



Equity Valuation of Adidas AG

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BUY

€ 248,4

Price (13/03/2019)

€ 204,8

Upside

21,3 %

Company name: Adidas AG

Stock Exchange: DAX

Ticker Symbol: ADSGn.DE

Industry: Sportswear

Description: Leading player



Market Profile

Closing Price	€204,8
52 week low/high	€179,1-€213,7
Market Cap (m)	€40 790
Dividend Yield	1,59%
Beta	0,8
Shares Outstanding	199,17M
PER	21,6x
EV/EBITDA	12x
Free float	88,2%
Fiscal Year End	2018

I issue a BUY recommendation for Adidas AG, with a target price of €248,4 per share, which reflects an upside of around 21% over the next year. I believe that in 6-12 months markets will rise above the current price €204,8.

This recommendation was build up by a profound analysis of macroeconomics conditions, combined with industry trends and key performance characteristics and followed by a Company overview analyze. Those facts put Adidas AG in a valuable position.

Financial Data

€ in Millions	2018	2019 (F)
Revenues	21 915	23 456
% change	3,3%	7,0%
EBITDA	2 882	3 284
EBITDA Margin	13,2%	14%
Net Income	1 702	1 922
Net Margin	7,8%	8,2%
Net Debt/EBITDA	-0,3x	-0,3x
EPS	8,5	10

The company stock price clearly outperformed the German stock index DAX-30, yielding a total return of 103% in the last three years. This development was mainly driven by the continuously release of strong financial performances. Adidas AG shares outperformed Nike's share performance by 19% which gives me confidence to defend the successful execution of the "creating the new" strategy and in the Company's ability to sustainably grow revenues and improve margins in years to come.

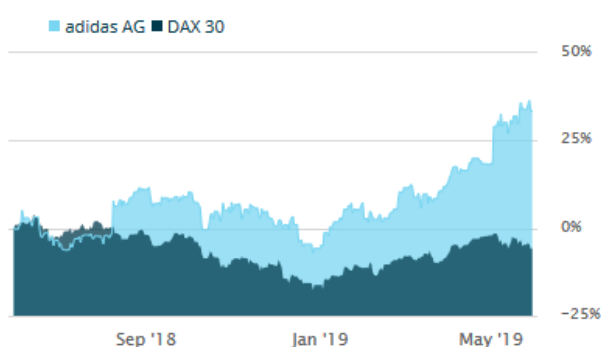
Adidas sales are expected to grow in the future due to regional consumers, localised marketing are currently paying off in Brazil and China as well as by strategic growth areas such as womenswear, athleisure, e-commerce, greater penetration of the North America and Euro growth return. Therefore, I foreseen a strong profitability increase with operating margin up 0,8pp to 11,5% in 2019.

Valuation

Price/Share

DCF	€248,4
EV/Sales	€287,6
EV/EBITDA	€304,6
PER	€251,7
Average multiples	€281,3

The current investment of the Group to increase capacity and cost efficiency will generate higher cash flow, repaying debt fully (Net debt/EBITDA negative). The low leverage levels and higher cash flow generation capability heavily contribute towards the sustainability of the FCFE over low cycle periods, proving more comfortable cash flow margins to investors.



Equity Valuation of Adidas AG
by
Ana Margarida Campos Duarte Costa

Abstract

The purpose of this dissertation is to determine Adidas AG target share price as of 13th March of 2019 (day when the full 2018 annual report was published) by accomplishment of a more profound valuation of the Group. Consequently, issue an adequate investment recommendation of either buy, hold or sell by comparing it with the market price on that date. Therefore, the research question underlying this dissertation is: “What is the fair value of one common share at 13th March of 2019 and how different it is from the market price?”

Adidas AG is the second largest representative of the global footwear and apparel market. The Company has strongly solidified its position over the past 4 years, surpassing its biggest competitor Nike, Inc.

The valuation is determining upon a thorough analysis on the Sportswear Industry, followed by its current macroeconomics context and expected market trends, as well as a detailed company analysis in order to form accrued assumptions for the future.

The primary method used was the Discounted cash-flow analysis as the major source for the aim of this dissertation, and secondly the forward-looking multiples valuation as a complementary approach. Both valuation methods reach a range price per share of €248,4-€281,3 which implies a BUY recommendation with an upside of 21%-37%.

Subsequently, my valuation is compared with equity report issued by Warburg Research and Piper Jaffray & Co. The main differences between the valuation methodologies and assumptions are analysed.

Key words: Adidas, DCF, valuation, Multiples

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Resumo

O objetivo desta dissertação é determinar o preço por ação da Adidas AG a partir de 13 de março de 2019 (dia em que o relatório e contas completo de 2018 foi publicado) realizando uma avaliação aprofundada do grupo. Consequentemente, uma recomendação de investimento adequada é emitida (comprar, segurar ou vender) comparativamente com o preço de mercado nessa data. Portanto, "Qual é o valor justo de uma ação a 13 de março de 2019 e como difere do preço de mercado?" é efetivamente a questão subjacente.

Adidas AG é a segunda maior representante do mercado mundial de calçados e vestuário. A empresa tem solidificado fortemente a sua posição ao longo dos últimos 4 anos, superando o seu maior concorrente Nike, Inc.

A avaliação é determinada através de uma análise minuciosa da indústria desportiva, seguida pelo seu contexto macroeconómico atual e pelas tendências esperadas do mercado, assim como uma análise detalhada da Empresa, de forma a atingir suposições corretas para o futuro. O método primário utilizado foi a análise de fluxo de caixa descontado como a principal fonte para o objetivo desta dissertação e, em segundo lugar, a avaliação por múltiplos como uma abordagem complementar. Ambos os métodos de avaliação atingem um preço de variação por ação de € 248,4-€ 281,3 o que implica uma recomendação de COMPRA que se traduz numa valorização de 21%-37%. Subsequentemente, a avaliação é comparada com o relatório emitido por Warburg Research e por Piper Jaffray & Co.

Palavras-Chave: Adidas, DCF, avaliação patrimonial, Múltiplos

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List of Abbreviations

Amort.	Amortizations
APV	Adjusted Present Value
CAGR	Compounded Annual Growth Rate
CAPEX	Capital expenditures
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flows
DDM	Dividend Discount Model
EBIT	Earnings Before Interests and taxes
EBITDA	Earnings Before Interests, taxes, Depreciations and Amortizations
EBT	Earnings Before taxes
EPS	Earnings per share
EV	Enterprise Value
FCFE	Free Cash Flow to the Equity
FCFF	Free Cash Flow to the Firm
GDP	Gross domestic product
MRP	Market Risk Premium
NWC	Net Working Capital
PER	Price to earnings ratio
PP&E	Property, Plants & Equipment
PV(ITS)	Present Value of Interest Tax Shield
WACC	Weighted Average Cost of Capital

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1. Introduction

The aim of this dissertation is not just simply applying the theoretical knowledge from Equity valuation methodologies to issue an investment recommendation. It is a story telling process based on a profound understanding of the company. The conclusion is, indeed, obtaining a value that allows me to decide whether to sell, hold or buy Adidas AG shares.

Adidas AG was the company chosen for this academic dissertation since the Group's share price grew more than 100% over the last 3 years. By taking advantage of the increased competition for fitness, wellness and athleisure, as all became standard elements of many people's everyday lives, the Company could overtake Nike Inc. as the global top-ranking sportswear company in the medium to long term.

Throughout the dissertation, specific assumptions were exercised accordingly to the most recent public information and further forecasts for the economy, market and industry conditions to create the right environment for the future. Hence, section 2 is composed of relevant literature and methodologies, providing alongside, justifications to those that are going to be applied in Adidas' valuation.

Secondly, in section 3 a macro analysis will be done, followed by a more detailed analysis in section 4 of Adidas' industry and then a specific Company overview will be presented to better understand its past and future trends in section 5.

In section 6, the DCF model and a Relative valuation are presented as the models responsible for the output of this thesis. Before concluding, section 7 compares this dissertation's results between an equity research report of Warburg Research and another from Piper Jaffray.

2. Literature Review

This section has the purpose of covering the particularities and techniques for a company's valuation by presenting the most relevant papers and their respective perspectives to support each subject.

2.1. Valuation Methods Introduction

Primarily, in order to understand the impact of an accrued valuation and the significance of assessing to it, Fernández (2007) distinguishes between the company's value and price. The price is the value each buyer and seller agree on whereas the value of the company may differ from buyer to buyer, hence does not necessary coincide with the valuation desired by the seller since both have opposite interests.

A valuation can be done for a wide range of purposes: set the minimum price for an acquisition; set the maximum price for sellers; decide to sell or buy a traded stock; determine price for an IPO; implement management compensations based on value creation; or by identifying key value drivers or improving strategic decisions.

“Valuation lies at the heart of much of what we do in Finance” (Damodaran, 2007) nonetheless its relevance and impact have been rather underestimated when, indeed, an off-track estimation will certainly lead to an inappropriate decision that might jeopardize the future of the company. The valuation method chosen is the fundamental process of an investment decision. By comparing the estimated value to its market value, one can buy or hold the investment (Estimated value > Market value), one should sell it or not buy (Estimated value < Market value) (Reilly and Brown, 2002).

The number of existing valuation techniques reinforces the challenge to derive an accrued perception of value. Analysts use for each model diverse assumptions about the fundamentals, which contributes to a rather complex universe of estimations. Hence, valuation is not a science but a state of art. Generally, there are four methods (Damodaran, 2007):

Discounted Cash Flow- Present value of the company's asset based on the fundamentals applied to determine its expected future cash flows, discounting them to the present at a specific rate (i.e. opportunity cost) to evaluate the potential investment. This method is of great relevance during the dissertation.

Accounting Valuation- Use of the book value to assess the assets valuation. This approach is not further addressed.

Relative valuation- the company's valuation is reached by selecting "peer" companies and comparing variables such as earnings, sales and cash flow. This approach will serve as a backup analyse during the dissertation.

Contingent Claim Valuation- Value of the assets by using options features.

Damodaran (2007) and Fernández (2007) recognize that regardless of the different assumptions applied to the models, they share common characteristics. As a result, the following sections aim is to describe each valuation method alongside with some related issues and reveal the reason for the choices made for Adidas' valuation.

2.2. Discounted Cash Flow (DCF)

It is consensually proven that DCF method is "the most accurate and flexible method for valuing projects, divisions, and companies." (Goedhart, Koller, & Wessels, 2005). "The value of an asset is not what someone perceives it to be worth, but it is a function of the expected cash flows on that asset" (Damodaran, 2007). Nevertheless, companies should use more than one valuation methodology to derive more accrued predictions for the future and thus, allow them to generate credible decisions.

The DCF model implies the calculation of the present value of future cash flows discounted at a rate that reflects the risk of the business as demonstrated in the following formula:

$$Present\ Value = \sum_{n=1}^t \frac{CF_n}{(1+r)^n} + \frac{TV_t}{(1+r)^t} \quad (1)$$

Where:

CF_n = Cash Flow

TV = Terminal Value

r = Discounted rate for the appropriate cash flows' risk

n = time periods, time = 1 to t

Based on the formula displayed above, two important components are analysed: The expected cash flows and the discount rate. To compute them, one needs to make a set of assumptions. The accuracy of this method will depend upon how close to reality those projected free cash flows are.

According to Luerhman (1997) "the analyst's task is first to forecast expected future cash flows and second to account them to present value at the opportunity cost of funds". For him the discount rate is "the return a company could expect to earn on an alternative investment entailing the same risk".

The cash flow presented in the DCF formula (1) might be define as (FCFF) or (FCFE).

2.2.1. Free Cash Flow to the Firm

$$PV = \sum_{n=1}^t \frac{FCFF_n}{(1+r)^n} + \frac{TV_t}{(1+r)^t} \quad (2)$$

The formula above displays a rather enterprise perspective with the purpose of valuating the company as a whole by discounting the cash flows generated before any claims by the investors. Modigliani and Miller (1958) formula to calculate FCFF will be the one applied in the dissertation as it is, among several alternatives, the most widely used:

$$FCFF = EBIT * (1 - Tax\ rate) + Depreciation - CAPEX - \Delta working\ Capital \quad (3)$$

FCFF is the sum of all cash generated, which are attributed to all stakeholders. Acknowledging that after taxes cash flow only reflects the amount to be given to investors, there are some adjustments to make since not every component from Net Income are indeed cash related, hence, depreciations and amortizations are added back to eliminate their impact.

The CAPEX must be deducted as it reflects the long-term investments and divestments made which does not appear in the Income Statement.

The NWC represents the company's ability to meet its short-term financing needs. Accordingly, if it increases in comparison to the previous year must be added back.

2.2.2. Free Cash Flow to the Equity

From formula (3) is possible to get the (FCFE) by deducting all non-equity expenses and repayments since, in this case, the only cash flow received by the stockholders are dividends. According to Damodaran (2007), the cash flow amount distributed only to equity holders is represented by the amount of cash left over after all the required reinvestments and debt repayments, as the following formula shows:

$$FCFE = FCFF - Net\ Borrowing \quad (4)$$

Once FCFE is used, the DCF formula changes as for the FCFF discount rate is no longer equal. For Adidas Group in particular, this difference is irrelevant in the sense that its Net Borrowing is zero (less than 0,7% of the total Market value of Equity). Therefore, the cash flow for the DCF model chosen was the FCFF.

2.2.3. Discount Rate

This section provides with alternatives for the discount rates by adapting for the volatility of the firm, besides the simple usage of risk-free rate, through:

2.2.3.1. *Weighted average cost of capital (WACC)*

Represents the return, which hypothetically investors would demand due to their aggregated risk for the investment made in the company based partially on the capital structure. "WACC is a weighted average of two different magnitudes: a cost, the cost of debt, and a required return, the required return to equity" (Fernández, 2010) as presenting by the following formula:

$$WACC = \left[\left(\frac{Net\ Debt}{MV(Equity) + Net\ Debt} \right) \times r_d \times (1 - Tax\ rate) \right] + \left[\left(\frac{MV(Equity)}{MV(Equity) + Net\ Debt} \right) \times r_e \right] \quad (5)$$

Where

r_d = Cost of Debt

r_e = Cost of Equity

The equation has some imperfections, for instance, it can only be applied to firms with constant capital structure. In respect to this issue, Miles & Ezzel (1980) suggested to either assume a target capital structure or to constantly calculate a new WACC each period. For firms leveraged above the theoretical optimal capital structure, the WACC method will result in a higher discount rate, which might not reflect the reality and consequently, lead to an undervaluation of the company, as Fernández (2010) states "cost of capital is not either a cost or a required return but rather a weighted average of both". Therefore, the opposite can occur, if the company has a lower than optimal amount of leverage, the WACC would have a lower rate which could overvalue the company.

In regards to r_d "Cost of Debt is the interest that a company has to pay at the moment it is funded by lenders" (Frykman and Tolleryd, 2003) being the reason why a market cost of debt is used instead of an historical one. Consequently, the debt used according to Frykman and Tolleryd (2003) should be Net Debt.

The reason why the cost of debt is reduced by the tax rate is to access the firm's benefit of paying less taxes from holding debt which pays interest, this debt benefit is called interest tax shield and must be accounted for in the optimal capital structure decision. (Koller, Goedhart, and Wessels 2015)

Cost of Debt is linked with the likelihood of the firm's default scenario, hence, if debt is traded in the market, it is correct to use the company's rating and a default spread: the more a company borrows the higher its probability of default, hence, the cost of debt increases.

Besides the default risk (i.e. default spread plus risk free) the cost of debt usually is computed based on the company's bond YTM (Koller, et al., 2010)

$$K_d = Pre - tax\ cost\ of\ debt * (1 - t) \quad (6)$$

Where

K_d = After-tax cost of Debt

t = Marginal tax rate

On the other hand, the cost of equity represents the minimum return demand by the shareholders for the investments made in the company. Regarding investors diversity, Rosenberg and Rudd (1979) argue that "is not the risk on an individual asset that counts but rather the contribution of that same risky asset for the overall diversified portfolio". Hence, in my dissertation, to compute the cost of equity for the WACC, the Capital Asset Pricing Model will be applied. The following formula describes the relationship between expected rate of return and the related risk:

$$CAPM = r_e = r_f + \beta(MRP) \quad (7)$$

Where

r_f = Risk-free rate

β = Systematic risk factor

MRP = Market Risk (average return on all securities) - r_f

Luehrman (1997) claims that the expected return on an investment reflects three components: Risk-free rate - Time value of money is "the return earned for being patient without bearing any risk". Following Damodaran's research (2008) for an investor to be risk-free should have

no default risk – only government Bonds must be considered – and no reinvestment risk – chose a government Bond with Zero coupon bonds. For the risk free to be a good prediction, it needs to be based on a high liquidate/low risky Bond with a long-term horizon, preferably with the same maturity as the expected cash flows and expressed in the same currency as the financial statements of the company. Moreover, the rate should be in real terms, so growth is not derived from inflation prices, misrepresenting the valuation. For the purpose of this dissertation, a 10-year German government bond will be used as the risk-free rate.

Market Risk premium - “the extra return you can expect per risk bear”, is the difference between investing in risky assets and in a risk-free asset. In order to calculate the MRP, usually the historical method is applied, but there are several discordances about the topic such as: the historical being different from the required return for each investor or limitation on the historical data available, specifically regarding less developed markets.

Regarding such issue, Damodaran (2012) presents two alternative approaches: The first approach consists of using a survey where managers and investors are asked about their expectations for returns. The second approach estimates implied premiums by using market rates and prices on assets traded today.

In order to determine the cost of equity of Adidas, I used the earnings risk premium of the countries in which the Group has relevant operations (provided by Damodaran) and weighted them differently according to its level of relevance.

Beta - The component, which creates more issues using the CAPM - “Measures the sensitivity of the stock returns to the market’s return.” (Damodaran, 1999)

Damodaran believes that betas have two basic characteristics:

Risk added on to a diversified portfolio, rather than total risk.

“Relative” risk of an asset- Since there is no efficient portfolio representing the whole market, most experts use market indices, which include only a subset of securities.

Damodaran, likewise, presents some issues for the beta estimation:

Choice of Market Index – indices with more securities should provide a strong proxy for the risk, as should the ones that are market-weighted. However, to estimate the beta for emerging markets, it would not be an easy task to do given the existence of few public companies and short historical data available.

Choice of a Time Period – using a long time period, the value of beta should be more accrued however, it may pollute the final results if the company has suffered several changes in their past.

When analysing betas across industries, it is clear the considerable differences. Kaplan and Peterson (1998) proposes a portfolio composed by companies with only one business area as the ideal portfolio to get a precise beta. Also, the author found that large market-capitalization firms tend to have smaller betas than those in small market-capitalization firms. However, using industry peer to calculate the beta does not incorporate the differences in financial leverage.

For this purpose, the beta of Adidas was computed by using the unleveraged Beta of the Company's business from Damodaran database, as this method does not include the financial leverage it was then adjusted to the Company's capital structure, yielding from that a leverage beta applying the following formula: (Fernández, 2006)

$$\text{Leverage } \beta = \text{Unlevered } \beta * \left[1 + (1 - \text{tax rate}) * \left(\frac{\text{MV Debt} + \text{Leases}}{\text{MV Equity}} \right) \right] \quad (8)$$

Afterwards, the leverage beta was smooth for the future to converge beta to one: (Blume, 1975)

$$\text{Adjusted Beta} = 0,33 + 0,67 * \text{Leverage beta} \quad (9)$$

2.2.4. Terminal Value

$$TV = \frac{FCFF_n * (1 + g)}{(r - g)} \quad (10)$$

Where

FCFF_n = free cash flow of the last projected year

g = Long term growth rate

r = WACC

Terminal Value is the forecasted cash flow after the company enter in its steady state, discounted to today's value, as long as one can expect growth to be maintained. Since it is not possible to calculate cash flows for infinite time, an explicit period is determined and afterwards a terminal value must be computed growing constantly year after year. Damodaran (2012) presents three possible estimations: multiples approach; liquidation value approach; and the Gordon Growth Model, which is the one used in my valuation and shown by formula (10).

By treating Terminal Value as a perpetuity, it is assumed to have a constant growth rate, which should be lower or in the best-case scenario equal to the nominal growth rate of its country's economy, according to Damodaran (2007). Another element of relevance is related to the industry characteristics, which the company is in and its capability to grow.

Given the formula (10), the lower the discount rate, the bigger the weight of this value in the DCF valuation method. The Gordon Growth Model is extremely sensitive to the assumptions made in its denominator.

This issue was first discussed by Young et al. (1999) who established the relationship between the number of periods forecasted and the influence of the Terminal Value. He stated that "the terminal value is on average, 94% of the total value if we make three annual forecasts, 90% of the value if we assume five annual forecasts and 79% if we assume ten annual forecasts". As Adidas is a matured company due to their years of experience in the industry and stable capital structure, the forecast window required is small.

2.3. Adjusted Present Value

$$APV = \text{Value of Unlevered firm} + PV(\text{Tax Shield}) - PV E[\text{Bankruptcy cost}] \quad (11)$$

"Today's better alternative for valuing a business operation is to apply the basic DCF relationship to each of a business's various kinds of cash flow and then add up the present

values. This approach is most often called adjusted present value, or APV.” (Luchman, 1997). Typically, managers appreciate this method rather than the typical DCF since it shows where the value of the firm is coming from.

The method was first described by Modigliani and Miller (1963) which splits the tax benefits from borrowing and its costs. According to Inselbag and Kaufold (1997), APV is split into two components, first the value of the company assuming to be financed entirely with equity, i.e. unleveraged value which is unaffected, second is the value of the tax shield therefore only this would be affected by changes in financial leverage.

Value of the firm unlevered (100% equity)

$$Value\ of\ unlevered\ firm = \frac{FCFF_i}{r_e - g} \tag{12}$$

Where

- FCFF_i = value of the firm in the year after the projection period
- r_e = Unlevered cost of Equity = Unlevered cost of capital
- g = Terminal growth rate

The value of the unleveraged firm is given by discount at either the WACC or r_e only once debt appears the relationship is no longer equal, the cost of equity becomes lower than the cost of capital as shareholders would require a higher risk premium as their return become more uncertain. (Fernández, 2007) In this case, the r_e should be calculated based on a beta unleveraged.

Present Value of Tax Shield “interest tax savings created by borrowing money”

$$PV(Tax\ Shields) = \frac{Tax\ Rate \times cost\ of\ Debt \times Debt}{cost\ of\ Debt} = tax\ rate \times Debt \tag{13}$$

Tax Shields open several discussions among authors in whether the amount of debt should change over time, which discount rate and tax rate to apply.

First, Modigliani & Miller (1958) assumes firm's value as being independent of the level of debt. After some years, proposed a world with taxes and zero bankruptcy costs for which the present value of tax shields was calculated with risk-free rate. Then Fernández (2004) proved its flaws specially for growing companies, in which the risk-free rate does not reflect their true level of risk and also imposes the unrealistic assumption of zero probability of default. Later, Harris & Pringle (1980) proposed to discount the Present value by the unlevered cost of capital, arguing that the benefits should have the same risk as the unlevered assets.

Nevertheless, he also pointed out that this is depend upon the D/E ratio a company wants to keep. If the company wants to maintain a constant D/E ratio, the TS should be discount at cost of debt in the first year and by the cost of capital in the following years. On the other hand, Myers (1974) states that the PV(TS) should be discounted cost of Debt, because he considers the risk of having debt equal to the tax saving's risk.

Despite controversial issues, the discount rate generally accepted is the cost of debt, which simplifies the formula¹.

Probability of bankruptcy and its expected cost due to the previous borrowing amount

$$PV E[\text{Bankruptcy costs}] = \% \text{ of Default} \times PV \text{ of Bankruptcy} \quad (14)$$

This is the only negative part of the equation and as Damodaran points out it is the hardest to be estimated since there is no direct formula to compute the bankruptcy costs associated with debt.

There are two components for bankruptcy costs (direct and indirect). The direct costs are associated with legal expenses and liquidation process costs resulting from selling the assets at a discount price. The indirect costs are not a straightforward calculation since it depends on the inability of the company to run its normal course of operations (ex: business decisions

¹ Authors like Myers (1974), Miles and Ezzel (1980), Harris and Pringle (1985) and Cooper and Nyborg (2006)

dismissed by legal authorities, the cost of having a brand image demolished and consequent loss of clients, time lost by the management time in solving those financial distress costs).

There are several empirical papers about bankruptcy costs like Kortweg (2007) showing from 1994 to 2004 an ex-ante cost of financial distress at 4% of the company's value and a maximum of 11% across industries based on market options, however, once a firm falls into bankruptcy, this cost can go up to 30% of firm's value. Another study conducted by Warner (1997) shows 5% direct costs and 5-15% for indirect cost. Andrade and Kaplan (1998) concluded that indirect costs accounted for 10-23% of firm value, whereas, Damodaran (2002) believes that both costs should represent around 30% of firm value.

Regarding the probability of default, it can be accessed by: Bond rating estimation – For each level of debt it is calculated an interest coverage ratio, which gives a rating for the company and then by looking at Damodaran's research, it is possible to associate that interest coverage ratio given to the correspondent probability of default. Statistic Approach – The probability of default is computed based on the firm's specific debt level characteristics.

To sum up, APV is reached by summing the first two components and subtract the last one. Nonetheless, due to the struggle bankruptcy cost calculations, many authors still consider the constant WACC approach the best option.

Throughout the last years, Adidas has shown a stable debt-to-equity ratio in Market Value terms and since the company has not announced any plans to significantly change its capital structure in the future nor announced new debt issues the APV-Valuation is not exercised in this dissertation.

2.4. Dividend Discounted Model

Developed by John Williams (1938) this model states that investor's return, once a stock is bought, is the sum of all expected dividends on it. Hence, the selling price is the present value of all future dividend payments throughout the holding period, discounted back:

$$PV = \sum \frac{E[DPS]_t}{(1+r)^t} + \frac{E[P]_n}{(1+r)^n} \quad (15)$$

Where

$E[DPS]_t$ = Expected dividend per share to be paid at the end of year t

$E[P]_n$ = Expected price per share at year n

This is a rather intuitive model with only one underlying assumption being the growth rate of the dividends in order to reach the forecasted ones. Dividends are “the only cash flow from the firm that is tangible to investors” Damodaran (2007). Nevertheless, it is difficult to estimate all future dividends on one growth rate and besides, dividend policy is more a political choice than an economic one (Fernández, 2004).

The simplest and most widely used model is the Gordon Model, which is used for companies in a “steady state”, hence, under this scenario, is possible to assume a constant growing rate of dividends indefinitely. Thus, the value of the stock is combined into future dividends payment:

$$PV = \frac{Dividend * (1 + g)}{r - g} \quad (16)$$

However, the same growth is not always verified due to the volatility of the earnings. According to Damodaran only works for firms that have a growing rate that are equal or lower than the nominal growth rate of the economy and for companies that have already define their dividend pay-out policies for the future.

In the valuation of the Adidas Group, this model will not be considered as it is not the only source of value for the shareholders. Moreover, Adidas has a buyback share program in place, therefore, only accounting for DDM as a valuation method would had led to an undervaluation of the Group.

2.5. Excess Return Model

The Economic Value Added (EVA) was developed by (Stewart, 1991) “EVA is a measure of the true financial performance of a company”. It is a measure which represents the excess return on an investment, therefore is the value created for the shareholders, it is calculated as followed:

$$EVA = [ROIC - WACC] \times Capital\ Invested = NOPAT - WACC \times Capital\ Invested \quad (17)$$

EVA helps investors in the decision of choosing which company to invest in. The logic behind the formula is the same as the NPV once discounted by the cost of capital it should give the same value. For NPV to be positive $ROIC > WACC$ as EVA, both account for capital charge besides returns, which forces managers to strongly care for the assets and income in order to improve or keep a positive growth of EVA. For the purpose of the dissertation this method will not be used since this measure is easy to manipulate.

Besides EVA there is a similar excess return method called Dynamic ROE, but it only focusses on the value of equity. Return on Equity is simply the percentage return of the Net Income for the Shareholders.

2.6. Relative Valuation

When using DCF models, one is looking at the capacity of the firm to generate future cash flows and to some extent, value the management capabilities, whereas, a relative valuation looks at comparable companies based on what the market paid for them and applied it into the company. Goedhart et al. (2005) consider Multiples a good complement for DCF as he said forecasts made by analysts are always based upon how confident are they in relying on key corporate values. Therefore "comparing company's multiples with those of other companies can be useful in making such forecasts”.

The main multiples used are: Price-to-Earnings; Price-to-FCF; Price-to-Book; EV/EBITDA; EV/Sales; EV/EBIT.

Multiples align with a DCF approach can help the company to stress-test its forecasts for: mismatches between its performance and of its competitors; define better strategies based on the industry competitor's analyse; observe if the key industry factors are being followed by the firm and if so acknowledge if they are creating value or not.

Nevertheless, multiples can be misapplied and lead to huge valuation errors. For example, Goedheart et.al (2005) found evidence that the use of industry average multiples might ignore the fact that companies in the same industry may have different expected growth rates or ROIC. Corporate managers usually think of growth as the only driver for multiples approach. However, taking the PER multiple as an example, "growth increases PER only when combined with healthy returns on invested capital" (Goedheart et.al, 2005). To help managers overcome these problems and apply the different multiples correctly, the authors established three principles:

Select a suitable peer group - Examine the peer companies based on similarities across strategy, operations and financial aspects in order to reach to their level of growth forecasts and ROIC. Commonly use is an industry classification system, SIC (Standard Industrial Classification). According to Eberhart (2004) it is rational to think that competitive companies in the same markets which are subject to the same set of macroeconomic forces can be target of comparisons. Nonetheless, a company profile can vary even within the same industry thus, another alternative is to look at the fundamentals of a company. Damodaran (2007) defines a comparable company as one with growth potential, risk and cash flows similar to the firm being valued, highlighting the fact that there is no industry or sector reference in this definition.

Forward-looking multiples - Liu et al (2002) claims that forward multiples were more accurate in pricing and Valentine (2010) argues that forward multiples should be used because stocks trade on forward expectations. Even so, if one relies on historical data, should always chose the most recent data available.

Use Enterprise-value multiples - Price-to-Earnings (PER) is one of the most commonly used multiples, it relates the company's share price to its earnings per share. However, the ratio can sometimes be misleading since it depends upon the company's capital structure and as it is based on earnings, may include non-operating items or one-time only events.

An alternative to PER is the EV/EBITDA which is less susceptible to manipulation by changes in capital structure, since enterprise represents the profit available to investors. Above all,

EBITDA is closer to cash flows and using this driver will lead the value closer to the trading prices.

EV/EBITDA multiple should be adjusted in order to extract non-operating items such as excess cash, operating leases, employee stock options and pensions.

Fernández (2001) shows that the PER and EV/EBITDA are the valuation methods most widely used by Morgan Stanley specially for European companies, therefore those are the ones used in my Peer's valuation.

Summarizing, relative valuation methods require fewer assumptions and quicker computations, reflect current market moods and provides insights among similar companies. On the other hand, it is a rather simplistic approach which may ignore important variables.

Since this is typically the valuation method used by investment banks, it will also be followed further deep throughout the dissertation. Adidas' peer group will be defined by companies from the same industry, similar sizes and similar business segments. Therefore, the peer will be composed by Nike Inc, Puma SE and Under Armour.

2.7. Contingent Claim Valuation

This is applied for companies with “projects that involve both with a high level of uncertainty and with opportunities to dispel it as new information becomes available” (Copeland and Keenan, 1998).

According to Trigeorgis (1993), allows for decision adjustments when there are developments/changes in the market that were not previously accounted. Moreover, Luerhman (1997) points out that the right to start, stop, or modify a business activity in a future period should be embed in the valuation. For companies in its early stage or even start-up this is a good approach as its values are heavily dependent upon future capacity to generate earnings which a DCF application might mislead. Since Adidas AG is already a matured company this approach will not be further exercise.

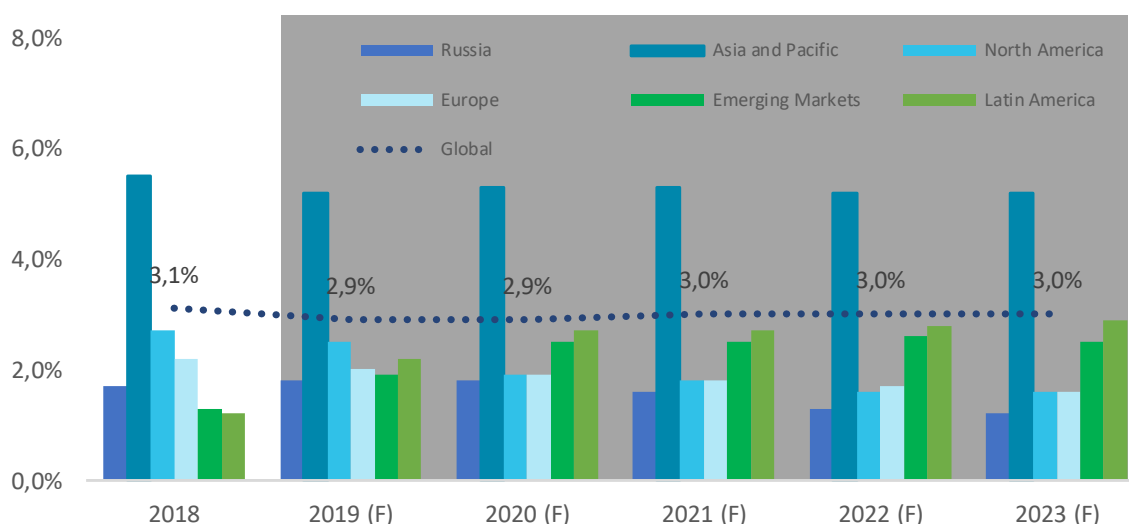
3. Global Growth Outlook

In 2018, the global economy presented a steady growth from 3% to 3,1%, driven by a rise in consumer confidence, a stabilization of commodity prices and benevolent financing conditions. Nevertheless, the headline growth forecast conceals a different growth pace between develop and developing economies.

On one hand, developed economies grew 2,2% in 2018 mainly supported by labour improvement conditions. On the other hand, growth in emerging market and developing economies overall has strengthened to 4,2% in 2018, before reaching an expected 4,7% in 2019 as the recovery in commodity exporters matures from a stabilization of oil and commodity prices level off following this year’s increase. (World Bank, 2018).

Those outlooks will be taken into consideration in section 6 for the periods forecasted as inputs for the Revenues. After the second year in a row of above potential GDP gains, higher inflation and interest rates in 2018, the global economy growth is set to ease off slightly in 2019. J.P. Morgan presents an estimation of 2,9% for the global growth in 2019, on par with the 3% gain in 2018.

Graph 1: Real GDP development in % Regional and Global (*World Bank for the historical periods and IMF data for the forecasted years*)



The 2019 growth figure is based upon the moderate fall of the U.S. due to tightness in fiscal, monetary and political trades. Nonetheless, since the recent disruptions in the euro area are expected to fade, this might be a contributing factor to offset some of the moderation in U.S. growth.

China on the other hand, is facing significant challenges sustaining growth at around 6% as it deals with internal imbalances and external drag. China's economy is on track for its slowest growth since 1990. The worse than expected economic data highlights the slowdown in factory activity, industrial profits and high indebtedness and the trade war with U.S. taking place in the world's second largest economy.

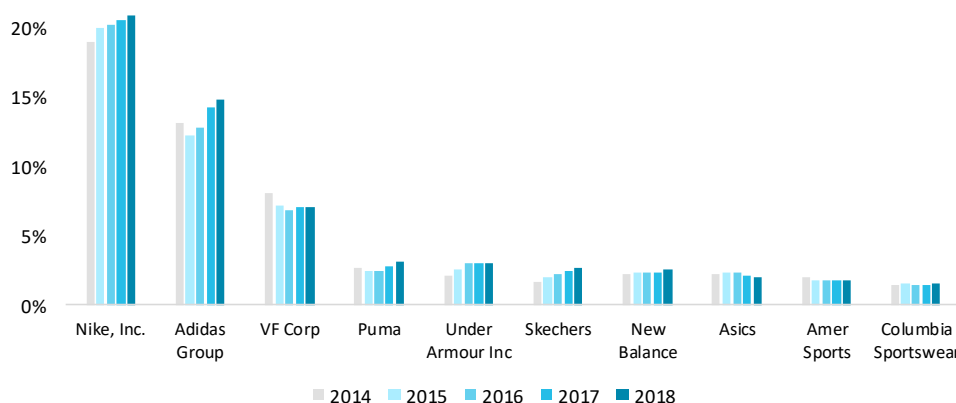
China is contributing heavily to the overall Emerging Markets slowdown, whereas, Latin American countries are expected to modestly faster their activities forecast in 2019, in particular Brazil, which is poised to continue recovering from the presidential election.

4. Industry Overview

Adidas AG belongs to the industry of Global Sportswear, the market is classified into sports apparel and sports footwear. Sportswear includes T-shirts, caps, shorts, tracksuits, tennis shirts, polo shirts, shoes and others, which are worn while doing physical activities.

The sportswear market is consolidated but competition from smaller brands and private labels are growing according to the Euromonitor International, nonetheless, the industry is indeed mainly dominated by two large competitors: Nike, Inc. and Adidas Group.

Graph 2: Top 10 companies with the biggest Market Share based on Total Revenues (USD Billions²) (Statista and company's annual reports)



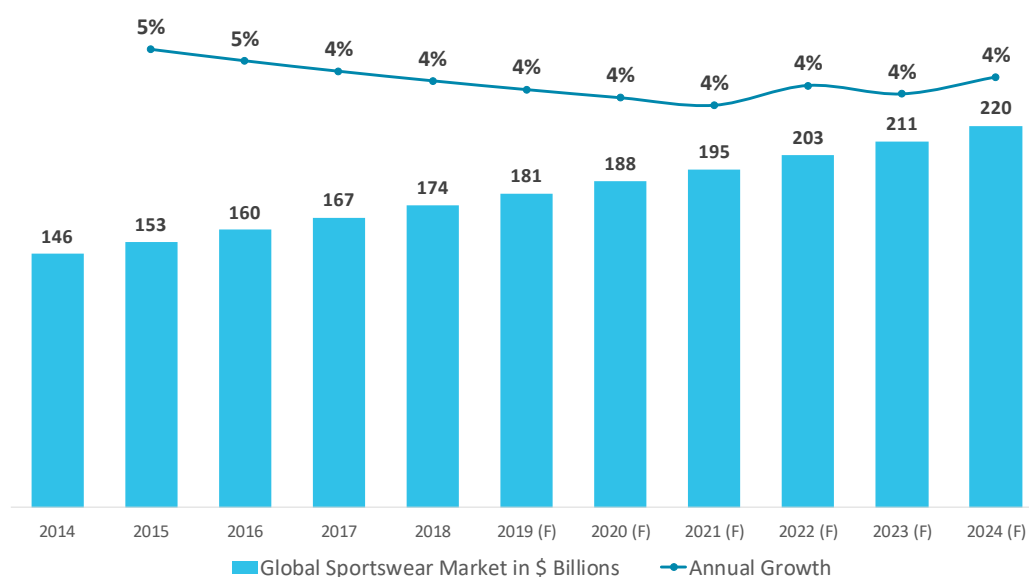
Those 10 companies account for more than half of the total market, despite Puma's astonishing growth in recent year (18% growth in its market size) is still far from its closes rival, VF Corp,

² Total Revenues of each company was converted in USD dollars in order to match with the total revenues Global Market presented in the following figure.

which does not pose a great threat to Adidas but shows the potential competition treats small companies can create on a long horizon.

Nike and Adidas held the number one and two, respectively. The sizable market share controlled by both is gained due to widespread geographic presence, product & retail innovation and solid brand image, sustained by prestigious brand ambassadors. For example, Nike's new NBA Connected Jersey is a prime example of how a sports brand had become intimately linked with celebrities & technology and for Adidas' example the new production contract with Beyoncé's Brand *Ivy Park*.

Graph 3: 10-year Global Sportswear Market (USD Billion³) (Statista)



The Sportswear market posted a further steady growth in the future of 4% (CAGR 2019-2024) due to the market's huge potential within the supply chain with rapid innovations such as the application of new manufacturing techniques to enhance the speed-to-market capability of sports brands, which will lift sales growth. The distribution also collaborates with a rise of e-commerce, improving the online penetration of sportswear products worldwide.

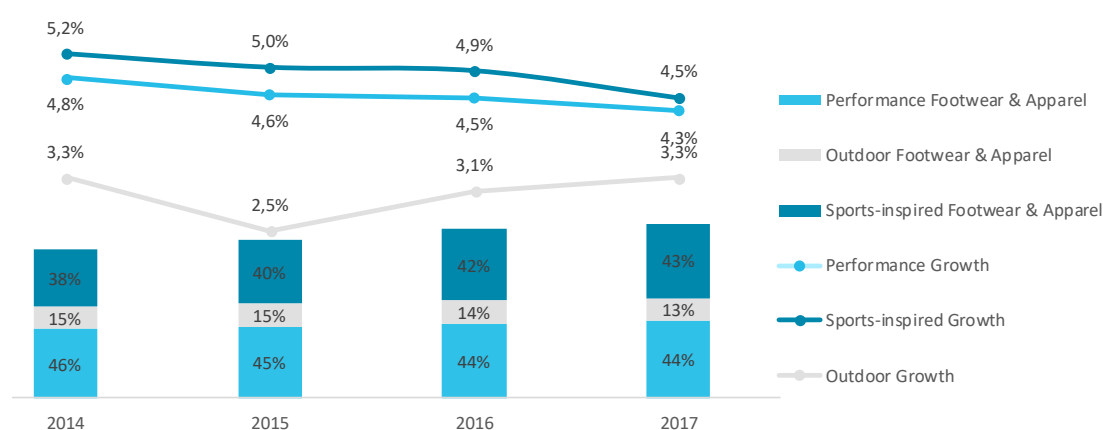
Additionally, year after year, there has been a worldwide rising in health awareness and sports participation. Having a healthy lifestyle has become a priority for a numerous people, and in order to achieve it, physical exercises have been engaging.

³ The figure is presented in US Dollars as it serves only as a representation of the market size over the years otherwise would have been converted into euros with the respective exchange rate, as the currency chosen for this dissertation is €.

This trend has reflected the sportswear market which is experiencing a shift towards casual wear, consumers are demanding innovative apparels and footwear so that it can suit their workout aspirations. The combination of smart clothing and growth of functional clothing opened the sports penetration into a boarder fashion landscape (“athleisure”⁴) which will be a contributing factor for its growth rate fuelling the demand for casual athletic and active-wear products.

As the demand is increasing, the sportswear manufactures are ready to produce a new pipeline of sportswear products.

Graph 4: Global Sportswear: Market Sizes and Y-o-Y growth 2014-2017 by product category (*Euromonitor International*)



From a category perspective, performance is the cornerstone of sportswear but the sports-inspired and outdoor categories are expecting to catch up in the future.

Sports-inspired footwear and apparel remain the second strongest driver for the industry, nonetheless, is the category which has shown the biggest growth trend, supported by ongoing robust demand for athletic apparel. Sports-inspired products are not usually designed to enhance performance, but rather incorporate fashion trends and benefit from the constant development of the “athleisure” trend, i.e. consumers wearing sportswear for everyday use. For instance, sales of sportswear, which includes items such as yoga pants and active wear, outpaced all other categories for the third year in a row, increasing to just below 7% in 2016 and “causing growth in other categories to look rather tame in comparison. Although

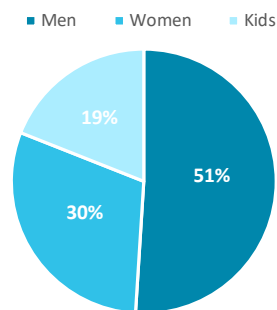
⁴ A style of clothing that is comfortable and suitable for doing sports, but also fashionable and attractive enough to wear for other activities.

performance sportswear is still the biggest part of that market, sports-inspired is the category driving growth" (Bernadette Kissane, Euromonitor's apparel and footwear analyst).

Performance apparel and footwear are designed for a unique purpose – running shoes – this category is the king of sportswear specially in U.S. and China due to its population increase fitness activities.

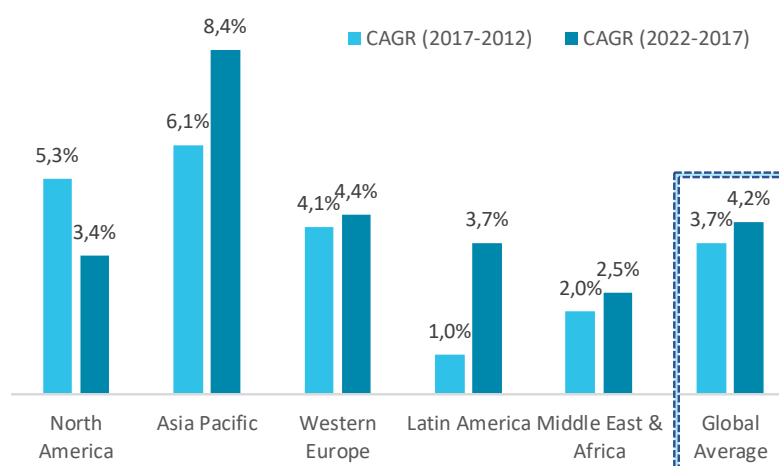
Regarding outdoor apparel and footwear – items created specifically for outdoor sports such as hiking – it is also expected to increase although smaller, as the number of consumers willing to get in touch with nature to escape increasing stress and pollution increases.

Graph 5: Industry consumption by gender in 2018 (*Grand View research*)



Although men's sports footwear segment will continue to dominate the athletic footwear market until 2025 (Grand view research), women's footwear will catch up gradually as the popularity of sports continues to grow among women. In most of the developed countries, the proportion of women athletes representing their nations at sporting events and women fitness awareness is considerably high in comparison to developing and underdeveloped countries. The increasing trend of women awareness into the sportswear is of great relevance specially for Reebok, one of the Adidas group brands.

Graph 6: Sportswear average annual growth by Region (*Euromonitor International*)



Consumer spending on sporting goods for developing countries is expected to grow faster as a consequence of urbanization progress and growing middle-class in some of those countries, additionally, the next two Olympic Games will be held in Asia while the next FIFA World Cup will be in Qatar.

South America is another region that brand owners should bear in mind, for instance, Brazil as the latest hosting of the Olympic Games and Mexico, which continues to be a growing market for an array of sports-related goods and events. Indeed, Brazil, Mexico, Colombia and Peru feature, as expected, among Adidas and Nike's trademark filings over the last few years, stressing the importance of Latin America as a target market. Nevertheless, after United States the main geographical focus continues to be China.

China has a large and booming middle class with a growing appreciation for health and fitness, and in turn, a strong demand for foreign sportswear brands. The country will host the 2022 Winter Olympic Games, furthermore, its government is aiming to establish a US\$ 813 billion sports industry by 2025 to improve fitness across the country and have Global brands cashing in with it.

In Europe annual growth is segmented, on one hand, the impressive growth of Central and Eastern European countries and, on the other hand, Western Europe suffer from large drops specially in Greece, Spain and France.

5. Company Overview

Adidas AG is a multinational corporation, headquartered in Herzogenaurach, Germany, which designs and produces footwear, apparel, and hardware. Adidas Group is the largest sportswear manufacturer in Europe and is second only to Nike, Inc worldwide. Adidas and Puma used to be one company named Gebrüder Dassler Schuhfabrik, established by two brothers, Adolf and Rudolf Dassler. In 1949, upon disagreement between them, the company split, Adolf registered Adidas and his brother ended up creating Puma. Adidas AG is composed by Reebok and adidas. The company also owns a share of the German football club Bayern Munich.

Adidas' logo of three stripes is use as a marketing aid. The brand gain in a fast mode the trust of excellent athletes throughout the years by being the footwear for gold winner medals in Olympic games and the apparel for record breakers and the founder of the official match ball in 1970 for the FIFA World Cup.

The company is best known for its involvement in European football. The Group is the major supplier of kits for various teams around the world such as Bayern Munich and Real Madrid, endorsing as well as some of football's biggest names such as Lionel Messi.

In 1987, big bankruptcy issues started to emerge with the end of the Dassler's family control, reaching a record loss in 1992 of DM 152 million. Three years later, the Company went public by raising 1,8 billion marks. In 1998, Adidas share was admitted in the DAX30 stock exchange where the 30 largest German companies are listed.

In 2006, Adidas acquired Reebok for UDS 3,8 billion with the purpose of increasing its Market share in the North America market. The company was re-named as Adidas AG.

From 2009 to 2012, the Company acquired Five Ten, the biggest outdoor footwear producer, and three more companies to gain access to the golf market. However, it was only in 2015 when Adidas presented the new strategic plan (i.e. "Creating the New" plan) that took the firm's growth perspective to another level. This strategy:

a) Reduces complexity in their brand portfolio focusing on the core competencies in the areas of footwear and apparel with just the adidas and Reebok brands.

b) Presents a strategic priority to invest in the US business in order to increase the Group's market share in North America as it is the biggest market in the sporting goods industry with a total share of approximately 40%.

c) Improves their digital capacity.

d) Focuses on ONE Adidas – encompasses a set of projects to position the company as a strong global player that will enable Adidas to work smarter, more efficiently and in a more aligned way.

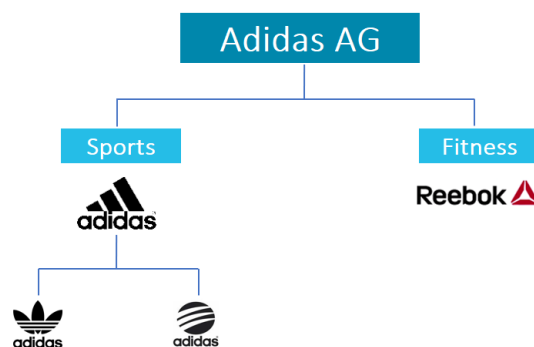
Accompanying this strategy, the divestiture of Mitchell & Ness and the decision to exit the golf and hockey business in 2017 through the sale of TaylorMade, Adams Golf, Ashworth and CCM Hockey brands, marked an area of accelerated growth.

Nowadays, Adidas AG is quoted in 12 different stock indices and has nearly 57.000 employees distributed among more than 100 countries. Every year Adidas Group produces over 900 million units, growing over-proportionally in cities as: London, Los Angeles, New York, Paris, Shanghai and Tokyo.

The shareholder structure of the Group is composed by: Institutional investors (92%); Private investors and undisclosed holdings (8%) and Treasury Shares (1%). Geographically, more than half of the institutional investors are in UK and North America.

The following figure shows the Group clear focus for sports and fitness:

Figure 1: Adidas Group Structure by Brands (*Adidas website*)

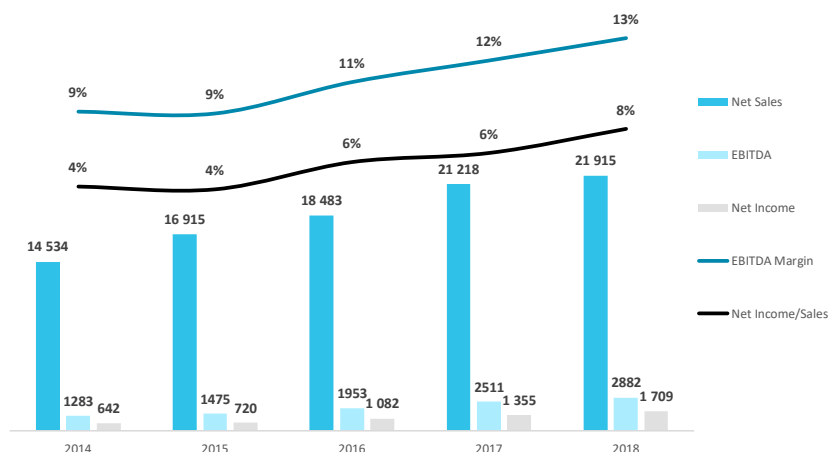


5.1. Business Overview

This section provides a detailed analysis of the Group's strategic evolution by product category, geographical region and distribution channels in order to have a full glance of

different markets and customers, which will be helpful for a better compression of revenues forecasted.

Graph 7: Key P&L indicators^{5 6} € in millions and % (2015-2018) (*Adidas Annual Report*)



In 2018, Adidas improved its operations and financial health by offsetting the negative currency effects as well as higher input costs. Revenues grew due to double-digit growth in Sport Inspired and high-single digit gain in Sport Performance. Adidas as a brand accounts for 90,6% of the overall revenues of the Group, whereas 7,7% belongs to Reebok sales and the final 1,7% to other businesses. Therefore, Adidas brand revenues have grown mainly driven by the running and outdoor categories whereas Reebok sales have decline in comparison to previous years due to its lack of brand identity.

Table 1 shows the three major sources of revenues per product category:

Table 1: Net Sales by product category € in millions (2018-2017) (*Adidas Annual Report*)

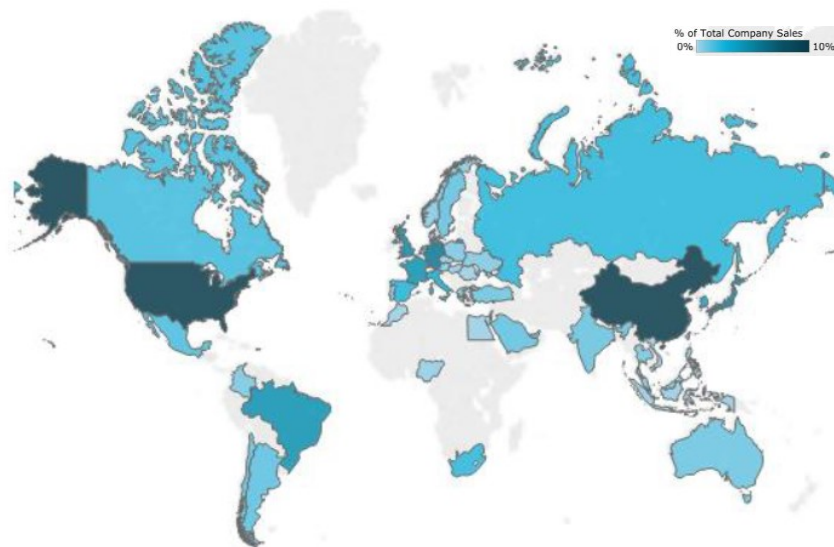
Product category	2018	2017	Change
Footwear	12 783	12 427	8,0%
Apparel	8 223	7 747	11,0%
Hardware	910	1 044	-9,0%
Total Sales	21 915	21 218	8,0%

Sports footwear remain more popular than sports apparel (i.e. 58% of Adidas Group sales), the training and running categories have contributed heavily for the 8% growth in footwear. As previously mention, in the Industry Overview, a double-digit growth for Apparel was already expected mainly driven by training and football categories.

⁵ 2017 and 2016 figures reflect continuing operations as a result of the divestiture of the Rockport, TaylorMade, Adams Golf, Ashworth and CCM Hockey businesses.

⁶ 2015 reflect continuing operations as a result of the divestiture of the Rockport Business

Figure 2: % of Net Sales in 2018 by each Country (*Adidas Annual Report 2018*)



From a market segment perspective, sales grew 15% in North America and Asia-Pacific while Europe presented for the first year a 0% growth. The only Region, which sales declined was within Emerging Markets, the rest grew at a normal single digit from 2017 to 2018.

Adidas has been overtaking Nike as the number one company in Asia Pacific since 2017 and is making steady progress in North America too, closing in on its biggest rival. Likewise, in Latin American market, Adidas remains the top company. Nike has historically been the number one sportswear company in Brazil, but in 2017 Adidas took the top spot. Brazil holds huge potential for Adidas Group.

6. Valuation

After providing a macro and microenvironment overlook, the following section will have the means to explain my assumptions for the forecasted periods showing along-side the historical financial statements. Moreover, all the methods used by me in order to reach to the share's value will be fully explained here. At the end, a sensitivity analysis is used in order to account for the uncertainty of some assumptions.

As previously explained in section 5, the year of 2015 shows a market turning point driven by its strategic plan "Creating the New", hence, my historical period is going to be shown from

2015 to 2018 as they reflect the years which provides the closest numerical implications of the new reality which the Company might face in the future. Consequently, as its growing strategy will be followed until the end of 2020, by that year Adidas AG will not be in a steady state therefore I will make the forecasted projections until 2023, entering in its stable year from 2024 onwards.

At the end, an explicit period of 5 years will be covered, the first 3 will describe the growth years and the last two will represent the start of the results stabilization and ready to assume a perpetual growth rate.

6.1. Assumptions – Income Statement & Balance Sheet

6.1.1. Revenues forecast

The first item of the income statement is undoubtedly the most important to accurately forecast, usually there are two common approaches for forecasting sales: Grow revenues by inputting and aggregate growth rate or by Segment level approach (sum of the parts).

My assumptions will be based on the second alternative. Given the fact that this Industry is trended, meaning usually the first and the third quarter revenues are higher and, since Adidas has its business sited in different countries, I will base the projections combining all the information given from section 3 to 5:

Product Segments – The overall sales generated by the Group are split into its product segments: Footwear, Apparel and Hardware. The reason for this decision relies on the fact that the Company chooses to foster its brand momentum and accelerate sales by reshape its brand portfolio, fully concentrating on Adidas and Reebok footwear and apparel. Therefore, the individual milestones are presented per segment and not per country (only for Adidas brand North American goal of reaching in 2020 a € 5 billion). Hence, from 2019 to 2023 the expected growth rate per segment is calculated on a weighted average basis, having the previous year a bigger role than the other three:

$$g_n = 50\% * g_{n-1} + 30\% * g_{n-2} + 20\% * g_{n-3}$$

Table 2: Annual changes in %⁷ for each product segment (2015-2023 (F)) (*Adidas Annual Report and own Analysis*)

Annual Segment Growth Rate	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Footwear	25,6%	21,2%	22,7%	2,9%	12,5%	11,6%	10,1%	11,0%	10,9%
Apparel	11,0%	5,5%	5,4%	6,1%	5,8%	5,8%	5,9%	5,8%	5,8%
Hardware	-0,8%	-37,0%	4,5%	-12,8%	-12,5%	-9,2%	-10,9%	-10,7%	-10,5%
Total	16,4%	9,3%	14,8%	3,3%	8,9%	8,8%	8,0%	8,7%	8,8%

Industry Growth – Considering that Adidas is still applying the “creating the new” acceleration strategy, it is understandable that the growth rate given in section 4 is lower than the one computed in the Product Segment, hence, I will consider this behaviour as well to soften the given boosted rates above.

Table 3: Industry Annual Growth in % (2015-2023 (F)) (*Statista forecast*)

	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Industry Annual Growth	4,8%	4,6%	4,4%	4,2%	4,0%	4,4%	4,2%	4,6%	4,4%

GDP real Growth – In order to choose the country regions to include is important to state that the Regional segment format of Adidas have suffered significant changes throughout the years, in this context, from 2017 to 2018, the Company has consolidated the former segments of Greater China, Japan, South Korea and Southeast Asia/Pacific into one operating segment called “Asia-Pacific”. By doing so, the GDP areas for my computations will cover the following regions according to the 2018 Annual Report: Europe, Russia, Asia-Pacific, North America, Emerging Markets and Latin America.

Henceforth, I used a weighted average based on the 2018 Revenues: 30% for Europe since it is a relevant market within Adidas history, 22% for North America as it is the biggest industrial growth opportunity and is the only country which has a strategic priority until 2020, 32% for Asia and Pacific due to the increase in the supply chain and the new digital store opened. For the Latin America Regions, it has a 10% relevance mainly due to increase market share in Brazil. Russia 2% as it has the slowest historical growth followed by 4% in Emerging markets.

⁷ The annual changes in each product category is not currency-neutral

Table 4: Annual Real GDP Growth in % (2018-2023 (F)) (IMF Data)

Real GDP growth (Annual % change)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)	Weight
Russia	-2,8%	-0,2%	1,5%	1,7%	1,8%	1,8%	1,6%	1,3%	1,2%	2%
Asia and Pacific	5,6%	5,4%	5,8%	5,5%	5,2%	5,3%	5,3%	5,2%	5,2%	32%
North America	2,7%	1,7%	2,2%	2,7%	2,5%	1,9%	1,8%	1,6%	1,6%	22%
Europe	1,4%	1,8%	2,5%	2,2%	2,0%	1,9%	1,8%	1,7%	1,6%	30%
Emerging Markets	2,4%	5,3%	1,8%	1,3%	1,9%	2,5%	2,5%	2,6%	2,5%	4%
Latin America	3,0%	-0,6%	1,2%	1,2%	2,2%	2,7%	2,7%	2,8%	2,9%	10%
Total	3,1%	2,8%	3,3%	3,2%	3,1%	3,1%	3,0%	2,9%	2,9%	100%

At the end, for the explicit period from 2019 to 2023 the formula bellow shows how the sales growth were computed:

$$g_{sales} = 65\% * g_{Product\ Segment} + 15\% * g_{Sportswear\ Industry} + 20\% * g_{GDP}$$

Table 5: Final Net Sales € in Millions and % change (2018-2023 (F)) (Own Analysis)

Final Net Sales Growth	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)	Weight
Product Segment	10,6%	6,0%	9,6%	2,0%	5,8%	5,7%	5,2%	3,9%	3,9%	65%
Sportswear Industry	0,7%	0,7%	0,7%	0,6%	0,6%	0,7%	0,6%	0,7%	0,7%	15%
GPD Growth	0,6%	0,5%	0,7%	0,6%	0,6%	0,6%	0,6%	0,6%	0,6%	20%
Total	12,0%	7,3%	10,9%	3,3%	7,0%	7,0%	6,5%	5,2%	5,2%	100%
				2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)	CAGR
Net Sales (€ in Millions)	16 278	18 146	20 505	21 915	23 456	25 100	26 721	28 113	29 574	6,2%
<i>Difference %</i>	<i>3,8%</i>	<i>1,8%</i>	<i>3,4%</i>	<i>0,0%</i>						
Net Sales (€ in Millions)	16 915	18 483	21 218	21 915						

The weights for each criteria were selected based on a test made according to the real amount of sales in 2018 as it is the only historical year possible to truly compare due to the changes in the regional sectors belonging to the GDP calculations which are not the same countries as expressed in the years between 2015 and 2017.

To conclude, the Revenues formula used by me is in-line with Adidas' Annual report outlook expectation for 2019 of sales growth between 5% to 8%. Furthermore, I will assume a more accelerated growth from 2019 to 2021 of around 7% and from 2022 to 2023 I am expecting a more moderated growth sale due to the focus change strategy of both Adidas and Nike, Inc. which will consist in a 5,2% change in Revenues. The CAGR (2018-2023) would be 6,2%.

6.1.2. Gross Margin

Gross margin expansion is one of the three key drivers of “creating the new” strategy, alongside with market share growth and operating leverages.

While exploring Adidas annual reports throughout the years, I conclude that gross margin suffers different impacts from brand’s new products and from products which have been in the market for more than one season. As a result, new products tend to contribute in a more positive way and consequently causes an overproportioned increase to the net income. However, innovation does not occur without a cost. Adidas has shown for more than 30 years a COGS that never fell under 50% of sales until this year. Therefore, after looking at the low changeability of this percentages and reach to a consistent term with the company’s last annual report, I assumed a constant COGS/Sales of 48% throughout the forecast periods. Hence the COGS is foreseeing to keep on increasing as the business prospers and input costs grow, mainly driven by materials and qualified labour costs, nonetheless the ongoing franchising strategy and the improvement in the product mix will be enough to off-set those costs related (i.e. Gross profit per sales of nearly 53%).

Table 6: Gross Margin € in Millions and % sales (2018-2023 (F)) (*Own Analysis*)

Gross margin	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
COGS	8 748	9 383	10 514	10 552	11 142	11 922	12 692	13 494	14 195
% of Sales	52%	51%	50%	48%	48%	48%	48%	48%	48%
Gross Margin (€ in Millions)	8 167	9 100	10 704	11 363	12 315	13 177	14 028	14 619	15 378
% of Sales	48%	49%	50%	52%	53%	53%	53%	52%	52%

6.1.3. Other Operating Income & Expenses

In 2018, the Company shows a new P&L Structure in the context of IFRS 9 adoption and consequential amendments to IAS 1, Adidas adjusted the presentation of other operating income (expenses) in order to allow for a more granular view of the company’s operating health in the consolidated income statement.

As such I made some adjustments in my Income statement structure in order for the historical EBITDA and EBIT from 2015 to 2018 held the same values as mention in each year annual report. This section of costs, apart from COGS, will be composed by:

Marketing and point-of-sale expenses – Marketing expenses consists of sponsorship contracts with teams and individual athletes whereas point-of-sale expenses includes advertising and promotion initiatives in stores. Although in absolute terms this value has increased over the years, due to its important role to improve the Company’s revenues, in % of Sales did not change much (i.e. around 13% of sales). For the years forecasted, Adidas’ Managers are expecting to decrease the ratio of marketing investments spent on promotion partnerships while continuing to bring its products to events of global reach (i.e. UEFA EURO, UEFA Champions league, Olympic Games) to high-profile national association football teams and individuals. Therefore, I will assume an historical cost of 13% of sales.

Operating overhead costs - I settled it as the expenses which are not directly attributable to the products sold, such as the distribution and selling expenses, R&D and General and Administration expenses as well as Sundry costs. For overhead costs there is no further information available regarding its evolution in future periods. Hence, I will first assume an historical average of 40% of sales for “Other operating expenses, Total” in order to reach the values of operating overhead costs individually.

Afterwards, I will show depreciation & Amortization values individually so I can extract the EBITDA amount per year.

In regards to other operating income, it is composed by: Provisions; Income from selling fixed assets; Sundry gains; sale of group companies; Royalties and Reversals of impairment losses. For this income component I will assume a 4-year historical average of 1% of Sales.

Table 7: Other Operating expenses & Other Operating Income and its % of sales (2015-2023 (F)) (Adidas Annual Report & Own Analysis)

Other Operating Expenses	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Marketing and point-of-sale expenses	1 886	1 889	2 724	3 001	3 049	3 263	3 474	3 655	3 845
% of Sales	14%	13%	13%	14%	13%	13%	13%	13%	13%
Operating overhead costs	4 934	5 482	5 600	5 657	6 216	6 651	7 081	7 450	7 837
% of Sales	29%	30%	26%	26%	27%	27%	27%	27%	27%
Total (€ in Millions)	6 820	7 371	8 324	8 658	9 265	9 914	10 555	11 105	11 682
% of Sales	40%	40%	39%	40%	40%	40%	40%	40%	40%
Other Operating Income	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Total (€ in Millions)	127	224	132	177	235	251	267	281	296
% of Sales	1%	1%	1%	1%	1%	1%	1%	1%	1%

6.1.4. CAPEX

6.1.4.1. PP&E and Intangible Assets

For the investment policy, the first items to be computed were the Gross PP&E and Gross Intangible Assets, as depreciations and amortizations are going to be yield from them.

The Gross PP&E is composed by land, buildings, machinery and equipment. The forecast driver chosen was Sales as an average of the last 30 years (average useful lives of PP&E) giving 19% for the projected periods.

Goodwill represents the future economic benefits arising from assets previously acquired, in the case of Adidas' Goodwill, it primarily involves the acquisition of Reebok in 2006 and Runtastic businesses in 2015 as well as the acquisition of some subsidiaries. Subsequently, I will assume a constant Goodwill based on the last historical year as the Company does not show signs of any future acquisition.

Within other intangible assets, Adidas differentiates between assets which are and are not subject to amortizations such as trademarks and both acquisitions mention above, which have an indefinite useful life as the Group expects its permanent use, therefore zero amortizations and impairments for future periods were assumed.

On the other hand, software, patents, licences and websites are the ones subject to amortizations and impairments. Forecast the Gross Intangible Assets per sales as an average of the last 6 years (average useful lives) give a constant 11% throughout the projected periods.

6.1.4.2. Depreciations, Amortizations & Impairments

Secondly, based upon prior forecast, Depreciations were calculated as a percentage of Gross PP&E. I did not tie depreciations to revenues as made in the previous assumptions because depreciations would had increased incorrectly as revenues grew even when capital expenditures have not been made or change. Future Depreciations & Impairments are assumed to be 11% of Gross PP&E as Table 9 summarizes.

Table 8: Depreciations forecast role (2015-2023 (F)) (*Adidas Annual Report & Own Analysis*)

Steps for Depreciation & Impairments	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
<i>PP&E Gross/Sales</i>	19%	20%	17%	19%	19%	19%	19%	19%	19%
PP&E Gross (€ in Millions)	3 221	3 648	3 629	4 061	4 457	4 769	5 184	5 342	5 471
Accumulated Depreciations	-1 583	-1 733	-1 629	-1 824	-2 002	-2 142	-2 333	-2 425	-2 484
<i>Acc.Dep/PP&E Gross</i>	49%	48%	45%	45%	45%	45%	45%	45%	45%
Net PPE (€ in Millions)	1 638	1 915	2 000	2 237	2 455	2 627	2 851	2 916	2 987
Annual Depreciations & impairments	-297	-311	-370	-425	-497	-547	-591	-609	-624
<i>Annual Dep & Imp./PP&E Gross</i>	9%	9%	10%	10%	11%	11%	11%	11%	11%

Regarding amortizations, the same logic was applied: Forecast amortizations amount upon the Gross intangible computed giving a constant historical average of 4%.

Table 9: Amortizations forecast role (2015-2023 (F)) (*Adidas Annual Report & Own Analysis*)

Steps for Amortization & Impairments	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
<i>Intangible Assets Gross/Sales</i>	15%	14%	10%	11%	11%	11%	11%	11%	11%
Intangibles Gross (€ in Millions)	2 513	2 605	2 171	2 306	2 463	2 761	2 806	2 952	3 105
Accumulated Amortizations	-697	-758	-1 211	-1 266	-1 396	-1 610	-1 639	-1 712	-1 801
<i>Acc. Amort./Intangible Assets Gross</i>	28%	29%	56%	55%	57%	58%	58%	58%	58%
Net intangible (€ in Millions)	1 816	1 847	960	1 040	1 066	1 151	1 167	1 240	1 304
Annual Amortizations & Impairments	-60	-80	-96	-88	-94	-97	-112	-103	-109
<i>Annual Amort & Imp./Intangible Gross</i>	2%	3%	4%	4%	4%	4%	4%	4%	4%

6.1.4.3. Net Capital Expenditure

Finally, Capital expenditure is defined as the total cash expenditure for the purchase, improvement/maintenance of tangible and intangible assets. Most of the company's expenditure relates to the controlled space initiatives, investments such as new or remodelled franchising stores and new presentation of the brand and products in their consumers' stores. As stated in the annual report, the company has the goal of reaching € 900 million in 2020, therefore, capex was computed by adding the changes in PPE and intangible assets as well as the amount of depreciations and amortization of each year forecasted.

Table 10: Capex € in Millions (2018-2023(F)) (*Annual Report & Own Analysis*)

Capital Expenditure	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Total CAPEX (€ in Millions)	513	651	755	794	835	900	944	850	868
Addition tangible assets	464	586	681	699	715	719	815	674	694
<i>% (capex tang. Assets / PP&E Gross)</i>	<i>14%</i>	<i>16%</i>	<i>19%</i>	<i>17%</i>	<i>16%</i>	<i>15%</i>	<i>16%</i>	<i>13%</i>	<i>13%</i>
Addition intangible assets	49	65	74	96	120	181	129	176	173
<i>% (capex intang. Assets / Intangible Gross)</i>	<i>2%</i>	<i>2%</i>	<i>3%</i>	<i>4%</i>	<i>5%</i>	<i>7%</i>	<i>5%</i>	<i>6%</i>	<i>6%</i>
Total Depreciations & Amortizations	391	391	466	513	591	644	703	712	732
<i>Capex/Depreciations & Amortizations</i>	<i>1,31</i>	<i>1,66</i>	<i>1,62</i>	<i>1,55</i>	<i>1,41</i>	<i>1,40</i>	<i>1,34</i>	<i>1,19</i>	<i>1,18</i>

As it was already expected, the amount of capex and depreciations will become closer as the stable period approaches.

6.1.5. Working Capital

This section presents the variables included on the working capital and how they were projected. The final Net working capital per year can be seen in Appendix 15.

6.1.5.1. *Current Operating Working Capital*

For all current operating inputs, projections were based upon days in sale apart from Inventories and Accounts payable which were accounted for days in COGS, as they are tied to input price. Moreover, I chose to make a 4-year average for projections in days instead of percentage because I wanted my forecasts to be as close as possible to operations.

Table 11: Current Operating Working Capital (2015-2023 (F)) (Adidas Annual Report & Own Analysis)

Current Operating Assets	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Accounts Receivable	2 049	2 200	2 315	2 418	2 624	2 808	2 989	3 145	3 308
<i>Days of (avg. Receivables/Sales)</i>	43,1	42,0	38,8	39,4	40,8	40,8	40,8	40,8	40,8
Total Inventory	3 113	3 763	3 692	3 445	3 768	4 032	4 292	4 564	4 801
<i>Days of (avg. Inventory/COGS)</i>	117,6	133,7	129,4	123,4	123,4	123,4	123,4	123,4	123,4
Other Current Assets	586	678	569	773	782	837	891	938	986
<i>Days of Sales</i>	12,6	13,4	9,8	12,9	12,2	12,2	12,2	12,2	12,2
Current Operating Liabilities	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Accounts Payable	2 024	2 496	1 975	2 300	2 413	2 582	2 748	2 922	3 074
<i>Days of (avg. Payables/COGS)</i>	76,7	87,9	77,6	73,9	79,0	79,0	79,0	79,0	79,0
Accrued Expenses	1 088	1 319	1 343	764	1 371	1 467	1 562	1 644	1 729
<i>Days of Sales</i>	23,5	26,0	23,1	12,7	21,3	21,3	21,3	21,3	21,3
Other Current Liabilities	1 146	1 409	1 637	1 977	1 826	1 954	2 080	2 188	2 302
<i>Days of Sales</i>	24,7	27,8	28,2	32,9	28,4	28,4	28,4	28,4	28,4
Current Operating Working Capital (€ in Millions)	1 490	1 417	1 621	1 595	1 564	1 674	1 782	1 892	1 990

6.1.5.2. Deferred Taxes

The tax expenses shown in the financial statements are composed of accounting choices (accrual basis), these accrual choices often vary from those required to calculate the current tax amounts payable to the government. Consequently, tax expenses may deviate from the amount the government believes the company owes them for that year, which is called as deferred taxes.

Deferred tax assets are defined as the amount of income tax recoverable by the corporation in future periods as long as Adidas is able to generate enough taxable income to realise the associated benefit. Adidas' DTAs are related to past transactions, mainly to tax losses carried forward and unused foreign tax credits, since most DTAs are tight to operations and the use of it requires a positive profit I project them based on Sales. Moreover, since there is no explicit information regarding DTLs nature, both deferred taxes will grow with revenues, 3% for DTAs and 1% for DTLs.

Table 12: Deferred Taxes (2015-2023 (F)) (Adidas Annual Report & Own Analysis)

Deferred Taxes (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Deferred tax Assets	637	732	630	651	774	773	833	890	923
<i>% Net Sales</i>	4%	4%	3%	3%	3%	3%	3%	3%	3%
Deferred tax Liabilities	368	387	190	241	235	251	267	281	296
<i>% Net Sales</i>	2%	2%	1%	1%	1%	1%	1%	1%	1%

6.1.5.3. Other operating non-current items

Other operating non-current assets are composed of prepaid expenses relating to rent payments for operational leases like stores as well as offices, warehouse or equipment whereas for other operating non-current expenses, it accounts for pensions and non-current provisions. As both items do not change much, and since there is no further information about pension plan nor either potential new leases contract, each parameter will be compared with its year Total non-current Assets or Total non-current liabilities, which provides evidences of its inexistent change over time, therefore, I provide the same rates as of 2018, slowing decreasing overtime as it passes on its lower growth trend from 2022 to 2023.

Table 13: Other operating non-current assets & liabilities (2015-2023 (F)) (*Adidas Annual Report & Own Analysis*)

Other Operating non-current (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Other Non-Current Assets, Total	123	94	108	94	105	100	102	100	102
% Non-current Assets	2%	1%	2%	2%	2%	2%	2%	1%	1%
Other Non-Current Liabilities, Total	481	565	516	461	506	512	499	494	503
% Non-current Liabilities	21%	29%	30%	19%	19%	18%	17%	16%	16%

6.1.6. Shareholder's Equity

The Company has a share buyback program from 2018 to 2021 of € 3 billion. In the first tranche of their multi-year share buyback program were bought back 5,1 million shares outstanding for a total of € 1 million. At Appendix 17, I show the assumptions made for the common stock in a detailed manner. To summarize: In 2019 will be a deducted 4 million shares; for the years of 2020 and 2021 is expected to reduce around 2 million shares yearly. In total, the amount bought back will be € 1 million in 2019 and € 0,5 million in 2020 and 2021. Furthermore, taking into consideration the conversion price of € 292 for the equity-neutral convertible bond and my average price in 2021, I expect Adidas to convert the bond into 2,5 million shares before its maturity on 2023 since the bond is in the money, all bondholders chose to exercise their option, maintaining a total of shares of 194 million shares for the rest of the explicit period.

Additionally, Adidas plans to use the retained earnings to distribute dividend payments of 30-50% of net income. The Group is retaining large amounts of earnings on their balance sheet, comprised by required amounts from the Article of Association and voluntary amounts that

have been placed aside by the Group. Taking this information into consideration as well as the subtraction of the previous year dividends and money gained from the buyback program, the retained earnings served as the equalizing item for the balance sheet, which can be seen in Appendix 18.

6.1.7. Borrowings

The Company's gross borrowings are vastly determined in Euro and are composed of bank borrowings as well as Bonds. In 2018, Adidas AG had two outstanding Eurobonds, both issued in 2014, and one outstanding equity-neutral convertible bond issued in September 2018. The €600 million Eurobond matures on 2021 whereas the €400 million Eurobond matures on 2026. Through the convertible bond, investors can benefit from a positive performance of Adidas' ordinary shares. Investors will have conversion rights in respect to the convertible bond which will be settled in cash by reference to the share price. The purpose of this convertible bond is to finance a portion of the multi-year share buyback program.

Adidas AG has successfully taken the opportunity of strong investor demand for bond transactions and the tight credit spreads paired with a low interest rate (low cost financing opportunities in the Eurobond market) to strengthen the Group's long-term financing. The successful placement of their bonds in the market reflects the Group's high credit quality and excellent access to the capital markets.

In order to forecast the total amount borrowing I started by looking at the Group's capital structure, which has shown a constant trend of 26% in Book Value terms and 4% in Market Value (Appendix 10). Therefore, as Equity was previously calculated, a constant % Debt/Total Equity was applied to secondly, achieve a constant negative ratio of Net Debt/EBITDA as Table 15 summarizes.

Table 14: Balance Sheet Total Debt and Cash & Cash Equivalents (2015-2023 (F)) (*Adidas Annual Report & Own Analysis*)

Financial structure in Book Value	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Total borrowing, Gross (€ in millions)	1 831	1 618	1 120	1 675	1 860	1 958	2 061	2 169	2 288
Total Equity	5648	6454	6017	6364	7 073	7 456	7 841	8 180	8 550
% Total Equity	32%	25%	19%	26%	26%	26%	26%	26%	26%
Cash & Cash Equivelant	1 370	1 515	1 604	2 635	2 744	2 937	3 126	3 289	3 460
% Total net Sales	8%	8%	8%	12%	12%	12%	12%	12%	12%
Net Debt (€ in millions)	461	103	-484	-960	-885	-979	-1 066	-1 120	-1 172
Net Debt/EBITDA	0,3	0,1	-0,2	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3

6.1.8. Financial Results

Interest expenses were determined based upon the company's debt & other financial liabilities from previous years whereas interest income was determined based on the company's cash applications and other financial assets.

Interest items were divided from financial instruments measured at amortized costs, fair value and others, where the full analysis can be seen at Appendix 13.

Interest expenses were forecast in a way to hold a constant ratio of Total financial liabilities from previous years as I do not expect Adidas to incur in abnormal interest expenses due to its constant capital structure.

Table 15: Financial Results in % and € in Millions (2015-2023 (F)) (*Adidas Annual Report & Own Analysis*)

Financial Results	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Financial income	46	27	45	57	46	49	53	55	55
Financial expenses	66	74	93	47	81	76	80	77	88
Total (€ in Millions)	-20	-47	-48	10	-35	-27	-26	-22	-33

In 2019, the financial results show the most negative value due the placement of a new equity-neutral convertible Bond at the end of 2018 and the reduction of cash used to buy back shares. For the following years no further Bonds are expected to be issued.

Additionally, the effective tax rate of Adidas has been stable for the past 3 years, therefore I will keep 28% as well for the estimate periods.

6.2. Discounted Cash Flow

The first model used to approach Adidas' equity valuation was the DCF. In order to calculate DCF model I applied the FCFF formula discussed in the Literature Review. Furthermore, the WACC established as the discount rate was estimated according to CAPM. Throughout this section, all the inputs will be clarified in-line with the literature review specifications.

6.2.1. Cost of Equity

As stated in section 2, for the usage of the CAPM there are three required inputs: Risk-free rate, Beta and Market Risk Premium.

A 10y German Bond yield with 0,07% interest was applied as the risk-free rate, this information was extracted on March 13th, 2019 which is the same date as the annual report of 2018 was published.

In regards to the Market Risk Premium Damodaran's website was used to extract the market Risk Premium across the different country regions where Adidas extend its business. The weights for different markets were consistently based upon Table 4 yielding a final 6,56%.

Table 16: Market Risk Premium (*Damodaran's website & Own Analysis*)

Country/Regions	GDP Weigth	Market Risk Premium
Russia	2%	9,43%
Asia and Pacific	32%	6,84%
North America	22%	5,96%
Europe	30%	6,24%
Emerging Markets	4%	7,34%
Latin America	10%	7,09%
Total	100%	6,56%

The beta estimation was composed of 3 steps: Beta unleveraged of 0,74 which was weightily computed upon Adidas' business areas using the same weights as for each segment in 2018, since the major influencer of revenues shown in section 6 is indeed Adidas' product segment. Afterwards the beta unleveraged was adjusted to the firm's specific financial leverage, using

formula 8 & 9, hence, a beta levered of 0,78 was obtained, ending with an adjusted levered beta of 0,86 which means that the Company share price is less volatile than the market.

All the derived input values were applied in the CAPM model reaching the following cost of equity: $r_e = 0,07\% + 0,86 * 6,56\% = 5,7\%$. Since its Net debt in Market Value is negative and this amount reflects only 0,6% of the total Market Value of Equity, I consider it as being zero, hence the WACC- after tax will be the same as the cost of equity.

6.2.2. FCFF

Table 17: DCF-Model € in Millions and valuation summary (2018-2023(F)) (2018 Annual Report & Own Analysis)

Discounted Cash Flow (€ in Millions)	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)	TV
Net Sales	21 915	23 456	25 100	26 721	28 113	29 574	
EBIT	2 368	2 693	2 870	3 038	3 083	3 260	
Depreciation & Amortizations	514	591	644	703	712	732	
Change in Working capital	-15	65	81	166	156	110	
% of Revenues	-0,1%	0,3%	0,3%	0,5%	0,5%	0,4%	
CF from operating activities	2 897	3 219	3 433	3 574	3 639	3 883	
Capex	794	835	900	944	850	868	
Capex/Depreciations	1,5	1,4	1,4	1,3	1,2	1,2	
(1-tax rate)	72%	72%	72%	72%	72%	72%	
FCFF	1 437	1 640	1 740	1 792	1 938	2 115	58 475
FCFE	1 437	1 640	1 740	1 792	1 938	2 115	58 475
Year		1	2	3	4	5	6
Discount Factor		0,95	0,90	0,85	0,80	0,76	0,72
Discounted Cash-flow		1 552	1 558	1 518	1 554	1 604	41 965

Sum of projected Periods	7 786 689 681,60 €
Terminal value	41 965 395 738,38 €
Enterprise Value	49 752 085 419,98 €
Net Debt	- €
Minority Interest	- 13 000 000,00 €
Pension Liabilities	- 273 000 000,00 €
Market Value of Equity	49 466 085 419,98 €
Shares Outstanding	199 171 345

Implied price/Share 2018	248,36 €
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Close price (13/03/2019)	204,80 €
Premium	21,3%

All the input variables shown in Table 17 were explained throughout this section to reach the free cash-flow. Consequently, the FCFF calculation was possible by multiplying (1-effective tax rate) with EBIT, adding then Depreciations & Amortizations and finally subtracting the

Capex and change in Working Capital. Afterwards, a discount factor of $1/(1+WACC)$ was applied and powered by each corresponding year.

6.2.3. Terminal Value

For the terminal value, I took the last FCFF (in 2023) multiplying by the terminal growth and discounted it back to the present year by using formula (10) stated in the literature review.

The growth rate was calculated by the nominal GDP for 2023 extracted from Table 4 plus inflation rate of Europe which can be seen in Appendix 27.

Additionally, the industry long term growth in Graph 3 was also taken into consideration. Moreover, a 1,7% long term growth stated on the Company's annual report was added to the analysis, as they believe this rate does not exceed the sector's growth. Hence, I weight each of the three components and reached to a 2%.

Table 18: Long term growth (2018 Annual Report, IMF forecast and Own Analysis)

		Weight
Nominal Growth Rate	5,0%	5%
Industry Long term Growth Rate	4,3%	5%
Company consideration in the Annual Report	1,7%	90%
LT Growth Rate	2,0%	100%

Consequently, Terminal value was derived by: $TV = \frac{2115 \cdot (1+2\%)}{(5,7\% - 2\%)} = \text{€ } 58475$ million once multiplied by the discount factor yields a € 41965 million. The Terminal value corresponds to 85% of the total Enterprise Value which is in line with the author Young et al. (1999) explain in the literature review.

6.2.4. Conclusion

After summing the discounted cash flows of each projected year plus the Terminal Value, the fair value of the Company's Equity and Market value of Equity are non-identical although Net Debt is zero, due to minority interest and pension liabilities which are assumed to be constant. Achieving the aim of this thesis, I identify a € 49466 million for the firm's value and

a total number of shares at the end of 2018 of 199.171.345, which derives at a share price of € 248,36.

6.3. Sensitive analysis

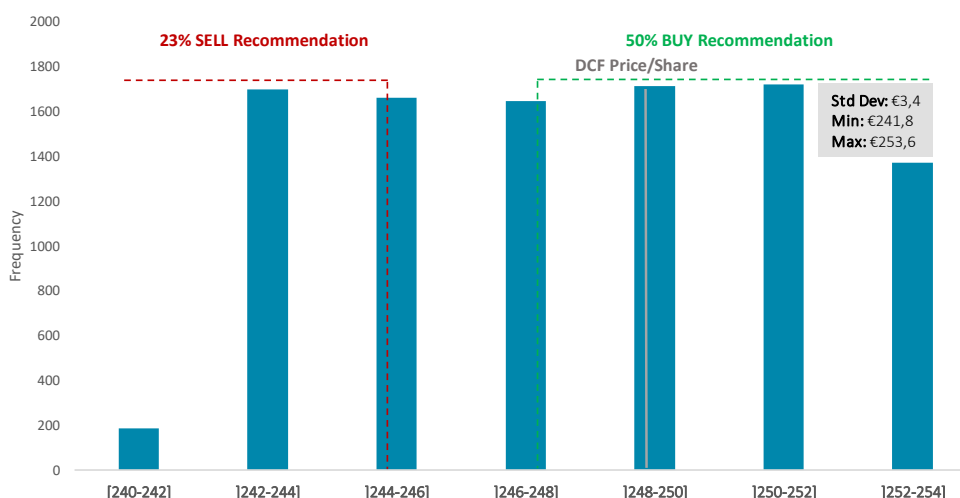
Due to the heavy weight of the Terminal value in the DCF-model, a sensitivity analysis was performed for WACC and long-term growth. As both inputs change significantly the share price by small differences, a slight change of 0,2% was chosen. Maintaining the rest constant, the price/share would vary across €225-€277 as the following table summarizes:

Table 19: Sensitivity Analysis for WACC and Long-term growth (*Own Analysis*)

Share Price (€)		WACC						
		5,1%	5,3%	5,5%	5,7%	5,9%	6,1%	6,3%
LT-Growth	1,4%	254	241	229	218	208	199	190
	1,6%	267	252	239	227	216	206	197
	1,8%	282	265	250	237	225	214	205
	2,0%	298	279	263	248	235	223	213
	2,2%	317	296	277	261	246	233	222
	2,4%	338	314	293	275	259	244	232
	2,6%	363	335	311	291	273	257	243

Additionally, a Monte Carlo simulation of 10.000 outcomes was applied on those variables to determine a range of potential target price per share. Those inputs lead to an average target price of €247,8/Share, making it visible that DCF share price lays on a BUY recommendation.

Graph 8: Monte Carlo simulation summary (*Own Analysis*)



Moreover, as the WACC is the same as the cost of equity is also important to test for the possible changes in beta derived from CAPM model. In order to do so, I made a regression of the monthly returns of Adidas with the monthly returns of the MSCI World Textiles Index as being the proxy for the market return, varying the time frame from 5,10 and 15 years.

Table 20: Price per share in € by changing beta (*Own Regression analysis*)

P/S by changing beta	Time range		
	5y	10y	15y
Adjust. Beta	0,86	0,92	0,95
Share Price (€)	248	226	211

6.4. Multiples

With the purpose of capturing the market trend among homogeneous companies, a cluster analysis was made as a complement to DCF Valuation. After extracting 15 firms from Adidas' related industries, geographies and strategy, a similarity criterion to create a smaller niche was included: Size, Leverage, Profitability and Growth.

All the companies included in the Top 5 for each parameter are shown in Table 21.

Table 21: Top 5 Comparable companies in each similarity criteria (*Thomson Reuters peers-valuation & Own Analysis*)

Top 5	Size	
	Total Assets	Revenues
1	Nike Inc	Nike Inc
2	VF Corp	Puma SE
3	Under Armour Inc	Under Armour Inc
4	Puma SE	Skechers USA Inc
5	Skechers USA Inc	VF Corp

Top 5	Leverage		
	Debt/Equity	Asset/Equity	Debt/Capital
1	Under Armour Inc	Nike Inc	Under Armour Inc
2	Nike Inc	Under Armour Inc	Nike Inc
3	Puma SE	VF Corp	Puma SE
4	Under Armour Inc	Puma SE	Skechers USA Inc
5	Skechers USA Inc	Skechers USA Inc	Columbia Sportswear Co

Top 5	Profitability Margin Ratios		
	EBIT margin	EBITDA Margin	Net Income Margin
1	Nike Inc	Nike Inc	Skechers USA Inc
2	Columbia Sportswear Co	Columbia Sportswear Co	Under Armour Inc
3	Skechers USA Inc	Skechers USA Inc	Columbia Sportswear Co
4	Puma SE	Puma SE	Puma SE
5	Under Armour Inc	Under Armour Inc	Nike Inc

Top 5	Growth Ratios		
	ROIC	ROE	ROA
1	VF Corp	VF Corp	Columbia Sportswear Co
2	Columbia Sportswear Co	Nike Inc	VF Corp
3	Skechers USA Inc	Puma SE	Nike Inc
4	Puma SE	Skechers USA Inc	Puma SE
5	Nike Inc	Columbia Sportswear Co	Skechers USA Inc

Since Adidas is clearly one of the largest players within the sportswear industry, a minor group of just 3 companies was created by extracting Columbia Sportswear Co. The company exclusively focus on functional apparel and shoes for outdoor activities. Another company extracted was Skechers USA Inc. due to law controversy between both companies during 2015 until 2018 as Skechers copied Adidas' best seller product – Stan Smith – infringing and diluting Adidas' Three-Stripe trademark.

Nike Inc. was undoubtedly chosen as the closest comparable company specially in terms of size and profitability. Both companies are very similar in terms of product structure and promotion strategies as for instance hiring important starts in sports as explain before, which leads to a close level of revenues (€ 31 billion in 2018 for Nike and € 22 billion for Adidas) not only in absolute terms but also in the percentage of footwear, apparel and hardware the distribution of both companies are similar (footwear Nike: 62% - footwear Adidas: 58%; apparel Nike: 34% - apparel Adidas: 38%; hardware Nike: 4% - hardware Adidas: 4%).

On the other hand, Puma SE has a strong historical connection with Adidas and is present on the Top 5 for all the parameters, hence was the second company selected. Both have their headquarters in Germany, although Puma is smaller than Adidas and their segment distribution does not change much (footwear Puma: 47% - footwear Adidas: 58%; apparel Puma: 36% - apparel Adidas: 38%).

Lastly, Under Armour Inc. was included due to their worldwide presence specially in the apparel segment. The company is also moving towards Premier League clubs such as Tottenham and Southampton and charismatic soccer players.

6.4.1. Forward multiples

Although historical multiples are easy to extract from audited accounts, it is better to use the calculated forward multiples as the purpose of valuation is precisely knowing the value on a future standing point, hence the estimations for EV/EBITDA, EV/Sales and PER were taken from the trustworthy source of Thomson Reuters.

For Adidas multiples, the values were based upon my own analysis from the balance sheet and income statement explain in previous sections.

Table 22: Forward Multiple Analysis of the peer group (*Thomson Reuters peers-valuation & Own Analysis*)

Peer Valuation	Forward		
	EV/EBITDA	EV/Sales	PER
Nike Inc	19,96	3,06	27,38
Puma SE	12,59	1,43	27,16
Under Armour Inc	19,07	1,72	
Normal Average (1)	17,21	2,07	27,27
Own Average (2)	19,01	2,72	24,28
Adidas AG	EBITDA 2019	Sales 2019	EPS 2019
	3 283 899 021 €	23 456 421 578 €	10 €
	14,93	2,13	26,29
EV (1)	56 503 595 896 €	48 498 979 357 €	
EV (2)	62 420 321 575 €	63 805 127 011 €	
Price per share (1)	289 €	248 €	266 €
Price per share (2)	320 €	327 €	237 €

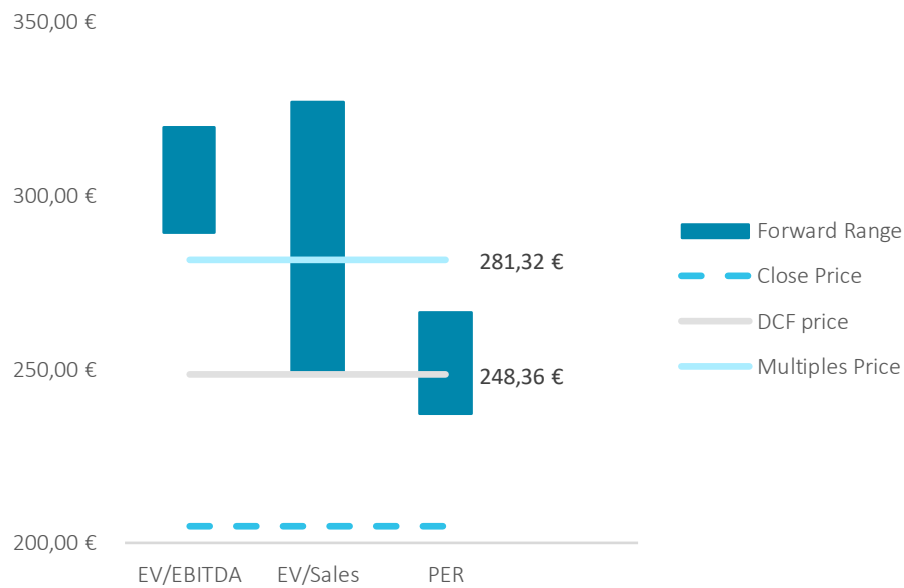
As it can be acknowledged by Table 22 two different weights were applied:

Normal average – equally weighed for the 3 peers.

Average based upon Multiples similarity – The weights were chosen as the most suitable alternative taken by Revenues of each peer (77% for Nike Inc., 12% for Puma and 11% Under Armour Inc.).

This approach allowed me to extract a range price for each multiple as shown in Graph 9.

Graph 9: Price Range of the peer group (*Thomson Reuters peers-valuation & Own Analysis*)



The reason why EV/EBITDA diverge from the line is due to the fact that Under Armour is the comparable company on the last position in terms of profitability visible in Table 21.

Furthermore, the PER multiple was adjusted, using only Nike Inc. and Puma SE, because Under Armour had a negative EPS in 2018 therefore this would give unnatural high PER polling the range too far above the close price.

In my analysis EV/EBIT multiple was not considered since it has the same considerations as EV/EBITDA but in this case difference depreciations & amortizations approaches are not been accounted for.

Averaging the three forward-looking multiples Adidas' price-share is €281,32, which gives the perception of a current undervaluation due to the fact that all multiple ranges are yielding above the current share price, which leads us to believe that Adidas will become more attractive in the future as it was already an expected outcome with the DCF analysis made before.

7. Investment Report

Finishing off my own analysis, this section has the purpose to compare those results against Warburg Research report dated at 31/12/2018. Unfortunately, it was not possible to have a detailed report on the 13/03/2019 as it is the date of the 2018 annual report's release. This occurs because Adidas' shares are constantly traded, therefore, investment banks apply a rather simplified analysis to update their end year valuation, hence two equity reports will be shown.

Table 23 compares both inputs made for the Income statement and Balance sheet:

Table 23: Input Ratios for Income Statement and Balance sheet (*Warburg Research & Own Analysis*)

		Warburg Research end 2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Income Statement	Sales Growth		7%	7%	7%	5%	5%
	EBITDA Margin		14%	14%	14%	15%	14%
	EBIT Margin		12%	12%	12%	12%	12%
	Tax rate		28%	28%	28%	28%	28%
	Net Income (€ in Millions)		1 925	2 102			
		Own Analysis	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Income Statement	Sales Growth		7%	7%	6%	5%	5%
	EBITDA Margin		14%	14%	14%	14%	14%
	EBIT Margin		11%	11%	11%	11%	11%
	Tax rate		28%	28%	28%	28%	28%
	Net Income (€ in Millions)		1 918	2 052			

		Inv. Bank		Own Analysis	
		2019	2020	2019	2020
Balance Sheet	Fixed Assets/ Total Assets	35%	33%	32%	32%
	Current Assets/ Total Assets	61%	61%	62%	63%
	Total Equity/ Total Assets	46%	48%	43%	42%
	Total Liabilities/ Total Assets	54%	52%	57%	58%
	Assets (€ in Millions)	15 843	16 875	16 515	17 513

The ratios circled serve the purpose of highlighting the big differences between my assumptions and the ones used by the investment bank.

Firstly, the difference in Total Equity comes from the information of the share's buyback, which were not available at the time of the bank's valuation. This is of great relevance as the number of shares for the DCF model will influence the final price. Secondly, for the Total

Liabilities the asymmetry comes from a constant debt in absolute terms for Warburg Research throughout the years whereas my assumption was rather maintaining a constant capital structure. Apart from those dissimilarities the rest of the inputs are similar to each other.

Regarding the model parameters to derivate WACC, the only difference lies on the risk-free rate as the following table proves:

Table 24: Derivation of WACC (*Warburg Research & Own Analysis*)

	Warburg Research end 2018	Own Analysis end of Q1 2019
Market Return	7,0%	6,6%
Risk free rate	1,5%	0,1%
Market Risk Premium	5,5%	6,6%
Beta	1,00	0,86
WACC = re	7,0%	5,7%

The way this rate was computed is unknown, the only thing that is presented in the equity report is the goal to reach a market risk premium of 5,5% with it. In my perspective, within the present economy, is not possible to have a risk free that high, therefore a 7% WACC was not even considered for the sensitivity analysis. Moreover, the Bank has also assumed no cost of Debt.

Table 25: DCF Valuation (*Warburg Research & Own Analysis*)

DCF Valuation (in Millions)	Inv. Bank	Own Analysis
Present Values	€ 19 304 (<i>year:2030</i>)	€ 7 787 (<i>year:2023</i>)
Terminal Value	€ 25 191	€ 41 965
Equity Value	€ 44 979	€ 49 466
Nº Shares	204	199
Value per share (€)	220	248
Reccomendation	BUY	BUY

The final distinguishes are in line with the year of the terminal value and its growth. For the investment bank Adidas' steady state will be reached in 2030 whereas for me in 2023, regarding the long-term growth rate only differ in 0,5%.

Besides the stability year, Present values varies from each other due to the Working capital calculations as Warburg simply applies the difference between Current assets and Current Liabilities, whereas I calculated based on operational variables current and non-current.

In regards to the equity report realised at 19th March, 2019 from Pipher Jaffray, presenting now the full fiscal year of 2018 as reported, the Bank updates its valuation based on the PER multiple of 23x yielding a price of € 223 whereas following my peer group the multiple would lead to a 25,7x FY19E EPS of 10€ thus, € 257 per share.

Table 26: Detailed Recommendation from Analyst at Warburg Research and Piper Jaffray (*Equity Report*)

WARBURG RESEARCH GMBH – ANALYSED RESEARCH UNIVERSE BY RATING ...		
... taking into account only those companies which were provided with major investment services in the last twelve months.		
Rating	Number of stocks	% of Universe
Buy	32	73
Hold	10	23
Sell	0	0
Rating suspended	2	5
Total	44	100

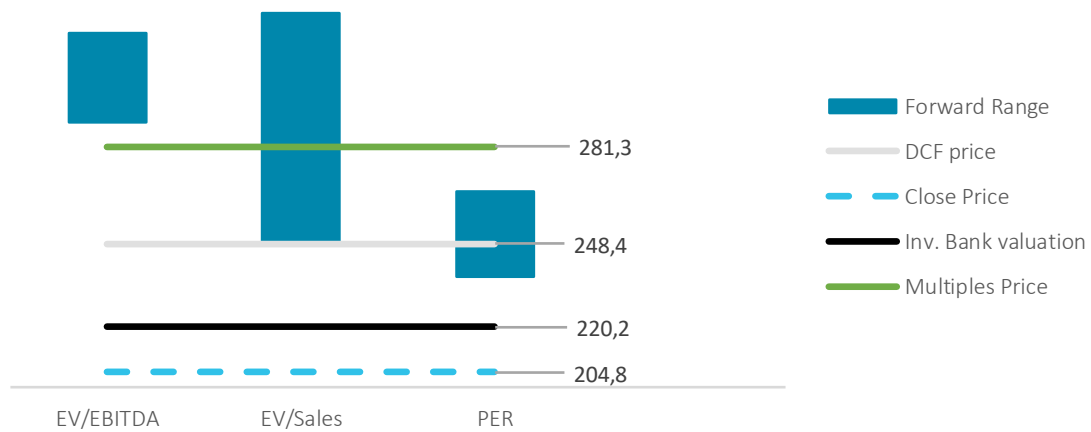
Distribution of Ratings/IB Services Piper Jaffray				
Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
BUY [OW]	412	64.48	113	27.43
HOLD [N]	215	33.65	19	8.84
SELL [UW]	12	1.88	1	8.33

8. Conclusion

Due to Adidas' astonishing price performance and the impressive developments to gain market share against Nike Inc. aligned with new features of the market as stated in the Industry overview, I consider those to be all considerations that drives the attention of investors to this company.

DCF was the first model applied in this dissertation to prove it, resulting in a fair value per share € 248,4 aligning it with a share prices range from forward multiples of € 269 to € 295. Comparing a share price of € 204,8 at 13th of March, 2019, my DCF valuation shows a premium of 21% while the premium for average forward multiples is 37%.

Graph 10: Final valuation (Warburg Research & Own Analysis)



Concluding, since all models and the analysisist analyze prove to be significantly above the close price and would thus, indicate an opportunity to invest in a share with high growth potential, my issue recommendation is to BUY.

9. Appendix

Appendix 1 - SWOT Analysis

Strengths

Celebrity collaborations

▲ Adidas has pioneered designer collaborations to raise its brand image, create hype products and cultivate special relationships with Beyoncé and Kanye West, boosting brand awareness, perception and engagement.

Sustainability and Innovation

▲ Sustainable materials initiative consolidates Adidas brand's position as a good choice for the increasingly environmentally-conscious consumer. These investments have contributed to Adidas's growth overtaking Nike's.

Weaknesses

Reebok

▲ Reebok has shown negative growth and its brand identity is not as defined or recognizable as its rivals (Fila, Diadora and Ellesse).

Footwear dominance

▲ 58% of Adidas sales derive from footwear. Although lower than Nike (70% of its sales from footwear), the Group needs a more balanced portfolio to strengthen and widen its long-term appeal.

Opportunities

Women's products

▲ Investment in its women's business able Adidas well to gain from increasing demand for women's sportswear, in particular women's basketball, where it is using sponsorship to boost growth.

Sportswear in Asia Pacific

▲ The three next Olympic Games and demographic shifts will boost sales of sportswear in Asia Pacific, set to represent nearly 50% of the global value growth in sportswear through to 2023.

Threats

New Competition

▲ Adidas now competes with private label, smaller niche brands and general apparel brands such as Inditex, Gap and H&M which have expanded their sports-inspired ranges to tap into the athleisure trend.

Europe

▲ Western Europe accounts for 30% of the Group global sales, but the region's sportswear market growth will be relatively lethargic over 2018-2023, at just 4% CAGR.

Appendix 2 - Porter's Five Forces

Suppliers Bargaining Power

Low Threat

Despite the relevant role suppliers have in Adidas's business, their bargaining power is rather low since the industry is highly fragmented of several small suppliers.

It is easy for the Group to switch to new suppliers, its supply chain is distributed worldwide and singly none of them can extract any pressure on Adidas.

Most of the production at Adidas is outsourced and it works with 700 independent factories in more than 50 countries, which the Company holds a relationship with key strategic partners of more than 20 years.

As a result Adidas gets to set the rules and the suppliers are required to comply with. In order to ensure that the suppliers comply with the standards, Adidas has maintained a multilevel monitoring and enforcement process in place. In this way, it is visible that Adidas has high level of control over its suppliers.

Buyers Bargaining Power

Moderate Threat

Although the individual buyers do not hold a significant clout, as a group they exercise somewhat significant influence. The end consumers are price sensitive due to many options from competitors like Nike Inc. and other big and small competitors like Under Armor and Puma. There are several local and international brands competing for market share in this industry. The switching costs are low for the customers, moreover, due to the increase relevance of online shopping allows for a rather convenient price comparison. However, this factor to a large extent gets moderated by the product quality and marketing of Adidas.

Adidas has focused on product quality, design and performance and it is why the brand has been able to build an impressive level of customer loyalty. Therefore, the bargaining power of the customers gets reduced and becomes moderate.

Threat of Substitutes

Low Threat

There are small and large; local and international competitors which offer products under a wide range of prices. Some of them cater to the needs of the high end customer whereas the local competitors offer substitutes at lower prices. The threat from the substitute products comes from the switch preference from active wear to casual apparel like t-shirts or sweatpants which is one of the strengths of Adidas position in the market place. In order to further moderate the threat, Adidas has focused on marketing in the metropolitan markets since a large part of its customer base lives there.

Threat of new Entrants

Low/Moderate Threat

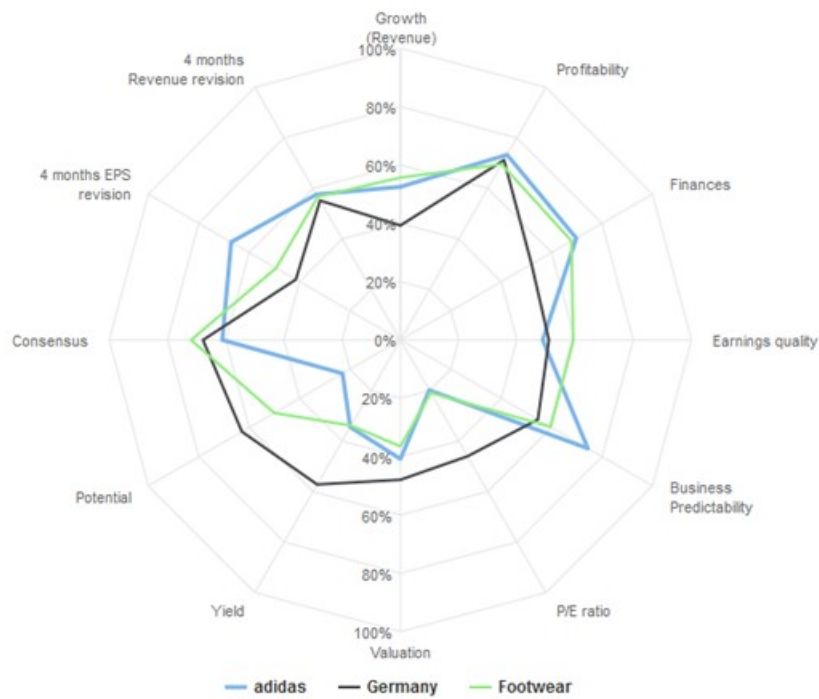
While a brand can enter with a small capital on a local scale, to grow a brand the size of Adidas requires a very large investment which can be understood from the size of its production and supply chain. This threat of new entrants from Adidas may become moderate due to the increase trend of athleisure, which allows strong financial brand names like Gap or H&M to be included in the competition.

Rivalry among Existing Competitors

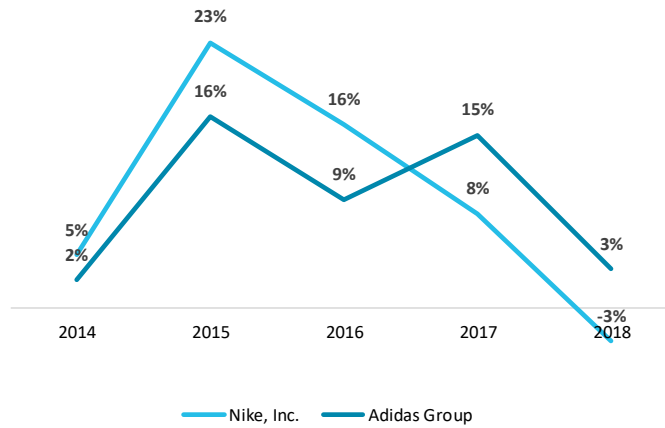
High Threat

The level of competitive rivalry in the industry is high. Apart from the main competitors like Nike, Puma and Under Armour there are several other smaller competitors too which add to the level of competition in the industry. While the level of saturation in the industry has grown, the existing players are also engaged in an intense battle for market share. All the brands are investing heavily in marketing and spending billions on advertising and sponsorships. While the number of top brands is limited, still the level of competition in the industry is intense.

Appendix 3 - Ratings Chart of Adidas, Industry and Headquarters' country



Appendix 4 - % y-o-y growth of Net Sales from Nike Inc. and Adidas AG



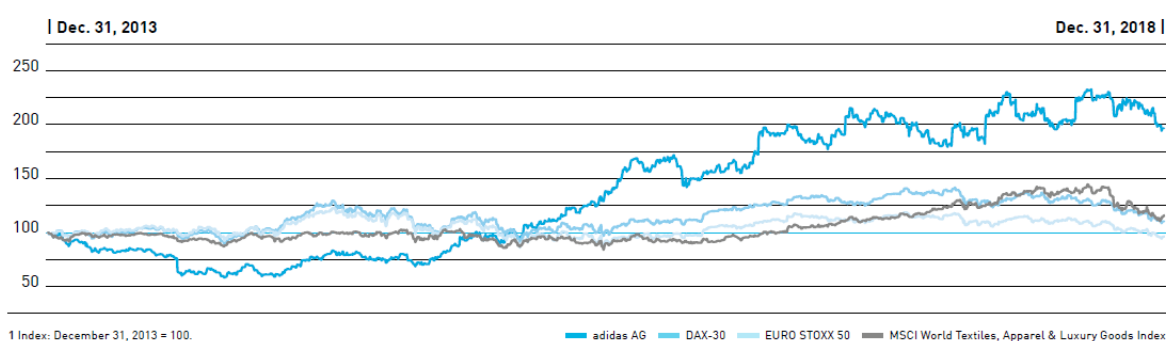
Adidas has surpassed Nike in several markets, regionally Nike struggles to renovate its distribution model to accommodate stiff competition from sportswear and fast fashion companies in the saturated US market.

According to the information given Adidas has been slowly gaining market share over the past few years from its fiercest rival by taking advantage of the increased competition for

fitness, wellness and athleisure as all became standard elements of many people’s everyday lives.

The Company has been a pioneer of athleisure sportswear products, making each product more relevant for young sportswear consumers. Adidas could overtake Nike as the global top-ranking sportswear company in the medium to long term. This could take up to 10 years to happen, but Nike’s historical position as the global market leader is no longer safe, as Adidas thrives.

Appendix 5 - Performance of the Adidas AG share, important indices and biggest competitor at year-end 2018 in %



1 Index: December 31, 2013 = 100.

Performance at year-end 2018 in %	1 year	3 years	5 years	10 years
Adidas AG	9%	103%	97%	572%
Nike Inc	19%	19%	89%	481%
DAX-30	-18%	-2%	11%	120%
EURO STOXX 50	-14%	-8%	-3%	23%
MSCI World Textiles, Apparel & Luxury Goods	-5%	25%	16%	283%

Adidas AG shares outperformed Nike’s share performance in any period extracted with the exception of the last year, nonetheless a strong financial result of 9% surpass important indices which build investors’ confidence in the successful execution of the “creating the new” strategy and the company’s ability to sustainably grow revenues and improve margins in years to come.

Appendix 6 – Market Share in % and % y-o-y growth of the TOP 10 Companies and Others in the Sportswear Industry

Market Share per each Company	2014	2015	2016	2017	2018
Nike, Inc.	19%	20%	20%	21%	21%
Adidas Group	13%	12%	13%	14%	15%
VF Corp	8%	7%	7%	7%	7%
Puma	3%	2%	3%	3%	3%
Under Armour Inc	2%	3%	3%	3%	3%
Skechers	2%	2%	2%	2%	3%
New Balance	2%	2%	2%	2%	3%
Asics	2%	2%	2%	2%	2%
Amer Sports	2%	2%	2%	2%	2%
Columbia Sportswear	1%	2%	1%	1%	2%
Total TOP 10 companies	55%	55%	56%	58%	60%
Other	45%	45%	44%	42%	40%
Market Share Total	146 000	153 000	160 000	167 000	174 000

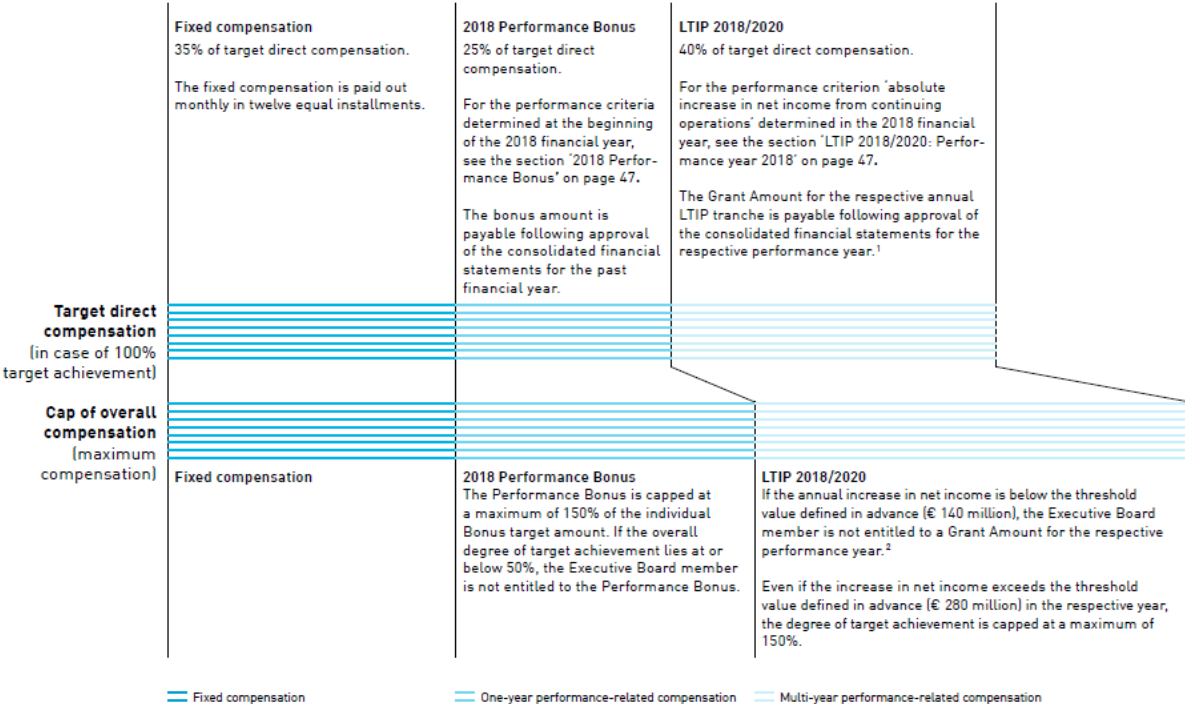
Year growth Market Share	2014	2015	2016	2017	2018
Nike, Inc.	n.a.	5%	1%	2%	2%
Adidas Group	n.a.	-7%	4%	12%	4%
VF Corp	n.a.	-12%	-4%	3%	0%
Puma	n.a.	-9%	2%	11%	13%
Under Armour Inc	n.a.	23%	16%	-1%	0%
Skechers	n.a.	26%	8%	12%	7%
New Balance	n.a.	4%	1%	-2%	11%
Asics	n.a.	2%	-1%	-7%	-6%
Amer Sports	n.a.	-9%	-1%	-4%	4%
Columbia Sportswear	n.a.	6%	-2%	-1%	9%
Total TOP 10 companies	n.a.	-0,4%	1,9%	4,2%	3,1%

Appendix 7 - Adidas AG leadership across Top Countries and categories in 2018



Adidas' localised marketing paid off in Brazil, the most valuable market in Latin America. China has also been a source of outstanding growth revenues for the Company due to the same localised marketing strategy.

Appendix 8 - Compensation system for the Executive Board members



¹ The Grant Amount must be invested by the Executive Board members in the acquisition of adidas AG shares which are subject to a lock-up period.
² If the increase in net income from continuing operations is below € 210 million in the performance year 2018 or 2019, the target value for 100% target achievement is increased correspondingly for the following performance year. However, if the increase in net income is higher than € 210 million in a performance year, the target for the following performance years remains unaffected.

The performance bonus is 60% weighted on the revenue's growth and operating margin, 40% weighted for two individual criteria. The cap is at a maximum of 150% and no pay-out if overall target achievement lies at or below 50%.

The LTIP follow directly the net income from continuing operations, if it increases by € 280 million in comparison to the previous year, the degree of target achievement would be 150%. For € 210 million leads to a 100% target and 50% improves more than € 140 million.

This consideration was taken for section 6.1.3 to calculate item "overhead costs" as I assume for 2019 and 2020 a 100% target in order to show a more conservative future.

Appendix 9 - Employee information and forecasts

Employee statistics¹

33

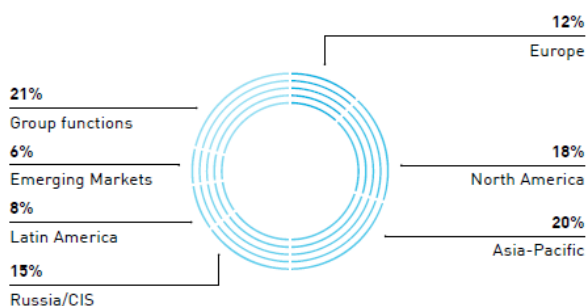
	2018	2017
Total number of employees ²	57,016	56,888
Total employees		
Male	51%	50%
Female	49%	50%
Management positions		
Male	67%	69%
Female	33%	31%
Average age of employees (in years)	31	30
Average length of service (in years)	4	4

¹ At year-end. Figures reflect continuing operations as a result of the divestiture of the Rockport, TaylorMade, Adams Golf, Ashworth and CCM Hockey businesses.

² Number of employees on a headcount basis.

Employee split¹

35



¹ At year end.

Number of employees by function¹

34

	Employees ²		Full-time equivalents ³	
	2018	2017	2018	2017
Own retail	32,297	32,698	25,880	25,640
Sales	3,857	3,795	3,742	3,680
Logistics	6,175	5,890	5,976	5,617
Marketing	5,764	5,964	5,565	5,742
Central administration	5,574	5,157	5,251	4,835
Production	888	1,132	803	1,105
Research and development	1,041	1,062	971	1,002
IT	1,420	1,190	1,377	1,154
Total	57,016	56,888	49,563	48,775

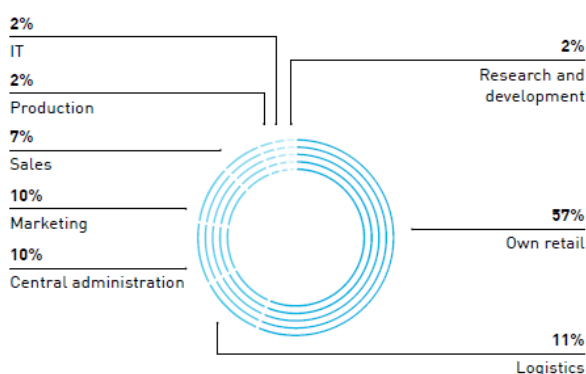
¹ At year end. Figures reflect continuing operations as a result of the divestiture of the Rockport, TaylorMade, Adams Golf, Ashworth and CCM Hockey businesses.

² Number of employees on a headcount basis.

³ Number of employees on a full-time equivalent basis; deviations in totals may arise due to calculation of full-time equivalents.

Employees by function¹

36



¹ At year end.

Personnel expenses extends to wage and salary, social security contribution and pension expenses. It was assumed to maintain an 11% of sales, in the Income statement all expenses are by function, therefore, this is not shown individual. The number of employees is expected to have a CAGR 2018-2023 of 8% but a personnel expense of 6%.

Appendix 10 - Total Debt & Net Debt

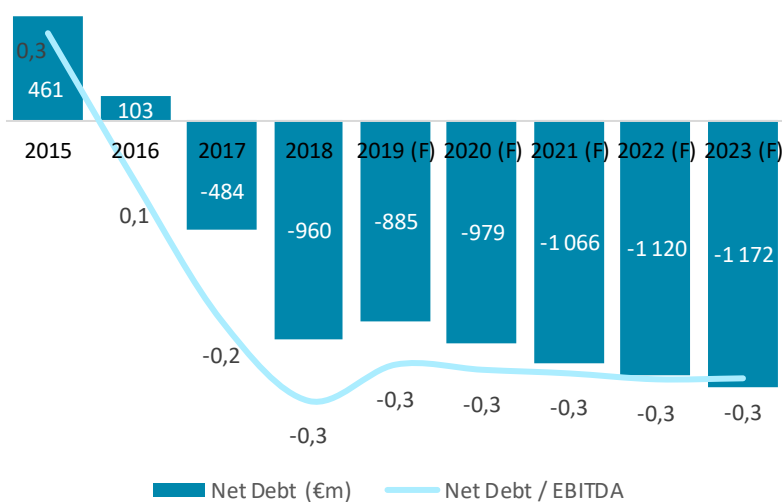
Financial structure in Book Value		2014	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Short term borrowing	Bank borrowings inc. commercial papers	194	229	379	106	66					
	Eurobonds										
	Convertible Bond			257	31	0					
	Equity-neutral convertible bond private placements	95	138								
Long term borrowing	Bank borrowings inc. commercial papers					141					
	Eurobonds	990	981	982	983	984					
	Convertible Bond	471	483								
	Equity-neutral convertible bond	123				484					
Total borrowing, Gross (€ in millions)		2 162	2 198	2 254	1 257	1 741	1 860	1 958	2 061	2 169	2 288
Total Equity		5617	5648	6454	6017	6364	7 073	7 456	7 841	8 180	8 550
% Total Equity			39%	35%	21%	27%	26%	26%	26%	26%	26%
Cash & Cash Equivalent		1 688	1 370	1 515	1 604	2 635	2 744	2 937	3 126	3 289	3 460
% Total net Sales			8%	8%	8%	12%	12%	12%	12%	12%	12%
Net Debt (€ in millions)		474	828	739	-347	-894	-885	-979	-1 066	-1 120	-1 172
Net Debt/EBITDA		0,4	0,6	0,4	-0,1	-0,3	-0,3	-0,3	-0,3	-0,3	-0,3
Debt Fair Value		1 968	1 992	1 903	1 204	1 681	2 067	2 108	2 170	2 281	2 290
Market Value of Equity		11 773	18 000	30 254	34 075	36 329	49 514	56 441	64 674	73 081	82 582
Capital Structure Market Value			17%	11%	6%	4%	5%	4%	4%	4%	4%

Note:

Market Value of Equity – (N° shares outstanding (FY end) * Average Price) Taken from the share's buyback program.

Market Value of Debt – $\frac{\text{Interest expense}(t) * (1 - (1 + \text{av. Interest Rate})^{(-\text{Av. Debt Maturity})})}{\text{av. Interest Rate} + \frac{\text{Debt Book Value}}{(1 + \text{av. Interest Rate})^{(\text{Av. Debt Maturity})}}}$

Bonds	Outstanding	Issued	Issued Date	Maturity Date	Seniority Type	YTM	Last Price	Modified duration	Interest Rate
Eurobond	600 000 000	600 000 000	08/10/2014	08/10/2021	Senior Unsecured	0,26%	102%	2,415	1,25%
Equity neutral convertible bond	500 000 000	500 000 000	12/09/2018	12/09/2023	Senior Unsecured	-1,44%	106%	4,429	2,25%
Eurobond	400 000 000	400 000 000	08/10/2014	08/10/2026	Senior Unsecured	1,10%	108%	6,861	0,05%



Appendix 11 - Cost of Debt by Default Spread and Cost of Debt by YTM

For developed market firms with market cap > \$5 billion			
If interest coverage ratio (EBIT/Interest Expenses) is			
>	≤ to	Rating is	Spread is
-100000	0.199999	D2/D	19.38%
0.2	0.649999	C2/C	14.54%
0.65	0.799999	Ca2/CC	11.08%
0.8	1.249999	Caa/CCC	9.00%
1.25	1.499999	B3/B-	6.60%
1.5	1.749999	B2/B	5.40%
1.75	1.999999	B1/B+	4.50%
2	2.249999	Ba2/BB	3.60%
2.25	2.499999	Ba1/BB+	3.00%
2.5	2.999999	Baa2/BBB	2.00%
3	4.249999	A3/A-	1.56%
4.25	5.499999	A2/A	1.38%
5.5	6.499999	A1/A+	1.25%
6.5	8.499999	Aa2/AA	1.00%
8.50	100000	Aaa/AAA	0.75%

	Before Tax	After Tax
Cost of Debt by YTM	-0,08%	-0,06%
Cost of Debt by Default Spread	0,82%	0,59%

Appendix 12 – Cash & Cash Equivalents

For the Cash & Cash Equivalents a backwards approach was used. First, the total debt was computed as a constant rate Total debt/Total Equity, then it was assumed a constant -0,3x of Net debt/EBITDA which yield the following amount of cash:

Cash and Short Term Investments	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Beginning Balance	1 688	1 370	1 515	1 604	2 635	2 744	2 937	3 126	3 289
Ending Balance	1 370	1 515	1 604	2 635	2 744	2 937	3 126	3 289	3 460
% of Sales	8%	8%	8%	12%	12%	12%	12%	12%	12%

Appendix 13 – Financial Liabilities & Interest Expenses

Financial Liabilities (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Financial instruments measured at amortized costs	4 556	4 908	4 001	5 585	5 331	5 684	6 025	6 335	6 528
Financial instruments measured at fair value	46	47	55	64	37	40	43	44	41
Others	41	96	262	158	149	162	172	176	165
Total	4 643	5 051	4 318	5 807	5 518	5 886	6 240	6 554	6 734

Other Financial items (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Other Financial Liabilities	757	927	1 221	1 830	1 246	1 346	1 431	1 463	1 372

Note:

Financial instruments measured at amortized costs are composed by: Total borrowings, financial accrued and other financial liabilities besides derivatives or Earn-out components.

Financial instruments measured at fair value are composed by: Derivatives not used in hedge accounting and Earn-out components, which are 3% of the Total Other Financial Liabilities.

Others are composed by: Derivatives used to protect the company regarding the currency differences and finance lease obligations, which are 12% of the Total Other Financial Liabilities.

Interest Expenses (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Interest on financial instruments measured at amortized costs	65	70	62	42	72	67	69	68	77
Interest on financial instruments measured at fair value	0	0	0	0	0	0	0	0	0
Others	1	4	31	5	9	9	11	9	10
Total	66	74	93	47	81	76	80	77	88
% interest from instruments measured at amortized costs	1%	1%	2%	1%	1%	1%	1%	1%	1%
% interest from instruments measured at fair value	0%	0%	0%	0%	0%	0%	0%	0%	0%
% interest from other instruments	2%	4%	12%	3%	5%	6%	7%	5%	6%

Note: Interest expenses (t) are calculated based on the financial liabilities amount from (t-1).

% interest from instruments measured at amortized costs: The interest rate used was the average of the respective coupon rates (1,25% for the seven-year Eurobond, 2,25% for the twelve-year Eurobond and 0,05% for the equity-neutral convertible bond)

% interest from other instruments: based on moving 4-year average rate.

Appendix 14 – Financial Assets & Interest Income

Other Financial Assets (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Derivatives not to hedge/ promissory Notes/Earn-out (Measure as Fair Value)	181	340	83	183	123	150	137	145	140
Derivatives to hedge (Measure as Others)	90	106	211	243	219	229	225	230	225
Other financial assets (Measure as Amortized costs)	196	379	319	371	333	349	342	350	343
Total	467	825	613	797	676	728	703	726	708
% Fair value / Other Financial Assets	39%	41%	14%	23%	18%	21%	19%	20%	20%
% Others / Other Financial Assets	19%	13%	34%	30%	32%	31%	32%	32%	32%
% Amortized Costs / Other Financial Assets	42%	46%	52%	47%	49%	48%	49%	48%	48%

Long term financial assets (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Investment in FC Bayern Munchen AG (Measure as Fair Value)	81	82	82	83	83	83	83	83	83
Other equity investments (Measure as Others)	36	38	89	88	96	92	94	93	94
Loans & Other investments (Measure as Amortized costs)	23	74	65	105	97	101	99	100	99
Total	140	194	236	276	276	276	276	276	276
% Fair value / Long Term Financial Assets	58%	42%	35%	30%	30%	30%	30%	30%	30%
% Others / Long term Financial Assets	26%	20%	38%	32%	35%	33%	34%	34%	34%
% Amortized Costs / Long Term Financial Assets	16%	38%	28%	38%	35%	37%	36%	36%	36%

Note: I assume the same value as of 2018 due to the new IFRS role for the financial loans. To also support this decision, it is stated in the Adidas Annual report “There is currently no intention to sell these assets”.

Total Financial Assets (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Financial instruments measured at amortized costs	3 650	4 168	4 375	5 529	5 798	6 194	6 556	6 884	7 210
Financial instruments measured at fair value	262	422	165	266	206	233	220	228	223
Others	126	144	300	331	315	321	319	323	319
Total	4 038	4 734	4 840	6 126	6 320	6 748	7 094	7 436	7 752

Interest Income (€ in Millions)	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Interest on financial instruments measured at amortized costs	19	21	23	24	25	27	28	30	31
Interest on financial instruments measured at fair value	25	5	20	26	17	18	21	20	19
Others	2	1	2	7	4	4	4	5	4
Total	46	27	45	57	46	49	53	55	55
% interest from instruments measured at amortized costs	1%	1%	1%	0%	0%	0%	0%	0%	0%
% interest from instruments measured at fair value	10%	1%	12%	10%	8%	8%	9%	9%	9%
% interest from other instruments	2%	1%	1%	2%	1%	1%	1%	1%	1%

Note:

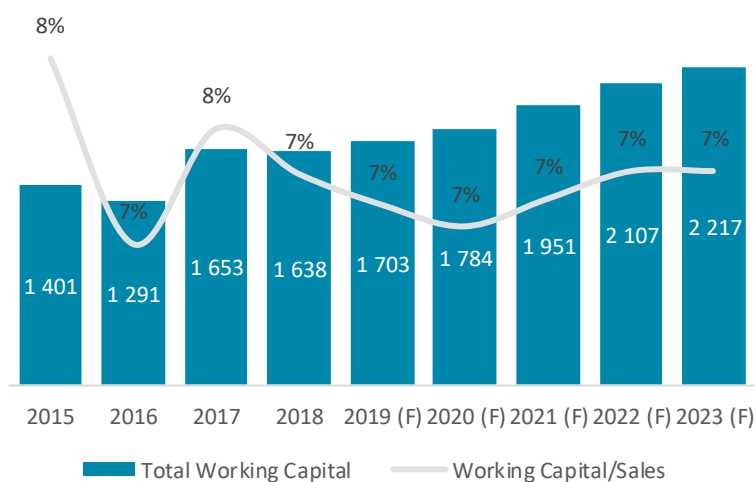
Financial instruments measured at amortized costs are composed by: Cash & cash Equivalents, Assets held for sales, and the others stated (Measured as Amortized costs). The interest rate is the one used by the Central Bank of 0% YTM.

Financial instruments measured at fair value are composed by: all instruments previously stated (Measured as fair value). Interest based on moving 4-year average rate.

Others are composed by: all instruments previously stated (Measured as Others). Interest based on moving 4-year average rate.

Appendix 15 – Total Working Capital and Change in Working Capital

Working Capital (€ in Millions)	2014	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Accounts Receivable	1 946	2 049	2 200	2 315	2 418	2 624	2 808	2 989	3 145	3 308
Total Inventory	2 526	3 113	3 763	3 692	3 445	3 768	4 032	4 292	4 564	4 801
Accounts Payable	1 652	2 024	2 496	1 975	2 300	2 413	2 582	2 748	2 922	3 074
Accrued Expenses	749	1 088	1 319	1 343	764	1 371	1 467	1 562	1 644	1 729
Other Current Assets	425	586	678	569	773	782	837	891	938	986
Other Current Liabilities	506	1 146	1 409	1 637	1 977	1 826	1 954	2 080	2 188	2 302
Operating Current Working Capital	1 990	1 490	1 417	1 621	1 595	1 564	1 674	1 782	1 892	1 990
Non-current operating assets	723	760	826	738	745	879	873	935	990	1 025
Non-current operating liabilities	830	849	952	706	702	740	763	766	775	798
Operating non-current Working Capital	-107	-89	-126	32	43	139	110	169	215	226
Total Working Capital	1 883	1 401	1 291	1 653	1 638	1 703	1 784	1 951	2 107	2 217
changes in Working Capital	N.A.	-482	-110	362	-15	65	81	166	156	110



Appendix 16 – Dividends Summary

Dividends	2014	2015	2016	2017	2018
Number shares outstanding year-end	204 327 044	200 197 417	201 489 310	203 861 243	199 171 345
Dividend Per Share	1,50 €	1,60 €	2,00 €	2,60 €	3,35 €
Total amount of Dividends paid	306 490 566,00 €	320 315 867,20 €	402 978 620,00 €	530 039 231,80 €	667 224 005,75 €
Net Income	568 628 137,29 €	668 717 885,59 €	1 077 482 941,18 €	1 428 677 174,66 €	1 709 077 883,58 €
Payout Ratio	53,90%	47,90%	37,40%	37,10%	39,04%
Average Payout Ratio = 43%					

Dividends	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Number shares outstanding year-end	195 201 120	193 487 042	194 483 465	194 483 465	194 483 465
Dividend Per Share	3,75 €	4,33 €	4,93 €	5,13 €	5,41 €
Total amount of Dividends paid	732 004 199,81 €	837 798 893,32 €	958 803 484,85 €	997 190 394,12 €	1 051 343 262,29 €
Net Income	1 924 780 512,97 €	2 058 497 416,62 €	2 180 394 747,72 €	2 215 978 653,61 €	2 336 318 360,64 €
Payout Ratio	38,03%	40,70%	43,97%	45%	45%
Average Payout Ratio = 43%					

Appendix 17 – Resume of the full shares Buyback plan

2018	Volume Buyback	Price	Total amount	% change Volume	% Change Price
March	161 888	195	31 569 779		
Abril	479 177	206	98 676 920	196%	6%
May	617 854	195	120 191 139	29%	-6%
June	1 539 068	191	293 300 189	149%	-2%
July	336 046	187	62 776 753	-78%	-2%
August	345 975	203	70 277 902	3%	9%
September	270 019	209	56 547 379	-22%	3%
October	508 407	199	101 381 440	88%	-5%
November	640 749	199	127 374 494	26%	0%
December	190 696	198	37 778 785	-70%	0%
Total	5 089 879	198	999 874 778		

2019	Volume Buyback	Price	Total amount	% change Volume	% Change Price
January	270 074	201	54 152 146	42%	1%
February	229 150	203	46 446 202	-15%	1%
March	243 314	212	51 676 639	6%	5%
Abril	226 764	227	51 461 881	-7%	7%
May	287 257	235	67 461 283	27%	3%
June	319 778	244	78 141 786	11%	4%
July	358 555	256	91 817 108	12%	5%
August	355 054	268	95 280 464	-1%	5%
September	384 337	280	107 554 001	8%	4%
October	409 723	292	119 795 360	7%	4%
November	450 742	306	137 834 408	10%	5%
December	435 477	320	139 206 873	-3%	5%
Total	3 970 225	254	1 007 063 387		

Year	Volume Buyback	Price	Total amount	% change Volume	% Change Price
2023		425			13%
2022		376			13%
2021	1 503 577	333	500 000 000	-12%	14%
2020	1 714 078	292	500 000 000	-57%	15%
2019	3 970 225	254	1 007 063 387	-22%	28%

Appendix 18 – Retained Earnings

Retained Earnings (€ in Millions)	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Beginning Retained Earnings	5 858	6 054	6 878	7 262	7 647	7 986
Net Income	1 709	1 925	2 058	2 180	2 216	2 336
Dividends	530	667	732	838	959	997
Shares buyback	1 009	1 007	500	500	0	0
Ending Retained Earnings	6 178	6 878	7 262	7 647	7 986	8 356

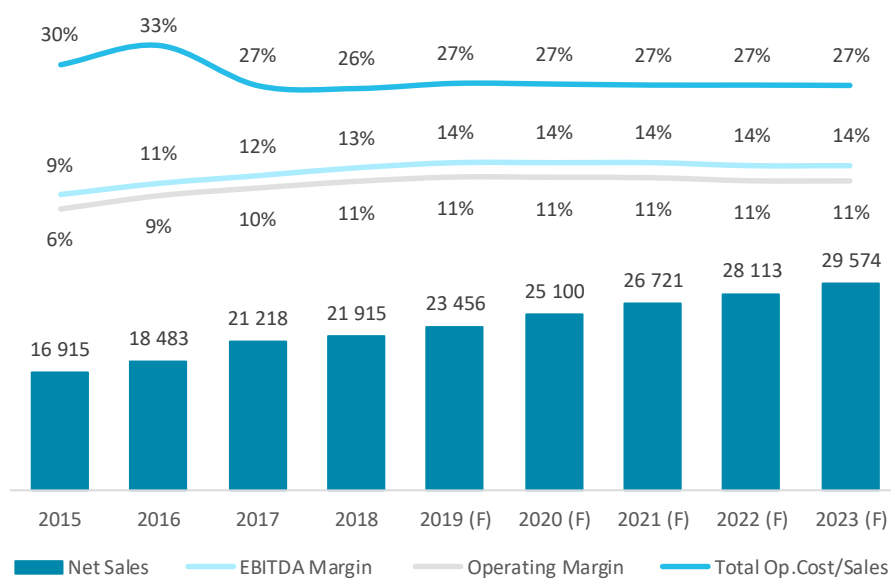
Appendix 19 – Balance Sheet historical and forecasted

	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Cash and Short Term Investments	1 370	1 515	1 604	2 635	2 744	2 937	3 126	3 289	3 460
Other current financial Assets	367	729	393	542	508	543	496	522	517
Accounts Receivable - Net	2 049	2 200	2 315	2 418	2 624	2 808	2 989	3 145	3 308
Total Inventories	3 113	3 763	3 692	3 445	3 768	4 032	4 292	4 564	4 801
Other Current Operating Assets	586	678	569	773	782	837	891	938	986
Assets held for sales	12	0	72	0	0	0	0	0	0
Total Current Assets	7 497	8 885	8 645	9 813	10 426	11 156	11 795	12 457	13 072
Property/Plant/Equipment - Net	1 638	1 915	2 000	2 237	2 455	2 627	2 851	2 916	2 987
Goodwill - Net	1 392	1 412	1 220	1 245	1 245	1 245	1 245	1 245	1 245
Trademarks and Intangibles - Net	1 816	1 847	960	1 040	1 067	1 151	1 167	1 240	1 304
Deferred tax Assets	637	732	630	651	774	773	833	890	923
Long Term Investments	140	194	236	276	276	276	276	276	276
Other Non-Current Operating Assets	123	94	108	94	105	100	102	100	102
Other non-current financial Assets	100	96	219	256	168	185	207	204	191
Total Non-Current Assets	5 846	6 290	5 373	5 799	6 089	6 357	6 681	6 871	7 028
Total Assets	13 343	15 175	14 018	15 612	16 515	17 513	18 476	19 329	20 100
Accounts Payable	2 024	2 496	1 975	2 300	2 413	2 582	2 748	2 922	3 074
Operating Accrued Expenses	1 088	1 319	1 343	764	1 371	1 467	1 562	1 644	1 729
Short term Borrowing	367	636	137	66	0	0	0	0	0
Other current financial Liabilities	739	905	1 199	1 727	1 143	1 243	1 328	1 360	1 269
Other Current liabilities, Total	1 146	1 409	1 637	1 977	1 826	1 954	2 080	2 188	2 302
Total Current Liabilities	5 364	6 765	6 291	6 834	6 752	7 246	7 718	8 114	8 373
Total Long Term Debt	1 464	982	983	1 609	1 860	1 958	2 061	2 169	2 288
Deferred tax Liabilities	368	387	190	241	235	251	267	281	296
Other Non-Current Liabilities, Total	481	565	516	461	506	512	499	494	503
Other non-current financial Liabilities	18	22	22	103	103	103	103	103	103
Total Non-Current Liabilities	2 331	1 956	1 711	2 414	2 703	2 824	2 930	3 047	3 190
Total Liabilities	7 695	8 721	8 002	9 248	9 455	10 070	10 648	11 161	11 563
Common Stock, Total	200	201	204	199	195	193	193	193	193
Reserves & Retained Earnings	5 466	6 270	5 828	6 178	6 879	7 263	7 648	7 987	8 357
Shareholder's Equity	5 666	6 471	6 032	6 377	7 073	7 456	7 841	8 180	8 550
Minority Interest	-18	-17	-15	-13	-13	-13	-13	-13	-13
Total Equity	5 648	6 454	6 017	6 364	7 060	7 443	7 828	8 167	8 537
Total Liabilities & Total Equity	13 343	15 175	14 019	15 612	16 515	17 513	18 476	19 329	20 100

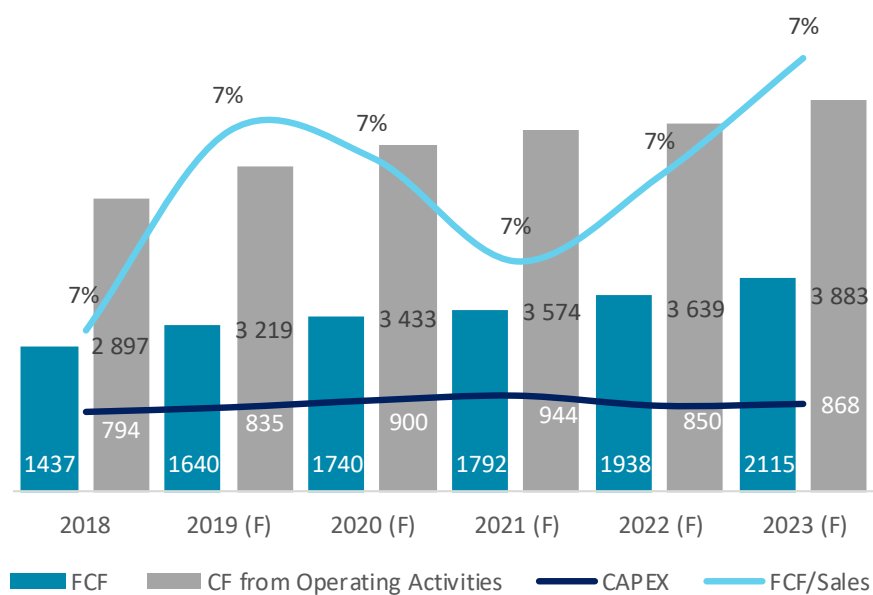
Appendix 20 – Income Statement historical and forecasted

	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Net sales	16 915	18 483	21 218	21 915	23 456	25 100	26 721	28 113	29 574
<i>% change</i>	16,4%	9,3%	14,8%	3,3%	7,0%	7,0%	6,5%	5,2%	5,2%
COGS	8 748	9 383	10 514	10 552	11 142	11 922	12 692	13 494	14 195
<i>% of Sales</i>	51,7%	50,8%	49,6%	48,1%	47,5%	47,5%	47,5%	48,0%	48,0%
Gross Profit	8 167	9 100	10 704	11 363	12 315	13 177	14 028	14 619	15 378
<i>% Change</i>	18,0%	11,4%	17,6%	6,2%	8,4%	7,0%	6,5%	4,2%	5,2%
Gross Margin	48,3%	49,2%	50,4%	51,9%	52,5%	52,5%	52,5%	52,0%	52,0%
Marketing and point-of-sale expenses	1 886	1 889	2 724	3 001	3 049	3 263	3 474	3 655	3 845
<i>% of Sales</i>	13,9%	13,0%	12,8%	13,7%	13,0%	13,0%	13,0%	13,0%	13,0%
Operating overhead costs	4 934	5 482	5 600	5 657	6 216	6 651	7 081	7 450	7 837
<i>% of Sales</i>	29,2%	29,7%	26,4%	25,8%	26,5%	26,5%	26,5%	26,5%	26,5%
Other Operating Expenses, Total	6 820	7 371	8 324	8 658	9 265	9 914	10 555	11 105	11 682
<i>% of Sales</i>	40,3%	39,9%	39,2%	39,5%	39,5%	39,5%	39,5%	39,5%	39,5%
Other Operating Income, Total	127	224	132	177	235	251	267	281	296
<i>% of Sales</i>	0,8%	1,2%	1,3%	0,8%	1,0%	1,0%	1,0%	1,0%	1,0%
EBITDA	1 474	1 953	2 512	2 882	3 284	3 514	3 741	3 795	3 992
<i>% change</i>	14,9%	32,5%	28,6%	14,7%	13,9%	7,0%	6,5%	1,5%	5,2%
EBITDA margin	8,7%	10,6%	11,8%	13,2%	14,0%	14,0%	14,0%	13,5%	13,5%
Depreciations; Amort. & impairments	381	371	441	514	591	644	703	712	732
EBIT	1 093	1 582	2 071	2 368	2 693	2 870	3 038	3 083	3 260
<i>% Change</i>	13,7%	44,7%	30,9%	14,3%	13,7%	6,6%	5,8%	1,5%	5,7%
Operating margin	6,5%	8,6%	9,8%	10,8%	11,5%	11,4%	11,4%	11,0%	11,0%
Financial income	46	27	45	57	46	49	54	55	55
Financial expenses	66	74	93	47	81	76	80	77	88
EBT	1 073	1 535	2 023	2 378	2 659	2 843	3 012	3 061	3 227
<i>% Change</i>	17,5%	43,1%	31,8%	17,5%	11,8%	6,9%	5,9%	1,6%	5,4%
Pre-tax Margin	6,3%	8,3%	9,5%	10,9%	11,3%	11,3%	11,3%	10,9%	10,9%
Income tax expenses	353	454	668	669	734	785	831	845	891
Net Income from continuing Operations	720	1 081	1 355	1 709	1 925	2 059	2 181	2 216	2 336
<i>% change</i>	12,1%	50,2%	25,3%	26,1%	12,6%	6,9%	5,9%	1,6%	5,4%
Net Margin	4,3%	5,9%	6,4%	7,8%	8,2%	8,2%	8,2%	7,9%	7,9%
non-controlling	-6	-2	-3	-3	-3	-3	-3	-3	-3
Net Income attributable to shareholders	714	1 079	1 352	1 706	1 922	2 056	2 178	2 213	2 333
Discontinued Op.	-46	-62	-179	-4	-4	-4	-4	-4	-4
Net Income	668	1 017	1 173	1 702	1 918	2 052	2 174	2 209	2 329
EPS from continuing operations	3,6	5,4	6,7	8,5	10,0	10,6	11,3	11,5	12,1
EPS from continuing and discounted operations	3,3	5,1	5,8	8,4	9,9	10,6	11,3	11,4	12,1

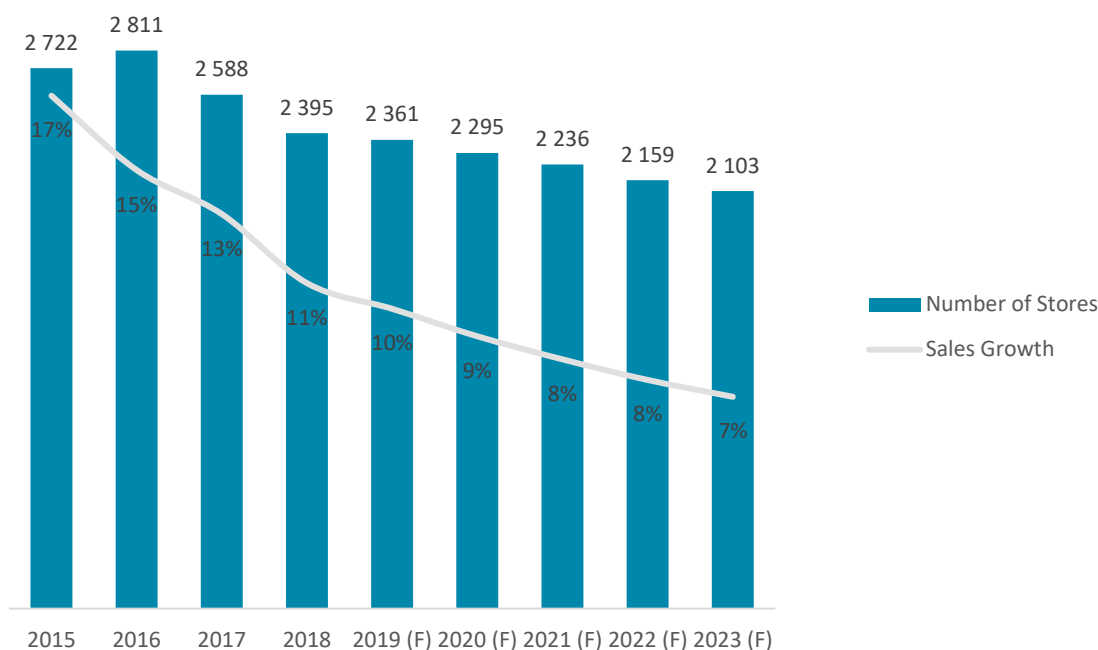
Appendix 21 – Operating Performance in %



Appendix 22 – FCFF Generation



Appendix 23 – Number of Stores and % of Sales



Appendix 24 – Structure of Financial Position

in % of total Assets	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Cash & cash equivalents	10%	10%	11%	17%	17%	17%	17%	17%	17%
Accounts receivable	15%	14%	17%	15%	16%	16%	16%	16%	16%
Inventories	23%	25%	26%	22%	23%	23%	23%	24%	24%
Fixed assets	39%	37%	34%	33%	32%	32%	32%	31%	30%
Other assets	13%	15%	13%	13%	13%	13%	13%	13%	13%
Assets (€ in Millions)	13 343	15 175	14 018	15 612	16 515	17 513	18 476	19 329	20 100

in % of total Liabilities and Total Equity	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Accounts payable	15%	16%	14%	15%	15%	15%	15%	15%	15%
Total Borrowing	14%	11%	8%	10%	11%	11%	11%	11%	11%
Other liabilities	23%	24%	26%	22%	24%	24%	24%	24%	24%
Total Equity	42%	43%	43%	41%	43%	42%	42%	42%	42%
Liabilities & Equity (€ in Millions)	13 343	15 175	14 018	15 612	16 515	17 513	18 476	19 329	20 100

Appendix 25 – Other relevant ratios

Solvency Ratios	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Quick Ratio	0,8	0,8	0,8	0,9	1,0	1,0	1,0	1,0	1,0
Current Ratio	1,4	1,3	1,4	1,4	1,5	1,5	1,5	1,5	1,6
Total Debt/Total Equity	32,4%	25,1%	18,6%	26,3%	26,3%	26,3%	26,3%	26,6%	26,8%
Cash cycle (days)	84,1	87,8	90,6	88,9	85,2	85,2	85,2	85,2	85,2
Capital Structure	22,2%	14,2%	16,1%	26,2%	26,5%	26,7%	27,0%	27,4%	27,7%

Ratios	2015	2016	2017	2018	2019 (F)	2020 (F)	2021 (F)	2022 (F)	2023 (F)
Asset Turnover	1,3	1,3	1,5	1,5	1,5	1,5	1,5	1,5	1,5
x Pre-tax Margin	6,3%	8,3%	9,5%	10,9%	11,3%	11,3%	11,3%	10,9%	10,9%
Pre-tax ROA	8,3%	10,8%	13,9%	16,1%	16,6%	16,7%	16,7%	16,2%	16,4%
X Leverage (Asset/Equity)	2,4	2,4	2,3	2,5	2,3	2,4	2,4	2,4	2,4
Pre-tax ROE	19,6%	25,3%	32,3%	39,4%	38,7%	39,3%	39,5%	38,3%	38,5%
X tax complement	0,6	0,7	0,7	0,7	0,7	0,7	0,7	0,7	0,7
ROE	12,7%	16,8%	22,5%	26,9%	27,3%	27,7%	27,9%	27,1%	27,4%
Reinvestment Rate	3,2%	5,8%	6,2%	9,5%	9,3%	17,7%	17,1%	15,3%	15,6%
ROIC	5,3%	8,4%	11,5%	12,9%	13,3%	13,0%	12,3%	11,8%	11,8%

Appendix 26 – Beta auxiliary calculations

1 Step	2018 Sales Segment	Unleverage Beta
Footwear	58%	0,72
Apparel	38%	0,74
Hardware	4%	1,12
Total	100%	0,74

Price change	Beta 3 year weekly	Beta 5 year monthly
Adidas AG	0,63	0,80
Puma SE	0,46	0,35
Nike Inc	0,74	0,67
Under Armour Inc	1,51	0,42

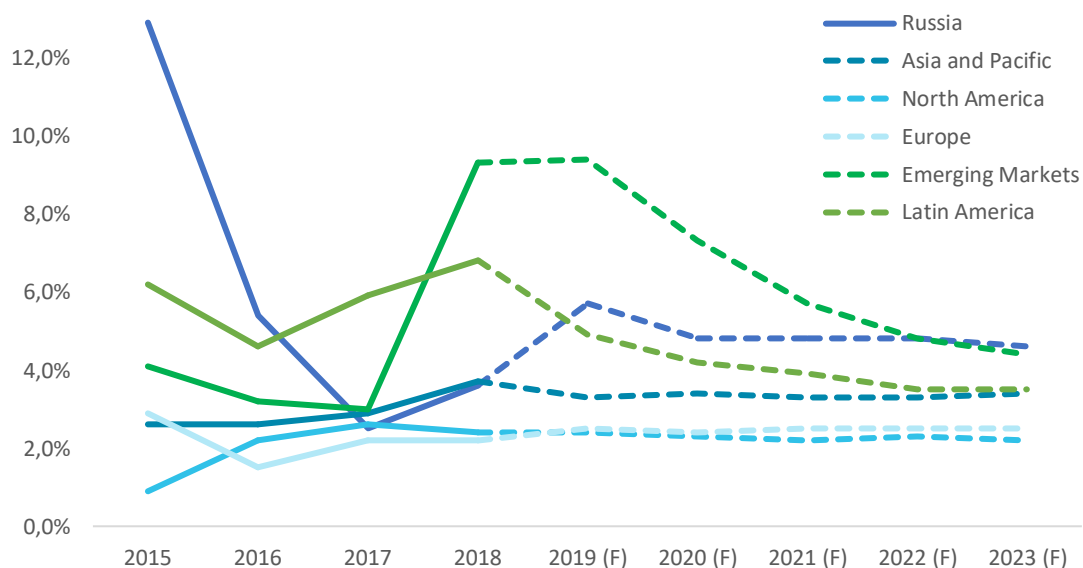
Cost of Equity	5,69%
Risk-free Rate	0,07%
Adj. Leverage Beta	0,86
Market Risk Premium	6,56%
Cost of Debt	0,37%
Effective Tax Rate	28,00%
MV Debt	- €
MV Equity	40 790 291 456,00 €
WACC	5,7%

2 Step	Leverage Beta
Effective Tax	28%
Operating Leases	2 984 000 000,00 €
Market value of Net Debt	- €
Market value of Equity	40 790 291 456,00 €
Number of Shares	199171345
Close Price	205
	0,78

Appendix 27 – Long term Growth auxiliary calculations

Geographic sector	GDP real Forecast for 2023	Inflation Forecast for 2023	Weight
Russia	1,2%	Inflation in Europe	2%
Asia and Pacific	5,2%		32%
North America	1,6%		22%
Europe	1,6%		30%
Emerging Markets	2,5%		4%
Latin America	2,9%		10%
Total	2,9%	2,1%	100%

Appendix 28 – Inflation rate for each Region of Adidas' Business segment



Appendix 29 – Full list of Comparable companies

Ticker	Company Name	Fiscal Year End Date	TRBC Industry
ADSGn.DE	Adidas AG	31/12/2018	Footwear
NKE.N	Nike Inc	31/05/2018	Footwear
PUMG.DE	Puma SE	31/12/2018	Footwear
UAA.N	Under Armour Inc	31/12/2018	Apparel & Accessories
VFC.N	VF Corp	31/03/2018	Apparel & Accessories
SKX.N	Skechers USA Inc	31/12/2018	Footwear
COLM.OQ	Columbia Sportswear Co	31/12/2018	Apparel & Accessories
LULU.OQ	Lululemon Athletica Inc	03/02/2019	Apparel & Accessories
WWW.N	Wolverine World Wide Inc	29/12/2018	Footwear
TOD.MI	Tod's SpA	31/12/2018	Footwear
HBI.N	HanesBrands Inc	31/12/2018	Apparel & Accessories
7936.T	Asics Corp	31/12/2018	Recreational Products
GIII.OQ	G-III Apparel Group Ltd	31/12/2018	Apparel & Accessories
GEO.MI	Geox SpA	31/12/2018	Footwear
DECK.N	Deckers Outdoor Corp	31/03/2018	Footwear
FL.N	Foot Locker Inc	02/02/2019	Apparel & Accessories Retailers

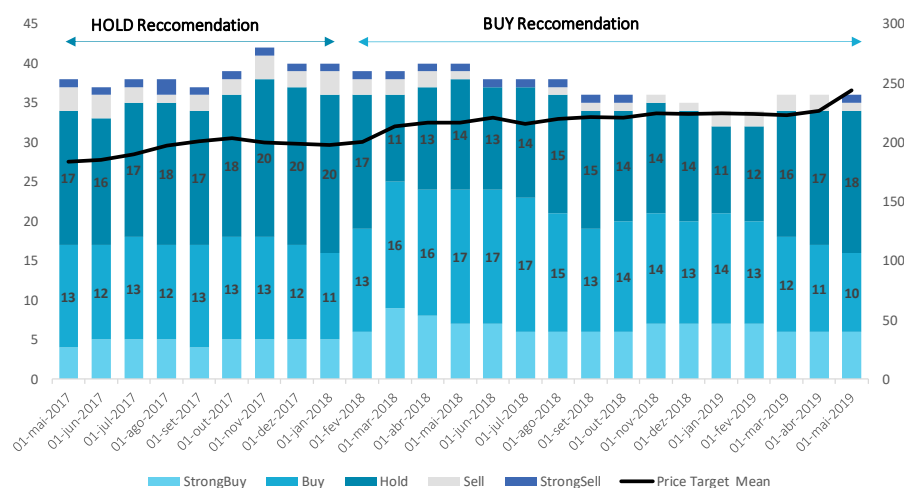
Appendix 30 – Cluster Criteria for the Peer Group

Company Name	Price	Market Cap	Revenues	Total Assets	EBIT Margin	EBITDA Margin	Net Income Margin
Nike Inc	77,3	121 601	31 135	19 278	12%	14%	11%
Puma SE	501,0	7 548	4 136	2 854	6%	8%	5%
Under Armour Inc	19,5	8 278	4 159	3 340	3%	7%	0%
VF Corp	76,2	30 156	2 472	8 369	0%	0%	8%
Skechers USA Inc	29,0	4 559	3 471	2 280	9%	12%	8%
Columbia Sportswear Co	92,8	6 328	2 056	1 845	11%	13%	10%
Lululemon Athletica Inc	127,8	16 915	2 133	1 609	18%	22%	15%
Wolverine World Wide Inc	31,6	2 847	1 959	2 000	8%	9%	9%
Tod's SpA	42,0	1 388	983	1 585	12%	16%	5%
HanesBrands Inc	15,7	5 685	5 395	5 748	16%	18%	8%
Asics Corp	11,2	2 132	2 961	2 576	5%	8%	-5%
G-III Apparel Group Ltd	31,3	1 545	2 260	1 542	6%	7%	4%
Geox SpA	1,8	463	885	712	5%	8%	-1%
Deckers Outdoor Corp	128,4	3 740	1 545	1 026	12%	14%	10%
Foot Locker Inc	53,4	6 023	6 246	3 179	10%	12%	6%

Company Name	ROIC	ROE	ROA	Debt/Equity	Asset/Equity	Debt/Capital
Nike Inc	31%	36%	17%	39%	2,3	28%
Puma SE	12%	11%	6%	12%	1,9	10%
Under Armour Inc	5%	6%	3%	36%	2,1	27%
VF Corp	25%	34%	12%	102%	2,8	50%
Skechers USA Inc	15%	16%	10%	5%	1,6	4%
Columbia Sportswear Co	17%	17%	12%	0%	1,4	0%
Lululemon Athletica Inc	33%	34%	25%	0%	1,4	0%
Wolverine World Wide Inc	13%	21%	9%	58%	2,2	37%
Tod's SpA	0%	0%	0%	25%	1,5	20%
HanesBrands Inc	13%	75%	9%	410%	7,5	80%
Asics Corp		-12%	-7%	35%	1,8	26%
G-III Apparel Group Ltd	9%	12%	7%	33%	1,9	25%
Geox SpA				14%	2,0	13%
Deckers Outdoor Corp	23%	19%	15%	3%	1,3	3%
Foot Locker Inc	20%	22%	14%	5%	1,5	5%

Appendix 31 – Detailed Recommendation from TOP 40 Analysts from Thomson

Reuters



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Euromonitor International – “Apparel and Footwear Adidas Group”

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