from small to large, local to international, and branded to private-label competitors, under a wide range of prices.

Nevertheless, the threat of product substitution is reduced when companies offer exclusive and unique lines of products, generally, developed by collaborations with celebrities and luxury fashion houses. The real concern of product substitution adverts to the switching fashion trends and consumers preferences. To mitigate this threat, companies must have a diversified product portfolio and keep up with the fashion's tendencies.

By analyzing all five competitive forces, the overall level of threat of the sporting goods industry is median low – 2.6 on a 0 to 5 scale. Nevertheless, we considered this industry attractive only for incumbent companies.

5. Adidas AG's Company

Adidas Group is a sportswear company headquartered in Herzogenaurach, Germany. The company is well known for design, manufacturer, and marketer sports shoes, apparel, equipment sporting, and lifestyle goods in more than 160 countries. It counts with more than 59,000 employees and is the second biggest player worldwide in retail value terms, surpassed only by Nike Inc.

The origin of this German sportswear company dates back to 1924 when Adolf and Rudolf Dassler brothers started producing athletic shoes, through a company named Gebrüder Dassler Schuhfabrik. The foundations of the company were built with the mission to provide athletes with the best possible equipment. From this point on, the firm found fame when a German and a US sprinter won gold medals at the 1928 and 1936 Olympics while wearing the brothers' running spikes.

In 1949, an infamous rift between the brothers split the business, leading to the foundation of Adidas by Adolf and Puma by Rudolf. Nevertheless, this was just the starting point for the "three parallel bars" brand's global success. In the 1950s, the brand dominated the world's athletic shoe market when it became the household name on football worldwide. Throughout the years, Adidas gained in fast mode the trust of world-class athletes in multi-sports, which lead to strong company growth.

Later, in 1989, the end of the Dassler family leadership brought the firm near to bankruptcy. However, with the successful leadership of Robert Louis-Dreyfus, Adidas overcame the financial challenges and went public on the Frankfurt stock exchange in 1995.

Back on the right track, the firm started its expansion strategy in 2006 with the acquisition of Reebok to enhance Adidas' market share in the North American market, and afterward, re-named the company as Adidas AG. A few years later, the German company acquired Five Ten – outdoor specialist –, TaylorMade, Ashworth as well as Adams Golf with the aim to expand to the golf market.

Nonetheless, in 2015, it was the "Creating the New" five-year (2016-2020) strategic business plan that took Adidas' growth to another level. Its strategy focused mainly in: (i) over-proportionally investing in the world's most influential metropoles: London, New York, Tokyo, Los Angeles, Paris, and Shanghai; (ii) offering a strategic priority to invest in North America since it represents the biggest growth opportunity for the Adidas brand; (iii) expanding the collaboration-based innovation model through more athlete, creative and partner collaborations[3]; (iv) focusing on its core strength areas of apparel and footwear through Adidas and Reebok brands; (v) improving its digital capability along the entire value chain; (vi) implementing ONE Adidas initiatives that enabled to work smarter, more efficiently and in a more aligned way.

Subsequently, in 2017, Adidas AG executed the "Creating the New Acceleration Plan" strategy that led to the decision to exit the hockey and golf business with the divestiture of CCM Hockey brand and

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[3] Such collaborations include relationships with the world's best athletes, teams, the most influential celebrities on social media, as well as partnerships with organizations that accelerates the company sustainable innovation.

several other golf-related brands – TaylorMade, Ashworth, and Adams Golf. In this way, the company was able to accelerate its growth by focusing on its core competencies in apparel and footwear.

Despite the negative impact resulting from the worldwide pandemic in 2020, the 'Creating the New' strategy proved to be very successful, it enabled drive-top and bottom-line growth by significantly increasing brand desirability. For that reason, the latter business plan was the foundation of the 'Own the Game', the new strategic business plan for the period from 2021 to 2025. Its strategic focus is on strengthening the brand credibility, elevating experience for consumers, and pushing boundaries in sustainability. To do so, the company will bet mainly on innovation and digital transformation. In economic terms, the new strategy is designed to significantly increase sales, profitability as well as gain market share until 2025.

Overall, this new business plan is an improved growth and investment strategy that considers the current industry needs and trends. Highlighting the main differences between the aforementioned business plans, the company decided to: (i) enlarge its key cities to Mexico City, Moscow, Dubai, Berlin, Seoul, and Beijing; (ii) expand its strategic priority to invest in Asia-Pacific and Europe regions; (iii) implement scaled and comprehensive sustainability programs, instead of stand-alone initiatives; (iv) transform into a direct-to-consumer-led business enabled by a network of own-retail stores and e-commerce; (v) fine tune its market position in sports and lifestyle through a clear brand architecture, which led to the decision of divesting Reebok.

Notwithstanding, Adidas AG's mission to be the best sports company in the world remains unchanged.

5.1 Business Overview

As stated before, Adidas AG is a provider of a wide range of athletic and sports-fashion goods through Adidas and Reebok brands. Per brand, the group has a distinct selling focus. Adidas's brand has a clear focus on sports by selling mainly athletic equipment for multi-sports types and sports-fashion products. While Reebok's selling focus is on fitness and gym apparel goods.

Geographically, the German company operates in more than 2,500 own retail stores worldwide and extends its reach further via a franchise network (15,000 stores) and wholesale channel (150,000 stores), as well as with its e-commerce operations in 50 countries via the brand's sites and its apps.

Throughout the years, the sportswear giant Adidas has solidified its position as a key player in the sporting goods industry, especially in the performance and sports-inspired footwear and apparel. The proof of that is the CAGR of 10.2% generated by Adidas AG over 2014-2019 in comparison with its biggest rival, Nike Inc., which registered a value CAGR of 7.1% for the same period. If the German group continues to thrive, Adidas could overtake Nike's historical position as the global top-ranking sportswear firm in the medium to long term. The main drivers of Adidas' boost were the rise and sustained strong social emphasis on fitness, style, and comfort, as well as the sponsorships of high-profile sporting events such as the Olympics and FIFA World Cup.
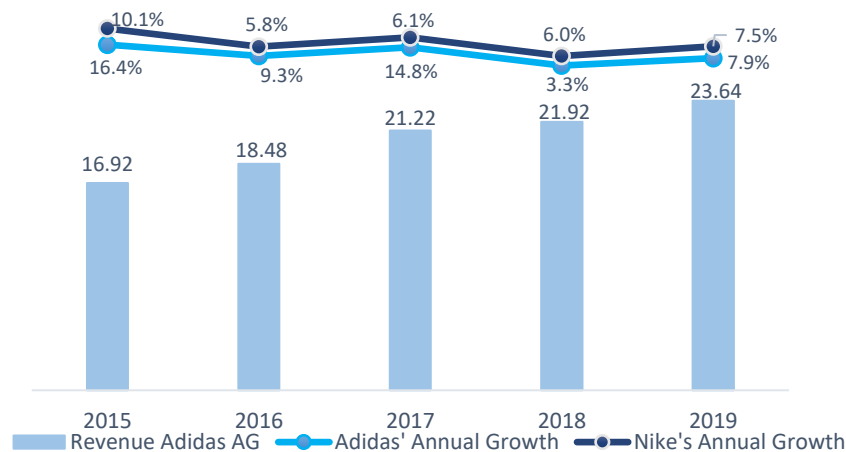
Figure 5.1: Revenues Evolution in € Millions

Source: Own Elaboration. Based on data from Companies' Financial Statements

Focusing on 2019-year, we analyzed the firm's revenue by brands, product category, and geographical segmentation. In the target year, Adidas AG had €23.640 billion net sales, representing an increase of 6% on a currency-neutral basis compared to 2018. This revenue increase was achieved mainly due to Adidas's brand net sales growth, driven by the high and mid-single-digit growth in sports-inspired and performance, respectively. Meticulously, Adidas's brand accounted for 91% of the group's total revenue, whereas Reebok only accounts for 7.4%[4]. The weak revenue gain presented by Reebok (2%) can be explained by the decline in sports sales as well as the low-single-digit gain in classics, which is struggling due to its lack of brand identity.

From a product segmentation perspective, the company's product portfolio is composed of three integrated categories: footwear, apparel, and hardware[5]. Footwear is Adidas' cornerstone accounting for 57% of the group's overall revenue in 2019, followed by apparel with 38%, and for last, the hardware products with 5%. Nevertheless, it was the hardware category that had the strongest currency-neutral increase (25%) in comparison to 2018 year, followed by apparel with 7% and footwear with 4%.

From a market perspective, in 2019 Asian-Pacific is the firm's biggest segment reporting for 34% of the firm's revenue, afterward Europe (25.7%), North America (22.5%), Latin America (7%), Emerging Markets (5.5%) and Russia (2.8%). In detail, the revenue increased in all markets, although, the top markets contributors for the revenue growth were the Emerging Markets (13%) and Asian-Pacific region (10%) with double-digit gain, followed by North America, Russia as well as Latin America with a high-single-digit growth of 8%.

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[4] From a brand view, 1.6% of the total revenue of Adidas AG is classified as "other business". It includes the revenues from Runtastic (fitness app) and Five Ten brand.

[5] Example of hardware products: bags, fitness equipment and balls.
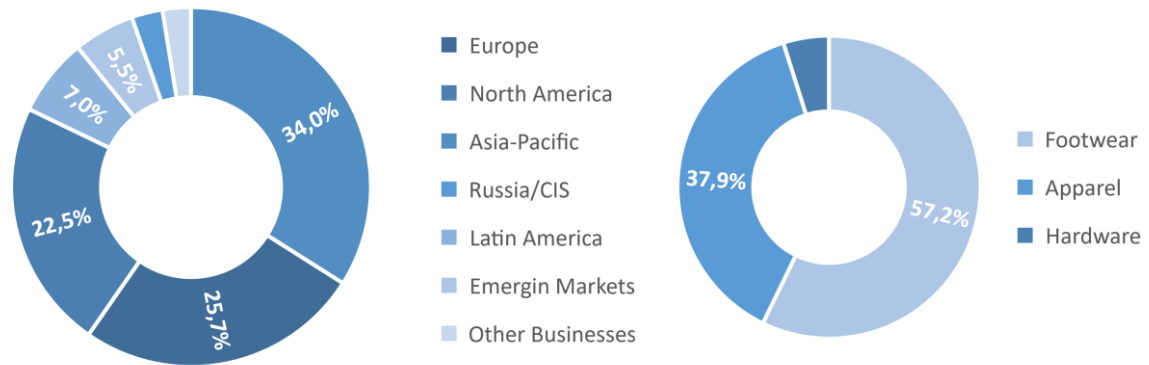
Figure 5.2: Revenue description by product category and geographic segment

Source: Own Elaboration. Based on data from Adidas Annual Report

Overall, this was a brief overview of Adidas' business in pre-pandemic times. Considering the hard-hit felted in the sportswear industry in 2020, it is also important to analyze the coronavirus pandemic impact in Adidas.

5.2 Impact of the coronavirus pandemic

As previously mentioned in the industry overview section, 2020 was a year full of challenges for the sportswear players, and for Adidas AG was not an exception. It had an inevitably lower-than-expected product sell caused by all lockdown restrictions imposed worldwide – at a certain point the company had more than 70% of its global store fleet closed. This unprecedented situation led to a decrease of 27% of Adidas' net sales by the first half of the 2020 year in comparison to the homologous period.

To face this challenge, the company accelerated its focus on digital by moving available inventory to e-commerce. As a result, the German firm recorded a strong operational improvement in the second half of 2020 due to the exceptional growth in the e-commerce business. In detail, the sales through e-commerce increased 53% on a currency-neutral basis, accounting for 21% of the company's total sales in 2020 (vs. 10% in 2019).

Nevertheless, this strong operational improvement only partially compensated for the temporary physical store closures. Adidas AG still had a revenue decreased of 14% on a currency-neutral basis (€19.884 billion net sales) in 2020, reflecting the double-digit decline at both Adidas (13%) and Reebok (16%) brands. Concerning the product segmentation, the hardware products' sales were the ones that suffered the less with a decline of only 8% on a currency-neutral basis, followed by apparel and footwear that had a double-digit decline of 12% and 15%, respectively.

From a market perspective, the firm's net sales by geographical segmentation remained identical as in 2019. Although, the company sales decreased in all major market regions except for Russia/CIS, where remained flat. Further details regarding the sales evolution throughout each quarter of 2020 by brand and geographical segmentation are in Appendix B.

Overall, the pandemic impact on Adidas business performance on a currency-neutral basis was as follows (percentage change compared to 2019'results):

Table 5.1: Adidas' Business Performance in 2020

Revenue	Gross Margin	Operating Margin	Net Income
-14%	-2.3%	-7.5%	-78%

Source: Own Elaboration. Based on data from Adidas Annual Report

Even though the uncertainty regarding prolonged adverse effects of the coronavirus remains high, Adidas disclosed that expects a robust recovery in 2021 due to its new strategy, strong product pipeline as well as industry tailwinds.

5.3 SWOT Analysis

To assess Adidas' strategic position, the SWOT analysis was applied based on the company presentation, the industry analysis, as well as the markets where the group operates.

Table 5.2: SWOT Analysis

Strengths	Weaknesses
* Wide Geographical Footprint	* Production Dependence
* Brand Recognition	* Underperforming Reebok
* Sustainability Innovation	* Footwear Dominance
* Celebrity Collaborations	
Opportunities	**Threats**
* Digitalization	* Competitive Pressure
* Sportswear in Asia-Pacific	* Currency Risk
* Women's Sportswear	* Coronavirus-Pandemic

Source: Author Analysis

Strengths

Wide Geographical Footprint: Adidas has a large geographical footprint in diverse markets. This provides resilience for the firm by ensuring a diversified revenue stream and reduction of business risk.

Brand Recognition: The company is one of the premium sportswear brands worldwide. It is well known for its fashionable and high-quality products, as well as for its strong position within the industry.

Sustainability Innovation: The German group strengthens its position as a sustainability leader by pursuing a proactive approach to reduce environmental footprint. Through its sustainable practices such as producing products using ocean plastic and 100% recycled polyester, as well as the commitment to use only recycled material in all packaging, increased the firm consumers' appeal and loyalty.

Celebrity Collaborations: Adidas AG is the pioneer of designers' collaborations, being endorsed by Beyoncé and Kanye West, as well as high-profile athletes throughout the years. This strategy increased brand desirability, drove market share growth, and strengthened the firm brands' market positions by offering novelty and hype products to its consumers.

Weaknesses

Production Dependence: To minimize the group production costs, Adidas outsources 90% of its production volume to 138 independent manufacturing partners worldwide, primarily in Asia. This high dependence on manufacturing partners exposes the company to several risks such as the lack of high manufacturing standards or limited flexibility to shift quickly to more productive product lines. Additionally, failure to recognize and respond to consolidation in the retail industry could lead to increase dependency on particular retail partners and, consequently, reduce bargaining power.

Underperforming Reebok: The fitness brand has been struggling with low growth rates, in comparison with the performance registered by Adidas' brand or its peers – Fila, Ellesse, and Diadora. The main reason for Reebok's underperforming is its lack of awareness and brand identity. Nonetheless, with Rebook's divestiture, Adidas mitigates one of its weaknesses.

Footwear Dominance: As stated before, footwear is Adidas' cornerstone accounting for 57% of the group's overall revenue in 2019. Although lower than Nike, which derives 65% of its net sales from footwear, Adidas AG highly depends on this product category. In this sense, the company needs a more balanced portfolio to strengthen and widen its long-term appeal.

Opportunities

Digitalization: As previously mentioned, the pandemic has generated further momentum for the already rapidly growing digital transformation towards e-commerce channels. From this positive outlook for e-commerce, the company stands to benefit from its significant online presence worldwide, which would enable it to accelerate top-and bottom-line growth.

Sportswear in Asia-Pacific: Asia-Pacific is the second-largest sportswear market in the world and the fastest-growing region over the last twelve years. Moreover, this region's growth is expected to be boosted with demographic shifts and the next two Olympic Games and FIFA World Cup that will be led there. In the medium to long term, the Asia-Pacific region is expected to overthrow North America and became the leading market of the sporting goods industry. As such, Adidas has the opportunity to increase its market share in this market.

Women's Sportswear: As the popularity of sports continues to grow among women, women's products have been registering an increasing demand within the sporting goods industry. As per this encouraging outlook, Adidas AG is placed well to gain from its continued investments in its women's business, which in turn will boost the firm's growth.

Threats

Competitive Pressure: The competitive landscape of the sportswear market is stiff. It covers a diversified range of players from small to large, local to international, and branded to private labels. This intense competition could lead to harmful competitive behavior, such as sustained periods of discounting in the marketplace, intense bidding for promotion partnerships, increases in marketing costs, as well as puts pressure on the price of products and therefore affect Adidas's margins. This threat is bigger than ever, with the new competition of general apparel brands through private label offerings that are expanding their sports-inspired ranges to tap into the athleisure trend.

Currency Risk: The German company operates worldwide, being 74.3% of the firm's revenue generated outside the euro currency region, as well as 90% of the firm's production. As such, the currency risk is an extremely important threat to Adidas' earnings. Any unfavorable changes in demand, refinancing conditions or fluctuation in exchange rates would harm the firm's profitability.

Coronavirus-Pandemic: As previously stated, the sportswear industry was among the worst hit by the pandemic due to its non-essential nature and the raising specter of a possible recession that led to weakened consumer spending. Since growth in this industry is highly dependent on consumer spending and consumer confidence, therefore, Adidas has been suffering a negative impact on the firm's business activities and top-and bottom-line performance.

5.4 Stock Evaluation, Shareholder Structure and Return

The Adidas AG share is listed in the DAX-30 Index since 1995. Nowadays, the company share is also quoted in 15 different stock indices around the world, most importantly the EURO STOXX 50 Index, the MSCI World Textiles, Apparel & Luxury Goods Index, and since September of 2020 in the STOXX Europe 50 Index – one of the European leading blue-chip indices.

As of January 2021, institutional investors mainly held the German group shareholder structure with 86%, followed by private investors and undisclosed holdings with 11%; lastly, Adidas AG owns 3% of its shares as treasury shares.

When we analyze the number of outstanding shares, it is possible to verify that the number of shares declined approximately 4.1% from 2014 to 2019. This decline was partially due to Adidas' share buyback programs that allowed the repurchase of 20.4 million shares until March of 2020. Afterward, this program was suspended to preserve the company's financial flexibility considering the high level of economic uncertainty related to the coronavirus outbreak.

Regarding Adidas' share price, in the past five years, the company followed the general upward trend of the indices presented in figure 5.3. At the end of 2019, the company's share was worth approximately 3.22x more than the 2015 year-end-level, reflecting the successful execution of the "Creating the New" business plan, as well as the firm's ability to sustainably grow revenues and improve margins. In 2020, the global stock market was very volatile throughout the year. At the first half of the year, fears around the impact of the coronavirus pandemic and associated mitigations caused a negative shock in the stock market. Nonetheless, in the second half of the year, the stock market started to show recovery signs with the economies fully reopen and prospects of a vaccine against Covid-19. As such, the company share closed the 2020-year at € 297.9 – performing in line with the DAX 30 Index – and presenting an increase of 2.8% above the prior year-end level.
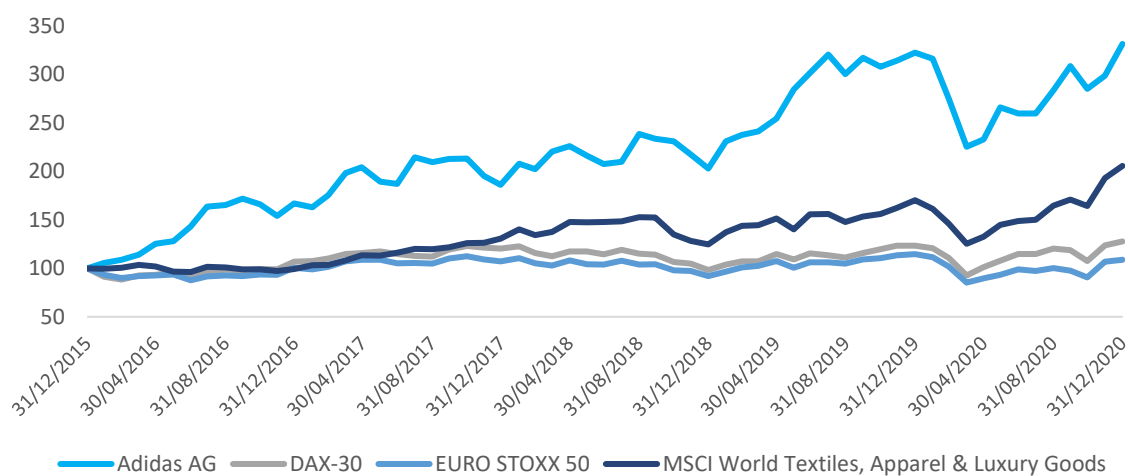
Figure 5.3: Five-year share price performance of Adidas and important indices

Source: Own Elaboration. Based on data from Bloomberg

Furthermore, the German group's dividends per share have been continuously growing, accounting for an increase of 50% compared with the 2016-year level. This increase is the result of a robust financial position, strong operational and financial performance of Adidas over the last few years.

Table 5.3: Dividend Payments

	2016	2017	2018	2019	2020
Dividend per Share (€)	2	2.6	3.35	3.85*	3
Dividend Payout Ratio	39.7%	39.2%	39%	0%	140%
Dividend Yield	1.1%	1.2%	1.4%	1.2%	1.7%

* To safeguard Adidas' financial flexibility, it was suspended the dividend payment for the 2019 financial year due to the coronavirus outbreak.

Source: Own Elaboration. Based on data from Bloomberg

5.5 Financial Analysis

In this section, we will provide a brief financial analysis for potential investors to have a better understanding of Adidas AG's financial situation in the last half-decade. As such, this analysis is divided into three studies: the company's capacity to generate profitable sales from its assets, and its ability to meet short and long-term obligations.

5.5.1 Profitability Analysis

A company's capacity to generate profit on capital invested is a major determinant of its overall value as well as the securities it issues. Thus, we will analyze key return-on-investment profitability ratios.

Table 5.4: Profitability Ratios

	2016	2017	2018	2019	2020
ROA	7.1%	7.5%	11.5%	10.9%	2.1%
ROIC	13.7%	17.8%	22.1%	20.0%	4.5%
ROE	16.8%	17.6%	27.4%	30.0%	6.5%

Source: Own Elaboration. Based on data from Bloomberg

Throughout the years, the Return on Assets (ROA) [6] ratio of Adidas shows an overall upward trend, reflecting the growing company's ability to increase the net income generated by its assets. By decomposing this ratio as a function of the firm's asset turnover and net profit margin, we can conclude that both had generally increased steadily until 2018. Therefore, the improving efficiency and profitability of the group justify the overall growth in ROA. Nonetheless, the increase in the value of the firm's assets in 2019 – derived by the financial assets, receivables, and other assets –explains the slight reduction of the asset turnover and consequently, the ROA ratio.

Likewise, the Return on Invested Capital (ROIC) [7] ratios, also emphasize the German group's growing capacity to increase earnings generated from the capital invested by its shareholders and bondholders. In numerical terms, for each euro invested in Adidas in 2019, it created €0.20 of profit.

Regarding, the company's Return on Equity (ROE) [8], it had a positive evolution over 2016-2019, reflecting the rising firm's capacity to increase profit from the capital invested by its shareholders. To understand what drove Adidas' ROE, we applied the DuPont analysis (Appendix C). Starting with a brief decomposition of this ratio as a function of the firm's ROA and its use of financial leverage. We can conclude that the primary reason for the ROE's growth until 2018 was the increase in ROA. In contrast, in 2019, the main reason was the rise of the firm's leverage factor. To provide a more detailed analysis over the 2016-2019 period, we further decompose Adidas' ROE as a function of its operating

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[6] Measures the return earned by a company on its assets.
[7] Measures the return earned by a company on its capital invested.
[8] Measures the return earned by a company on its equity capital.

profitability, tax rate, leverage, interest burden, and efficiency. Using this framework, we could conclude that the growing ROE did not result from a single aspect of the firm's performance, but instead was a function of increasing operating profits, lower tax rates (excluding 2017-year), greater efficiency, reduced borrowing costs, and increased use of leverage.

Focusing on 2020-year, the significant decrease in all the return-on-investment profitability ratios of the company, especially the ROE, is notable. By decomposing the latter as a function of the firm's ROA and its use of financial leverage, we can conclude that although the company increased its leverage through the placement of several bonds it was not enough to compensate for the sharp decrease in the firm's ROA. In accordance, the -78% drop in the company's net income and the 2% increase in its assets – derived by the inventories, cash, and cash equivalents – are the overall reason for the aforementioned drop in ROA.

5.5.2 Liquidity Analysis

In this part, it is analyzed Adidas' ability to fulfill its short-term obligations. Meticulously, we will measure how quickly the firm's assets are converted into cash. The level of liquidity achieved will reflect the company's level of efficient management of both working capital and its assets.

Table 5.5: Liquidity Ratios

	2016	2017	2018	2019	2020
Current Ratio	1.31	1.37	1.44	1.25	1.38
Quick Ratio	0.60	0.65	0.74	0.63	0.73
Cash Conversion Cycle	88.95	90.10	87.11	83.86	107.12

Source: Own Elaboration. Based on data from Bloomberg

The Current ratio represents the group's capacity to cover its current liabilities with its current assets. The table above demonstrates levels higher than one of liquidity, which means that the resources generated by the business surpass the immobilization of funds needed. In other words, Adidas' working capital works as a permanent application of funds. Over this period, the company has presented a generally increasing level of liquidity – excluding 2019 year –, which implies a lower reliance on external financing and/or operating cash flows to meet short-term obligations.

To be more conservative, the Quick ratio was applied to measure the company's ability to meet its current liabilities with only its more liquid current assets – excluding inventory, prepaid expenses, employee-related prepayments, and some taxes. Comparing the Current and the Quick ratio, are evident significant differences, although both emphasize an increasing level of the firm's liquidity. This difference could suggest that the less liquid current assets account for approximately 50% of the current assets of Adidas.

Lastly, the cash conversion cycle metric indicates the length of time required for the group to go from cash invested in working capital to cash collection in its operations. Throughout the years, this

metric has been relatively stable, apart from 2020-year that had a significant rise mainly due to the increased days of inventory outstanding. This means that the firm needed to finance its working capital needs through debt or equity for about 107 days in 2020, implying lower liquidity.

5.5.3 Solvency Analysis

This solvency analysis provides insights about Adidas's capacity to meet its long-term obligations, through an in-depth assessment of the components of its financial structure.

Table 5.6: Solvency Ratios

	2015	2016	2017	2018	2019	2020
Debt/Assets	13.71%	10.66%	8.23%	10.40%	23.07%	27.98%
Debt/Capital	24.46%	20.04%	16.09%	20.33%	40.33%	46.82%
Debt/Equity	0.32	0.25	0.19	0.26	0.68	0.88
Interest Coverage	16.29	21.30	33.39	56.38	16.63	4.58

Source: Own Elaboration. Based on data from Bloomberg

On all first three ratios, the German group's level of debt has declined over the 2015-2017 period. Yet in the following years, this trend reverted, especially in 2019 that the company increased the level of debt by 13% on its capital structure. This growth in the proportion of debt in Adidas AG indicates higher financial risk and thus weaker solvency. Furthermore, these ratios are consistent with the higher leverage effect presented in the DuPont analysis.

Concerning the interest coverage ratio, it has improved almost 350% between 2015-2018. Despite this outstanding improvement, in 2019, the company returned to the level registered in 2015, which means that Adidas' EBIT could cover approximately 17 times its interest payments. Once more, this ratio reflects the decay of the company's solvency.

Overall, in this case, the Adidas' deterioration level of solvency in 2019 resulted from the impact of the initial application of IFRS 16, and not from increasing debt financing in the firm's capital structure – detailed explanation in Appendix D. As such, the declining values obtained for 2019 do not imply a higher financial risk for investors.

However, the same cannot be stated for the year 2020. Because of the uncertainty surrounding the COVID-19 outbreak impact in the company, Adidas decided to strengthen its financial profile to ensure its solvency and financial flexibility. To do so, the company increased 93% of its gross borrowings with the placement of three bonds amounting to €1.5 billion in total. Hence, Adidas has a slightly higher financial risk and thus weaker solvency level compared to 2019.

6. Corporate Valuation

After analyzing the literature review, it was clear that equity valuation is not an exact science. There is no absolute approach to determine the fair value of a company. As such, we analyzed the Adidas AG microenvironment and its performance in the latest years to select the best valuation model according to its specific characteristics. The main method selected to perform the Adidas' valuation was the DCF-WACC method because this methodology is better suited for firms with a relatively static debt-to-equity ratio (Luehrman, 1997a), which is the case of Adidas since its capital structure[9] has been consistent throughout the last half-decade, excluding 2020. As the goal is to perform an accurate corporate valuation analysis, the Free Cash Flow to Equity, the Economic-Value Added model and the Relative Valuation based on multiples will also be performed as a sanity check to the bottom-up valuation method (Benninga and Sarig, 1997). Since Adidas does not disclose a fixed dividend payout ratio for its future – only a target range of 30% to 50% –, we decided not to apply the Dividend Discount Model in this equity valuation due to the degree of uncertainty in one of the most critical inputs of the model.

6.1 Discounted Cash Flows Valuation

As explained in section 2.1.1, to perform an accurate Discount Cash Flow valuation we must wisely estimate the future cash flows, the terminal value, and the discount rate of Adidas. Hence, this section explains the reasoning behind each financial item forecasted from Adidas' income statement and balance sheet as well as the assumptions made – all assumptions are supported by the company's historical performance, the macro, and the microenvironment overlook previously provided. Afterward, sensitivity analysis and a Monte Carlo simulation are applied to account for the uncertainty of some assumptions and quantify their impact on the forecasted fair price.

The historical period considered is from 2016 to 2020 as it reflects the period, which provides the closest numerical insights of the firm's current reality, and the one that might face in the future.

Regarding the timeframe applied in this valuation analysis, the explicit forecast period chosen was five years (2021-2025), which is when we expect Adidas' cash flows to reach a steady-state, considering the end of the 'Own the Game' five-year strategic business plan. In detail, the explicit period is divided into two different stages:

- The first stage (2021-2022), where Adidas is expected to experience more intense growth.
- The second stage (2023-2025), where the company is going to start its business' consolidation towards the steady state.

6.1.1 Assumptions of Adidas' Cash Flow Forecasts

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[9] Detailed explanation in Appendix D.

6.1.1.1 Revenue

As Adidas is the second biggest player in the sportswear industry, its revenues are influenced by several factors such as currency fluctuations, organic growth as well as acquisition and divestiture of businesses. However, the following forecasts do not take into consideration the currency fluctuation impact due to its complex estimation. Hence, Adidas' revenues are forecasted by taking a segment level approach, pondering the industry behavior, the geographical region developments, and the product segment growth of the firm per year.

- Industry Growth

In the sportswear industry overlook, it was highlighted the relationship between the industry behavior and the performance of sportswear companies – where sportswear players are positively impacted by long-term industry growth drivers and negatively impacted by the pandemic restriction measures within the sporting goods industry. As such, it is important to consider the industry behavior change in this forecast since Adidas' performance will be affected similarly. Thus, the future growth scenario chosen was the Marc 2021 Baseline, for having the greatest probability of occurrence and for being the most consistent scenario with the current reality.

Table 6.1: Industry Annual Growth in %

	2021 F	2022 F	2023 F	2024 F	2025 F
Marc 2021 Baseline	11.9%	6.7%	4.9%	4.2%	3.8%

Source: Own Elaboration. Based on data from Euromonitor International

- GDP Real Growth

According to the company's annual report, the demand for sportswear products is historically related to macroeconomic factors, especially to consumer spending, reflected in the GDP growth of the geographic regions where Adidas operates. Therefore, it is another essential variable to consider in the revenue projections.

As stated in the macroeconomic overlook, the projected growth throughout the years conceals a different growth pace between advanced economies and EMDEs. For this reason, we applied a weighted average based on the 2017[10]- 2020 regional segment format of Adidas' revenues on the estimated regional GDP development – for more detail see Appendix F –, as follows:

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[10] The Adidas' regional segment format changed in 2017. Consequently, in this context, we only considered the historical period from 2017 onwards.

Table 6.2: Real GDP Development in %

Regional GDP Development in %	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F	Weights
Europe	2.1%	3.0%	2.3%	1.7%	-6.1%	4.4%	3.9%	2.3%	1.9%	1.6%	27.8%
North America	1.6%	2.4%	2.9%	2.1%	-3.7%	6.3%	3.6%	1.5%	1.5%	1.6%	23.0%
Asia-Pacific	5.6%	5.7%	5.4%	4.4%	-1.5%	7.6%	5.4%	5.0%	4.9%	4.8%	33.5%
Russia/CIS	0.2%	1.8%	2.8%	2.0%	-3.1%	3.8%	3.8%	2.1%	1.8%	1.8%	2.9%
Latin America	-0.6%	1.3%	1.2%	0.2%	-7.0%	4.6%	3.1%	2.7%	2.4%	2.4%	7.3%
Emerging Markets	4.5%	4.8%	4.5%	3.6%	-2.2%	6.7%	5.0%	4.7%	4.6%	4.5%	5.5%
Total	**3.1%**	**3.7%**	**3.5%**	**2.7%**	**-3.8%**	**6.0%**	**4.3%**	**3.2%**	**3.0%**	**2.9%**	**100%**

Source: Own Elaboration. Based on data from IMF

- Product Segments

From a product segmentation perspective, the company's revenue is split into three product categories: footwear, apparel, and hardware. Each product segment faces different challenges, trends, and milestones – as stated in the new strategic plan to strengthen the position of the Adidas brand by reshaping its product portfolio. Therefore, to forecast Adidas' revenues we used the bottom-up method, where we estimated the growth of each product segment to obtain the overall net sales.

Firstly, we computed the historical annual changes in percentage for each product segment without Reebok brand sales – Appendix G. To do so, we assumed that all Reebok revenues are from the footwear segment. Mathematically, we subtracted Reebok's revenues from the total footwear revenues of each historical year.

Secondly, we computed the expected revenue growth rate per segment from 2021 to 2025 on a weighted average basis considering the sporting goods industry behavior, the geographical region developments, and the historical product segment growth of Adidas without Reebok, as shown below:

$$\boldsymbol{g_{2021}} = 5\% * g_{n-1} + 65\% * g_{\text{Old Strategic Plan (2016)}} + 25\% * g_{Industry_n} + 5\% * g_{GDP_n}$$

$$\boldsymbol{g_{2022}} = 30\% * g_{n-1} + 40\% * g_{\text{Old Strategic Plan (2017)}} + 25\% * g_{Industry_n} + 5\% * g_{GDP_n} \quad \textbf{(19)}$$

$$\boldsymbol{g_{2023-2025}} = 60\% * g_{n-1} + 30\% * g_{Industry_n} + 10\% * g_{GDP_n}$$

As previously stated, 2021 and 2022 represent intense growth years. For this reason, the formula to compute them must have different ponderations to take into consideration the prolonged adverse effects of the coronavirus pandemic, since we assumed Adidas' revenues in 2021 will be more affected by the global outbreak pandemic than the 2022 year. Furthermore, in those years we also consider the growth driven by the execution of the 'Creating the New' strategy, which we expect to be identical to the one in Adidas' new strategy. From 2023 onwards, we are expecting moderate revenue growth, where the previous operational year has a bigger role than the other factors on the expected revenue growth rate per segment.

For last, we must take into consideration the Reebok divestiture from the first quarter of 2021 ahead. Thereby, we estimated Reebok's revenue in the first quarter, assuming that the brand revenues' percentage change compared to the first quarter of 2019 will be equal to the one witnessed in the last quarter of 2020 vs. homologous period, as shown below:

$$Rev_{1Q\ 2021} = Rev_{1Q\ 2019} * g_{4Q\ 2020} \qquad \textbf{(20)}$$

Table 6.3: Adidas' Forecasted Revenues € in Millions

Annual Segment Growth Rate:	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Footwear	26.5%	26.6%	4.8%	6.1%	-17.4%	19.6%	18.4%	12.8%	9.3%	7.0%
Apparel	5.5%	5.4%	6.1%	9.0%	-14.2%	6.1%	5.9%	5.3%	4.7%	4.3%
Hardware	-37.0%	4.5%	-12.8%	27.0%	-11.1%	-21.3%	-2.7%	0.2%	1.7%	2.4%
Total	10.2%	15.9%	4.4%	8.2%	-15.8%	5.6%	10.6%	9.6%	7.4%	5.9%
Footwear	-	-	-	-	-	11 628	13 770	15 536	16 974	18 157
Apparel	-	-	-	-	-	8 158	8 638	9 096	9 527	9 934
Hardware	-	-	-	-	-	809	787	788	801	821
Reebook Revenue	-	-	-	-	-	368	-	-	-	-
Total	-	-	-	-	-	**20 963**	**23 195**	**25 421**	**27 303**	**28 912**
g without Rebbok	-	-	-	-	-	13.7%	10.6%	9.6%	7.4%	5.9%

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

In 2021, despite the continued lockdown measures in some regions of the world and uncertainties about the global economic performance, we expect Adidas revenues to be positively impacted by long-term industry growth drivers, as well as driven by its strong product pipeline and new strategy.

All in all, the forecasted revenues for 2021 are in line with the latest Adidas' annual report overlook expectation for this year, targeting a mid-to high-teens range revenue growth. Moreover, according to our estimations, Adidas' CAGR over 2021-2025 would be 8.4%, which is once more in accordance with Adidas' ambition of net sales growth of 8-10%.

6.1.1.2 Gross Margin

In the span of the last five years, Adidas has improved its gross margin significantly. More precisely, the firm was able to decrease its cost of goods sold (COGS) in relation to its revenues by almost 3%, excluding the last operational year. This improvement signals the success of the 'Creating the New' strategy, as one of its three key goals was the gross margin expansion.

In 2020, gross margin contracted 2.3% to 49.7%, reflecting mainly the increased promotional activity, inventory allowances, as well as purchase order cancelations costs related to the Covid-19 pandemic. Regarding the following years, prospects for Adidas' gross margin are encouraging due to

the unchanged goal of gross margin expansion in the new strategic plan, Reebok's divestiture, and a more favorable channel mix regarding the e-commerce growth strategy.

Accordingly, to best reflect the new operational performance of Adidas, we assumed that the company's gross margin will continue to grow at the same level as between 2016 and 2019 (3.7%). This gross margin expansion will not be uniform since we expect a more intense growth of the company´s gross margin in 2021. As such, we assumed that in 2021 the gross margin expansion will be double of the historical weighted average growth per year of the group gross margin (around 1.5%) – excluding 2020, for being an atypical year. From 2022 onwards, Adidas' gross margin is forecasted to grow annually by approximately 0.6%. Furthermore, the gross margin of 2020 without Reebok (50%) is the baseline in this forecast – disclosed by the company.

Regarding, the costs of goods sold they are expected to continue increasing as the business grows, however, it is foreseen that it will be more than offset by the discount levels normalization as well as the enhancement of pricing and channel mix.

Once more, Adidas' forecasted gross margin is in line with the company outlook for 2021 (around 52%) and 2025 ambition (between 53-55%).

Table 6.4: Adidas' Forecasted Gross Margin € in Millions

	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
COGS	9 383	10 514	10 552	11 347	9 990	10 165	11 119	12 044	12 784	13 377
% Revenues	50.8%	49.6%	48.1%	48.0%	50.3%	48.5%	47.9%	47.4%	46.8%	46.3%
Gross Profit	9 100	10 703	11 363	12 293	9 855	10 798	12 077	13 377	14 518	15 534
Gross Margin	49.2%	50.4%	51.8%	52.0%	49.7%	51.5%	52.1%	52.6%	53.2%	53.7%
% Change	0.9%	1.2%	1.4%	0.2%	-2.3%	1.5%	0.6%	0.6%	0.6%	0.6%

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

6.1.1.3 Operating Income and Expenses

- Operating Income

Adidas' operating income has been stable in the past years, accounting for approximately 1% of the company's net sales. This income represents the cash-ins from royalties and commission income, gains from the disposal of fixed assets, provisions, and sundry income.

As a result of the steady past performance as well as the Adidas' 2020 operating income with and without Reebok [11] being similar as a percentage of revenues, we assumed that from 2021 onwards each component of the operating income would correspond to its historical average as a percentage of revenues, where it was excluded the 2016 value for being atypical – 0.6% average was assumed for royalties and commission income component and 0.2% for the other operating income.

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[11] See Appendix H.

- Operating Expenses

In regard to the operating expenses, they are composed of operating overhead costs and, marketing and point-of-sale expenses. The latter consists of sponsorship contracts, advertising, events, and other communication activities expenses. Operating overhead costs are composed of distribution and selling, R&D, general and administration as well as sundry expenses.

Over the years, marketing and point-of-sale costs have been growing in absolute terms due to the 'Creating the New' strategy's focus on advertising and promotion contracts. Nonetheless, as a percentage of revenues has been around 13%. Similarly, the new strategic plan intends to support the transformation of the firm's sales from offline to online by increasing its investments in marketing and sponsoring about €1 billion by 2025. Thus, for the years forecasted we expect no significant alteration of marketing and point-of-sale costs/sales ratio. Moreover, since the marketing and point-of-sale expenses in 2020 with and without the Reebok are again identical as a percentage of revenues, the same assumption was implemented as in operating income – more information in appendix H. According to our forecast, Adidas will invest €1.039 billion more in marketing.

Concerning the operating overhead costs, the 'Own the Game' strategy also aims to invest further in product development, e-commerce, and the firm's digital transformation. However, the company is not specific about this cost evolution. Hence, we assumed that the operating overhead costs/ Sales ratio from 2021 until 2022 would be equal to its historical average. Afterward, these costs are expected to be lower due to the double e-commerce sales, and a reduction of employees in stores. As such, from 2023 onwards, we consider that the operating overhead costs/ Sales ratio will suffer a drop of 0.1% per year.

Additionally, one must consider the temporarily stranded cost related to Reebok's divestiture. These costs represent stores, IT, warehouses, employees, and offices (operating overhead expenses) that have been shared by both brands in the past. As disclosed by the company, these costs will remain in Adidas until 2021 and are estimated to amount to €250 million. Hence, we assumed the company's operating overhead expenses in 2021 would not have significant differences in comparison to the previous years – a historical weighted average as a percentage of revenues was applied. In the following year, we anticipate a reduction of 70% of these costs, and by 2023, they should be fully eliminated. From 2023 ahead, we assumed a perpetual reduction on the operating overhead cost of € 250 million annually, ceteris paribus.

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Table 6.5: Adidas' Forecasted Operating Income & Expenses € in Millions

	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Royalty and commission income	105	115	129	154	83	115	128	140	150	159
% Revenues	0.6%	0.5%	0.6%	0.7%	0.4%	0.6%	0.6%	0.6%	0.6%	0.6%
Other operating income	119	17	48	56	42	39	43	48	51	54
% Revenues	0.6%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Total Operating Income	**224**	**132**	**177**	**210**	**125**	**155**	**171**	**187**	**201**	**213**
% Revenues	1.2%	0.6%	0.8%	0.9%	0.6%	0.7%	0.7%	0.7%	0.7%	0.7%
Marketing and point-of-sale expenses	2 403	2 724	3 001	3 042	2 573	2 741	3 032	3 323	3 569	3 780
% Revenues	13.0%	12.8%	13.7%	12.9%	13.0%	13.1%	13.1%	13.1%	13.1%	13.1%
Operating Overhead Costs	4 967	5 601	5 658	5 616	5 328	5 438	6 017	6 569	7 027	7 413
% Revenues	26.9%	26.4%	25.8%	23.8%	26.9%	25.9%	25.9%	25.8%	25.7%	25.6%
Stranded Costs: Reebok	-	-	-	-	-	0	-175	-250	-250	-250
% Revenues	-	-	-	-	-	-	0.8%	1.0%	0.9%	0.9%
Total operating expenses	**7 370**	**8 325**	**8 659**	**8 658**	**7 901**	**8 178**	**8 874**	**9 642**	**10 347**	**10 942**
% Revenues	39.9%	39.2%	39.5%	36.6%	39.8%	39.0%	38.3%	37.9%	37.9%	37.8%

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

6.1.1.4 Depreciation, Amortizations & Impairments

To forecast the German group's depreciation, amortizations, and impairments for the future years, firstly, it is fundamental to predict the net value of Adidas' tangible and intangible assets.

The company's tangible assets represent the property, plant, and equipment (PP&E) as well as the right-to-use assets that resulted from the first-time application of IFRS 16 in 2019. We expect gross PP&E to decrease in absolute value since some stores, warehouses, and offices will be allocated to Reebok. Considering that Adidas did not reveal detailed information about it, we forecasted the gross PP&E as follows:

$$Gross\ PP\&E_n = (\text{The historical weight of gross PP\&E as a\% of revenues} * Revenues_n) * (100\% - Historical\ average\ \text{of Reebok's sales as a \% of } total \text{ sales})$$

(21)

Regarding the gross value of right-to-use assets, we assumed that Reebok's divestiture would not have an impact on this item. As such, a weighted average as a percentage of revenues was applied.

As concern the firm's intangible assets, they are composed of goodwill, and other intangible assets such as trademarks, software, licenses, patents, and websites.

Adidas' goodwill represents the future economic benefits arising from assets previously acquired such as Reebok and Runtastic business as well as some subsidiaries. The company disclosed that most of the goodwill is primarily related to the Reebok business but did not quantify how much. Therefore, we assumed that Adidas' gross goodwill will decrease 71.2% – the same percentage that Rebook's

business represented in the firm's goodwill in the year of its acquisition (2006) – based on the last historical year and will remain constant in the explicit period as the firm does not present signs of any further divestiture/acquisition. Furthermore, an impairment test according to IAS 36 conducted by Adidas concluded that no impairments or write-up would be required for 2021, thus, for simplification zero impairment losses and reversals of impairment losses for future periods were also assumed.

Subsequently, to forecast the gross value of the other intangible assets (except goodwill), we assumed that this item will only be impacted by the divestiture of Reebok. Thus, it will be computed through the following formula:

$$Gross\ IA_n = (The\ historical\ weight\ of\ gross\ intagible\ assets\ as\ a\ \%\ of\ revenues \quad \text{(22)}$$
$$* Revenues_n) - [Reebok's\ trademark_{2020}{}^{12} + (1 + g_{Revenues\ n})]$$

Afterward, the accumulated depreciation & impairments are computed as a historical weighted percentage of the gross tangible assets. The same reasoning was applied to the accumulated amortizations & impairments, where the 2016 value is excluded for being an outlier.

Once again, Adidas does not disclose details about the expenses with depreciation, amortizations, and impairments for the future years. Therefore, assuming there will be no changes in the accounting methodology, it is reasonable to forecast it as written below:

$$D\&A\&I_n = (The\ historical\ weight\ of\ D\&A\&I_n\ as\ a\ \%\ of\ net\ tangigle\ \&\ intagible\ assets_{n-1} \quad \text{(23)}$$
$$* Net\ tangigle\ \&\ intagible\ assets_n)$$

Table 6.6: Adidas' Forecasted D&A&I € in Millions

	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F	AVERAGE
Net Tangible Assets	1 915	2 000	2 237	4 647	3 835	3 859	4 270	4 680	5 026	5 322	
Net Intangible Assets	1 847	960	1 040	1 164	1 001	510	548	678	780	875	
Total	**3 762**	**2 960**	**3 277**	**5 811**	**4 836**	**4 370**	**4 818**	**5 358**	**5 807**	**6 197**	
D&A&I	**371**	**441**	**514**	**1 185**	**1 328**	**864**	**952**	**1 059**	**1 148**	**1 225**	
% Net Tangible $_{N-1}$ + Intangible Assets $_{N-1}$	10.7%	11.7%	17.4%	36.2%	22.9%	19.8%	19.8%	19.8%	19.8%	19.8%	**19.8%**
D&A&I as % of Revenues	2.0%	2.1%	2.3%	5.0%	6.7%	4.1%	4.1%	4.2%	4.2%	4.2%	

Source: Own Elaboration. Based on data from annual reports

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[12] In 2020, Adidas tested Reebok's trademark based on the relevant cash-generating units, which resulted in an evaluation of € 1.262 billion.

6.1.1.5 Financial Results

The financial result of the company includes its interest income net interest expenses. The latter is a function of Adidas' debt and other financial liabilities, whereas the interest income is based on the firm's cash applications and other financial assets.

According to the annual report, both these items' interests are categorized from financial instruments measured at amortized cost, fair value through profit or loss, and others. In this sense, to forecast Adidas' future financial results we firstly estimated the financial assets and liabilities of the company following the previous categorization – Appendix J and K. To do so, we assumed that all financial instruments would grow annually at the same pace as the company's revenues. Since the company did not disclose details about Reeboks' financial assets and liabilities, we adjusted the value of all Adidas' financial instruments in 2021 assuming that they will decrease by the same percentage as Reebok's share in 2020 sales (8.1%).

Thereafter, interest income and expenses per category were forecasted by taking into consideration their historical average as a percentage of the respective financial instrument category as we expect a relatively stable capital structure for the explicit forecast period – full analysis can be seen in Appendix J and K. In detail, to take into consideration the accounting methodology currently in place at the company, we applied a three-year historical average in the interest income, since in 2018 the company changed its accounting methodology to IFRS 9 from IAS 39. For the interest expenses, it was applied a two-year historical average since 2019 was applied for the first time the IFRS 16.

6.1.1.6 Tax Rate

Adidas is an international company, with subsidiaries all around the world, therefore it is subjected to several corporate and trade taxes.

For the last two operational years, the company had an effective tax rate of around 25%. Nevertheless, as disclosed by Adidas, the 2020 effective tax rate without Reebok would be 20.2%. Since we do not have any further information on the tax rate impact with Reebok divestiture, one assumed a tax rate of 20.2% for the explicit forecasted period.

6.1.1.7 Capital Expenditure

Adidas' CAPEX represents the total cash expenditure needed to support the company's organic growth and for the maintenance of tangible and intangible assets, excluding the right-to-use assets according to IFRS 16.

Over the years, the company has invested more in controlled space initiatives – which comprise expenditures in new or remodeled, own retail and franchise stores as well as in shop-presentations of the company's brands and products – than in logistic, administration, and IT together. In contrast, as stated by the new strategic plan, for the following years, more than 70% of CAPEX goes into digital and direct-to-consumer (DTC) channels.

Thus, we forecasted the company's future capital expenditure less write-offs by adding the value of the annual changes in the net tangible and intangible assets, excluding the right-to-use assets, as well as the yearly depreciation, amortizations and impairments forecasted previously. Accordingly, Adidas will reinvest, on average per year, 4.2% of its net sales into future organic growth.

6.1.1.8 Working Capital

Throughout the last historical years, Adidas' working capital is presented by all current assets net of current liabilities. Nonetheless, we decided to follow a different approach in this equity valuation. To forecast the company's working capital, we will subtract all its current operating liabilities from its current operating assets.

Concerning the company's operating working capital – accounts receivables, payables, and inventories –, projections were based upon days in sales (DSO), payable (DPO) and inventory (DIO) outstanding, respectively. Since all the previous ratios have been relatively stable over the last half-decade, excluding the 2020-year, we applied a four-year average assumption to forecast those rubrics.

Regarding the other items of the company's working capital, they were estimated based on their historical weight on sales. The details of the forecasted changes in working capital per year can be seen in Appendix M.

6.1.2 Estimating the Cost of Capital

Prior to estimate Adidas' cost of capital is necessary to analyze its current capital structure: the market value of debt and equity.

Starting with the market value of equity, it was obtained by multiplying the number of shares outstanding by their market price. Meticulously, on 31 December 2020, Adidas had 195,066,060 shares outstanding, and the share closed at €297.9. Thus, its market capitalization was €58.110 billion.

Regarding the market value of debt, it is difficult to estimate it since part of Adidas' debt is non-traded (bank credit lines). Therefore, for simplification, all the company´s debt was estimated through the following Damodaran's equation:

$$\text{MV (Debt)} = \text{Interest expenses}_{2020} * \frac{1 - \frac{1}{(1 + r_d)^{\text{Av.Debt Maturity}}}}{r_d} + \frac{\text{Financial Debt (BV)}_{2020}}{(1 + r_d)^{\text{Av.Debt Maturity}}} \quad \textbf{(24)}$$

For the average debt maturity, we assumed it to be 8.5 years since it is the weighted average maturity of all bonds issued by the company since 2014. Hence, the market value of debt obtained was €8.550 billion.

For the explicit period, we assumed that the capital structure is constant with 14.7% of debt and 85.3% of equity.

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6.1.2.1 Cost of Equity

As stated in Literature Review, to compute the cost of equity following the Capital Asset Pricing Model (CAPM) it is required to have three inputs: the risk-free rate, the levered beta, and the market risk premium. Moreover, it was also included a country risk premium to reflect the several political and economic risks of the countries where Adidas' operates.

For the risk-free rate, the best proxy to estimate this variable according to the company-specific characteristics is a German 10-year government bond yield on 31 December 2020, -0.569% (Frykman and Tolleryd, 2003).

Adidas' levered beta was estimated from a linear regression analysis applied to the company stock returns against market index returns (Perold, 2004; Damodaran, 2012). The data used to compute the slope of the regression was based on weekly historical prices from January 2016 to December 2020 of Adidas' stock – dependent variable – and DAX30 Index – independent variable. Hence, using formulas 5 and 6 was obtained a levered beta of 0.958 and an adjusted levered beta of 0.972, which means that Adidas' share price is less risky than the market.

Regarding the market risk premium and the country risk premium, both variables were retrieved from Damodaran's website database of January 2021. Afterward, a weighted average of those variables based on the percentage of revenues by geographical region of Adidas activity was applied – more details in Appendix N.

Overall, investors require 6.06% of return from Adidas' stock to compensate for the market risk exposure of the company.

6.1.2.2 Cost of Debt

To calculate the cost of debt of Adidas, we used Damodaran's approach (2008) of adding a default spread associated with the company credit risk to the risk-free rate. According to Moddy's (2020) and Standard & Poor's (2020), the company has a credit rating of A2 and A+, respectively. This outlook remains stable and in line with the rating of the most recent bonds issued by the firm.

Forthwith, we converted Adidas' credit risk to a default spread using a table elaborated by Damodaran (2021) that relates the interest coverage ratio of a company or rating to a default spread – Appendix O. Since the company has two different credit ratings, to select the company's default spread we also computed the interest coverage ratio (4.28). Hence, its corresponding default spread was 1.18%, which is in line with Moody's rating and Adidas' interest coverage ratio computed.

Thus, the resulting cost of debt was 0.611%, and after the deduction of the respective tax shield was equivalent to an after taxes interest rate of 0.49%.

6.1.2.3 Weighted Average Cost of Capital (WACC)

After all the variables already estimated, it is possible to compute Adidas's cost of capital through the Weighted Average Cost of Capital (WACC):

$$WACC = 87.2\% * 6.06\% + 12.8\% * 0.611\% * (1 - 20.2\%) = 5.34\% \qquad \textbf{(25)}$$

6.1.3 Terminal Growth Rate

Of all inputs, the terminal growth rate is the component that effects the most the enterprise value of a company (Young, 1999). Hence, we carefully forecasted the terminal growth rate based on:

- The geographical region developments where Adidas operates. Firstly, we used the forecast of the real GDP for 2025 and applied a weighted average based on the regional segment format of the company's revenues (2.9%) – more details in table 6.2. At last, we adjusted the latter considering the inflation rate of Europe (1.8%) expected by the IMF.
- The industry growth rate for 2025 (3.8%).
- Adidas' expectations of long-term growth (1.7%), which do not exceed the long-term average growth rate of the business sector.

Considering the aforementioned factors, we weighted each of them and reached a terminal growth rate of 1.95%.

Table 6.7: Adidas' Forecasted Terminal Growth Rate

		Weights:
Nominal GDP growth rate in 2025 weighted by sales region	4.7%	5.0%
Industry Growth	3.8%	5.0%
Rate Defined by Adidas without Reebok's Business	1.7%	90.0%
Total	1.95%	100.0%

Source: Own Elaboration. Based on data from Annual Reports, IMF and Euromonitor International

6.1.4 Free Cash Flow to the Firm (FCFF)

Lastly, we have all inputs necessary to perform Adidas' valuation through the DCF-WACC methodology. As explained in the literature review, two major steps were taken.

Firstly, we forecasted the enterprise value[13] through equations 10 and 11. As shown in the table below, the terminal value[14] accounted for 87% of the total enterprise value, which is consistent with Young (1999).

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[13] Further details in Appendix P.
[14] To compute the terminal value one applied formula 2 and used as numerator the FCFF of 2026.

Table 6.8: DCF-WACC Valuation Results in million €

Present Value of Explicit Period	8 677
Present Value of Terminal Value	59 912
Enterprise Value	**68 589**
(+) Non-Operating Assets	4 696
(-) Financial Debt	7 230
(-) Non-controlling interests	237
Equity Value	**65 818**
Nº of Shares Outstanding	195 066 060
Price per Share	**337.4**

Source: Own Elaboration

Afterward, to compute the equity value one applied formula 12 and deducted non-controlling interests from this result to reach Adidas' group equity value. In detail, we considered:

- Non-Operating Assets: Cash and short-term financial assets (€3 994M) and other current financial assets (€702M);

- Financial Debt: Total non-current liabilities (€5 535M), short-term borrowings (€686M), current lease liabilities (€563M), and other current financial liabilities (€446M).

Altogether, it was attained a share price of €337.4 for Adidas, on 31 December 2020. In comparison with the market share price (€297.9), the company was undervalued by approximately 13%.

6.1.5 Sensitivity Analysis & Monte Carlo Simulation

In this section, several sensitivity analyses were applied to account for the uncertainty of some assumptions and quantify their impact on the price target based on DCF-WACC methodology. The key variables analyzed were the discount rate (WACC) and the perpetual growth rate since slight changes in these inputs can significantly affect the terminal value, which represents 87% of Adidas' enterprise value.

Starting with one variable analysis, we can conclude that the perpetual growth rate and the company's cost of capital could decrease/increase up to 0.6% and 2.7%, respectively, according to our forecasts to reach a breakeven point – the market share price (€297.9) –, ceteris paribus. More details can be consulted in Appendix Q.

When assessing the two variables simultaneously, we can see that Adidas' share price is more sensitive to changes in perpetual growth rate than in discount rate. In detail, a change of 0.25% in the perpetual growth rate changes the share price on average by €19.5, while the same change in the WACC only changes on average €4.

Moreover, if the perpetual growth rate is 0.95% or less, the return of investing in the company is negative for all WACC rates considered. However, the opposite reasoning applies when the perpetual growth rate is as high as 1.70%.

Table 6.9: Sensitivity Analysis: WACC and Perpetual Growth Rate

		WACC								
	337.4	4.34%	4.59%	4.84%	5.09%	**5.34%**	5.59%	5.84%	6.09%	6.34%
	0.95%	291.0	287.6	284.3	280.9	277.7	274.5	271.3	268.1	265.1
	1.20%	303.8	300.3	296.8	293.3	289.9	286.5	283.2	279.9	276.7
	1.45%	318.3	314.6	310.9	307.3	303.7	300.2	296.7	293.3	289.9
Growth Rate (g)	1.70%	334.8	330.9	327.0	323.2	319.4	315.7	312.0	308.4	304.9
	1.95%	353.7	349.5	345.4	341.4	337.4	333.5	329.6	325.8	322.0
	2.20%	375.6	371.2	366.8	362.5	358.3	354.1	350.0	346.0	342.0
	2.45%	401.3	396.5	391.9	387.3	382.8	378.3	373.9	369.6	365.3
	2.70%	431.8	426.7	421.7	416.8	411.9	407.1	402.4	397.7	393.1
	2.95%	468.8	463.3	457.8	452.4	447.1	441.9	436.8	431.7	426.7

Source: Own Elaboration

To analyze further a potential range of share prices for Adidas, we also performed a Monte Carlo analysis with 10,000 trials. Therefore, a triangular distribution was applied to the WACC and the perpetual growth variables with the following parameters:

- We assumed that WACC fluctuates +/- 2% in relation to the WACC forecasted.
- We assumed that the company's perpetual growth would range between zero growth and the industry growth predicted for 2025 (3.8%).

As a result, an average share price of € 348.6 was obtained, which represents an upside potential of 17%. Additionally, we can also conclude that approximately 74.3% of the outcomes resulted in a share price higher than Adidas' market share price.

Table 6.10: Monte Carlo Statistics

Trials	10 000
Base Case	337.4
Mean	348.6
Minimum	226.5
Maximum	665.8
Stdandard Deviation	70.8
Skewness	1.1
Kurtosis	4.1
10th Percentile	271.3
25,73th Percentile	297.9
90th Percentile	448.1

Source: Own Elaboration

6.1.6 Free Cash Flow to Equity (FCFE)

As the goal is to perform an accurate corporate valuation analysis, we also applied the Free Cash Flow to Equity methodology to complement the previous share price outcome.

To start, we used the FCFF previously computed and adjusted it to the company's cash effect of debt since all assumptions remain the same – more details in Appendix S. Thereafter, we discounted the FCFE by the cost of equity to obtain the enterprise value.

Similar to the DCF-WACC methodology, non-operating assets and non-controlling interest were taken into consideration to obtain an accurate equity value – the same reasoning was applied as in section 6.1.4.

Table 6.11: FCFE Valuation Results in million €

Present Value of Explicit Period	7 700
Present Value of Terminal Value	52 081
Enterprise Value	**59 781**
(+) Non-Operating Assets	4 696
(-) Non-controlling interests	237
Equity Value	**64 240**
Nº of Shares Outstanding	195 066 060
Price per Share	**329.3**

Source: Own Elaboration

As shown in the table, the FCFE valuation methodology implied a fair price per share of €329.3 which is equivalent to an upside potential of approximately 11% when compared to the market share price as of December 31st, 2020.

6.2 Economic Value-Added Model

The following complimentary valuation method conducted was the Economic-Value Added Model. As explained in the literature review, we estimated the market value-added (MVA), by discounting EVA at the WACC – auxiliary calculations in Appendix T.

Thereafter, Adidas' enterprise and equity value were computed as follows:

Table 6.12: EVA Valuation Results in million €

Market Value Added	55 224
(+) Invested Capital	13 006
Enterprise Value	**68 230**
(+) Non-Operating Assets [15]	4 696
(-) Financial Debt [5]	7 230
(-) Non-controlling interests [5]	237
Equity Value	**65 459**
Nº of Shares Outstanding	195 066 060
Price per Share	**335.6**

Source: Own Elaboration

Using this methodology, the price per share of the company for the 2020-year ending is €335.6, corresponding to an upside potential of approximately 13% when compared to the market share price. The explanation behind this result is that the implied MVA provided by market data is lower than the one forecasted above (MVA achieved from the book value) – as demonstrated in Appendix T. This means that the market future expectations regarding Adidas AG are lower than the value it can generate.

6.3 Relative Valuation Model – Multiples

The last complimentary valuation method conducted is the relative valuation based on multiples. It aims to understand how the market is valuing Adidas based on the pricing of similar companies and analyze possible mismatches between them (Lie et al., 2002; Koller et al., 2010).

To perform this methodology, we started with the selection of the peer group, followed by the decision of which multiples to use.

6.3.1 Peer Group

Firstly, to find a set of companies considered being comparable to Adidas, it was selected a larger peer group composed of the ten biggest players in the sportswear industry. From that referred group, we selected the most comparable companies in terms of cash flow, growth, profitability, and risk (Damodaran, 2015).

It should bear in mind that the financial conditions of the sportswear's companies in 2020 were very distinctive comparing to previous years – as explained in the industry section, the companies were severely impacted by the Covid-19 pandemic. As such, we compared the ten companies in terms of cash flow, growth, profitability, and risk in 2019 and 2020, and ranked them in the top 5 for each parameter

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[15] Non-Operating Assets, Financial debt and Non-controlling interests were computed as explained in section 6.1.4.

– further details in Appendix U. The companies with higher frequency in the top 5 in both years were considered Adidas' peers: Puma, Sketchers, Columbia Sportswear, Nike and Asics.

Table 6.13: Top 5 Comparable Players Frequency

Frequency	2020	2019	Total
Nike	3/8	6/8	9/16
VF Corp	4/8	4/8	8/16
Puma	8/8	5/8	13/16
Under Armour	3/8	3/8	6/16
Skechers USA	8/8	8/8	16/16
Anta Co Ltd	2/8	3/8	5/16
Asics	6/8	3/8	9/16
Columbia Sportswear	6/8	6/8	12/16
Lululemon Athletica inc	0/8	2/8	2/16

Source: Own Elaboration

Regarding Bloomberg's view, Nike, Puma, Under Armour, Lululemon Athletica, and VF Corp are a set of companies considered comparable to Adidas AG, yet Bloomberg does not disclose the parameters of similarity. Comparatively, it is important to highlight that we only have in common two peers.

6.3.2 Multiples

To perform the relative valuation, we decided to use one-year historical multiples and apply them to the financial data forecasted for 2021.

The main chosen multiples were the Price-to-Earnings Ratio (P/E) and EV/EBITDA multiples since according to Fernández (2019): (i) they are the most commonly used multiples in the sportswear industry; (ii) they are widely used by Morgan Stanley especially for valuing European companies; (iii) they are the most consensual multiples among researchers due to their complementarity – more details in the literature review section. Furthermore, we also decided to apply the EV/Sales multiple as it also is widely used and accepted by the researcher's community.

Having chosen the multiples of the peer group, we retrieved the 2020 data from the trustworthy source of Bloomberg. Afterward, the average and median of the peer group for each multiple were computed. Nevertheless, to smooth the outlier values (the extreme values), the median was used to estimate Adidas' price per share.

Table 6.14: Multiples Valuation Results in million €

Peer Valuation	P/E Ratio	EV/EBITDA	EV/Sales
Nike	54.81	35.83	4.22
Puma	174.11	29.6	2.74
Skechers USA	56.16	11.67	1.38
Columbia Sportswear	45.03	12.94	2.16
Asics	36.5	40.29	1.23
Mean	73.3	26.1	2.3
Median	54.8	29.6	2.2
Enterprise Value	-	82 124	45 281
(+) Non-Operating Assets	-	4 696	4 696
(-) Financial Debt	-	7 230	7 230
(-) Non-Controlling Interests	-	237	237
Equity Value	77 316	79 353	42 510
Nº of Shares Outstanding	195	195	195
Price per Share	396.4	406.8	217.9
Upside/ Downside Potential	33.1%	36.6%	-26.8%

Source: Own Elaboration

Averaging the three selected multiples, the estimated Adidas' price per share on 31st December 2020 is €340.4. This upside potential of approximately 14% gives the perception that the market was undervaluing Adidas at that time. Moreover, according to these results, we believe that Adidas's market value will become more attractive.

Conducting this valuation methodology with Bloomberg's peer group the price per share of Adidas is €324.9 [16], corresponding to an upside potential of 9.1% – further details in Appendix V. Although the application of this peer group resulted in a different price per share for Adidas, both outputs imply the same conclusion: the market was undervaluing the company at the year ending.

6.4 Valuation Results Overview
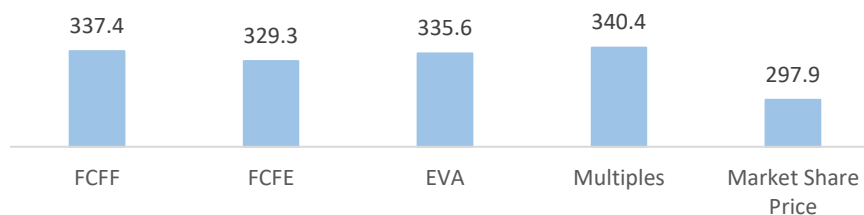
Figure 6.1: Adidas' Share Price Estimates by Methodology (€)

Source: Own Elaboration

It is notable that all valuation methodologies resulted in a share price above the market price on the 2020-year ending, suggesting that Adidas' share price was worth more than its market price.

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[16] This price per share resulted from averaging the three selected multiples.

The discrepancy between the results can be partially justified by each model's limitations. Nevertheless, the FCFE methodology is the one that points out a larger difference in Adidas' share price forecasts. This could be to some extent explained by the higher discount rate that lowered the discounted cash flows as well as the terminal value, offsetting the adjustment of removing the financial debt from the enterprise value.

By aggregating all prices per share obtained, Adidas' average/median fair value per share amounts to €337.7 and €337.4, representing a premium of 13.4% and 13.3%, respectively. It must be highlighted that the median fair value of all methodologies aggregated results in the same price per share as the main valuation method (DCF-WACC) selected to perform this equity valuation.

All in all, the presented valuation methodologies suggest that Adidas was undervalued, possibly meaning that: (i) market growth future expectations regarding Adidas AG are lower than the growth considered in this valuation; and/or (ii) the company has a higher discount rate – more risk – than the one forecasted; and/or (iii) the combined effect of the fierce competition in the sportswear industry and the worldwide pandemic outbreak expected by the market is greater.

On balance, since the market would tend to reflect the intrinsic value of Adidas in the future, we believe that Adidas' price per share will become more attractive. For now, considering the result of the DCF-WACC methodology, we issue a buy recommendation on Adidas shares, which is also supported by all the remaining valuation methods performed.

6.5 Investment Banking Report Comparison

In this chapter, we conclude the valuation process of Adidas AG by comparing the fair price obtained with a J.P. Morgan equity research report published on 07th July 2020 – the last equity report released with the target price for Dec 2020. This analysis aims to access the robustness of our assumptions in order to issue a reliable investment recommendation for potential investors.

To start, both Adidas' valuations performed a DCFF-WACC methodology. However, the explicit forecast periods applied were distinctive: our projection was from 2021 to 2025, and J.P. Morgan's valuation was based on the 2020-2022 explicit forecast. Hence, the comparative analysis will focus only on the years 2021 and 2022, since we decided to include 2020 as part of our historical period.

Table 6.15: Income Statement Inputs Comparison

	2020		2021		2022	
	J.P.M	Project	J.P.M	Project	J.P.M	Project
Revenues	19 538	19 843	22 532	20 963	24 722	23 195
Revenue Growth	-17.4%	-16.1%	15.3%	13.7%	9.7%	10.6%
Gross Profit	9 609	9 853	11 650	10 798	12 916	12 077
Gross Margin	49.2%	49.7%	51.7%	51.5%	52.2%	52.1%
EBITDA	1 713	2 077	3 499	2 774	4 218	3 374
EBIT	434	749	2 305	1 911	2 957	2 421
Net Income	229	430	1 642	1 408	2 101	1 803

Source: Own Elaboration. Based on data from J.P Morgan report

As shown in table 6.15, J.P. Morgan's estimation for Adidas' revenue growth and gross margin is similar to ours[17]. Nevertheless, we should bear in mind that while our forecasts took into consideration Reebok's divestiture the investment bank report did not, since this information was released by the company only in February of 2021 as part of its new strategic business plan.

Overall, we shall notice that our equity valuation had a more conservative approach.

Table 6.16: Other Variables Comparison

	J.P.M	Project
Tax rate	26%	20.20%
WACC	8%	5.34%
Perpetual growth rate	2.50%	1.95%

Source: Own Elaboration. Based on data from J.P Morgan report

Other key variables used to estimate the equity value of Adidas, which are important to compare, are presented in the table above. We can see that those key variables behind the valuations are substantially different. Notably, J.P Morgan assumed a 2.7% and 0.55% higher cost of capital and perpetual growth rate than the one forecasted in this project, respectively.

Based on those forecasts, J.P. Morgan presented a price target of €215 for Adidas share in Dec 2020, representing a downside of 13.1% compared to the market price at that time (€247.4). The investment bank justified this value due to their need to see again the company having a momentum re-acceleration as well as given the ongoing uncertainty and low visibility on the pandemic impact in the company. Therefore, J.P. Morgan issued a neutral recommendation to potential investors.

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[17] The project view for revenue growth disregards Reebok's sales from the previous operational year.

Table 6.17: Adidas' Share Price Comparison

	Adidas' Price per Share on 31 Dec. 2020
J.P.M Forecast on 07/07/2020	€215
Project Forecast (FCFF)	€337.4
Market Price	€297.9
Market Price on 06/07/2020	€247.4

Source: Own Elaboration. Based on data from J.P Morgan report

Overall, the price targets attained in the J.P. Morgan equity research report were very distinct from our estimated price per share. The discrepancy between the results can be partially justified by the fact that J.P. Morgan:

- Did not take into consideration in its valuation the Reebok's divestiture and Adidas' new strategic business plan impact;
- Applied a different explicit forecast period;
- Had a higher uncertainty regarding the Covid-19 impact on the company in its forecast, estimating a higher associated risk (cost of capital).

On balance, those equity valuations' price targets are not directly comparable.

7. Conclusion

Concisely, we can describe Adidas, AG as a well-established company in a booming and fierce industry, disrupted by a global pandemic. To face this controversial phase, the group has been adapting its business operations to a pandemic reality, shifting ways to reach the new consumers' behavior, as well as making bold strategic and divestment decisions.

Those aforementioned points were driving the attention of investors, as they could represent an investment opportunity. Hence, this master project aimed to assess if the market is accurately pricing the future prospects of Adidas into its stock price or if these challenges are being overlooked. Precisely, we evaluated Adidas, AG.'s fair value on 31 December 2020.

The challenge in any equity valuation is that there is no absolute approach to determine the fair value of a company. Choosing the right methodology can be critical to attain the goal of this project, so we analyzed the Adidas microenvironment and its performance in the latest years to select the best valuation model according to its specific characteristics and all trustworthy available data (Pinto et al., 2010). The main method selected to perform the Adidas' valuation was the DCF-WACC method since it is better suited for firms with a relatively static capital structure (Luehrman, 1997a), which was proven to be the case of Adidas.

By applying the DCF-WACC methodology, it was attained a share price of €337.4 for Adidas on the 2020-year ending. Nevertheless, to account for the uncertainty of some assumptions and quantify their impact on the price target, a sensitivity analysis, and a Monte Carlo simulation were performed. From those analysis, we reach two main conclusions: (i) Adidas' share price is more sensitive to changes in perpetual growth rate than in discount rate; (ii) Approximately 74% of the outcomes from Monte Carlo simulation resulted in a share price higher than Adidas' market share price on 31 December 2020 (€297.9), building confidence in the conclusion underlined by this valuation approach.

Furthermore, we also applied the Free Cash Flow to Equity, Economic-Value Added model, and Relative Valuation based on Price-Earnings ratio, EV/EBITDA, and EV/Sales multiples as a sanity check to the bottom-up valuation method (Benninga and Sarig, 1997). As expected, the different valuation methodologies led to different results: FCFE (€329.3), EVA (€335.6), and the relative valuation (€340.4).

Despite the discrepancies between the valuation results obtained, it was notable that all results were above the market share price on the 2020-year ending (€297.9), indicating that Adidas was undervalued. These outcomes can possibly mean that: (i) market growth future expectations regarding Adidas AG are lower than the growth considered in this valuation; and/or (ii) the company has a higher discount rate – more risk – than the one forecasted; and/or (iii) the combined effect of the fierce competition in the sportswear industry and the worldwide pandemic outbreak expected by the market is greater.

By aggregating all prices per share obtained, Adidas' average/median fair value per share amounts to €337.7 and €337.4, representing a premium of 13.4% and 13.3%, respectively, compared to the market share price as of December 31, 2020. It is noteworthy that the median fair value of all methodologies aggregated resulted in the same price per share as the main valuation method (DCF-WACC) selected to perform this equity valuation, building once more confidence in the DCF-WACC estimated target price.

Based on those outputs we can conclude that there is an opportunity to invest given that all valuation methodologies applied indicates that Adidas was undervalued at 2020-year ending. Therefore, we issued a buy recommendation on Adidas shares to potential investors since we believe that in 6-12 months the market share price will rise above €297.9.

It is important to bear in mind that this project's results depend both on the limitations of the valuation methodologies applied as well as on the assumptions we made. Although we followed a conservative approach and supported the assumptions on data publicly available until 31st of March 2021 about the company, the micro and macro-market there are always information gaps that can easily affect the valuation outcome.

Lastly, we recommend the research of new assessments regarding the sportswear industry reaction to the pandemic evolution as well as Rebook's sale as more information is made available and can significantly affect Adidas' fair value.

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9. Appendixes

Appendix A - Sportswear Industry's Future Growth Scenarios

<u>Pre-C19 Baseline Assumptions:</u>   **<u>Estimated Probability: 0%</u>**

• The pre-COVID-19 pandemic forecast from January 2020

• Global GDP in 2020: at around 3%

• Positive: high levels of consumer confidence, low financial system stress, supportive monetary policy

• Negative: trade war risks, declining business confidence, high corporate debt levels, uncertainty surrounding the recent COVID-19 outbreak in China

<u>Marc 2021 Baseline Assumptions:</u>   **<u>Estimated Probability: 45-55%</u>**

• There is 1 main global pandemic infection wave in first half of 2021

• Global Real GDP in 2021: 4.3% to 6.3%

• Global Real GDP in 2022: 2.8% to 5.3%

• Social distancing restrictions last for 2-4 quarters in 2021-2022

• Business and Consumer confidence indices over 1-year horizon return to historical averages by Q3 2021

• Risky borrowing rates (private sector or emerging economies) relative to government bond interest rates over 1-year horizon stabilize close to historical average

• Virus infection rates are 5-25%, with case mortality rates of 0.3-1.3% globally

<u>Scenario 1 Assumptions:</u>   **<u>Estimated Probability: 25-35%</u>**

• There are 1-2 global pandemic infection waves in 2021

• Global Real GDP in 2021: 0% to 2%

• Global Real GDP in 2022: 2% to 4.5%

• Social distancing measures last for 3-5 quarters in 2021-2022

• Global consumer and business confidence indices over 1-year horizon falls 10-30% below baseline forecast

• Risky borrowing rates rise by 1-4 percentage points above Marc 2021 baseline levels

• Virus infection rates are 15-35%, with case mortality rates of 0.3-1.3% globally

<u>Scenario 2 Assumptions:</u>   **<u>Estimated Probability: 7-12%</u>**

• There are 3-4 global pandemic infection waves over 2021-2022

• Global Real GDP in 2021: -2% to 0%

• Global Real GDP in 2022: -1% to 1.5%

• Social distancing measures last for 4-7 quarters in 2021-2022

• Virus infection rates are 20-45%, with case mortality rates of 0.5-2% globally

• Global consumer and business confidence indices over 1-year horizon falls 30-60% below baseline forecast

• Risky borrowing rates rise by 2-6 percentage points above Marc 2021 baseline levels

<u>Scenario 3 Assumptions:</u>   **<u>Estimated Probability: 7-12%</u>**

• There is 1 main global pandemic infection wave in first half of 2021

• Global Real GDP in 2021: 6.3% to 7.8%

• Global Real GDP in 2022: 4.2% to 6.2%

• Virus infection rates are 5-20%, with case mortality rates of 0.3-1.3% globally

• Social distancing measures last for 1-3 quarters in 2021-2022

• Business and Consumer confidence indices over 1-year horizon return to historical averages by Q2 2021

• Risky borrowing rates (private sector or emerging economies) relative to government bond interest rates over 1-year horizon stabilize close to historical average

Source: Own Elaboration. Based on data from Euromonitor International

Appendix B - Adidas' quarterly sales evolution by brand and geographical segmentation (€ in millions)

| Revenue by Brand: | 2019 | | | | | 2020 | | | | |
	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4QF	Total
Adidas' Brand	5 343	5 004	5 849	5 310	21 506	4 269	3 295	5 459	5 072	18 095
% Change						-20.1%	-34.2%	-6.7%	-4.5%	
Reebok's Brand	420	406	460	463	1 749	372	228	403	406	1 409
% Change						-11.4%	-43.8%	-12.4%	-12.3%	
Total	**5 763**	**5 410**	**6 309**	**5 773**	**23 255**	**4 641**	**3 523**	**5 862**	**5 478**	**19 504**
Revenue by Segment:										
Europe	1 551	1 421	1 698	1 401	6 071	1 426	844	1 753	1 297	5 320
% Change						-8.1%	-40.6%	3.24%	-7.42%	
North America	1 157	1 213	1 468	1 475	5 313	1 201	763	1 389	1 409	4 762
% Change						3.8%	-37.1%	-5.4%	-4.5%	
Asia-Pacific	2 139	1 872	2 090	1 930	8 031	1 184	1 572	1 872	1 918	6 546
% Change						-44.6%	-16.0%	-10.4%	-6.5%	
Russia/CIS	136	171	199	153	659	154	104	187	139	584
% Change						13.2%	-39.2%	-6.0%	-9.2%	
Latin America	376	403	405	476	1 660	339	114	296	408	1 157
% Change						-9.8%	-71.7%	-26.9%	-14.3%	
Emergin Markets	330	281	388	303	1 302	293	108	314	283	998
% Change						-11.2%	-61.6%	-19.1%	-6.6%	
Other Businesses	195	147	162	101	605	156	74	153	93	476
% Change						-20.0%	-49.7%	-5.56%	-7.92%	
Total	**5 884**	**5 508**	**6 410**	**5 839**	**23 641**	**4 753**	**3 579**	**5 964**	**5 547**	**19 843**
% Change						-19.2%	-35.0%	-7.0%	-5.0%	-16.1%

Source: Own Elaboration. Based on data from Annual Reports (2019-2020)

Appendix C - DuPont Analysis: Decomposition of Adidas' ROE

	2016	2017	2018	2019	2020
Decomposition 1:					
ROA	7.1%	7.5%	11.5%	10.9%	2.1%
Leverage	2.35	2.33	2.39	2.75	3.15
ROE	**16.7%**	**17.5%**	**27.5%**	**29.9%**	**6.5%**
Decomposition 2:				.	
Net Profit Margin	5.27%	5.17%	7.77%	8.36%	2.17%
Asset Turnover	135%	145%	148%	130%	95%
= ROA	7.1%	7.5%	11.5%	10.9%	2.1%
Leverage	2.35	2.33	2.39	2.75	3.15
ROE	**16.7%**	**17.5%**	**27.5%**	**29.9%**	**6.5%**
Decomposition 3:				.	
Tax Burden	70%	54%	72%	77%	75%
Interest Burden	95%	97%	98%	94%	78%
EBIT Margin	8%	10%	11%	12%	4%
Asset Turnover	1.35	1.45	1.48	1.3	0.95
Leverage	2.35	2.33	2.39	2.75	3.15
ROE	**16.7%**	**17.5%**	**27.5%**	**29.9%**	**6.5%**

Source: Own Elaboration. Based on data from Bloomberg

Appendix D - Financial Structure Evolution 2018-2019 (€ in millions)
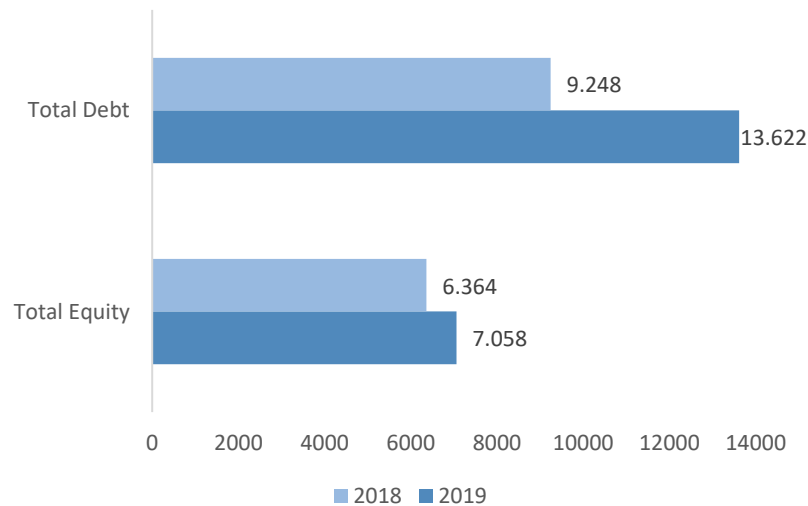
Source: Own Elaboration. Based on data from Annual Reports (2018-2019)

As of January 2019, the consolidated financial statements of Adidas AG are prepared in compliance with the International Financial Reporting Standards (IFRS) 16, replacing the IAS 17 standard. According to IAS 17, leases are classified into operating and financing liabilities. The latter was

considered in the current and non-current financial liabilities in the company's balance sheet, in contrast, the operating leases were considered until 2019 off-balance-sheet items. As previously stated, this substitution had a significant impact on the firm's consolidated financial statement upon initial application. Since with IFRS 16, the German group recognized for the first time as debt lease liabilities in an amount of €3.0 billion in relation to leases previously classified as operating leases.

€ in millions	2018		€ in millions	2019
Operating Leases	2 984		Current Leases Liabilities	733
Financial Leases	91		Non-Current Leases Liabilities	2 399
Total	3 075		Total	3 132

Source: Own Elaboration. Based on data from Annual Reports (2018-2019)

All in all, if Adidas had remained with the IAS 17 standard, its debt-to-equity ratio would remain similar to the previous years.

Appendix E - Adidas' Historical Revenue

€ in millions	2016	2017	2018	2019	2020
Revenue by Brand:					
Adidas' Brand	16 334	18 993	19 851	21 505	18 095
% Share	88%	90%	91%	91%	91%
Reebok's Brand	1 770	1 843	1 687	1 748	1 409
% Share	10%	9%	8%	7.4%	7.1%
Others	379	382	378	387	340
% Share	2%	2%	2%	2%	2%
Total Adidas AG	**18 483**	**21 218**	**21 916**	**23 640**	**19 844**
Revenue by Segment:					
Europe	0	5 933	5 885	6 070	5 320
Adidas' Brand	-	5 434	5 405	5 599	4 925
Reebok's Brand	-	499	480	471	395
North America	0	4 275	4 688	5 313	4 762
Adidas' Brand	-	3 843	4 277	4 828	4 365
Reebok's Brand	-	432	411	485	397
Asia-Pacific	0	6 404	7 141	8 032	6 547
Adidas' Brand	-	6 067	6 805	7 736	6 298
Reebok's Brand	-	337	336	296	249
Russia/CIS	0	660	595	658	583
Adidas' Brand	-	478	446	490	448
Reebok's Brand	-	182	149	168	135
Latin America	0	1 908	1 634	1 660	1 158
Adidas' Brand	-	1 673	1 463	1 490	1 033
Reebok's Brand	-	235	171	170	125
Emergin Markets	0	1 300	1 144	1 302	998
Adidas' Brand	-	1 153	1 010	1 146	892
Reebok's Brand	-	147	134	156	106
Other Businesses		739	829	605	476
Total	**0**	**21 219**	**21 916**	**23 640**	**19 844**
Revenue by Category:	**2016**	**2017**	**2018**	**2019**	**2020**
Footwear	10 132	12 427	12 783	13 521	11 128
% Share	55%	59%	58%	57%	56%
Apparel	7 352	7 747	8 223	8 963	7 687
% Share	40%	36%	38%	38%	39%
Hardware	999	1 044	910	1 156	1 028
% Share	5%	5%	4%	5%	5%
Total	**18 483**	**21 218**	**21 916**	**23 640**	**19 843**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix F - Revenues Weighted by Geographical Region

Revenue Weight by Region:	2017	2018	2019	2020	Average
Europe	28.0%	26.9%	25.7%	26.8%	26.8%
North America	20.1%	21.4%	22.5%	24.0%	22.0%
Asia-Pacific	30.2%	32.6%	34.0%	33.0%	32.4%
Russia/CIS	3.1%	2.7%	2.8%	2.9%	2.9%
Latin America	9.0%	7.5%	7.0%	5.8%	7.3%
Emerging Markets	6.1%	5.2%	5.5%	5.0%	5.5%
Other Bussines	3.5%	3.8%	2.6%	2.4%	3.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: Own Elaboration. Based on data from Annual Reports (2017-2020)

As described in the table above, we applied a weighted average based on the 2017-2020 regional segment format of Adidas' revenues. However, one must disregard the revenues derived by the "other business" category and allocate them in a regional context. Therefore, one allocated one-third of the "other business" revenue weight (3.1%) at each of the three strategic markets of the 'Own the Game' strategy: (i) Europe, for being the home market of Adidas; (ii) North America, for being the largest sportswear market in the world; (iii) Asia-Pacific, for being the fastest-growing market.

Appendix G - Adidas' Revenues by Category Without Reebok

€ in millions	2015	2016	2017	2018	2019	2020
Footwear	6 609	8 362	10 584	11 096	11 773	9 719
% Change	-	26.5%	26.6%	4.8%	6.1%	-17.4%
Apparel	6 970	7 352	7 747	8 223	8 963	7 687
% Change	-	5.5%	5.4%	6.1%	9.0%	-14.2%
Hardware	1 585	999	1 044	910	1 156	1 028
% Change	-	-37.0%	4.5%	-12.8%	27.0%	-11.1%
TOTAL	**15 164**	**16 713**	**19 375**	**20 229**	**21 892**	**18 434**
% Change	-	10.2%	15.9%	4.4%	8.2%	-15.8%

Source: Own Elaboration. Based on data from Annual Reports (2015-2020)

Appendix H - Adidas' Historical Operating Income & Expenses

€ in millions	2016	2017	2018	2019	2020	2020 Without Reebok	Historical Average
Royalty and commission income	105	115	129	154	83	61	
% of Revenues	0.6%	0.5%	0.6%	0.7%	0.4%	0.3%	0.6%
Other operating income	119	17	48	56	42	42	
% of Revenues	0.6%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
Total Operating Income	**224**	**132**	**177**	**210**	**125**	**103**	
% of Revenues	1.2%	0.6%	0.8%	0.9%	0.6%	0.5%	
Marketing and point-of-sale expenses	2 403	2 724	3 001	3 042	2 573	2 373	
% of Revenues	13.0%	12.8%	13.7%	12.9%	13.0%	12.9%	13.1%
Operating Overhead Costs:	5 338	6 042	6 172	6 801	6 656	6 207	
% of Revenues	28.9%	28.5%	28.2%	28.8%	33.5%	33.7%	
Total Operating Expenses	**7 741**	**8 766**	**9 173**	**9 843**	**9 229**	**8 580**	
% of Revenues	41.9%	41.3%	41.9%	41.6%	46.5%	**46.5%**	

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Note: Depreciation of tangible assets, amortization of intangible assets as well as impairment losses and reversals of impairments losses on those assets are primarily included within operating overhead costs. Hence, in table 6.5 we subtracted the total depreciation, amortization, and impairments from the total operating overhead cost disclosed by Adidas.

Appendix I - Adidas' Historical & Forecasted Depreciation, Amortizations & Impairments

€ in millions	2016	2017	2018	2019	2020	2021F	2022 F	2023F	2024F	2025F	Average
Gross PP&E	**3 648**	**3 629**	**4 061**	**4 405**	**4 326**	**3 692**	**4 085**	**4 477**	**4 808**	**5 092**	
% Revenues	19.7%	17.1%	18.5%	18.6%	21.8%	17.6%	17.6%	17.6%	17.6%	17.6%	**19.2%**
Accumulated Depreciations & Impairments	-1 733	-1 629	-1 824	-2 025	-2 169	-1 723	-1 907	-2 090	-2 245	-2 377	
% of PP&E	47.5%	44.9%	44.9%	46.0%	50.1%	46.7%	46.7%	46.7%	46.7%	46.7%	**46.7%**
Gross Right-to-use Assets				**2 931**	**2 430**	**2 583**	**2 858**	**3 132**	**3 364**	**3 563**	
% Revenues				12,4%	12,2%	12,3%	12,3%	12,3%	12,3%	12,3%	**12.3%**
Accumulated Depreciations & Impairments				-664	-752	-692	-766	-840	-902	-955	
% of Right-to-use Assets				22.7%	30.9%	26.8%	26.8%	26.8%	26.8%	26.8%	**26.8%**
Net Tangible Assets	**1 915**	**2 000**	**2 237**	**4 647**	**3 835**	**3 859**	**4 270**	**4 680**	**5 026**	**5 322**	

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F	Average
Gross Intangibles Assets	2 605	2 171	2 306	2 498	2 402	1 150	1 233	1 528	1 758	1 971	
% Revenues	14.1%	10.2%	10.5%	10.6%	12.1%	5.5%	5.3%	6.0%	6.4%	6.8%	**11.5%**
Accumulated Amortizations & Impairments	-758	-1 211	-1 266	-1 334	-1 401	-639	-686	-850	-977	-1 096	
% of Intangible Assets	29.1%	55.8%	54.9%	53.4%	58.3%	55.6%	55.6%	55.6%	55.6%	55.6%	**55.6%**
Net Intangible Assets	**1 847**	**960**	**1 040**	**1 164**	**1 001**	**510**	**548**	**678**	**780**	**875**	

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix J - Adidas' Historical & Forecasted Financial Income

Financial Assets (€ in millions)	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Financial instruments measured at amortized cost	4 168	4 334	5 074	4 875	4 488	4 741	5 246	5 750	6 175	6 539
% Revenues	22.6%	20.4%	23.2%	20.6%	22.6%	22.6%	22.6%	22.6%	22.6%	22.6%
Financial instruments at fair value through profit or loss	422	295	809	1 345	2 671	2 822	3 122	3 422	3 675	3 892
% Revenues	2.3%	1.4%	3.7%	5.7%	13.5%	13.5%	13.5%	13.5%	13.5%	13.5%
Others Financial Intruments	144	136	241	282	257	272	300	329	354	374
% Revenues	0.8%	0.6%	1.1%	1.2%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Financial Instruments	**4 734**	**4 765**	**6 124**	**6 502**	**7 416**	**7 835**	**8 669**	**9 501**	**10 204**	**10 805**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Note:

Financial instruments measured at amortized cost = Cash and cash equivalents + Short & Long-term Other financial assets + Other investments + Loans + Accounts receivable

Financial instruments at fair value through profit or loss = Cash equivalents + Short-term financial assets + Short- & Long-term derivatives not used in hedge accounting +   Short & Long-term promissory notes + Short & Long term earn-out components + Other equity investments + Other investments

Others Financial Instruments = Current & Non-current derivatives used in hedge accounting + Non-current other equity investments

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F	Historical Average
Interest income from financial instruments measured at amortized cost	21	23	24	50	23	32	35	39	41	44	
% Financial instruments measured at amortized cost	0.5%	0.5%	0.5%	1.0%	0.5%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
Interest income from financial instruments at fair value through profit or loss	0	0	0	0	0	0	0	0	0	0	
% Financial instruments measured at fair value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest income on others financial intruments	6	22	33	14	6	19	21	23	25	26	
% Others Financial Instruments	4.2%	16.2%	13.7%	5.0%	2.3%	7.0%	7.0%	7.0%	7.0%	7.0%	7,0%
Financial Income	**27**	**45**	**57**	**64**	**29**	**51**	**56**	**62**	**66**	**70**	

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix K - Adidas' Historical & Forecasted Financial Expenses

Financial Liabilities (€ in millions)	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Financial instruments measured at amortized cost	4 908	4 001	5 585	6 164	7 410	7 828	8 662	9 493	10 196	10 797
% Revenues	26.6%	18.9%	25.5%	26.1%	37.3%	37.3%	37.3%	37.3%	37.3%	37.3%
Financial instruments at fair value through profit or loss	47	55	64	117	109	115	127	140	150	159
% Revenues	0.3%	0.3%	0.3%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Others Financial Intruments	96	262	158	3 277	3 006	3 176	3 514	3 851	4 136	4 380
% Revenues	0.5%	1.2%	0.7%	13.9%	15.1%	15.1%	15.1%	15.1%	15.1%	15.1%
Financial Instruments	**5 051**	**4 318**	**5 807**	**9 558**	**10 525**	**11 119**	**12 303**	**13 484**	**14 482**	**15 335**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Note:

<u>Financial instruments measured at amortized cost</u> = Short & Long-term borrowings (bank borrowings, eurobond, convertible bond, non-current accrued liabilities) + Accounts payable + Current accrued liabilities + Current accrued liabilities for customer discounts + Other current & non-current financial liabilities

<u>Financial instruments at fair value through profit or loss</u> = Other current & non-current derivatives not used in hedge accounting + Earn-out components

<u>Others Financial Instruments</u> = Other current & non-current derivatives used in hedge accounting + Current & Non-current lease liabilities

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Interest expense on financial instruments measured at amortized cost	70	62	42	160	164	188	208	228	245	260
% Financial instruments measured at amortized cost	1.4%	1.6%	0.8%	2.6%	2.2%	2.4%	2.4%	2.4%	2.4%	2.4%
Interest expense on financial instruments at fair value through profit or loss	0	0	0	0	0	0	0	0	0	0
% Financial instruments measured at fair value	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest expenses on others financial intruments	4	31	5	6	40	24	27	29	31	33
% Others Financial Instruments	4.2%	11.8%	3.2%	0.2%	1.3%	0.8%	0.8%	0.8%	0.8%	0.8%
Financial Expenses	**74**	**93**	**47**	**166**	**204**	**212**	**235**	**257**	**276**	**293**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix L - Adidas' Historical & Forecasted Capital Expenditure

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
D&A&I [18]	371	441	514	521	1 240	924	879	986	1 086	1 172
Variation Net Tangible & Intangible Assets [18]	0	-802	317	267	-386	-679	247	340	279	246
CAPEX - Write-Offs	**371**	**-361**	**831**	**788**	**854**	**244**	**1 125**	**1 326**	**1 364**	**1 417**
% of Revenues	2.0%	-1.7%	3.8%	3.3%	4.3%	1.2%	4.9%	5.2%	5.0%	4.9%

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Note: The decrease in capex observed in 2017 and 2021 is justified by the divestiture of the CCM Hockey brand and several other golf-related brands – TaylorMade, Ashworth, and Adams Golf – and the divestiture of Reebok, respectively. From 2021 onwards, the capital expenditure forecasted refers exclusively to maintenance Capex.

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[18] Excludes the right-to-use assets value, according to IFRS 16.

Appendix M - Adidas' Historical & Forecasted Working Capital

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F	Average:
Accounts receivable	2 200	2 315	2 418	2 625	1 952	2 261	2 502	2 742	2 945	3 118	
DSO	40	39	39	39	42	39	39	39	39	39	39
Inventories	3 763	3 692	3 445	4 085	4 397	3 487	3 814	4 132	4 386	4 589	
DIO	127	129	123	121	155	125	125	125	125	125	125
Income tax receivables	98	71	48	94	109	71	79	87	93	98	
% Revenues	0.5%	0.3%	0.2%	0.4%	0.5%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%
Other current assets	580	498	725	1 076	999	828	916	1 004	1 079	1 142	
% Revenues	3.1%	2.3%	3.3%	4.6%	5.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.3%
Current Operating Assets	**6 641**	**6 576**	**6 636**	**7 880**	**7 457**	**6 648**	**7 311**	**7 965**	**8 502**	**8 948**	
Accounts Payable	2 496	1 975	2 300	2 703	2 390	1 955	2 417	2 611	2 753	2 868	
DPO	78	78	76	76	90	77	77	77	77	77	77
Income Tax Payables	402	424	268	618	562	418	462	507	544	576	
% Revenues	2.2%	2.0%	1.2%	2.6%	2.8%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%
Other current liabilities	434	473	477	538	398	425	471	516	554	586	
% Revenues	2.3%	2.2%	2.2%	2.3%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%
Current Operating Liabilities	**3 332**	**2 872**	**3 045**	**3 859**	**3 350**	**2 798**	**3 350**	**3 633**	**3 851**	**4 031**	
Total Working Capital	**3 309**	**3 704**	**3 591**	**4 021**	**4 107**	**3 850**	**3 962**	**4 332**	**4 651**	**4 917**	
Variations in Working Capital	-	395	-113	430	86	-257	111	370	319	267	
% Revenues	17.9%	17.5%	16.4%	17.0%	20.7%	18.4%	17.1%	17.0%	17.0%	17.0%	

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix N - Adidas' Forecasted Cost of Equity

Market Risk Premium by Regions:	Equity Risk Premium	Country Risk Premium	Sales' Weight
Europe	5.6%	0.8%	27.8%
North America	4.7%	0.0%	23.0%
Asia-Pacific	5.7%	1.0%	33.5%
Russia/CIS	6.9%	2.1%	2.9%
Latin America	8.8%	4.0%	7.3%
Emerging Markets	6.6%	1.8%	5.5%
Total	**5.8%**	**1.0%**	**100.0%**

Source: Own Elaboration. Based on data from Damodaran's website
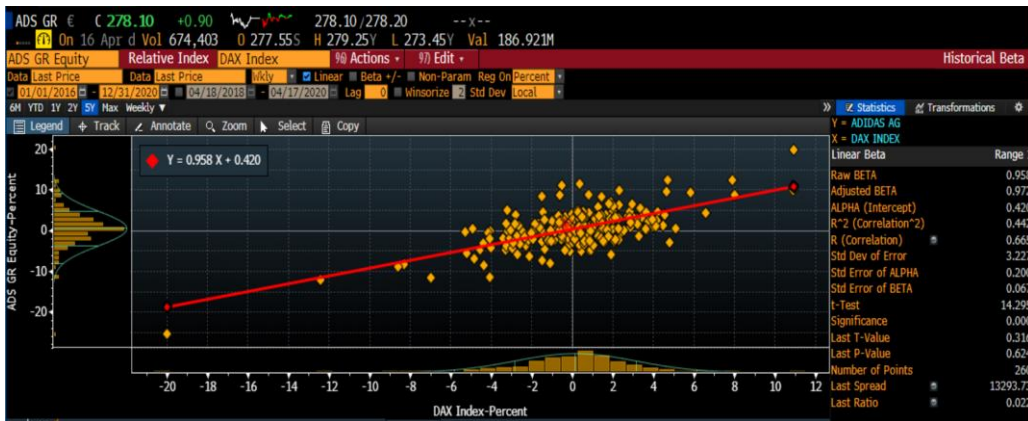
Source: Bloomberg

Risk-free rate	-0.569%
Adjusted Beta	0.972
Market Risk Premium	5.76%
Country Risk Premium	1.03%
Cost of Equity	**6.06%**

Source: Own Elaboration. Based on data from Bloomberg and Damodaran's website

Appendix O - Adidas' Forecasted Cost of Debt

For large non-financial service firms, mkt cap > $5 billion

If interest coverage ratio is		Rating is	Spread is
>	≤ to		
8.50	100000	Aaa/AAA	0.69%
6.5	8.499999	Aa2/AA	0.85%
5.5	6.499999	A1/A+	1.07%
4.25	5.499999	A2/A	1.18%
3	4.249999	A3/A-	1.33%
2.5	2.999999	Baa2/BBB	1.71%
2.25	2.49999	Ba1/BB+	2.31%
2	2.2499999	Ba2/BB	2.77%
1.75	1.999999	B1/B+	4.05%
1.5	1.749999	B2/B	4.86%
1.25	1.499999	B3/B-	5.94%
0.8	1.249999	Caa/CCC	9.46%
0.65	0.799999	Ca2/CC	9.97%
0.2	0.649999	C2/C	13.09%
-100000	0.199999	D2/D	17.44%

Source: Damodaran's website

Company Default Spread	1.18%
Risk-free rate	-0.569%
Cost of Debt	0.611%
Tax Rate	20.20%
Cost of Debt * (1-t)	**0.49%**

Source: Own Elaboration. Based on data from Bloomberg and Damodaran's website

Appendix P - DCF-WACC Methodology

€ in millions	2020	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F
EBITDA	2 077	2 774	3 374	3 922	4 373	4 805	
D&A&I	1 328	864	952	1 059	1 148	1 225	
EBIT	749	1 911	2 421	2 863	3 225	3 580	
Taxes	190	386	489	578	651	723	
NOPLAT	559	1 525	1 932	2 285	2 573	2 857	
D&A&I	1 328	864	952	1 059	1 148	1 225	
Operating Cash Flow	1 887	2 389	2 885	3 344	3 721	4 082	
Capex	854	244	1 125	1 326	1 364	1 417	
Δ Working Capital	86	-257	111	370	319	267	
FCFF	**947**	**2 401**	**1 648**	**1 648**	**2 038**	**2 398**	**2 635**

Source: Own Elaboration. Based on data from Annual Reports (2020)

Note:

1. $FCFF_{2026} = [EBIT_{2025} * (1 - t) * (1 + g)] - Invested\ Capital_{2025} * g$, where: g represents the terminal growth rate.

2. Details regarding the computation of the company's Invested Capital are in Appendix T.

Appendix Q - Sensitivity Analysis One Variable: WACC and Growth Rate

Growth Rate (g)	Share Price (€)	Cost of Capital (WACC)	Share Price (€)
0.95%	277.7	2.34%	389.1
1.20%	289.9	3.09%	375.3
1.45%	303.7	3.84%	362.2
1.70%	319.4	4.59%	349.5
1.95%	**337.4**	**5.34%**	**337.4**
2.20%	358.3	6.09%	325.8
2.45%	382.8	6.84%	314.7
2.70%	411.9	7.59%	304.0
2.95%	447.1	8.34%	293.7

Source: Own Elaboration

Appendix R - Monte Carlo Analysis

	Min	Most Likely	Max
WACC	3.34%	5.34%	7.34%
g	0.00%	1.95%	3.76%

Source: Own Elaboration

Note: Parameters defined for those variables in the triangular distribution.
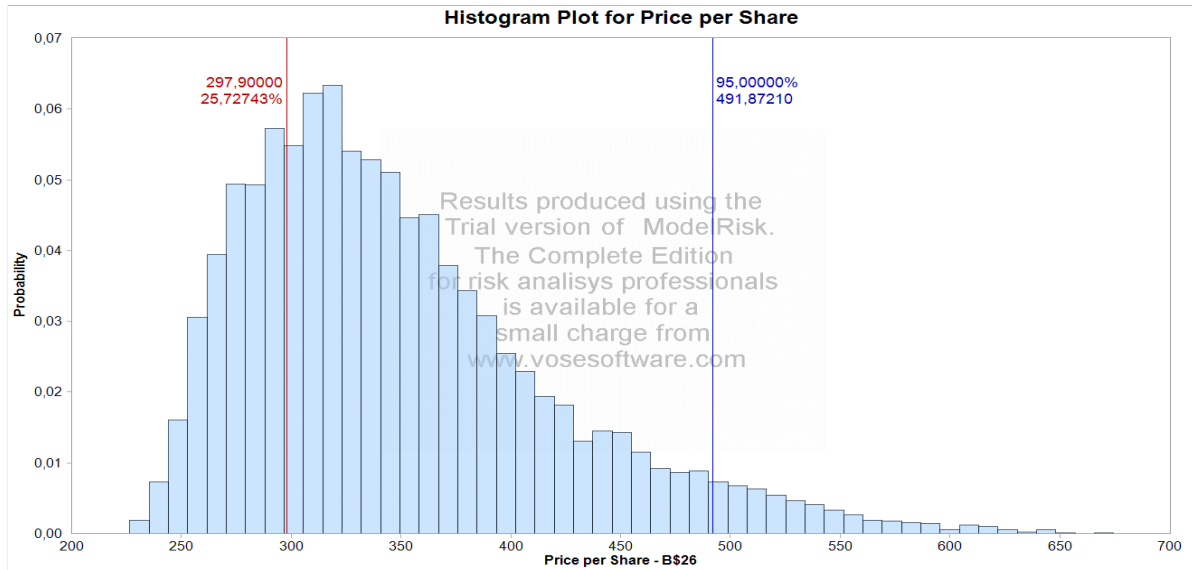
Source: Own Elaboration

Appendix S - Free Cash Flow to Equity Methodology

€ in millions	2020	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F
FCFF	947	2 401	1 648	1 648	2 038	2 398	2 635
Δ Debt	1 351	-1 926	565	563	476	407	415
Interest Expenses * (1-t)	131	129	143	156	168	178	181
FCFE	**2 167**	**346**	**2 070**	**2 055**	**2 346**	**2 627**	**2 868**

Source: Own Elaboration. Based on data from Annual Reports (2020)

Note:

1. Adidas' debt was computed as explained in section 6.1.4

2. $\Delta\,Debt_{2026} = \Delta\,Debt_{2025} * (1+g)$, where: g represents the terminal growth rate.

3. The same reasoning of last point applies to the computation of interest expenses net of taxes in 2026.

Appendix T - Economic Value-Added Methodology

€ in millions	2020	2021 F	2022 F	2023 F	2024 F	2025 F
NOPLAT	559	1 525	1 932	2 285	2 573	2 857
Invested Capital * WACC	695	565	606	666	717	760
EVA	**-136**	**960**	**1 326**	**1 618**	**1 857**	**2 097**

Source: Own Elaboration. Based on data from Annual Reports (2020)

Note 1: As we can see Adidas, in the explicit period, is creating value (EVA > 0) by generating enough profit to fully repay the return demanded by the shareholders and debtholders, and still have a surplus. The last operational year was the exception (EVA < 0) due to the lower volume in sales impacted by the Covid-19 pandemic.

€ in millions	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Operating Non Current Assets (BV)	8 899	6 720	7 381	8 135	8 763	9 307
WC	4 107	3 850	3 962	4 332	4 651	4 917
Invested Capital	**13 006**	**10 570**	**11 343**	**12 466**	**13 414**	**14 225**

Source: Own Elaboration. Based on data from Annual Reports (2020)

Note 2: To forecast the annual invested capital we applied the asset view approach:

$$\text{Invested Capital} \ = \ \text{Operating Non} - \text{Current Assets} \ + \ \text{Working Capital}$$

Where we assumed:

- Operating Non-Current Assets = Total Non-Current Assets

Market Value of Equity	58 110
Non-Operating Assets (NOA)	4 696
Financial Debt	7 230
Non-controlling interests	237
Enterprise Value	**60 881**
Invested Capital (2020)	13 006
Implied MVA (€ in millions)	**47 875**

Source: Own Elaboration

Note 3: To compute the implied MVA provided by market data, we used the reversed reasoning applied in section 6.2 and used the market value of equity as a starting point.

Appendix U - Peer Group Selection

2020 Data - Bloomberg	Risk		Cash Flow		Profitability		Growth	
Peers / Ratios	Debt/ Capital	Net D/E	Operating Margin	Net Income Margin	ROE	ROIC	Revenue Growth	ROE * (1- Payout)
Nike	61.77%	52.49%	8.33%	6.79%	29.70%	15.07%	-4.40%	12.29%
VF Corp	60.82%	114.44%	8.85%	6.48%	17.75%	10.44%	2.16%	-3.45%
Puma	40.45%	29.08%	4.00%	1.51%	4.39%	5.71%	-4.80%	3.06%
Under Armour	54.48%	29.13%	-13.71%	-12.27%	-28.71%	-17.73%	-15.00%	-28.71%
Skechers USA	42.38%	19.55%	2.91%	2.14%	4.11%	2.97%	-11.93%	4.11%
Anta Co Ltd	39.76%	-13.84%	25.77%	14.54%	23.41%	16.45%	4.67%	15.08%
Asics	49.25%	32.76%	-1.20%	-4.90%	-11.57%	-2.80%	-12.99%	-11.57%
Columbia Sportswear	18.59%	-20.37%	5.48%	4.32%	5.87%	4.78%	-17.78%	4.93%
Lululemon Athletica inc	27.49%	-18.11%	22.34%	16.22%	38.00%	30.23%	21.01%	38.00%
Adidas	**46.82%**	**20.61%**	**3.78%**	**2.18%**	**6.52%**	**4.49%**	**-16.06%**	**-2.61%**

Source: Own Elaboration. Based on data from Bloomberg

Top 5	Debt/ Capital	Net D/E	Operating Margin	Net Income Margin	ROE	ROIC	Revenue Growth	ROE * (1- Payout)
1	Asics	Skechers	Puma	Skechers	Columbia Sportswear	Columbia Sportswear	Under Armour	VF Corp
2	Skechers	Puma	Skechers	Puma	Puma	Puma	Columbia Sportswear	Puma
3	Puma	Under Armour	Columbia Sportswear	Columbia Sportswear	Skechers	Skechers	Asics	Skechers
4	Anta Co	Asics	Nike	VF Corp	VF Corp	VF Corp	Skechers	Columbia Sportswear
5	Under Armour	Nike	Asics	Nike	Anta Co	Asics	Puma	Asics

Source: Own Elaboration

2019 Data - Bloomberg	Risk		Cash Flow		Profitability		Growth	
Peers / Ratios	Debt/ Capital	Net D/E	Operating Margin	Net Income Margin	ROE	ROIC	Revenue Growth	ROE * (1-Payout)
Nike	27.79%	-13.10%	12.20%	10.30%	42.74%	27.54%	7.47%	28.33%
VF Corp	39.28%	55.32%	11.59%	12.27%	-	-	-	-
Puma	32.36%	19.23%	8.00%	4.77%	14.67%	14.13%	18.37%	14.67%
Under Armour	37.67%	23.77%	4.50%	1.75%	4.42%	3.43%	1.42%	4.42%
Skechers USA	33.51%	13.46%	9.93%	6.64%	15.94%	14.16%	12.45%	15.94%
Anta Co Ltd	31.90%	-12.99%	25.62%	15.75%	29.81%	23.99%	40.78%	20.65%
Asics	34.60%	27.17%	2.81%	1.88%	4.47%	3.51%	-2.25%	0.97%
Columbia Sportswear	19.06%	-13.63%	12.98%	10.86%	18.76%	16.54%	8.57%	15.06%
Lululemon Athletica inc	0.00%	-60.95%	21.46%	14.71%	31.80%	30.98%	24.13%	31.80%
Adidas	**40.33%**	**26.64%**	**11.25%**	**8.36%**	**30.00%**	**20.00%**	**7.87%**	**30.00%**

Source: Own Elaboration. Based on data from Bloomberg

Top 5	Debt/ Capital	Net D/E	Operating Margin	Net Income Margin	ROE	ROIC	Revenue Growth	ROE * (1-Payout)
1	VF Corp	Asics	VF Corp	Skechers	Anta Co	Columbia Sportswear	Nike	Nike
2	Under Armour	Under Armour	Nike	Nike	Lululemon Athletica	Anta Co	Columbia Sportswear	Lululemon Athletica
3	Asics	Puma	Skechers	Columbia Sportswear	Columbia Sportswear	Skechers	Skechers	Anta Co
4	Skechers	Skechers	Columbia Sportswear	Puma	Nike	Puma	Under Armour	Skechers
5	Puma	VF Corp	Puma	VF Corp	Skechers	Nike	Asics	Columbia Sportswear

Source: Own Elaboration

Appendix V - Multiples Valuation with Bloomberg's Peer Group

Peer Valuation	P/E Ratio	EV/EBITDA	EV/Sales
Nike	54.81	35.83	4.22
Puma	174.11	29.6	2.74
Under Armour	46.44	10.34	1.86
VF Corp	22.84	13.1	2.51
Lulumenon Athletica	48.56	25.13	7.75
Mean	69.35	22.80	3.82
Median	48.56	25.13	2.74
Enterprise Value (€ in millions)	-	69 741	57 440
(+) Non-Operating Assets	-	4 696	4 696
(-) Financial Debt	-	7 230	7 230
(-) Non-Controlling Interests	-	237	237
Equity Value	68 529	66 970	54 669
Nº of Shares Outstanding	195	195	195
Price per Share	351	343	280
Upside/ Downside Potential	17.9%	15.2%	-5.9%

Average Price per Share	**324.9**
Upside/ Downside Potential	9.1%

Source: Own Elaboration. Based on data from Bloomberg

Appendix W - Adidas' Historical and Forecasted Equity (Book Value)

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Share capital	201	204	199	196	195	195	195	195	195	195
Retained Earnings & Reserves	6 270	5 829	6 177	6 600	6 259	7 611	8 873	10 322	11 917	13 679
Shareholders' Equity	6 471	6 033	6 376	6 796	6 454	7 806	9 069	10 518	12 113	13 874
Non-controlling interests	-17	-15	-13	261	237	240	243	247	252	257
Total Equity	**6 454**	**6 018**	**6 363**	**7 057**	**6 691**	**8 045**	**9 312**	**10 765**	**12 364**	**14 130**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

€ in millions	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Retained Earnings	5 858	6 054	6 555	6 733	7 556	8 810	10 248	11 832
Net Income Attributable to Shareholders	1 702	1 976	430	1 408	1 803	2 142	2 420	2 694
Dividends (N-1)	530	667	0	585	549	703	837	946
Shares Buybacks (N)	1000	815	257	0	0	0	0	0
Retained Earnings	**6 030**	**6 547**	**6 729**	**7 556**	**8 810**	**10 248**	**11 832**	**13 581**

Source: Own Elaboration. Based on data from Annual Reports (2018-2020)

Note 1: Adidas AG did not disclose any information regarding a future share buyback program since its temporary suspension. Hence, we assumed this program will not restart during this valuation explicit period. ´

	2016	2017	2018	2019	2020	Average
N° of Shares Outstanding at year-end	201 489 310	203 861 234	199 171 345	195 969 387	195 066 060	
Dividend per Share (€)	2	2.6	3.35	0	3	
Dividend Paid	**402 978 620**	**530 039 208**	**667 224 006**	**0**	**585 198 180**	
Dividend Payout Ratio	39.67%	39.23%	39.02%	0%	140%	**39.31%**

	2021 F	2022 F	2023 F	2024 F	2025 F
N° of Shares Outstanding at year-end	195 066 060	195 066 060	195 066 060	195 066 060	195 066 060
Dividend per Share (€)	2.81	3.61	4.29	4.85	5.40
Dividend Paid	**548 657 855**	**703 415 715**	**836 546 705**	**945 563 975**	**1 053 067 410**
Dividend Payout Ratio	39.31%	39.31%	39.31%	39.31%	39.31%

Source: Own Elaboration. Based on data from Annual Reports (2016-2020) and Bloomberg

Note 2: To forecast the future dividends paid by the company, we assumed a weighted average on the dividend payout ratio, excluding the data from 2019 and 2020 for being outliers – represent an extreme number arising from the worldwide pandemic outbreak.

Appendix X - Historical and Forecasted Balance Sheet (€M)

For simplification, the majority of Adidas' assets and liabilities were forecasted as described below to take into account Reebok's divestiture impact:

$$Rubric\ X_n = (\text{The historical weight of Rubric X as a\% of revenues} * Revenues_n) * (100\%$$
$$- Historical\ average \text{ of Reebok's sales as a \% of } total \text{ sales })$$

It is important to bear in mind that some rubric's historical weights as % of revenues might disregard one particular year for being considered an outlier. Moreover, account receivables, inventory, goodwill, and account payables were estimated as explained in sections 6.1.1.4 and 6.1.1.8.

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Assets										
Cash and Short-term financial assets	1 515	1 603	2 635	2 512	3 994	2 013	2 227	2 440	2 621	2 776
Accounts receivable	2 200	2 315	2 418	2 625	1 952	2 261	2 502	2 742	2 945	3 118
Other current financial assets	729	393	542	544	702	509	563	617	663	702
Inventories	3 763	3 692	3 445	4 085	4 397	3 487	3 814	4 132	4 386	4 589
Income tax receivables	98	71	48	94	109	71	79	87	93	98
Short-term financial assets	0	3	2	3	0	3 573	4 716	5 693	6 893	8 316
Other current assets	580	498	725	1 076	999	828	916	1 004	1 079	1 142
Assets held for sale	0	72	0	0	0	0	0	0	0	0
Total Current Assets	**8 885**	**8 647**	**9 811**	**10 933**	**12 153**	**12 743**	**14 818**	**16 716**	**18 679**	**20 742**
Net Property, plant and equipment	1 915	2 000	2 237	2 380	2 157	1 968	2 178	2 387	2 564	2 715
Net Right-of-use assets	0	0	0	2 931	2 430	2 583	2 858	3 132	3 364	3 563
Net Goodwill	1 412	1 221	1 246	1 257	1 208	347	347	347	347	347
Net Trademarks and Other intangible assets	1 847	960	1 040	1 164	1 001	510	548	678	780	875
Long-term financial assets	194	236	276	367	353	260	288	316	339	359
Other non-current financial assets	96	219	256	450	414	259	286	314	337	357
Deferred tax assets	732	630	651	1 093	1 233	700	774	848	911	965
Other non-current assets	94	108	94	103	103	93	102	112	121	128
Total Non-Current Assets	**6 290**	**5 374**	**5 800**	**9 745**	**8 899**	**6 720**	**7 381**	**8 135**	**8 763**	**9 307**
Total Assets	**15 175**	**14 021**	**15 611**	**20 678**	**21 052**	**19 463**	**22 199**	**24 850**	**27 442**	**30 049**
Liabilities and Equity										
Short-term borrowings	636	137	66	43	686	274	303	332	357	378
Accounts payable	2 496	1 975	2 300	2 703	2 390	1 955	2 417	2 611	2 753	2 868
Current lease liabilities	0	0	0	733	563	572	633	694	745	789
Other current financial liabilities	201	362	186	235	446	192	212	232	249	264
Income taxes	402	424	268	618	562	418	462	507	544	576
Other current provisions	573	741	1 232	1 446	1 609	1 275	1 410	1 546	1 660	1 758
Current accrued liabilities	2 023	2 180	2 305	2 437	2 172	2 042	2 259	2 476	2 660	2 816
Other current liabilities	434	473	477	538	398	425	471	516	554	586
Total Current Liabilities	**6 765**	**6 292**	**6 834**	**8 753**	**8 826**	**7 152**	**8 168**	**8 913**	**9 522**	**10 036**
Long-term borrowings	982	983	1 609	1 595	2 482	1 444	1 597	1 751	1 880	1 991
Non-current lease liabilities	0	0	0	2 399	2 159	2 026	2 241	2 457	2 638	2 794
Other non-current financial liabilities	22	22	103	92	115	93	103	113	122	129
Pensions and similar obligations	355	298	246	229	284	264	292	320	344	364
Deferred tax liabilities	387	190	241	280	241	212	234	257	276	292
Other non-current provisions	44	80	128	257	229	181	201	220	236	250
Non-current accrued liabilities	120	85	19	9	8	11	12	13	14	15
Other non-current liabilities	46	53	68	7	17	36	39	43	46	49
Total Non-Current Liabilities	**1 956**	**1 711**	**2 414**	**4 868**	**5 535**	**4 266**	**4 720**	**5 173**	**5 556**	**5 883**
Share capital	201	204	199	196	195	195	195	195	195	195
Retained earnings & Reserves	6 270	5 829	6 177	6 600	6 259	7 611	8 873	10 322	11 917	13 679
Shareholders' Equity	6 471	6 033	6 376	6 796	6 454	7 806	9 069	10 518	12 113	13 874
Non-controlling interests	-17	-15	-13	261	237	240	243	247	252	257
Total Equity	**6 454**	**6 018**	**6 363**	**7 057**	**6 691**	**8 045**	**9 312**	**10 765**	**12 364**	**14 130**
Total Liabilities and Equity	**15 175**	**14 021**	**15 611**	**20 678**	**21 052**	**19 463**	**22 199**	**24 850**	**27 442**	**30 049**

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)

Appendix Y - Historical and Forecasted Income Statement (€M)

€ in millions	2016	2017	2018	2019	2020	2021 F	2022 F	2023 F	2024 F	2025 F
Net sales	18 483	21 218	21 916	23 640	19 843	20 963	23 195	25 421	27 303	28 912
Cost of sales	9 383	10 514	10 552	11 347	9 990	10 165	11 119	12 044	12 784	13 377
Gross profit	**9 100**	**10 704**	**11 364**	**12 293**	**9 853**	**10 798**	**12 077**	**13 377**	**14 518**	**15 534**
(% of net sales)	49.2%	50.4%	51.9%	52.0%	49.7%	51.5%	52.1%	52.6%	53.2%	53.7%
Royalty & Commission income	105	115	129	154	83	115	128	140	150	159
Other operating income	119	17	48	56	42	39	43	48	51	54
Other operating expenses	7 370	8 325	8 659	8 658	7 901	8 178	8 874	9 642	10 347	10 942
(% of net sales)	39.9%	39.2%	39.5%	36.6%	39.8%	39.0%	38.3%	37.9%	37.9%	37.8%
Marketing and point-of-sale expenses	2 403	2 724	3 001	3 042	2 573	2 741	3 032	3 323	3 569	3 780
(% of net sales)	13.0%	12.8%	13.7%	12.9%	13.0%	13.1%	13.1%	13.1%	13.1%	13.1%
Operating Overhead Expenses	4 967	5 601	5 658	5 616	5 328	5 438	5 842	6 319	6 777	7 163
(% of net sales)	26.9%	26.4%	25.8%	23.8%	26.9%	25.9%	25.2%	24.9%	24.8%	24.8%
EBITDA	**1 954**	**2 511**	**2 882**	**3 845**	**2 077**	**2 774**	**3 374**	**3 922**	**4 373**	**4 805**
Depreciation, Amortization, and Impairments	371	441	514	1 185	1 328	864	952	1 059	1 148	1 225
Operating profit	**1 583**	**2 070**	**2 368**	**2 660**	**749**	**1 911**	**2 421**	**2 863**	**3 225**	**3 580**
(% of net sales)	8.6%	9.8%	10.8%	11.3%	3.8%	9.1%	10.4%	11.3%	11.8%	12.4%
Financial income	27	45	57	64	29	51	56	62	66	70
Financial expenses	-74	-93	-47	-166	-204	-212	-235	-257	-276	-293
Income before taxes	**1 536**	**2 022**	**2 378**	**2 558**	**574**	**1 749**	**2 243**	**2 667**	**3 015**	**3 357**
(% of net sales)	8.3%	9.5%	10.9%	10.8%	2.9%	8.3%	9.7%	10.5%	11.0%	11.6%
Income taxes	455	667	668	640	146	353	453	539	609	678
(% of income before taxes)	29.6%	33.0%	28.1%	25.0%	25.4%	20.2%	20.2%	20.2%	20.2%	20.2%
Net income from continuing operations	**1 081**	**1 355**	**1 710**	**1 919**	**428**	**1 396**	**1 790**	**2 128**	**2 406**	**2 679**
(% of net sales)	5.9%	6.4%	7.8%	8.1%	2.2%	6.7%	7.7%	8.4%	8.8%	9.3%
Gains / (losses) from discontinued operations, net of tax	-62	-254	-5	59	13	15	16	18	19	20
Net income	**1 019**	**1 101**	**1 705**	**1 978**	**441**	**1 411**	**1 806**	**2 146**	**2 425**	**2 699**
(% of net sales)	5.5%	5.2%	7.8%	8.4%	2.2%	6.7%	7.8%	8.4%	8.9%	9.3%
Net income attributable to non-controlling interests	2	3	3	2	11	3	3	4	5	5
Net income attributable to shareholders	**1 017**	**1 098**	**1 702**	**1 976**	**430**	**1 408**	**1 803**	**2 142**	**2 420**	**2 694**
Basic earnings per share from continuing operations (in €)	5.37	6.65	8.58	9.79	2.20	7.16	9.17	10.91	12.33	13.73
Basic earnings per share from continuing and discontinued operations (in €)	5.06	5.40	8.56	10.09	2.26	7.23	9.26	11.00	12.43	13.84

Source: Own Elaboration. Based on data from Annual Reports (2016-2020)