Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economic Theories

Master's Thesis

Approaches to Common Stock Valuation:

Procter & Gamble vs. Unilever

Bc. Lyutsiya Izhbuldina

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Bc. Lyutsiya Izhbuldina

Economics and Management
Economics and Management

Thesis title

Approaches to common stock valuation

Objectives of thesis

The aim of the Diploma Thesis is to apply stock valuation models in order to evaluate two firms from the same industry using Divident Discount and Free Cash Flow Models.
Based on the results of conducted research and empirical analysis the final conclusions will be formulated.

Methodology

The Diplima Thesis will cover both theoretical and empirical part. Theoretical part will contain theoretical background of the selected topic as well as the methodological framework. Scientific literature will be used to prepare the literature overview. Based on the empirical analysis the results will be presented and some recommendations will be suggested.

To fulfill the aim of the thesis the selected methods will be employed as following:

– quantitative analysis of secondary data from the selected companies' financial reports retrieved from SEC

– comparison of the obtained intrinsic value of a share with the company's share price on the stock exchange

The proposed extent of the thesis

60-80

Keywords

Stock, equity, valuation techniques, intrinsic value, financial analysis, DDM, DCF, FCF

Recommended information sources

DAMODARAN, A. *Applied corporate finance.* Hoboken: Wiley, 2015. ISBN 978-1-118-80893-1.

ELTON, E J. – GRUBER, M J. – BROWN S J. – GOETZMANN W E. Modern portfolio theory and investment analysis. Hoboken, NJ: Wiley, 2015. ISBN 978-1-118-46994-1

GRAHAM, B. – DODD, D L. *Security analysis : principles and technique.* New York: McGraw-Hill, 2009. ISBN 978-0-07-159253-6.

PINTO, J E. – HENRY, E. – ROBINSON, T R. – STOWE, J D. Equity asset valuation. Hoboken, NJ: Wiley, 2010. ISBN 978-0-470-57143-9

ROSS, S A. – WESTERFIELD, R W. – JORDAN, B D. Fundamentals of corporate finance. Boston: McGraw-Hill Irwin, 2010. ISBN 978-0-07-338239-5

Expected date of thesis defence

2021/22 WS – FEM

The Diploma Thesis Supervisor

Ing. Pavel Srbek, Ph.D.

Supervising department

Department of Economic Theories

Electronic approval: 1. 3. 2021

doc. PhDr. Ing. Lucie Severová, Ph.D.

Head of department

Electronic approval: 1. 3. 2021

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 30. 11. 2021

Declaration

I declare that I have worked on my diploma thesis titled **Approaches to Common Stock Valuation** by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on November, 30th   _____

Acknowledgement

I would like to thank my thesis supervisor Ing. Pavel Srbek, Ph.D. at first, for his constant support and making me follow the right direction. Furthermore, I wish to say thanks to all the professors from the Economics and Management department for the valuable experience.

<div align="right">

Bc. Lyutsiya Izhbuldina

In Prague November 30, 2021

</div>

Abstract

Stock valuation is one of the most significant tools which aims to help investors in making decisions about trading. This is one of the major techniques that allows to determine the value of the stock of a firm by utilising construction of models, which implies the fair market value of a financial instrument at a certain period of time (Pastor and Pietro, 2003). The reason behind performing the stock valuation by the investors is to forecast potential prices either for a firm or market to the point of time when they are willing to sell or purchase their investments.

This thesis aimed to cover the topic of the common valuation methods that are used by the business to estimate the potential value of the stock of the company. The paper will analyse both absolute and relative models in application to the two selected companies — Procter & Gamble and Unilever.

The analysis would be conducted using the data from the financial statements and stock exchange official websites in order to estimate the intrinsic value of the stocks as well as other indicators commonly utilised for the relative stock valuations.

Keywords

Souhrn

Oceňování akcií je jedním z nejvýznamnějších nástrojů, jehož cílem je pomoci investorům při rozhodování o obchodování. Jedná se o jednu z hlavních technik, která umožňuje určit hodnotu akcií firmy pomocí konstrukce modelů, které implikují reálnou tržní hodnotu finančního nástroje v určitém časovém období (Pastor a Pietro, 2003). Důvodem, proč investoři oceňují akcie, je předpovídat potenciální ceny pro firmu nebo trh do okamžiku, kdy jsou ochotni své investice prodat nebo koupit.

Tato diplomová práce si kladla za cíl pokrýt téma běžných metod oceňování, které podnik používá k odhadu potenciální hodnoty akcií podniku. Příspěvek bude analyzovat absolutní i relativní modely v aplikaci na dvě vybrané společnosti — Procter & Gamble a Unilever.

Analýza by byla provedena s použitím údajů z finančních výkazů a oficiálních webových stránek burzy, aby bylo možné odhadnout vnitřní hodnotu akcií a také další ukazatele běžně používané pro relativní ocenění akcií.

Klíčová slova

Kmenové akcie, dividendy, vnitřní hodnota, metody oceňování, obchodování na burze, diskontní dividendový model, volný peněžní tok, poměr EV/EBITDA, P&G, Unilever

Table of contents

List of figures

List of tables

Abbreviations

bln	Billions
DCF	Discounted cash flow
DDM	Dividend discount model
DPS	Dividends per share
EV/EBITDA	Enterprise value to earnings before interest, taxes, depreciation, and amortisation ratio
EV/Gross Profit	Enterprise value to gross profit
EV/Revenue	Enterprise value to revenue (sales) ratio
FCF	Free cash flow
FCFE	Free cash flow to equity
GGM	Gordon growth model
mln	Million
P/B	Price (market) to book ratio
P/E	Price to earnings ratio
P/NAV	Price to net asset value
P&G or PG	Procter & Gamble
UL	Unilever
USD	United States dollars

1. Introduction

Stock valuation is one of the most significant tools which aims to help investors in making decisions about trading. This is one of the major techniques that allows to determine the value of the stock of a firm by utilising construction of models, which implies the fair market value of a financial instrument at a certain period of time (Pastor and Pietro, 2003). The reason behind performing the stock valuation by the investors is to forecast potential prices either for a firm or market to the point of time when they are willing to sell or purchase their investments.

If investors are willing to outperform the market, understanding of how to value stocks is important. There are a number of the approaches that can be used to perform the stock evaluation which investors might choose depending on the specificities of company, sectors, stocks, etc (Pastor and Pietro, 2003). Some of them are simple, some of them are more complex and time-consuming. In reality, stock valuation is the theoretical value of company's shares, so none of the valuation techniques can portray the hundred-percent real picture of the market.

Hence, the aim of this thesis is to give an overview and examine the most frequently used valuation methods and to show when they are relevant to use.

2. Objectives and Methodology

2.1. Objectives and research questions

The main objective of this thesis is to give an overview of the stock valuation approaches and methods, discover the main purposes of them as well as to put those into practice. In order to gain a deeper knowledge in this topic, a comparison of **two** companies would be driven in particular.

As the primary objective, this paper is targeted to derive and examine the intrinsic values of the selected companies: Procter & Gamble and Unilever. Both companies represent consumer non-durables sector in the industry of package goods and cosmetics. They are also both publicly traded on the same stock exchange, which is NYSE.

Based on the results, this paper aims to perform the analysis in order to understand if the results obtained via different techniques would differ drastically or not, test the accuracy of absolute and relative stock valuation methods and conclude with discussion of output summarisation driving own conclusions. This analysis would allow the potential investors to understand whether the companies' stocks are likely to be recommended for the future investments or not.

The major aim to answer the below research questions:

1. Given company's stock value per share higher for Procter & Gamble, will the intrinsic value be stronger than Unilever's?
2. Based on the results of absolute and relative stock valuation methods, are both companies attractive to be invested in the next projected year?
3. Did pandemics affect the companies' financial situation, hence, has an affect on intrinsic value of the companies?

2.2. Methodology

To answer the research questions, it is important to perform an empirical research, give a theoretical background of the stock valuation and its methods. All this would be conducted with the aid of quantitative and qualitative methods of research with the help of secondary collection of the data. All evidence would be mainly supported by official sources of information such as financial statements, stock exchange, and scientific articles, broadly explained with the help of the visualisation (tables, graphs, charts, etc.) and commented on.

This thesis contains of two huge chapters: theory and practice. The basis of the primary part is theory which describes the approaches, types, methods and following models of business valuation. It is a great fundamental support for the practical part of the work, which covers the main concept of the thesis — analysis, valuation and comparison of two publicly traded companies — Procter & Gamble and Unilever. To achieve this goal, the author will be conducting the economic methods of finding the intrinsic value of both of the businesses (FCF-based, EPS-based and projected FCF) using one-stage dividend discount model and two-stage dividend discount model for absolute stock valuation; and relative stock valuation methods to find the commonly used and very important ratios for the firms, such as: P/E ratio, P/NAV ratio, EV/Revenue, EV/Gross Profit, EV/EBITDA, and P/B.

The raw data for all the calculations would be got from the financial statements from the official websites of these companies, stock exchange websites as NYSE, Nasdaq, and Yahoo! Finance data sources will be used to get the background about stocks trading and dividend share of their companies.

The next step would be comparison and analysis of results obtained — it would help to analyse which company is likely to be invested in and which one is less preferable.

Similarly, compare the results of the absolute stock valuation method versus relative one and understand the benefits and drawbacks of both valuation methods.

In conclusion, the paper contains a research and analysis summary, author's conclusion and criticism. Moreover, due to this work, the author gained a very valuable experience in stock valuations, thus, is able to identify the best practices based on the purpose of valuation and data availability.

3. Theoretical Part

3.1. Valuation models

Stock valuation is the process of determining the current (or projected) worth of a stock at a given time period.

3.1.1. Major understanding

Robinson et al. (2010) describes the concept of valuation models as assessment of value of the assets based on the variables which associated with the projected investment returns for comparing them with similar assets or alternatively, estimating chances for liquidation procedures.

Approaches for valuation are highly dependent on whether the firm is at the stage of liquidation or currently functioning. If the business is at the stage of liquidation, the valuation approach estimates the equity of the firm by measuring the net earnings which that the firm gets in case it decides to liquidate all assets and sorts out all liabilities (Petersen and Plenborg, 2012).

3.1.2.Valuing a business or an asset

Any business or company valuation have three approaches in application: cost, market and income approaches (Godda and Moser, 2011). In order to have a better picture of the company valuation, owners might consider all approaches or a combination of them based on the aim of the valuation and data availability.

3.1.2.1.Cost approach

Cost approach is also known as asset-based. This approach gives a perspective on how much would it cost to remove, re-build or re-place an asset (Godda and Moser, 2011). The asset-based method is helpful while valuing the real estate: building construction, current commercial property, equipment or any other properties. This approach is also referred as finding the 'control level' value, since developing the value from the combined fair market value of the net assets of a firm allows the owner to decide whether to sell or even liquidate the assets, less any respective liabilities (Fuller and Hsia, 1984). To decide on which terms the business will continue its operation, real estate and equipment might require separate appraisals to have a better picture.

Unfortunately, the cost approach is likely to neglect the values of the intangible assets of the company which include brand name, reputation of the company, relationships with the customers and skilled workforce. As the matter of the above mentioned facts, this value is considered as the lowest value for all three approaches and it is often used to set or estimate the floor value of the business.

3.1.2.2.Market approach

This approach is based on value of the firm on selling price of similar businesses or comparable business interests. Market approach is very useful while valuing the publicly

traded firms or considerably large private businesses as the data necessary for comparison is easily and widely available (Drake, Fabozzi and Larsen, 2021).

The market approach implies the identification of the most recent commercial transactions (from revenue or other profit measurement) which involve the similar public or private firms, hence, deriving the pricing multiples. There are various ways available, however, the two major ones are: (1) guideline public company method and (2) merger and acquisition method (Drake, Fabozzi and Larsen, 2021).

(1) Guideline public company method

This method takes into account the market price of the comparable or relative stocks of the public company. In this case, the pricing multiple is derived by dividing of price of the comparable stock by economic variable, e.g. operating cash flow of the business to net income.

(2) Merger and acquisition method (M&A)

This technique develops the pricing multiples on the basis of the transactions involving the whole comparable businesses or subsidiaries that have been sold. Then, the values are applied to the firm's economic variables, e.g. operating cash flow of the company or net income.

All in all, in accordance with the market approach, the level of the derived value is highly dependent on if the firm's economic variables were adjusted for the discretionary costs, e.g. related expenses.

3.1.2.3.Income approach

This methodology can be used when there is no available market data as an income approach turns the expected economic benefits in the future into the present value. Income

approach determines the value of the company relying on the ability of the business to generate future income (Godda and Moser, 2011). Hence, it mostly suits for already established and profitable existing companies.

In case if the future profit is stable, then the capitalisation method of benefits can be utilised. The capitalisation of the earnings of the firm is applied only to the fixed growth ability of the company and includes capitalisation of the estimated future economic benefits with the certain rate of return. On the contrary, if there is some expected variability, experts use the discounted future benefits method, or also referred as discounted cash flow method (Drabikova and Svetlik, 2018). In addition to the capitalisation model factors, discounted future method involves two additional stages: (1) forecasting period, e.g. 3-5 years and (2) termination period, i.e. the end of the discrete period. All future cash flows are discounted at the later stage to the present value (Basci, 2019).

Similarly to the market approach, the income method derives a 'control' value or minority value relying on whether the period-based or normalisation adjustments have been applied to the projected economic benefits. In both methods it is critical to adjust the future earnings to understand the amount of the net income which potential consumer will have.

Once the projected profit flow is determined, a discount rate is applied to it (Murle and Schmitt, 2009). Due to the fact that this discount rate might lead to the drastic changes in the value, it should be carefully developed and applied by the experts.

To summarise of all that have been stated before, there is no standardised approach or formula that can be applied for any business at any terms, thus, this is very crucial for the owners to have an understanding of these methods to choose the correct one to evaluate the future prospects by the means of the possible options.

3.1.3.Categories

Stock valuation methods can be divided into two huge categories: absolute methods and relative methods (Bondi, Radojicic and Rheinlander, 2020).

3.1.3.1.Absolute stock valuation

This type of stock valuation deals with the firm's fundamental information. This method implies an analysis of different financial data which can be taken from the financial statements of the business. Majority of absolute techniques primarily take into account the cash flows of a firm, as well as dividends and growth rates (Kaen, 2003). The well-known methods of this nature include the dividend discount model and the discounted free cash flow models, and more models would be covered below.

3.1.3.1.1.Dividend Discount Model (DDM)

The DDM is considered to be one of the basic methods of the absolute stock valuation. Any firm is entitled to produce goods or services which are offered aiming at gaining profits. Profits widely affect the stock prices of the firm. The dividend discount model assumes that the dividends of the firm show the cash flow of the firm to the owners, or shareholders (Mugosa and Popovic, 2015). Hence, being the shareholders of the business to be solely entitled to their dividends. In basic terms, this method is believed that the intrinsic value of the business stock price is equal to the present value of the projected dividends of the business. This way, the DDM sees that the selling price of a share is a negative cash flow, whereas dividends are positive flows. According to the projected dividends, the owner decides if the investment is worth at a current market situation. However, this model is only applicable in case if the firm is stably and regularly distributes its dividends.

3.1.3.1.1.1.Zero growth rate model

This type of DDM speaks for itself. It is believed that all dividends which are paid by stock are kept at the one level and remain same for an infinite period of time. In other words, there is no growth at any period of time. The price of the stock will be equal to the proportion of the annual value of dividends to the rate of return (Kumar, 2016).

Since the business owners assume there will be no incline in the dividends payout, the basic formula in this case for intrinsic value of the stock estimation would be:

Formula 1

$$P = \frac{D_0}{k} \quad , \text{where}$$

P - intrinsic value of a stock

D_0 - current annual value of dividend per share

k - required annual rate of return

However, this does not seem to be a very realistic scenario as all companies have their ups and downs and it is complicated to imagine any company having a super stable rate throughout the years. Thus, this is not the model we are looking for in this thesis.

3.1.3.1.1.2.Constant (Gordon) growth model

The constant growth rate model is also pretty much straightforward in its terms. The idea of it that the given dividends steadily grow every year with the fixed percentage, meaning no volatility, nevertheless, the actual dividends expense incline each following year (Gordon and Shapiro, 1956). This kind of model is also known as the Gordon Growth Model as being named based on Gordon's name.

Relying on Gordon's (1962) work, this model better works for the well-established businesses assuming that they have already experienced an increase in the dividends over the previous years. A standardised stable growth formula is as follows:

Formula 2

$$P = \frac{D_0\,(1 + g)}{k - g} = \frac{D_1}{k - g} \quad , \text{where}$$

P - intrinsic value of a stock

D_0 - current annual value of dividend per share

D_1 - expected dividend

g - dividend growth rate

k - required annual rate of return

Nevertheless, one of the major issues of this model is to assure the company growth to be stable in the future, which might be complicated to determine for some at the moment of estimation. In addition to that, Bodie, Kane and Marcus (2014) describe limitation to this model in their work: one of the crucial facts that is required to be take into account is that the growth should not exceed the rate of return.

Otherwise if dividends happen to increase in value faster than the annual rate of return, the stock value would be reaching infinity (Bodie et al., 2014). To summarise an overview, here is how the Gordon Growth Model would behave in different scenarios:

$k \leq g$ — for the given **Formula 2**, this scenario does not make any sense, hence, is not valid

$k = g$ — dividends raise at the same rate at which they are exposed to the discounting results to the infinity value of the stock

$k > g$ — dividends increase much faster than the rate they are discounted, leads to the similar situation that the value of stock approximates infinity

3.1.3.1.1.3. Variable (non-constant) growth rate model

The variable growth model is often referred as non-constant or multistage DDM. The main difference is that the model of this kind is closer to the real world. It assumes that a business has rises and downfalls in all dividends, hence, taking into account that they are not stable and experience various phases: (1) growth, (2) transition and (3) mature (Sharpe, Alexander and Bailey, 1999).

(1) Growth

At the growth phase, dividend payout ratios are low, businesses usually experience negative Free Cash Flow to Equity (FCFE) as they tend to invest more for their expansion (Sharpe et al., 1999). At this stage, firms enjoy supernormal growth, in other words, the opportunities of rapidly growing markets with extremely promising returns on equity.

Once businesses get more mature or have abnormal growth that tend to attract more competitors, earning growth rates diminish in the end.

(2) Transition

Transition phase is distinct by that the earning growth retards once competition starts to put more tension on prices and margin of profit, or in case of sales expansion slows due to the market saturation. Earnings growth rates at this stage are above average, however, decreasing toward the growth rate of the industry. Unlikely to growth phase, at the transition stage firms have decreases in capital requirements, frequently leading to positive Free

Cash Flow (FCF) and inclining current or future payout ratios for businesses which did not pay the dividends in the past (Sharpe et al., 1999).

(3) Mature

This is the phase at which businesses reach equilibrium when opportunities for investment gain in average the same level of cost of capital. Besides, at the mature stage return on equity reaches required level, and at the same time the dividend payout ratio, earning growth, along with the mentioned ratio get stabilised at the level which can be supported further in the long run (Sharpe et al., 1999).

Any firm is able to trigger the growth by changing strategy and the structure of the business. One of the factors that can completely change the picture of company growth is technological progress. The technological advancements can drastically either worsen or better off the situation.

Non-constant model also assumes that the growth rate might be completely different each single year. As an example of variable growth model, two types would be discussed: (1) two-stage DDM and (2) three-stage DDM.

(1) Two-stage DDM

A two-stage model developed by Fuller and Hsia (1984) is very positive in terms of growth (also known as H-model). It allows to do the valuation of the equity of a business in two stages, considering that there is a high growth and a successive period of the steady growth. There are few major assumptions for this DDM. First of all, the higher rate of growth is anticipated in the 1st period (Kumar, 2016). Secondly, this rate is likely to

fall at the end go the 1st period to a steady rate. Lastly, the payout ratio of the dividend[1] corresponds to the anticipated growth rate.

Formula 3

$$P_0 = \sum_{t=1}^{n} \frac{D_0(1 + g_s)^t}{(1 + k)^t} + \frac{1}{(1 + k)^n} \times \frac{D_{n+1}}{k - g_c} \quad , \text{where}$$

$$D_{n+1} = D_0(1 + g_s)^n(1 + g_c)$$

P_0 - intrinsic value of a stock

D_0 - value of dividend for previous period

D_{n+1} - value of dividend for next period

g_c - dividend normal growth rate

g_s - dividend above normal growth rate

n - number of years, period for above normal growth rate

t - time period

k - required annual rate of return

(2) Three-stage DDM

This a complementation of the two-stage model assuming a slower change in the growth rate. Thus, the dividend potentially goes through the three stages as follows: first, a current dividend has a constant growth, or even there is no dividend at all; second, there is a slight decrease in the dividend; and last, the rate stabilises again and there is a constant growth.

---

[1] *Dividend payout ratio (DPR)* is the term used for the total amount of paid dividends to the net income of the business.

Formula 4

$$P_0 = \frac{D_1}{(k+1)^1} + \frac{D_2}{(k+1)^2} + \frac{D_3}{(k+1)^3} + \ldots + \frac{D_n}{(k+1)^n} + \frac{D_n(1+g_2) + D_n H(g_1 - g_2)}{\frac{k - g_2}{(k+1)^n}}$$

where:

P_0 - intrinsic value of a stock

$D_{1,2,3,\ldots,n}$ - value of dividend for next year

g_1 - dividend normal growth rate

g_2 - stable dividend growth rate

n - number of years, period for which initial growth is remaining

H - one-half of duration of transactional period

k - projected rate of return

3.1.3.1.2.Discounted Free Cash Flow Models

This is the second main model of the absolute stock valuation. The major difference between the DDM and discounted free cash flow model is that the latter one takes into account a border scope of the cash flows (Kumar, 2016). Such method is likely to look into the total accrual of the cash flow within the business, which eliminates transactions to outside parties at the latter stages.

Therefore, the leftover is the final free cash flow to the business. In this model, the prognosis is made for several years and afterwards discounts in order to make the valuation of the business.

Formula 5

$$DCF = \frac{CF_t}{(1+r)^t} \quad , \text{where}$$

DCF - discounted cash flow

CF_t - cash flow amount (or equivalent) gained or expensed in period t

r - given discount rate according to the cash flow risks

t - time period, or the timeframe of the valued asset

3.1.3.1.3.Discounted Residual Income Models

This model implies a border scope in comparison to the previous two models, since discounted residual income models take into consideration all accrued cash flows of the business after the repayment to all the parties outside the firm.

Besides, unlikely to the previous models, the payments to the bondholders and other shareholders are neither eliminated from the total (Stancu et al., 2017). Finally, similarly to the previous models, the residual cash flow is discounted in order to proceed with the business valuation.

Formula 6

$$V_e = OE_0 + \frac{NI_1 - r_e \times OE_0}{1 + r_e} + \frac{NI_2 - r_e \times OE_1}{(1 + r_e)^2} + \ldots + \frac{NI_t - r_e \times OE_{t-1}}{(1 + r_e)^t} + \frac{TV_t}{(1 + r_e)^t},$$

where:

V_e - value of the equity

OE_0 - equity from the current balance sheet

$OE_{1,\ldots,t}$ - projected equity

$NI_{1,2,\ldots,t}$ - projected net income

r_e - cost of equity capital

TV_t - termination value

3.1.3.1.4.Discounted Asset Model

Comparing discounted asset model to the absolute valuation methods discussed earlier, this model is slightly distinct. The major difference is that this method is based on conducting the valuation on deriving the market value of the existing assets of a business.

The model assumes estimation of each asset's the present value, then all values are summed up to get the final value of the whole business (Pinto et al., 2010). A main disadvantage of such method is that it does not take into consideration any synergies between assets. Therefore, discounted asset model is can only be conducted and mostly used for commodity businesses.

To summarise the essence of the models for the absolute stock valuation, there are four options of how the cash flow can be discounted. The first three methods (dividend discount models, discounted free cash flow models, and discounted residual income models) are somehow similar to each other except the latter one (discounted asset models). The major difference is in the nature of the flows, which mean that they cover various risks. Hence, it is very important and necessary to understand which model should be applied in order to make a good fitting valuation.

3.1.3.2.Relative stock valuation

Relative stock valuation method is the type which drives the comparison of the investment with the similar businesses. The nature of this method depends on the analysis of the key financial ratios of the comparable businesses and development of the same ratio for the owning business. The relative stock valuation models do not evaluate the business or an asset on the basis of intrinsic value, however, those assume that the market can behave differently in relation to the given stock.

Therefore, approaches that are applicable in the relative stock valuation models imply figuring out the benchmark valuation (Sharma and Prashar, 2013). A couple of examples the relative stock valuation methods would be covered in the below paragraphs: (1) comparable company analysis and (2) precedent transaction analysis.

3.1.3.2.1.Comparable Company Analysis

This valuation methodology is investigating the ratios of analogous businesses or business operations and analyses them to apply the value to another firm. The idea of this analysis is to drive a comparison of the existing share price of a firm relatively to any financial metric which can be used to derive the necessary ratio for valuation (Meitner, 2006). Then, this ratio is used to value the business.

Since the comparable company analysis is relative type of the stick valuation, there is no specific formula. Nevertheless, the main ratios for comparative analysis might include but not limited to: Price Earnings ratio (P/E ratio), Price to Net Asset Value ratio (P/NAV), Enterprise Value to Revenue Multiple (EV/Revenue), Enterprise Value to Gross Profit ratio (EV/Gross Profit), Enterprise Value to Earnings Before Interest, Taxes, Depreciation and Amortisation ratio (EV/EBITDA), and Market to Book ratio (P/B).

Price per share

The term stock price is referred to the current price of the share of the stock in a particular company, which is traded in a special exchange market. Once the share is issued for any publicly traded firm, each share gets its value, which is highly dependent on the row of the different factors — external and internal (Vasiljeva, 2017).

To describe external factors we might relate the price per share fluctuation with wars, pandemics, changes in economics and politics, issues in industry, environmental problems, etc. On the other hand, internal factors might include management, processes, production, supply changes, media, etc. All these factors might contribute to the share price or alternatively, make the situation even worse (Vasiljeva, 2017). Here are the two ratios that I will be using in the practical part with the current stock price in relation to the other indicator: P/E and P/NAV.

- **Price to Earnings (P/E) ratio**

The P/E ratio demonstrates the relationship between price of the stock of a firm and its earnings per share. This is basically the ratio that allows the analyst to get the value of the price which an investor might pay for one unit of earnings (Doblas, Lagaras and Enriquez, 2020). There are multiple ways of how to calculate the P/E ratio: despite the simple form of dividing price of share by the earnings per share, we can use the relationship between market capitalisation and total net earnings, or alternatively, dividend payout ratio divided by rate of return minus growth rate (see Formula 7).

Formula 7

$$P/E = \frac{Price\ of\ share}{Earnings\ per\ Share} = \frac{Market\ Capitalisation}{Total\ Net\ Earnings} = \frac{Dividend\ Payout\ Ratio}{k - g}$$

The value of the P/E ratio for a company is easy to get, especially for publicly traded ones as all information is available in open sources. However, on the basis of the time frame and purpose of its calculations, the outcome of the calculations might vary. One of the reasons why this takes place is that P/E ratio has two kinds: (1) trailing and (2) forward price to earnings (Doblas et al., 2020).

The first one takes into consideration the current market price versus the last year earnings per quarter, whereas the other one is built based on the current market price versus the dividend of the following year (Iltas, Arslan and Kayhan, 2017). Both approaches are correct, however the difference between the two would be that the trailing P/E is typically higher than forward P/E.

- **Price to Net Asset Value (P/NAV) ratio**

The Price to Net Asset Value is the ratio which demonstrates the firm's share price to the value of the net assets per share (Liow and Yeo, 2018). This ratio also shows the people are ready to invest per one share of net assets.

Formula 8

$$P/NAV = \frac{Price\ per\ Share}{Net\ Asset\ Value} = \frac{Price\ per\ Share}{\frac{Value\ of\ Assets - Value\ of\ Liabilities}{Total\ Shares\ Outstanding}}$$

P/NAV can be found by dividing price per share of the company by the net asset value (see Formula 8). This ratio is very dependent on the current conditions of the market as well as development expectations. Good P/E ratio usually tends to be lower than 1.

Enterprise Value (EV)

In a very simple terms, this is a total value of the business which is viewed through the prism of financing it. As being a concept of the whole business price, its formula includes the sum of market capitalisation and debt (rarely also preferred shares) less cash.

So, basically the result of this ratio will show the price for the business as a whole if you happen to sell it.

There are three ratios in particular which include the enterprise value: EV/Revenue, EV/Gross Profit, EV/EBITDA. Those will be used in the practical part of my thesis for relative stock valuation analysis.

- **EV/Revenue**

Enterprise value to revenue ratio, or also known as enterprise value to sales ratio, is the indicator that allows the people to determine the fairness of the stock price (see Formula 9). It is quite often utilised for valuation of the firm for acquisitions (Lavely, 1975).

Formula 9

$$EV/Revenue = \frac{Enterprise\ Value}{Revenue} = \frac{Equity\ Value + Debt + Preferred\ Shares - Cash\ and\ Equivalents}{Total\ Yearly\ Revenue}$$

The formula is also very simple and straightforward as the idea of this formula lies on the name of ratio (see Formula 9). In this case, the higher the result of this equation, the better for the investors as it shows that the firm is able to generate more revenue in the projected future days (Lavely, 1975).

- **EV/Gross Profit**

Enterprise value to revenue ratio, or also known as enterprise value to sales ratio, is the indicator that allows the people to determine the fairness of the stock price (see Formula 10).

Formula 10

$$EV/GrossProfit = \frac{Enterprise\ Value}{Gross\ Profit} = \frac{Equity\ Value + Debt + Preferred\ Shares - Cash\ and\ Equivalents}{Net\ Revenue - Cost\ of\ Goods\ Sold}$$

This ratio shows the size of the enterprise value that is generated for every dollar of gross profit gained (Lavely, 1975). Generally speaking, the lower the value of the ratio, the lower is the net worth of the firm. It is computed as a percentage of EV to the gross profit generated by the firm.

- **EV/EBITDA**

The EV/EBITDA ratio is frequently used as a valuation metric to draw a comparison of the relative value of two or more companies. This ratio compares the whole value of the business relative to the EBITDA that is gained per annum (Vidal-Garcia and Ribal, 2019). It can disclose the frequency of the EBITDA the potential investors have to pay in case of they happen to evaluate and purchase the entire business (Iltas et al., 2017). The formula is very simple as relationship between enterprise value and the EBITDA of the company (see Formula 11).

Formula 11

$$EV/EBITDA = \frac{Enterprise\ Value}{EBITDA} = \frac{Equity\ Value + Debt + Preferred\ Shares - Cash\ and\ Equivalents}{Revenue - Operating\ Expenses - Salaries - Rent - Amortisation - Depreciation}$$

- **P/B**

Price to book ratio, or market to book ratio, is used to find the relationship of the market capitalisation versus the total book value (Doblas et al., 2020). The market value, in other words, is an outstanding shares' stock price, whereas the book value is the overall amount which will be left in case if the firm eliminates its

assets and reimburses all liabilities . The Formula 12 shows the main idea of the P/B ratio.

Formula 12

$$M/B \text{ or } P/B = \frac{Market\ Capitalisation}{Total\ Book\ Value} = \frac{Price\ of\ Share}{Total\ Assets - Total\ Liabilities}$$

The outcome of the ratio is interpreted as follows: the ratio is considered to be low when the result is less than 1, which indicates that the stock has very bad investment, hence, stock is under-valued (Bustani, Kurniaty and Widyanti, 2021). The lower rate also associated with problems within the company. It can also tell if the firm goes bankrupt, then the owner will have pay too much for what is left for.

On the contrary, when the ratio shows the number above 1, the stock is in a good shape, which means that the stock of the company is over-valued (Bustani et al., 2021). The best practice of P/B ratio is to compare the businesses within the same industry.

3.1.3.2.2.Precedent Transaction Analysis

Precedent transactions is the method used for valuing businesses as a whole based on the historical transactions for purchasing or selling subsidiaries or mergers and acquisitions (Zajac and Olsen, 1993). Such transactions demonstrate the amount of investment a potential investor was willing to pay for the whole firm.

This analysis similarly implies a range of ratios mentioned in comparable company analysis. There are few steps can be taken in order to perform the precedent transaction analysis:

(1) Defining and searching for respective transactions in the recent history

At the step, the owner of the business has to take into consideration not only financial metrics, but also such factors as industry, type of company, geographical factor, size of the firm, buyer specificities, etc.

(2) Analyse and filter the selected transactions

Once the relevant data is gathered, it should be analysed and filtered correspondingly to the current situation.

(3) Selecting valuation multiples for further analysis

The next step is to determine the list of the ratios. The most frequently used ratios for this type of analysis include: EV/EBITDA and EV/Revenue (Zajac and Olsen, 1993).

(4) Apply the selected valuation multiples to the business

(5) Use the Football field chart to graph the results obtained

Football field chart is the kind of way to illustrate a combination of outcomes for the main valuation methods: comparable analysis, precedent transactions analysis, DCF analysis, ability-to-pay analysis and 52-week hi/lo (in case if the firm is public).

To summarise, it is quite hard to find good-fitting competitors to perform the relative stock valuation. It is important to take into account lots of factors and evaluate corresponding multiples. This is why the two companies were chosen which are very close to each other by the range of the offered and produced products worldwide. Procter & Gamble and Unilever would be discussed in the next chapter of this thesis.

4.   Practical Part

4.1. Brief overview

The main idea of this chapter to apply the above mentioned models to the selected companies. For this thesis, I chose businesses from the industry of package goods and cosmetics, which relates to consumer non-durables economic sector. Those companies are: Procter & Gamble (hereinafter, P&G) and Unilever. The reason behind why those companies were chosen for the stock valuation analysis is because they have lots of in common, also they are serving the same industry and publicly traded on the same stock exchange market — NYSE.

The above mentioned companies would be analysed using both absolute and creative stock valuation methods in order to get the picture if they are worth investing or not.

4.1.1. Procter & Gamble [PG]

4.1.1.1. Historical background

The company Procter and Gamble Co. (or P&G) is a huge American multi-national corporation specialising on consumer goods. The company was founded by William Procter and James Gamble in 1837, the headquarters is currently located in Ohio. William and James met each other when they got married with sisters Norris. The father Mr. Norris convinced James and William to become the business partners and create a firm. As a result, they started their business in early 1830s with soap and candle production (Procter & Gamble, 2021).

Their history of success did not take long — by late 1850s their sales already reached one million dollars, number of employees — 80, and besides that, P&G won the

contractual agreements to supply the Union Army with soaps and candles throughout the American Civil War (Dyer, Dalzell and Olegario, 2004).

In 1880s, the company introduced a new product to the hygiene market — multipurpose cheap soap that does not drawn in the water (Horowitz, 2011). The floating on the surface soap was called Ivory. Since then, the firm started to grow very promptly, P&G built more and more factories all around the United States as the demand in the hygiene products raised extremely fast. In the year of 1890, the firm stopped being private and officially became public. In addition to that, expanding the number of the factories P&G started to diversify the range of the products offered. By 1921, the company became a large international corporation with a variety of toiletries, soap products, and even food (Horowitz, 2011).

The first step to internationalisation of the company started in 1930, when they started to work with an acquisition Thomas Hedley Co., located in the UK (Horowitz, 2011). After this acquisition, the P&G introduced a number of new products to the market: laundry detergent called Tide (1946), shampoo Prell (1947), toothpaste Crest (1955), a range of toilet paper and paper tissues (1957), fabric softener and bleach (1960), Pampers diapers (1961), etc. Pampers diapers take a special place in the development of the company (Dyer et al., 2004). At that time, disposable diapers were not popular at all despite the fact that those were invented earlier, and already been manufactured and sold by the company Johnson & Johnson (Business Wire, 2018). However, P&G made a huge step up in this industry as they were able to introduce more convenient alternative to the market. However, the diapers were not very environmentally friendly, and the cost of the recycling was high. Only in 2018, the P&G came up with a new collection with alternate ingredient with a natural origin.

In 2005, the firm announced merger of another American brand producing safety razors – Gillette, which made the P&G to become the largest producer of the consumer goods, shifting the Unilever to the second place in this industry (Isidore, 2005). In 2009,

P&G also purchased an Irish business related to the drug prescriptions. And, in 2012, P&G decided to quit the food industry by selling the Pringles brand to Kellogg's. Also, due to the fact that P&G decided to quit about 100 brands and be more focused on 65 left which made the majority of the firm's profit; pet food business was sold to Mars Inc. and Spectrum Brands in 2014 in all countries worldwide (Business Wire, 2014; Wahba, 2014), most of the cosmetics brands were transferred to Coty in 2016, also that year they sold Duracell through the share exchange market. The latest merger happened in 2018, when P&G finished the acquisition with Merck Group (Underwood, 2018).

Up until today, the firm widely specialises in healthcare and hygiene-related products for personal use and accounts an annual revenue of 76.120 billion US dollars in 2020 (Procter & Gamble, 2021a).

4.1.1.2.PG stocks

The below graph demonstrates the monthly stock price fluctuations of Procter & Gamble for the period from 2011 to 2021 based on NYSE data (see Figure 1). The lowest price per share reached 61.25 US dollars per share encountered in June 2012, the highest one spotted this year by month-end (November 2021) of 148.66 US dollars (NYSE, 2021a).

The period of drop and slow growth also fell to the period of wide merging, acquiring, and selling shares from 2014 to 2018, which made the price of stocks to be quite unstable. However, the decrease in 2020 is associated with the emergence of pandemics. The current stock price by November 2021 is 148.66 US dollars per share (Procter & Gamble, 2021a).

Figure 1. Line chart of P&G monthly stock price fluctuations (2011-2021), US dollars per share
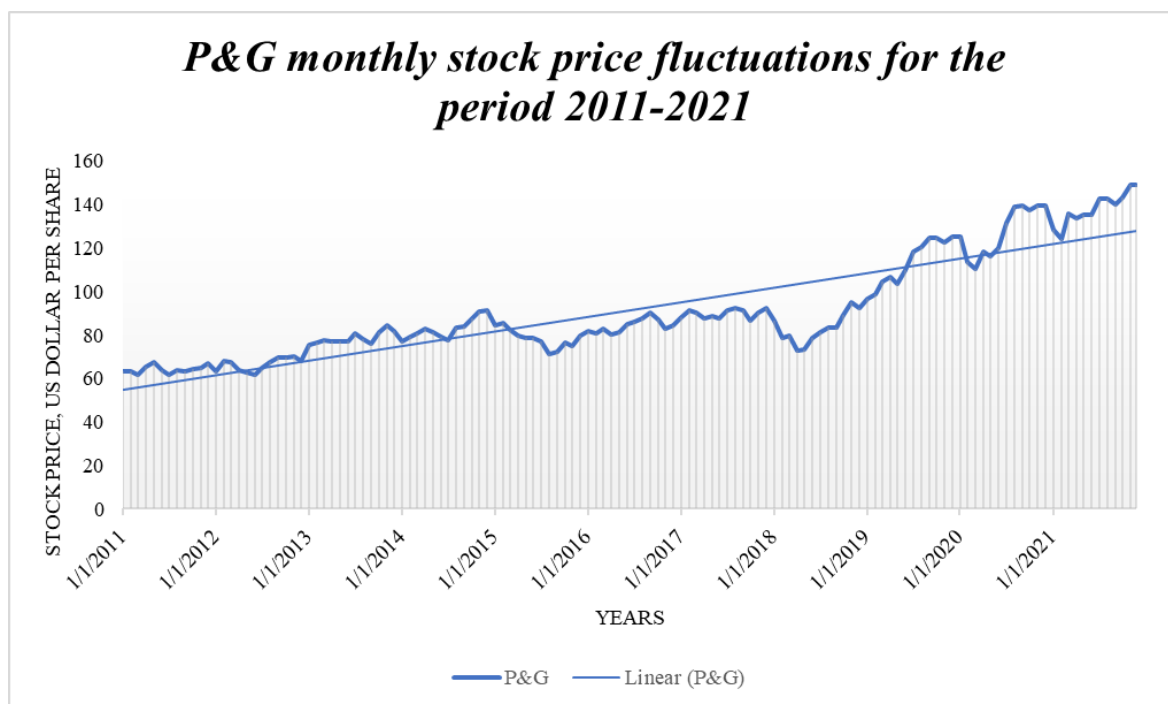
Source: Author's own processing based on NYSE, 2021a.

4.1.2. Unilever [UL]

4.1.2.1. Historical background

Unilever is also a worldwide multi-national company which is based in England. Similarly to P&G, Unilever specialises in the range of consumer goods: from personal care and hygiene up to the food industry. Besides, originally one of the owners of the company also was specialising in the soap-making. The company called Unilever was founded in 1929 due to the merger of two companies Naamloze Vennootschap Margarine Unie (or Margarine Union Ltd, founded in 1927, the Netherlands) and Lever Brothers (established in 1884, United Kingdom) (Unilever, 2021). Despite the fact of that the firm was estab-lished recently relatively to P&G, it was able to gain the first place in the hygiene goods production.

In 1930s, Unilever also expanded their business to African countries (Unilever, n.d.). At the same stage of their development in early 1930s, the Unilever claimed to be publicly traded. Later, the company introduced the acquisition with T.J. Lipton (1943) and Pepsodent (1944). In 1957, took the complete ownership of the Frosted Foods, which earlier they were owning only a part of it.

In mid-1960s, the Unilever was forced to expand the variety of the products offered to keep going in line with Procter & Gamble. Due to the number of mergers, by the end of 1970s, Unilever was able to own at least 30% of the Western European market in ice-cream production (Jones and Miskell, 2007). In the early 1980s, the company became more focused on the consumer package goods, which also gave the roots to acquire more of the tea sector with Brooke Bond (1984) and cosmetics and skin care (1986). However, Unilever decided to quit some of the brands from the chemicals industry in 1997 (Jones and Miskell, 2007).

In the early 2000s, the company was going through the number of re-brandings. In 2001, the firm decided to split into two huge divisional sectors: (1) food industry and (2) home and personal care (CNN, 2000). In the years between 2011-2020 Unilever managed to acquire Talenti Gelato & Sorbetto and Camay (2014), Kate Somerville Skincare LLC and REN (2015), Blueair, Seventh Generation Inc. and Living Proof Inc. (2016) and number of ice-cream mergers (Financial Times, 2017). In 2017, Unilever decided to sell one of the huge sectors of their specialisation of margarine and spreads (Upfield, 2017).

At the start of the pandemics, the firm announced to combat against the worldwide COVID pandemics and contributed over 100 million euro by donating sanitisers, soaps and food (Reuters, 2020). In 2020, Unilever's revenue accounted around 50.7 billion euros per annum.

4.1.2.2. UL stocks

The Unilever's monthly stock price fluctuations for the period from 2011 to 2021 do not seem either to be very stable (see Figure 2). The lowest stock price rate was at the minimum rate of 29.01 US dollars per share in January 2011. Surprisingly, the highest value of 63.18 US dollars per share come to August 2019 (NYSE, 2021b).

Figure 2. Line chart of Unilever monthly stock price fluctuations (2011-2021), US dollars per share
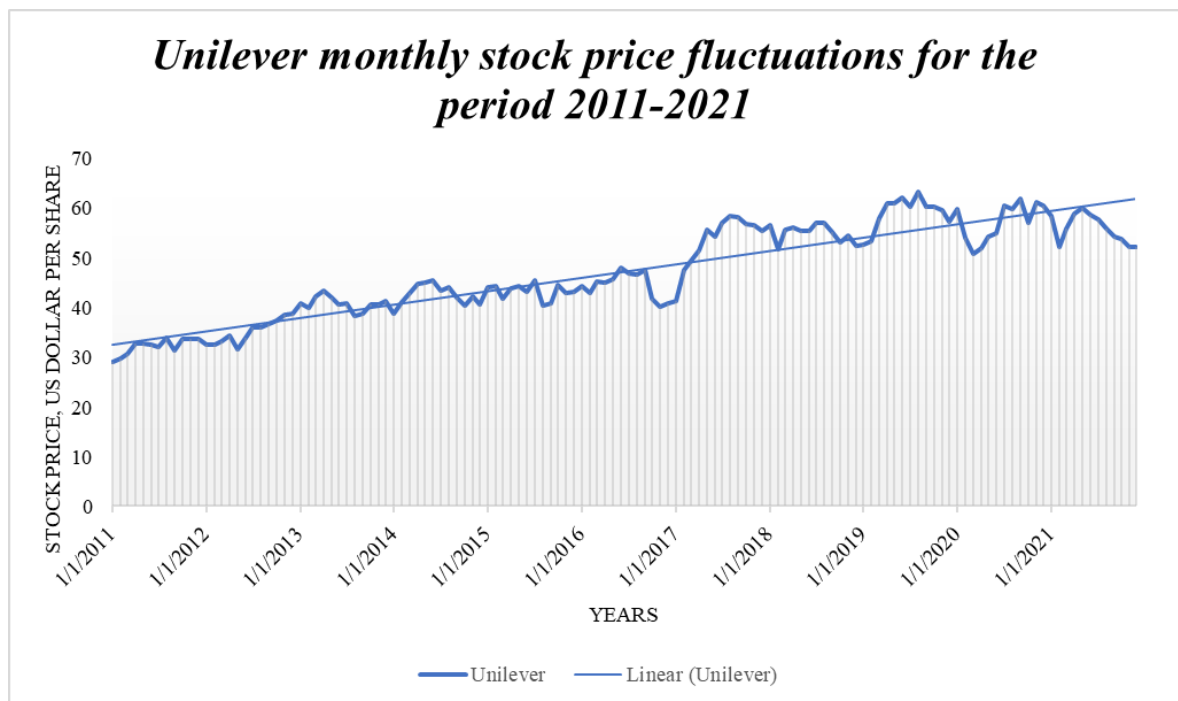
Source: Author's own processing based on NYSE, 2021b.

A significant drop is encountered in the year of 2017 because as it was said before, the company sold the part of butter, margarine and spread manufacturing, which accounted one of the biggest specialisations.

Based on the official data, the current stock price as of November 2021 is 52.10 US dollars per share (NYSE, 2021b).

4.2. Valuation and analysis

4.2.1. Absolute stock valuation

4.2.1.1. Input data

This part of the thesis is concentrated on the main aim is to compare the intrinsic values of the both companies. In order to estimate the intrinsic value using DDM, we have to determine a range of the input data. For this purpose, I gathered the data from the different official statistical sources for P&G and Unilever for the past 10 years. All the raw data is represented in the last part of the thesis — appendices. The data has been processed for further proceedings (see Table 1 and Table 2).

Table 1. Procter & Gamble input data for further processing (2011-2021)

Procter & Gamble							
Years	FCF (billions)	FCF growth rate	Total shareholder's equity (million USD)	Annual Shares Outstanding (million shares)	Share price	FCF/share	Earnings per share
2021	$ 15,626.00	9%	$ 46,654.00	2,601	$ 148.66	$ 6.01	$ 5.50
2020	$ 14,360.00	17%	$ 46,878.00	2,626		$ 5.47	$ 4.96
2019	$ 12,289.00	8%	$ 47,579.00	2,540		$ 4.84	$ 1.43
2018	$ 11,419.00	15%	$ 52,883.00	2,657		$ 4.30	$ 3.67
2017	$ 9,940.00	-21%	$ 55,778.00	2,740		$ 3.63	$ 5.59
2016	$ 12,553.00	-18%	$ 57,983.00	2,844		$ 4.41	$ 3.69
2015	$ 15,370.00	44%	$ 63,050.00	2,884		$ 5.33	$ 2.44
2014	$ 10,687.00	-7%	$ 69,976.00	2,905		$ 3.68	$ 4.01
2013	$ 11,449.00	-6%	$ 68,709.00	2,931		$ 3.91	$ 3.86
2012	$ 12,213.00	19%	$ 64,035.00	2,941		$ 4.15	$ 3.66
2011	$ 10,249.00	-	$ 68,001.00	3,002		$ 3.41	$ 3.93
	$ 12,377.73	6%	$ 58,320.55	$ 2,788.27		$ 4.47	$ 3.89

Source: Author's own processing based on Macrotrends, 2021a, 2021b; Procter & Gamble, 2021a, 2021c.

The input data include such indicators as:

- ▪ Free cash flow (FCF) in billion US dollars
- ▪ Total shareholder's equity in million US dollars
- ▪ Annual shares outstanding in millions
- ▪ Earnings per share and the current stock price in US dollars

Table 2. Unilever input data for further processing (2011-2021)

				Unilever							
Years	FCF (billions)		FCF growth rate	Total shareholder's equity (million USD)		Annual Shares Outstanding (million shares)	Share price		FCF/share		Earnings per share
2021	$	9,672.07	2%	$	20,169.07	2,683	$ 52.10	$	3.61	$	2.83
2020	$	9,462.81	23%	$	19,773.60	2,630		$	3.60	$	2.42
2019	$	7,716.80	18%	$	15,552.32	2,627		$	2.94	$	2.40
2018	$	6,533.29	-1%	$	13,767.04	2,695		$	2.42	$	4.13
2017	$	6,588.52	10%	$	16,113.44	2,814		$	2.34	$	2.43
2016	$	5,976.75	-27%	$	19,017.60	2,854		$	2.09	$	2.01
2015	$	8,139.53	18%	$	18,011.84	2,854		$	2.85	$	1.91
2014	$	6,915.01	22%	$	15,974.56	2,883		$	2.40	$	2.08
2013	$	5,667.86	-8%	$	16,592.80	2,924		$	1.94	$	2.24
2012	$	6,190.00	28%	$	17,601.92	2,916		$	2.12	$	1.98
2011	$	4,844.16	-	$	16,711.52	2,908		$	1.67	$	1.93
	$	7,064.25	8%	$	17,207.79	$ 2,798.87		$	2.54	$	2.40

Source: Author's own processing based on Macrotrends, 2021c, 2021d; Unilever, 2021b.

The mentioned data is consolidated into columns and some extra calculations are performed primarily to reach the goal: free cash flow growth rate (present value less past value divided by the past value) and free cash flow per share free cash flow divided by the number of annual shares outstanding. The last highlighted row indicates the average of the input data.

4.2.1.2. Single-stage model

The Table 3 below represents the proceedings from estimating the single-stage model, also known as FCFF model. This is the typical valuation method, it uses such indicators as free cash flow of the firm and the weighted average cost of capital (or WACC) (Sharpe et al., 1999).

The tables below show the outcome of the FCFF and WACC calculations for both of the companies – Procter & Gamble and Unilever (Table 3 and Table 4). Here is the list of the fields which were calculated manually in Excel:

- ROE (or return on equity) derived from proportion of net income to equity
- Sustainable growth ratio derived from the proportion of discount rate to retention ratio
  - Earnings per share less dividends per share divided by dividends per share
- WACC in %
- FCFF in millions US dollars
- FCFF growth rate in %

The FCFF model helps to understand how much of the cash flow is still available after accounting and WACC (Sharpe et al., 1999). A good sign for the firm when the FCFF results in positive value.

Based on Tables 3 and 4, both firms have a positive FCFF, however, the last column which indicates the growth rate of FCFF shows also negative values. There is a number of factors that can cause the growth to go negative. First of all, the amount of expenses, investments, taxes, working capital vary from year to year. Secondly, both of the firms were selling and purchasing mergers and acquisitions, based on the structural change the stock price was also the subject to change. Finally, none of the companies are assured to have ups and downs, especially when it is about the external factors changes.

Even through the results of P&G seem to be stronger than Unilever's, the average growth rate of the FCFF for the past 10 years was accounted at the level of 4.98% for P&G and 3.83% for Unilever.

Table 3. Procter & Gamble implementation of single-stage model (2011-2021)

								Procter & Gamble					
Year	Discout rate [ROE] (%)	DPS (USD)		Sust growth rate (%)	WACC (%)	FCFF (mln USD)		FCFF growth rate (%)
2021	30%	$	0.85	25.4338	-	$	16,022.13	-
2020	27%	$	0.78	22.9490	8.94%	$	14,712.02	8.91%
2019	8%	$	0.74	3.6922	14.00%	$	12,185.38	20.74%
2018	18%	$	0.71	14.4645	18.64%	$	11,557.44	5.43%
2017	27%	$	0.68	23.7233	19.34%	$	9,773.59	18.25%
2016	18%	$	0.67	14.4824	28.57%	$	12,520.25	-21.94%
2015	11%	$	0.66	7.8497	48.10%	$	11,336.00	10.45%
2014	16%	$	0.63	13.7073	17.89%	$	10,709.27	5.85%
2013	16%	$	0.59	13.6396	10.23%	$	11,404.26	-6.09%
2012	16%	$	0.55	13.9209	9.60%	$	9,896.60	15.23%
2011	17%	$	0.51	14.7806	8.51%	$	10,639.69	-6.98%

Source: Author's own processing based on Macrotrends, 2021a, 2021b; Procter & Gamble, 2021a, 2021c.

Table 4. Unilever implementation of single-stage model (2011-2021)

								Unilever					
Year	Discout rate [ROE] (%)	DPS (USD)		Sust growth rate (%)	WACC (%)	FCFF (mln USD)		FCFF growth rate (%)
2021	-	$	0.50	-	-		-	-
2020	32%	$	0.46	26.1450	5.65%	$	12,234.00	-
2019	41%	$	0.45	32.9258	20.01%	$	12,358.72	-1.01%
2018	81%	$	0.45	71.7354	-64.53%	$	10,802.01	14.41%
2017	42%	$	0.39	35.7209	2.97%	$	11,354.20	-4.86%
2016	30%	$	0.35	24.9589	5.45%	$	11,638.61	-2.44%
2015	30%	$	0.33	25.0505	9.02%	$	11,895.03	-2.16%
2014	46%	$	0.38	37.5915	-2.15%	$	10,146.68	17.23%
2013	42%	$	0.36	35.4084	10.39%	$	10,437.54	-2.79%
2012	36%	$	0.27	31.2249	2.87%	$	11,003.45	-5.14%
2011	39%	$	0.26	33.3397	10.64%	$	9,074.58	21.26%

Source: Author's own processing based on Macrotrends, 2021c, 2021d; Unilever, 2021b.

4.2.1.3.Intrinsic value: DCF (FCF-based vs. EPS-based)

To perform the next step of absolute stock valuation for Unilever and P&G, we have to determine:

- Discount rate in %

- Growth rate of FCF, which was earlier highlighted in Table 1 and 2

- Based on the formula of this model the FCF growth rate is taken in percentages and varies between 5% to 20%. If the value for this indicator is below 5%, we take 5% and if the value is higher than 20%, we take 20%.
- Years of the growth stage
- Terminal growth rate (average growth rate of the company)
- Free cash flow per share
- Earnings per share

Table 5. Comparison of intrinsic values for P&G and Unilever (DCF / FCF-based method), 10 years

	P&G		Unilever	
Discount rate (d) (%)		9%		7%
Growth Rate of FCF (g1)		5%		5%
Years of Growth Stage (y1)		10		10
Terminal Growth Rate (g2)		4%		3%
Years of Terminal Growth (y2)		10		10
FCF/share	$	4.47	$	2.54
E/share	$	3.89	$	2.40
Intrinsic Value: DCF (FCF Based)		*2.460625831*		*4.735230832*
Margin of safety	$	(59.42)	$	(10.00)
x		0.962199313		0.981308411
y		0.951282966		0.962616822

Source: Author's own processing based on Macrotrends, 2021a, 2021b, 2021c, 2021d; Procter & Gamble, 2021a, 2021b; Unilever, 2021b.

The intrinsic value: DCF (free cash flow-based) value is derived in the table below. This method takes into account the historical data over the past 10 years as well as makes projection for the next 10 years. Table 5 demonstrates the intrinsic value of 2.46 for P&G and 4.74 for Unilever. It means that the P&G's stocks price can potentially grow by 2.46 within 10-year perspective, whereas Unilever's price per share might grow by 4.73 in 10 years.

Similarly to FCF-based method, the proceedings were implemented towards the earnings per share and the outcome is shared in Table 6 as follows:

Table 6. Comparison of intrinsic values for P&G and Unilever (DCF / EPS-based method), 10 years

	P&G	Unilever
Intrinsic Value: DCF (EPS Based)	2.819971411	4.851969311
Margin of safety	$ (51.72)	$ (9.74)

Source: Author's own processing based on Macrotrends, 2021a, 2021b, 2021c, 2021d; Procter & Gamble, 2021a, 2021b; Unilever, 2021b.

As we may see, the difference between the intrinsic value obtained via FCF-based method and intrinsic value derived from EPS-based method is very minimal. If in FCF-based method the value accounted 2.46 and 4.74, they reach almost the same level in EPS-based method accounting 2.82 and 4.85 respectively for PG and UL. Exactly the same way reflects the value of margin of safety, the indicator of loss in case of potential risks.

4.2.1.4. Intrinsic value: Projected FCF

To calculate the intrinsic value of the projected FCF, it is required to input the current data of total shareholder equity and the number of outstanding shares as of year 2021 and the current stock price as of November 2021 as well as given FCF average for the past 10 years. Therefore, the formula would look like as follows:

Formula 13

$$Intrinsic\ Value: Pr\ FCF = \frac{(G\ Mult \times FCF\ (10\ y\ avg) + Total\ SH\ Eqty \times 0.8)}{Shares\ Outstg\ (Diluted\ Avg)}, \quad \text{where}$$

Pr FCF - Projected FCF

G Mult - Growth Multiple

FCF - Free Cash Flow (10 year average)

Total SH Eqty - Total Stockholders Equity

Shares Outstg - Shares Outstanding (Diluted Average)

Table 7. Comparison of projected FCF intrinsic values for P&G and Unilever based on current stock prices

	P&G		Unilever	
Growth Multiple (%)		11.69		9
FCF (10 years average)	$	12,377.73	$	7,064.25
Total SH equity	$	46,654.00	$	20,169.07
Shares outstanding (mln)		2,601		2,683
Price per share	$	148.66	$	52.10
Intrinsic Value: Projected FCF	$	69.98	$	29.72
Price-to-Intrinsic-Value-Projected-FCF		2.124311293		1.753321337

Source: Author's own processing based on Macrotrends, 2021a, 2021b, 2021c, 2021d; Procter & Gamble, 2021a, 2021b; Unilever, 2021b.

The result of the Excel calculations is captured in the table above (see Table 7). Based on the theoretical background of my thesis, if the stocks are traded below the intrinsic value, then the company is under-priced, which means that the stocks are worth to be purchased, and vice versa: if the stock is traded above the intrinsic value, then the firm is over-priced, hence, the stocks are worth to be either sold or shortened.

Based on the calculations made, both companies demonstrated low intrinsic values in comparison to the stock price.

P&G resulted 69.98 US dollars and Unilever resulted 29.72 US dollars with given 148.66 and 52.10 US dollars per share respectively. Therefore, we might conclude that due to the projected FCF, the stocks are worth selling rather than purchasing in the nearest future.

4.2.2.Relative stock valuation

This is a relatively simple method to evaluate the stocks of the company since the relative stock valuation methods are based on the data which is widely available in the open sources and easy to be communicated across the competitors in the market. One of the additional advantages include that the there is a possibility to determine a certain benchmark for the indices used in this valuation method (Zajac and Olsen, 1993). This method also allows to effectively evaluate the assumptions of basic characteristics and current state of the market of the particular industry.

To perform the relative stock valuation of these companies, the following ratios have been chosen: P/E, P/NAV, EV/Revenue, EV/Gross Profit, EV/EBITDA and P/B as it was mentioned in theoretical part of this work. Some of the input data has already been mentioned in earlier tables — Table 1 and 2 in particular; additional data appears in Table 3 and 4. In order to give more visibility to the output of the valuation, the Figure 3 was illustrated below.

Table 8. Results of ratios for relative stock valuation of companies P&G and Unilever (2021)
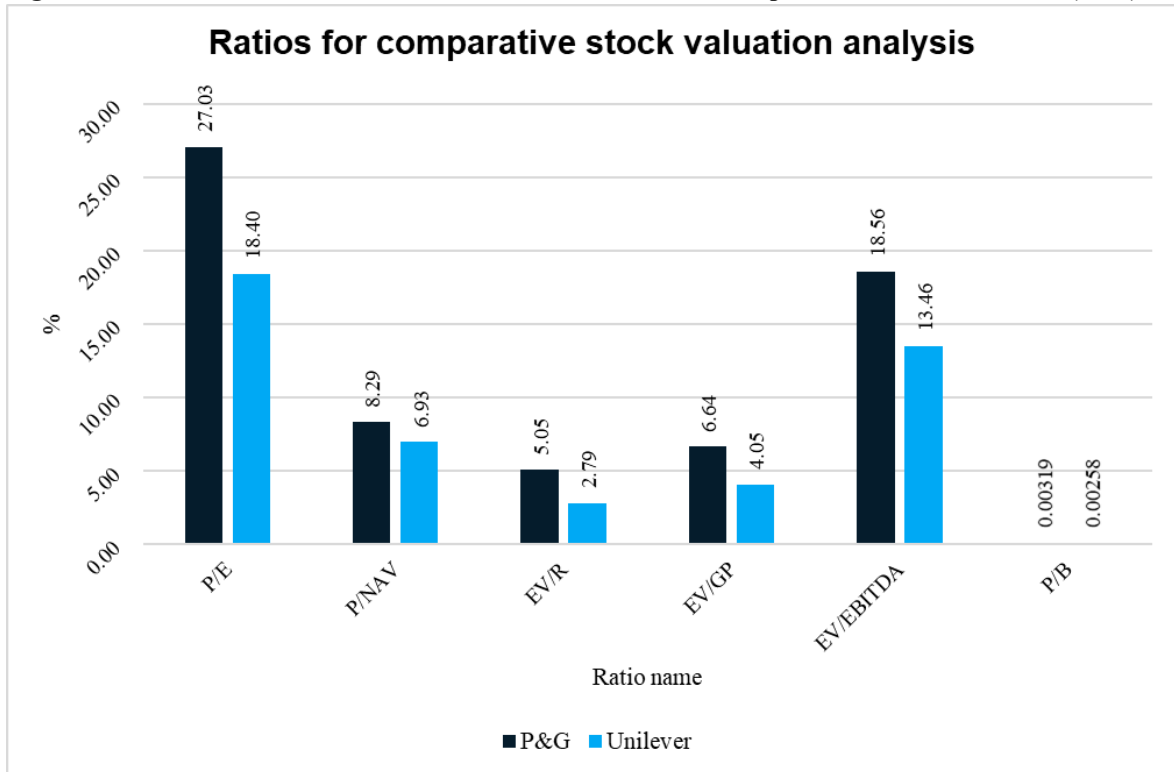
	P&G	Unilever
P/E	27.02909	18.40079
P/NAV	8.28792	6.92959
EV	384,670	158,681
EV/Revenue	5.05347	2.79159
Gross profit	57,942	39,144
EV/Gross profit	6.63888	4.05378
EBITDA	20,721	11,790
EV/EBITDA	18.56426	13.45895
P/B	0.00319	0.00258

Source: Author's own processing based on Procter & Gamble, 2021a, 2021c; Unilever, 2021b.

According to the Table 8 and Figure 3, P&G has significantly higher ratios in comparison to Unilever. Nevertheless, it does not necessarily mean that P&G is doing better than Unilever.

Figure 3. Column chart of ratios for relative stock valuation of companies P&G and Unilever (2021)

Source: Author's own processing based on Procter & Gamble, 2021a, 2021c; Unilever, 2021b.

As the matter of calculations performed, the P/E ratio for P&G equals 27.03, whereas for Unilever is 18.4. In this particular case, the P&G stock is more over-valued than Unilever's.

The P/NAV, EV/Revenue and EV/GrossProfit ratios turned to be better off for the Procter & Gamble as P/NAV is equal to 8.29; EV/R is 5.05, and EV/GP — 6.64. High P/NAV means that investors value one unit of P&G stocks higher than Unilever's, hence, ready to pay more. Also, a high EV/Revenue ratio is also an attractive point for potential investors as the firm is potentially able to generate more revenue in the future perspective. Moreover, high EV/GrossProfit ratio means higher company's net worth in the market.

49

Despite the result of P/NAV and EV/Revenue, Unilever demonstrated better results in EV/EBITDA ratio. This ratio also plays an inherent role in investor's decisions. The lower the ratio is, a more attractive the company becomes for potential investments.

The last ratio is P/B, the result of which can be considered to be very low for both companies: a small discrepancy of 0.001 does not make a difference. To remind, the lower the P/B ratio, the firm is considered to be over-valued and higher ratios give more confidence in the future investments.

4.   Results and Discussion

As a result of this thesis, there are two methods of stock valuation performed for two different companies Procter & Gamble and Unilever. The stock prices definitely vary based on the number of factors. One of the obvious reasons that both companies have their own strategic way of development as well as they keep fighting for the primacy in the industry. They keep acquiring and quitting different niches of the consumer goods sectors, however, still keep up with each other and concentrate on the personal care and hygiene which is very important for the human being.

Summarising all results of absolute and relative stock valuations, it can be concluded that both methods showed that the P&G stocks are definitely over-valued. The absolute method showed that the stock price is currently 2.12 times higher than the shares exactly cost. On the other hand, Unilever is not under-valued either as their current stock prices are 1.75 times higher. Both companies currently trade undoubtedly above the intrinsic value, which may result in bigger losses in the future.

But viewing both companies in the 10 years perspective, Unilever is more attractive to be invested in as according to the estimations made, it can generate more income with the rate of 4.74 in FCF-based approach and bring gains of 4.85 in EPS-based approach. Comparably, Procter & Gamble's stocks are likely to grow only by 2.46 in FCF-based and 2.82 in EPS-based approaches. Definitely, 2-3 per cent within the 10 years perspective is noticeably low range at which the stocks could grow. Hence, as the matter of the intrinsic value, the recommendation is to purchase Unilever's stocks for the long-term perspective, whereas P&G's stocks are worth to abstain of buying at the current stage.

On the contrary, as the outcome of the relative stock valuation, P&G demonstrated better results in four ratios out of six. Nevertheless, we have to take into account the fact that Unilever as a company was founded one century later than P&G and it is thus relatively new to the market. Observing the raw data, we may notice that the incomes and profits to be remarkably lower to its competitor — P&G. And, in spite of this, Unilever

was able to gain the appreciation and start fighting with Procter & Gamble for the leading position in their common industry.

Regarding the limitations of study, we have to take into account that an intrinsic value as a part of the absolute stock valuation method, is a theoretical or potential value that can be derived from the current data and it does not necessarily mean to become real in the next 10 years. Internal and external issues of the company can be the core factors to change the direction of the stocks growth.

Similarly, the relative scenario also derives the value from the certain point. The major disadvantage of it is that it does not take into consideration the past experience. Furthermore, such external factors as, for example, pandemics, are not predictable at all, none of the methods are able to foresee a such development of the situation. The relative stock valuation is impacted only by the temporary market conditions and becomes more useful at the point when there are more companies compared, not just one or two.

Thus, as it has been stated before, none of the models can portray the real picture and exactly ensure whether the stocks are worth to buy, sell, or hold.

5. Conclusion

To conclude what has already been stated before, the two multinational companies have been analysed for the purpose of comparison of two stock valuation approaches: absolute, deriving the intrinsic value of the business, and relative, deriving of some of the critically important indicators for business and comparing them. In order to make the analysis easier, the two international companies were considered: Procter & Gamble and Unilever. The choice fell exactly to these companies as they are both publicly traded in the same stock exchange market (NYSE) and due to the fact that they are the leaders of their industry of toiletries, personal care and hygiene consumer goods production.

The main aim of the proceedings of the work was to answer the following research questions: the first one: if the given company's stock value per share higher for Procter & Gamble, will the intrinsic value be stronger than Unilever's? No, this research question proved that although the stock's value per share for P&G is higher, unfortunately, it does not ensure the intrinsic value to be stronger. On the contrary, P&G showed the higher rank of the intrinsic value than Unilever, which is potentially bad as the company's shares are currently over-priced, which signals the investors to stop buying the shares due to the high potential risks.

The second question contained the query about investment in the future: based on the results of absolute and relative stock valuation methods, are both companies attractive to be invested in the next projected years? Taking into account the 10 previous years as an input data for this model, both companies showed neither bad nor good results. Good thing about the output is that both are positive, meaning that the stock price should grow for both firms in the next 10 year perspective. But the rate for P&G was almost two times lower than for Unilever. The author suggests to consider Unilever for the long-term investment.

The last question which the thesis was aimed to respond if pandemics affect the companies' financial situation, hence, has an affect on intrinsic value of the companies? Surprisingly, there is no dramatic fluctuations spotted neither in the financial statements

and balance sheets nor in the change of earnings, income or cash flow. The factor that the companies exactly serve as a part of the hygiene industry, this is very strange why the indicators do not have shifts to a positive or negative side. I believe the next years' statements would be showing better results.

All in all, I believe that the stock valuation approaches very helpful for estimation and analysis of the companies for the potential investments, but we should also bear in mind that there are a number of factors which are not dependent on us or a company itself, the 10 years perspective is a very huge interval of time throughout which the history can change completely, not even talking about the stock prices. All firms including P&G and Unilever choose the newer and newer strategies based no the current state of the economy, politics and competitors, and they choose the one which allows to move forward. This way, Unilever was able to catch up with P&G.

6. References

Printed publications

Bodie, Z., Kane, A. and Marcus, A., 2014. *Investments*. 10th ed. London: McGraw-Hill Education, ISBN: 9780077161149.

Basci, E., 2019. Firm Valuation Concept and Discounted Cash Flow Method: a Comparison of Stock Markets. *Annals of Spiru Haret University. Economic Series*, 19(2), pp.51-60.

Bondi, A., Radojicic, D. and Rheinlander, T., 2020. Comparing Two Different Option Pricing Methods. *Risks*, 8(4), p.108.

Doblas, M., Lagaras, C. and Enriquez, J., 2020. Price to Earnings and Price to Book Ratios as Determinants of Stock Return. *Journal of Applied Economic Sciences*, 15(3), pp.532-539.

Drabikova, E. and Svetlik, J., 2018. Sensitivity Analysis Application In The Company Valuation: The Case Of Discounted Cash Flow Method. *Ad Alta: Journal of Interdisciplinary Research*, 8(1), pp.58-62.

Drake, P., Fabozzi, F. and Larsen, G., 2021. Chapter 10: Approaches to Common Stock Valuation. In: F. Fabozzi and H. Markowitz, ed., *The Theory and Practice of Investment Management: Asset Allocation, Valuation, Portfolio Construction, and Strategies*, 2nd ed. New York: John Wiley & Sons Inc, pp. 271-286, ISBN: 9780470929902.

Dyer, D., Dalzell, F. and Olegario, R., 2004. *Rising Tide: Lessons From 165 Years of Brand Building at Procter & Gamble*. Boston: Harvard Business School Press, ISBN: 9781591391470.

Fuller, R. and Hsia, C., 1984. A Simplified Common Stock Valuation Model. *Financial Analysts Journal*, 40(5), pp.49-56.

Godda, H. and Moser, U., 2011. Chapter 5: Traditional Valuation Methods: Cost, Market and Income Approach. In: F. Munari and R. Oriani, ed., *The Economic Valuation of*

Patents: Methods and Applications. Cheltenham: Edward Elgar Publishing Ltd, ISBN: 9781848445482.

Gordon, M., 1962. The Savings Investment and Valuation of a Corporation. *The Review of Economics and Statistics*, 44(1), p.37.

Gordon, M. and Shapiro, E., 1956. Capital Equipment Analysis: The Required Rate of Profit. *Management Science*, 3(1), pp.102-110.

Iltas, Y., Arslan, H. and Kayhan, T., 2017. The stock return predictability: comparing P/E and EV/EBITDA. *Pressacademia*, 4(3), pp.262-274.

Jones, G. and Miskell, P., 2007. Acquisitions and firm growth: Creating Unilever's ice cream and tea business. *Business History*, 49(1), pp.8-28.

Kaen, F., 2003. *A Blueprint for Corporate Governance*. New York: American Management Association, ISBN: 9780814405864.

Kumar, R. ed., 2016. Chapter 6: Discounted cash flow valuation models. In: *Valuation: Theories and Concepts*, 1st ed. Elsevier Inc, pp.145-185, ISBN: 9780128023037.

Meitner, M., 2006. The Market Approach to Comparable Company Valuation. Dordrecht: Springer, ISBN: 9783790817232.

Lavely, J., 1975. Relative Stock Valuation Made Simple. *The Journal of Portfolio Management*, 1(4), pp.62-65.

Liow, K. and Yeo, S., 2018. Dynamic Relationships between Price and Net Asset Value for Asian Real Estate Stocks. *International Journal of Financial Studies*, 6(1), p.28.

Mugosa, A. and Popovic, S., 2015. Towards and Effective Financial Management: Relevance of Dividend Discount Model in Stock Price Valuation. *Institute of Economic Sciences*, 48(1/2), pp.39-53.

Murle, M. and Schmitt, G., 2009. Discounted Cash Flow Method: Analysis of the Discounting Interest Rate. *ZFV - Zeitschrift fur Geodasie, Geoinformation und Landmanagement*, 134(1), pp.1-10.

Pastor, L. and Pietro, V., 2003. Stock Valuation and Learning about Profitability. *The Journal of Finance*, 58(5), pp.1749-1789.

Petersen, C. and Plenborg, T., 2012. Financial Statement Analysis: Valuation, Credit Analysis & Executive Compensation. Harlow: Trans-Atlantic Publications Inc., ISBN: 9780273752356.

Pinto, J., Henry, E., Robinson, T. and Stowe, J., 2010. *Equity Asset Valuation*. 2nd ed. Chichester: John Wiley & Sons Ltd, ISBN: 9780470571439.

Robinson, T., Cfa, E., Pinto, J., Stowe, J., Cfa, A. and Cohen, A., 2010. *Equity Asset Valuation*. 2nd ed. Hoboken: John Wiley & Sons, ISBN: 9780470571439.

Sharma, M. and Prashar, E., 2013. A Conceptual Framework for Relative Valuation. *The Journal of Private Equity*, 16(3), pp.29-32.

Sharpe, W., Alexander, G. and Bailey, J., 1999. *Investments*. Englewood Cliffs: Prentice-Hall, ISBN: 9780130101303.

Stancu, I., Obrejabrasoveanu, L., Ciobanu, A. and Stancu, A., 2017. Are company valuation models the same? – A comparative analysis between the discounted cash flows (DCF), the adjusted net asset, value and price multiples, the market value added (MVA) and the residual income (RI) models. *Faculty of Economic Cybernetics, Statistics and Informatics*, 51(3), pp.5-20.

Vasiljeva, M., 2017. The Effect of Dividend Policy on Company's Market Price per Share. *Journal of Applied Economic Sciences*, 12(4), pp.995-1007.

Vidal-Garcia, R. and Ribal, J., 2019. Terminal Value in SMEs: Testing the Multiple EV/EBITDA Approach. *Journal of Business Valuation and Economic Loss Analysis*, 14(1).

Zajac, E. and Olsen, C., 1993. From Transaction Cost to Transactional Value Analysis: Implications for the Study of Interorganizational Strategies. *Journal of Management Studies*, 30(1), pp.131-145.

Internet sources

Business Wire, 2014. *Spectrum Brands Holdings Completes Acquisition of the European IAMS and Eukanuba Pet Food Business*. [online] Businesswire.com. Available at: <https://www.businesswire.com/news/home/20141231005340/en/Spectrum-Brands-Holdings-Completes-Acquisition-European-IAMS>.

Business Wire, 2018. *Say Goodbye to Compromise, Say Hello to Pampers Pure Protection That Works*. [online] Businesswire.com. Available at: <https://www.businesswire.com/news/home/20180222006020/en/Goodbye-Compromise-Pampers-Pure-Protection-Works>.

Byron, E., 2009. *Tide Turns 'Basic' for P&G in Slump*. [online] WSJ. Available at: <https://www.wsj.com/articles/SB124946926161107433>.

CNN, 2000. *Unilever splits units amid 14% drop in 2Q results*. [online] CNN. Available at: <https://money.cnn.com/2000/08/04/europe/unilever/>.

Financial Times, 2017. *Unilever packs more acquisitions in the cupboard*. [online] Ft.com. Available at: <https://www.ft.com/content/f1bdd72e-d5a9-11e7-8c9a-d9c0a5c8d5c9>.

Horowitz, A., 2011. *How Procter & Gamble Became The Maker Of EVERYTHING You Buy For Your House*. [online] Business Insider. Available at: <https://www.businessinsider.com/protor-gamble-makes-everything-2011-2#1930-pg-goes-international-when-it-buys-a-british-soapmaker-3>.

Isidore, C., 2005. *P&G to buy Gillette in $57B stock deal*. [online] CNN. Available at: <https://money.cnn.com/2005/01/28/news/fortune500/pg_gillette/>.

Macrotrends, 2021a. *Procter & Gamble EPS - Earnings per Share 2006-2021 | PG*. [online] Macrotrends.net. Available at: <https://www.macrotrends.net/stocks/charts/PG/procter-gamble/eps-earnings-per-share-diluted>.

Macrotrends, 2021b. *Procter & Gamble Net Income 2006-2021 | PG*. [online] Macrotrends.net. Available at: <https://www.macrotrends.net/stocks/charts/PG/procter-gamble/net-income>.

Macrotrends, 2021c. *Unilever EPS - Earnings per Share 2006-2021 | UL.* [online] Macrotrends.net. Available at: <https://www.macrotrends.net/stocks/charts/UL/unilever/eps-earnings-per-share-diluted>.

Macrotrends, 2021d. *Unilever Net Income 2006-2021 | UL.* [online] Macrotrends.net. Available at: <https://www.macrotrends.net/stocks/charts/UL/unilever/net-income>.

NYSE, 2021a. *The Procter & Gamble Company (PG) Stock Historical Prices & Data.* [online] Finance.yahoo.com. Available at:<https://finance.yahoo.com/quote/PG/history?period1=-252374400&period2=1638057600&interval=1mo&filter=history&frequency=1mo&includeAdjustedClose=true>.

NYSE, 2021b. *Unilever PLC Common Stock (UL).* [online] Nasdaq. Available at: <https://www.nasdaq.com/market-activity/stocks/ul/dividend-history>.

NYSE, 2021c. *Unilever PLC (UL) Stock Historical Prices & Data.* [online] Finance.yahoo.com. Available at: <https://finance.yahoo.com/quote/UL/history/>.

Procter & Gamble, 2021a. *Annual Reports | Procter & Gamble Investor Relations.* [online] Pginvestor.com. Available at: <https://www.pginvestor.com/financial-reporting/annual-reports/>.

Procter & Gamble, 2021b. *History of Innovation - P&G.* [online] Procter & Gamble. Available at: <http://us.pg.com/who_we_are/heritage/history_of_innovation>.

Procter & Gamble, 2021c. *Splits & Dividend History | Procter & Gamble Investor Relations.* [online] Pginvestor.com. Available at: <https://pginvestor.com/stock-information/splits-dividend-history/>.

Reuters, 2020. *Unilever To Contribute Eur 100 Mln Through Donations Of Soap, Sanitiser, Bleach And Food.* [online] Reuters. Available at: <https://www.reuters.com/article/brief-unilever-to-contribute-eur-100-mln-idUSASN0004IP>.

Underwood, G., 2018. *P&G completes acquisition of Merck KGaA's OTC division.* [online] Pharmaphorum.com. Available at: <https://pharmaphorum.com/news/pg-completes-acquisition-merck-kgaas-otc-division/>.

Unilever, 2021a. *Our history & archives.* [online] Unilever. Available at: <https://www.unilever.com/our-company/our-history-and-archives/>.

Unilever, 2021b. *Archive of Unilever Annual Report and Accounts*. [online] Unilever global company website. Available at: <https://www.unilever.com/investor-relations/annual-report-and-accounts/archive-of-annual-report-and-accounts/?datetype=year&year=2020&monthfrom=1&yearfrom=2011&monthto=12&yearto=2020>.

Unilever, n.d. *The United Africa Company Ltd*. [online] Unilever-archives.com. Available at: <http://unilever-archives.com/Record.aspx?src=Catalog&id=GB1752.UAC>.

Upfield, 2017. *Our Brands*. [online] Upfield. Available at: <https://www.upfield.com/our-brands/>.

Wahba, P., 2014. *P&G selling pet food brands to Mars for $2.9 billion*. [online] Reuters. Available at: <https://www.reuters.com/article/us-mars-pgpetcare-acquisition-idUSBREA3811O20140409>.