Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics

Diploma Thesis

Evaluation of the European stock market

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Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Bc. Lubor Blažek

European Agrarian Diplomacy

Thesis title

Evaluation of the European stock market

Objectives of thesis

The aim of the diploma thesis is to provide information about the stock market. Present and explain essential terms related to stock trading such as stock market exchange, over-the-counter or initial and secondary public offering. Access information about the share as security with the description of various types and forms of shares. Present various models and methods used for the evaluation of stock companies based on published financial statements. In the practical part evaluate companies from European national stock market indexes. Give recommendations to shareholders based on the calculations and analysis. Compare sources of capital, calculate price per share of selected companies and assess the volatility of shares. Answer the main research question: Which companies performing on the European stock market are undervalued and overvalued? Answer also other sub-questions: What are the most interesting European stock markets? Which companies, regarding to value of market capitalization, have the highest potential in stock growth?

Methodology

Diploma thesis is divided into theoretical and practical part. For the theoretical part are used methods such as extraction of information, synthesis, induction and also deduction is used. In the practical part are used various statistical methods such as an average, median, minimum and maximum. For the analysis of companies are employed tools such as Free Cash Flow for the Firm, Weighted Average Cost of Capital, Capital Asset Pricing model, Changes in Net Working Capital and others.

The proposed extent of the thesis

60 pages

Keywords

stock market, share, shareholder, market capitalization, stock market index, stock evaluation

Recommended informa on sources

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Expected date of thesis defence

2018/19 SS – FEM

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Declaration

I declare that I have worked on my diploma thesis titled "Evaluation of the European stock market" 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 _____

Lubor Blažek

Acknowledgement

I would like to thank Ing. Petr Procházka, Ph.D., MSc, for advice and support during my work on this thesis.

Evaluation of the European stock market

Abstract

Diploma Thesis deals with the evaluation of the European stock market. In the Theoretical part is provided information about stock market exchanges, requisites of shares and various types and forms of shares. In the following part of the Theoretical part are presented various models used for the evaluation of companies on the stock market. These tools include Free Cash Flow for the Firm, Weighted Average Cost of Capital, Capital Asset Pricing model, and many others. Findings from the Theoretical part are applied in the Practical part. Practical part focuses on the evaluation of companies from four national stock market indexes DAX 30, IBEX 34, CAC 40 and AEX. In total twelve companies, three from each national stock market index, are selected for the evaluation of the European stock market. Analysis of each company is performed and recommendations about the purchase or sale of shares are given to shareholders. Not only recommendations about individual companies are provided, but investors are also given information about undervalued stock markets, where the growth in prices of shares in expected. Moreover, companies from national stock market indexes are sorted into three groups of market capitalizations. Investors will be also given recommendations into which group they should invest.

Keywords: stock market, stock evaluation, stock market index, share, shareholder, price per share, market capitalization, financial statements

Ohodnocení evropského akciového trhu

Abstrakt

Diplomová teze se zabývá ohodnocení evropské akciového trhu. Teoretická část poskytuje informace o akciovém trhu a vysvětluje pojmy jako burza akcí, akcie jako cenný papír a prezentuje různé typy a formy akcií. V následujících kapitolách teorerické části jsou představeny různé modely použité k ohodnocení společností na akciovém trhu. Jsou zde prezentován nástroje jako volné peněžní toky společnosti, vážené průměrné náklady na kapitál, model pro oceňování kapitálových aktiv a mnoho dalších. Poznatky z teoretické části jsou použity v části praktické. Praktická část se zaměřuje na ohodnocení společností ze čtyř národních akciových indexů DAX 30, IBEX 35, CAC 40 a AEX. Celkem dvanáct společností, tři z každého národního akciového indexu, je vybráno k ohodnocení evropského akciového trhu. Analýza každé společnosti je provedena a doporučení ohledně koupě nebo prodeje akcí jsou předány akcionářům. Kromě doporučení ohledně jednotlivých společností, dostávájí investoři informace o podhodnocených trzích, kde se očekává růst cen akcií. Společnosti z národních akciových indexů nejsou vybrány náhodně, ale podle hodnoty tržní kapitalizace. Investoři obrží také doporučení ohledně investování do různých skupin firem podle tržní kapitalizace.

Klíčová slova: akciový trh, ohodnocení akcií, akciový index, akcie, akcionář, cena za akcii, tržní kapitalizace, finanční výkazy

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1 Introduction

We are living in a rapidly changing world where information becomes the most valuable property. Opinions, attitudes, and knowledge of people on trading with stock differ from country to county. This situation is very much different in the United States, where people grew up beside the evolution of stock trading, in comparison with people from Eastern Europe. For these people, the stock market was and still is something unusual. This diploma thesis provides basic information about the stock market and offers to future investors or shareholders various tools and methods for valuation of companies. These instruments should help them with the right decisions about investing.

The stock market is nothing more than a place where supply and demand, in other words, market forces, operate in. Two basic players operate on the stock market - companies and shareholders. Companies enter this market in order to accumulate financial resources and shareholders or investors participate in order to make a profit. Price per share is given by the relation between supply and demand. When the supply exceeds demand, the price per share goes down and vice versa. Shareholders benefit through appreciation, when the demand exceeds supply, and by dividend pay-out. Dividends are cash payment from the company to the shareholders.

The theoretical part provides an overview of the stock market and describes various models which will be used for the evaluation of the European stock market. The first part of the theoretical part is dedicated to major stock market exchanges, means of trading with shares and modes of entering the stock market from the company's point of view. This part of the theoretical part should answer the question: "What is the stock market?" The second part provides the information about share as security and describes its requisites, various types of shares and forms. After the reading this section, the reader should be able to answer the question: "What is share?" In the remaining parts of the theoretical part will be explained selected models used for the evaluation of the European stock market. These models include Free Cash Flow for the Firm, Changes in Net Working Capital, Capital Asset Pricing model, Weighted Average Cost of Capital, Company Value model, price per share and many others. Findings from the theoretical part with presented models will be used in the practical part for the evaluation of the European stock market.

Practical part deals with the evaluation of the European stock market. For the evaluation will be selected companies from four national stock market indexes. These

include German, French, Spanish and Dutch stock market. From each national stock market index will be selected three companies according to the value of market capitalization. First selected company will belong to the group of high market capitalization with the market capitalization is higher than € 37 billion. The second company will be selected from the range from € 13 billion to € 37 billion and will represent a group of middle market capitalization. Third company will have its market capitalization lower than € 13 billion and will form the group of low market capitalization. In total twelve companies will be selected for the evaluation and for each of them the analysis will be performed.

The aim of the diploma thesis is to present appropriate tools for stock evaluation based on financial statements and give recommendations to shareholders about investing in the European stock market. Shareholders will be given information about twelve selected companies with a clear recommendation whether to buy or sell shares of a certain company. Shareholders will also get the reference about four national stock market indexes with the suggestion on which they should invest or refrain from investing. Therefore, companies will be also selected according to different values of market capitalization. Investors will be also provided the suggestion in which group of companies, regarding market capitalization, they should invest or not.

The stock market offers to shareholders and future investors great possibility how to earn money. However, the stock market is rapidly changing market and without any knowledge about investing people can lose their financial resources from one day to another. This diploma thesis provides basic tools and methods that can be used for the evaluation of companies operating on the stock market.

2 Objectives and Methodology

2.1 Objectives

The aim of the diploma thesis is to provide information about the stock market. Present and explain essential terms related to stock trading such as stock market exchange, over-the-counter or initial and secondary public offering. Access information about the share as security with the description of various types and forms of shares. Present various models and methods used for the evaluation of stock companies based on published financial statements. In the practical part evaluate companies from European national stock market indexes. Give recommendations to shareholders based on the calculations and analysis. Compare sources of capital, calculate the price per share of selected companies and assess the volatility of shares. Answer the main research question: Which companies performing on the European stock market are undervalued and overvalued? Answer also other sub-questions: What are the most interesting European stock markets? Which companies, regarding value of market capitalization, have the highest potential in stock growth?

2.2 Methodology

Diploma Thesis is divided into the theoretical and practical part. For the theoretical part are used methods such as extraction of information, synthesis, induction and also deduction is used. In the practical part are used various statistical methods such as an average, median, minimum and maximum. For the analysis of companies are employed tools such as Free Cash Flow for the Firm, Weighted Average Cost of Capital, Capital Asset Pricing model, Changes in Net Working Capital and others.

Free Cash Flow for the Firm is one of the essential models used for the evaluation. This model measures the amount of money which is created after the payment of all necessary expenses. Thanks to this model shareholders get the information about the financial health of the company. In order to calculate Free Cash Flow for the Firm is necessary to know Earnings Before Interest and Taxes, taxes, depreciation and amortization of the company. These values are presented by the company in their financial statements such as Income Statement, Balance Sheet and Cash Flow Statement. Furthermore, is important to calculate Changes in Net Working and Capital Expenditures. Changes in Net Working Capital measure the shift in the value of current assets and current liabilities from one year to

another. Capital Expenditures measure the amount of financial resources invested in the property, plant, and equipment of the company.

Weighted Average Cost of Capital measure company's cost of capital where equity and debt funding are adequately weighted. In order to asses Weighted Average Cost of Capital is important to calculate four basic components of this model. These components include Cost of Equity, Cost of Debt, Weight of Equity and the Weight of Debt. Cost of Debt represents the average interest that the company has to pay on its debts. Cost of Debt is calculated as the interest expense divided by the value of the debt. The Weight of Equity measures the percentage of the company which is financed by shareholders. The Weight of Equity is calculated as Market Capitalization divided by the sum of Value of the Debt and Market Capitalization. The Weight of Debt measures the percentage of company's assets which is financed by the loan. The Weight of Debt is calculated as Value of Debt divided by the sum of Market Capitalization and Value of the Debt. The most demanding calculation relates to the Cost of Equity. Shareholders own the assets of the company and face the risk connected to fluctuations in prices. Cost of Equity is calculated with the use of the Capital Asset Pricing model.

Capital Asset Pricing model represents one of the methods used for the calculation of Cost of Equity. According to the Capital Asset Pricing model, the Cost of Equity is based on the volatility of stock and risks connected to investment compared to the general market. Capital Asset Pricing model consists of three variables: Risk-Free Rate, Market Rate of Return and β. The risk-free rate represents an interest which shareholder should anticipate from a perfectly risk-free investment. Therefore, the risk-free rate is the lowest return that the investor expects from its investment. For the purpose of the evaluation of the European stock market risk-free rate of return will be assessed according to the yield of United States 10-year bonds which is 0,5%. The market rate of return is expected gain of the investor. In the practical part, market rate of return will based on the return of EURO Stoxx 50. In 2017, the market rate of return of EURO Stoxx 50 was 6,47%. The last variable used for calculation of Capital Asset Pricing mode is Beta. Beta represents the volatility of share compared to the overall market. In fact, variable β measures the differences between returns of the market, in our case National Stock Market Indices, and returns of companies which are operating in this market.

2.3 Research limitations

Evaluation of companies performing on the European stock market is based on a large number of calculations, sub-calculations, and variables. Variables and calculations mentioned below represent areas of the diploma thesis where research is limited.

Calculation of β-Beta variable – Beta represents the volatility of share compared to the overall market. The Beta of each company is calculated based on 50 observations. According to calculations, attached in the appendix, results of Beta concentrate in the rage (0,92; 1,02). However, Beta of companies performing on the stock market gets more extreme value. There are companies with Beta close to zero and companies with beta higher than three.

Growth rate – For the evaluation was necessary to estimate the annual growth rate of each company. The annual growth rate was based on a five-year period from 2013 to 2018. However, nobody knows what will affect the company in the future or which problems the company will face. From 2013 to 2018 all selected companies had positive growth in the price per share.

3 Theoretical part

3.1 What is the Stock Market?

The Stock Market, in other words, share market describes a group of buyers and seller who are trading with shares. Shares represent their ownership claims in the publicly traded companies. The process of trading with shares takes place on stock exchanges or over-the-counter. Stock Market is one of the key components of the free market economy. Thanks to the Stock Market, companies are able to accumulate large amounts of capital in exchange for issuing shares and paying dividends to investors.

3.1.1 Stock Market Exchanges

Share are traded on Stock Exchanges. Prices of shares of publicly traded companies which are listed on Stock Market Exchanges are based on the relation between supply and demand. The price of shares of the certain company will grow when there is a lack of available shares for those who want to buy some. On the other hand, if these are too many shares and no investor want to buy them, the price will go down. Stock Exchanges are auction market because the price of shares is based on this relation. (North and Caes, 2012, p. 9)

All over the world we can count about 630 thousand publicly traded companies listed on 150 Stock Market Exchanges. In some countries such as the United States of America we can find several of them.

New York Stock Exchange (NYSE)

New Your Stock Exchange was founded on May 17, 1792, and during its long history became the most well-known stock exchange. On April 4, 2007, NYSE was merged with Euronext, the European Combined Stock Market and together formed NYSE Euronext, the first transatlantic stock exchange. Since 2007, is estimated that exchanges related to NYSE represent about a third of all equity transaction in the world. (Fuhrmann, 2018) New York Stock Exchange is the world's largest stock exchange according to market capitalization. In June 2018, the market capitalization of listed companies on NYSE Euronext reached $28.5 trillion. (Nyse.com, 2018)

Japan Exchange Group

Japan Exchange Group was founded in 2013, by the merge of two important players on the Japanese stock market. The merge of the Tokyo Stock Exchange and Osaka Securities Exchange created the third largest stock exchange in the world after NYSE and Nasdaq with the market capitalization of $6.2 trillion. (World-exchanges.org, 2018)

London Stock Exchange Group

The London Stock Exchange Group is the sixth largest stock exchange in the world and second largest in Europe after Euronext. In these days, we can find under this group not only London Stock Exchange but also Borsa Italiana, which is Italy's main stock exchange. The current market capitalization of London Stock Exchange Group is 4.6 trillion. (World-exchanges.org, 2018)

3.1.2 Over-the-counter

Over-the-counter and securities listed on stock market exchanges are two primary ways of trading with securities on the stock market. Securities listed on stock market exchanges have to meet certain requirement according to the regulatory body which supervises the stock market in the country. In the United States of America, we can meet with the Securities and Exchange Commission, which is the agency responsible for overseeing the stock market. One of the requirements which company has to meet to be listed on the stock market exchange is the minimum of several millions of dollars in assets and slightly less in shareholders equity. (Salinger, 2004, p. 513) The term "Over-the-counter" describes such transaction which is not conducted on stock market exchange. (Curley and Walker, 2007, p. 186) Securities which do not fulfill certain requirements and for this reason cannot be listed on stock exchanges are called "pink sheets". (Logue, 2008, p. 59) So-called, pink sheets, are securities issued by smaller companies or by companies near to bankruptcy. Over-the-counter securities are traded through networks or broker-dealers.

3.1.3 Initial Public Offering

An Initial Public Offering is the process of transformation of the private company to public company by offering stock to investors. This process occurs usually when the company wants to accumulate greater financial resources for its future growth. The price of

the stock for Initial Public Offering is based on the company value which is divided by the number of shares that are going to be issued. Initial Public Offering can be done through stock market exchanges or over-the-counter. (Investopedia, 2018, F) In the table below are presented the most successful Initial Public Offering in history.

Table 1 Largest Initial Public Offerings

Number	Company	Year of IPO	Amount	Stock Exchange
1)	Spotify	2018	$29B	NYSE
2)	The Alibaba Group	2014	$25B	NYSE
3)	Agricultural Bank of China	2010	$22.1B	Shanghai Stock Exchange
4)	Industrial and Commercial Bank of China	2006	$21.9B	Shanghai Stock Exchange
5)	American International Assurance	2010	$20.5B	OTC
6)	Visa Inc.	2008	$19.7B	NYSE
7)	General Motors	2010	$18.15B	NYSE
8)	NTT DoCoMo	1998	$18.05B	NYSE
9)	Enel	1999	$16.59B	OTC
10)	Facebook	2012	$16.01B	NASDAQ

Source:(Zucchi, 2018)

3.1.4 Secondary Offering

We can distinguish between two types of Secondary Offering: non-dilutive secondary offering and dilutive secondary offering. The non-dilutive secondary offering is the sale of large quantities of stock which was held by investors or institutions to the public. This secondary offering does not affect existing shareholders because no new shares are created. During dilutive secondary offering new share are created and sold by the company to the public. This process influences existing shareholders because the total number of shares is increasing, this causes the dilution of per-share earnings. (Investopedia, 2018, G)

3.1.5 Diplomacy and Stock Markets

Diplomacy deals with the management of relations between states, institutions, entities and other actors. From the point of view of individual states, diplomacy includes advising, shaping and implementing foreign policy. (Barston, 2013) Diplomacy is

conducted by diplomats or politicians who negotiate about international treaties, agreements and fight for the interest of the state. Diplomacy performed by the individual state has a significant effect on joint stock companies and the stock market itself. Companies differ significantly from one to another in terms of size and degree of transnational activity. There are small companies, which operate in the territory of the state and do little or even no business activities across state borders. On the other hand, there are medium and large public companies, which operate in many countries. Their corporate offices are spread all over the world and shares of these companies are traded on various stock exchanges. (Pigman, 2010, p. 70)

The European Union is a political and economic union of 28 states located in Europe. However, the United Kingdom will leave the European Union in a few months. The European Union has developed a common market also called single market. Under the single market are guaranteed four basic freedoms: free movement of people, goods, services and capital. The most important freedom regarding stock markets is free movement of capital. For European citizens, it means the ability to buy shares of non-domestic companies and invest where the best return is. Thanks to the diplomats and their negotiations the Czech Republic joined the European Union on May 1, 2004. Since this moment Czech citizens became European citizens with guaranteed freedoms. People from the Czech Republic were given the opportunity to invest in shares of companies located in Europe. Not only citizens benefit from the free movement of capital. For companies, it means the possibility to invest and own other European companies. Moreover, share of European companies can be traded on various stock markets.

3.2 What is Share?

Joint-stock companies are not owned by a single person. The equity of these companies is distributed among a number of owners. These owners are called shareholders in other words investors. Share also called stock, represent the fraction of the joint-stock company which is owned by the shareholder. The possession of share brings to its holder various rights and benefits. Many shareholders invest their financial resources in order to receive dividends. However, this is not the only benefit of the shareholder. Besides dividends, the shareholders can profit thanks to the appreciation. Shares are traded on stock exchanges where the market prices fluctuate according to the supply and demand. Appreciation is the process of growth of market price value. (Sarngadharan and Kumar, 2011, p. 130) We can distinguish various types of shares among the most ordinary belong common and preferred shares. A few years ago, we could meet with the share in physical paper form, in these days paper certificates have been replaced by the electronic version.

3.2.1 Requisites of Share

According to the law in the Czech Republic each share has to include the following parts:

1. The share has to contain identification "Share"
2. Identification of the company which issued the share
3. The nominal value of a share
4. Type of the share
5. The form of the share
6. The signature of the member or board members authorized to act on behalf of the company (Nováková, 2016, p. 18-19)

3.2.2 Types of Shares

Companies are entitled to issue various types of shares. Usually, when new business is established, so-called common shares are issued. However, when the company is getting bigger and bigger new kinds of share have to be introduced such as preferred stock or non-voting shares.

Common Shares

Common Shares also called ordinary shares or equity shares in the United Kingdom or Commonwealth countries, brings to his owner three basic rights. First right is connected with dividends. The shareholder has the right to acquire a portion of the profits of the company according to the number of shares he or she is possessing. Pay-out of dividends differ from company to company. It depends mainly on the stage of development of the company. Newly founded companies or businesses which are not operating for decades, rather invest their profits to expansion than paying out dividends. On the other hand, well-known companies with high market share will reward their shareholders with high dividends. Second right gives shareholders the possibility to vote on general meetings on certain matters such as electing the board of directors. These shareholders can slightly influence the objectives or policies of the company. (Pezzutti, 2008, p. 58) Last right is connected with the dissolution of the company. In the case of bankruptcy, shareholders have the right to receive and distribute equally the remaining funds after the claims over creditors and employees are settled. In fact, these shareholders owning common share very often receive nothing. (Users.wfu.edu, 2018) Some common share also gives to its owner the pre-emptive right. This right gives the priority to buy newly issued shares before the shares are offered to the rest of the market. This right enables them to retain proportional ownership in the company.

Preferred Stock

Preferred Stock is a group of extraordinary shares which usually have a combination of characteristics not possessed by common shares. Features of preferred stock of one company may differ from the traits of another company. Shareholders owning preferred stock have the preference in dividend payments over the common stockholders. However, preferred stock does not ensure the payments of dividends, the business is obligated to pay the dividends on preferred stock before the holders of common stock receive their dividends. (Kieso, Weygandt and Warfield, 2007, p. 738) Very often preferred shares are non-voting shares, the shareholder has no possibility to vote on any matter related to the company. Nevertheless, in some cases preferred stock is connected with special voting rights related to extraordinary events such as the acquisition of the company. Preferred shares also have a preference in the case of liquidation of the company

over the common shares. Generally, preferred shares are less risky than common shares. Shareholders receive their dividends before other shareholders. Preferred share may also have pre-negotiated fixed amounts of dividend payments. The dividend payment is usually the percentage of the par value, which is stated value on the face of the share, or as a fixed amount. Preferred shares can be easily transformed into common shares.

Non-voting Shares

Non-voting share is common share without voting right. Holders have no right to vote or attend the general meeting of the company. These shares are mainly given to employees as remuneration for their work in the company. Employees receiving dividend payments may be more motivated in their future work.

3.2.3 Forms of Shares

We can distinguish two forms of Shares. The first group is called “registered share” these shares are issued with the printed name of a certain natural or legal person. An advantage of these shares is better protection from the theft. On the other hand, there are obstacles related to the sale. The second group is called “share on the owner”, holder of the share is anonymous for the company. These shares are more easily tradable.

3.3 Free Cash Flow for the Firm

Free Cash Flow for the firm is one of the models that investors can use to analyze the stock. FCFF brings valuable information about the performance of the company and measures the amount of cash which is generated after paying all necessary expenses. A positive value of Free Cash Flow for Firm signifies good health of the company which accumulated cash after deduction of expenses. This excess in financial reserves is expected information for shareholders. This cash is usually used for providing dividends to the investor, expansion of business, buying back stock, launching new products or reducing debt. A negative result points on the fact that the company did not generate enough revenue to cover its expenditures. In this situation, the shareholder should gather further information on why is this negative result occurring. It can be a consequence of a specific business strategy, which is not something unique in the case of enormous investments dedicated to expansion. On the other hand, it could be a remarkable financial issue. (Investopedia, 2018, A)

Free Cash Flow for the Firm can be calculated in many different ways. (Damodaran, 2002, p. 383)

The most frequently used method to calculated FCFF is:

FCFF = EBIT – Taxes + Depreciation + Amortization – Changes in NWC – CAPEX

3.3.1 Earnings Before Interest and Taxes

Earnings Before Interest and Taxes measures the ability of the company to create profit from its operating activities. Earnings Before Interest and Taxes is generally called operating profit. EBIT ignores interest and tax expenses and focuses especially on the capability of the company to create profit. This measure is widely used by investors when comparing two companies operating in different tax environments. The investor is interested in the effectivity of the company to generate profit from its operations, tax and interest expense would disrupt the main question. (Investopedia, 2018, B) EBIT can be calculated:

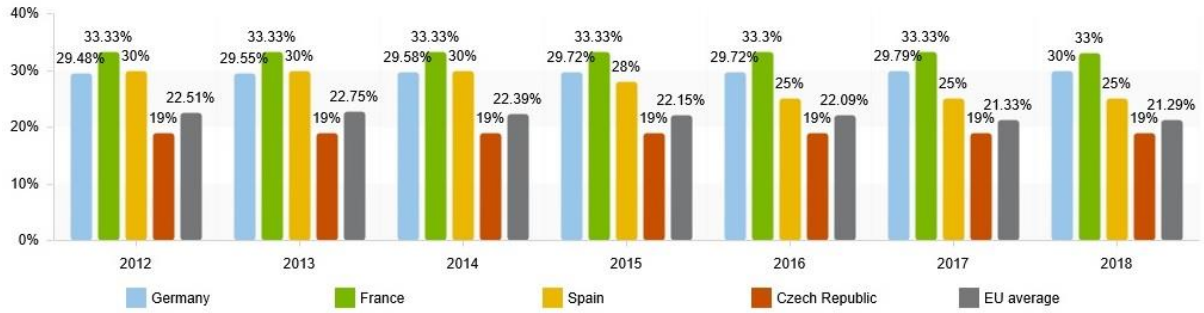
EBIT = Revenue – Operating Expenses

3.3.2 Corporate income tax

Corporate income tax is imposed by the government of the individual country on the net profit of the company or the corporation. Corporate tax rates differ from one country to another. European Union corporate tax rate is the average of EU countries. The highest EU corporate tax rate was in 1997 when the rate reached 35.2%. In 2018, the European Union corporate tax rate is one of the lowest in history with 21.29%. (Tradingeconomics.com, 2018) In the figure below are presented corporate tax rates of EU selected countries with the EU average.

In some case not only corporations have to pay corporate income tax from its net profit. Governments may also tax shareholders when the dividends are paid by the company.

Figure 1 Corporate tax rates for 2012-2018



Source: (KPMG, 2018)

There are many countries with its own specific system which is given by the jurisdiction. One unique system was operating in the United States. The federal income tax had seven levels and tax rates varied from 10% to 39,6%. The amount of tax was based on the income level of the company. The lowest tax rate was connected with incomes up to $9,325 and the highest was applied to incomes over $418,401. Company with incomes which were greater than $418,401 had to use seven different tax rates for different levels. The final tax was sum of the individual sub taxes. (US Tax Center, 2018) In the table below are presented levels of income and tax rates which were applied in the United State till 31st December 2017.

Table 2 Federal Tax Rates in the United States applied till 31st December 2017

Taxable Income	Tax Rate
$0 - $9,325	10%
$9,326 - $37,950	$932.50 plus 15% of the amount over $9,325
$37,951 - $91,900	$5,226.25 plus 25% of the amount over $37,950
$91,901 - $191,650	$18,713.75 plus 28% of the amount over $91,900
$191,651 - $416,700	$46,643.75 plus 33% of the amount over $191,650
$416,701 - $418,400	$120,910.25 plus 35% of the amount over $416,700
$418,401 or more	$121,505.25 plus 39.6% of the amount over $418,400

Source: (US Tax Center, 2018)

This situation has changed on 22nd December 2017 when the government enacted tax reform. Previously used method of computation of corporate income tax was replace by flat rate tax at the level of 21%. (Taxsummaries.pwc.com, 2018)

3.3.3 Depreciation and Amortization

Each corporation classifies its assets into two groups long-term and short-assets. Short-term assets are usually consumed, converted into cash or used to pay the liabilities within the period of one year. Long-term assets can be classified into tangible and intangible assets and their working life is longer than one year. In this case, is not possible to allocate the price of an asset into a single year, the price of an asset has to be allocated over the lifetime period.

Depreciation and Amortization are methods for reallocation of cost during the lifetime of fixed assets. Term depreciation is generally used when the item belongs to a group of tangible assets and the term amortization is used for intangible assets. (Stickney, 2010, p. 427) According to accounting standards in the Czech Republic, each long-term property has to be assigned to one depreciation group from 1 – 6, in which we find out for how many years the long-term asset will be depreciated. For example, a passenger car belongs to the second group and will be depreciated for five years. At the beginning of depreciation, the accounting entity may choose between various methods of depreciation which are generally straight-line method, sum-of-years-digit method or double-declining balance method.

Straight-line depreciation method

Straight-line depreciation is the easiest method to calculate depreciation. In this method, the depreciation expense is the same every year during the lifetime of the asset.

Depreciation or Amortization = (Cost – Salvage value)/Useful life

Salvage value, also known as residual value, which is estimated by the company and represent the value of the long-term asset at the end of useful life. (Albrecht, Stice and Stice, 2008, p. 400)

Example 1 – Consider a vehicle that costs 180 000 CZK with estimated lifetime 5 years. Selected method for calculation: Straight-line depreciation method.

Table 3 Straight-line method

Year	1	2	3	4	5
Opening Book Value	180 000 CZK	144 000 CZK	108 000 CZK	72 000 CZK	36 000 CZK
Depreciation	36 000 CZK	36 000 CZK	36 000 CZK	36 000 CZK	36 000 CZK
Ending Book Value	144 000 CZK	108 000 CZK	72 000 CZK	36 000 CZK	0 CZK

Source: (own data)

Sum-of-Years-digit depreciation method

This method of depreciation belongs to a group of accelerated methods. At the beginning of useful life, depreciation expense is higher, while lower depreciation expense occurs at the end of the lifetime. To find depreciation expense using this method is necessary to divide the remaining useful life of an asset by the sum of the year's digit and then multiplied by the difference between cost and salvage value. (Kahraman, 2008, p.161)

Depreciation = (Remaining useful life/Sum of the year's digit) x (Cost – Salvage value)

Example 2 – Consider a vehicle that costs 180 000 CZK with estimated lifetime 5 years. Selected method for calculation: Sum-of-Years-digit method.

Table 4 Sum-of-Years-digit method

Year	1	2	3	4	5
Opening Book Value	180 000 CZK	120 000 CZK	72 000 CZK	36 000 CZK	12 000 CZK
Depreciation	60 000 CZK	48 000 CZK	36 000 CZK	24 000 CZK	12 000 CZK
Ending Book Value	120 000 CZK	72 000 CZK	36 000 CZK	12 000 CZK	0 CZK

Source: (own data)

Double Declining Balance Depreciation method

This method of depreciation brings similar results as Sum-of-Years-digit method. The main portion of depreciation expenses is allocated at the beginning of the useful life of an

asset. This method goes hand in hand with the fact that assets tend to be more productive in the early stages rather than in late years. (Warren, Reeve and Duchac, 2009, p. 450)

Depreciation expense = Beginning book value x Depreciation Rate

Depreciation Rate = (100%/ Useful life of an asset) x 2

Example 3 – Consider a vehicle that costs 180 000 CZK with estimated lifetime 5 years. Selected method for calculation: Double Declining Balance Depreciation method.

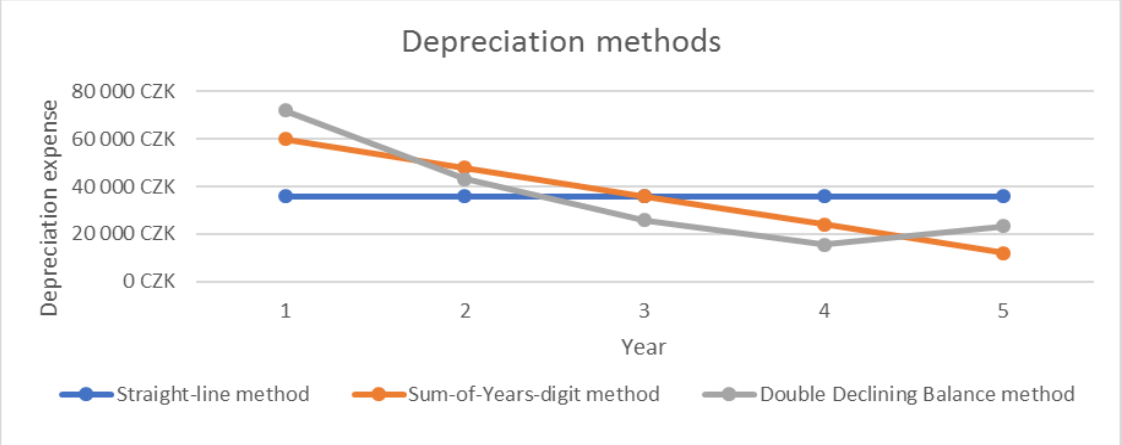
Table 5 Double Declining Balance method

Year	1	2	3	4	5
Opening Book Value	180 000 CZK	108 000 CZK	64 800 CZK	38 880 CZK	23 328 CZK
Depreciation	72 000 CZK	43 200 CZK	25 920 CZK	15 552 CZK	23 328 CZK
Ending Book Value	108 000 CZK	64 800 CZK	38 880 CZK	23 328 CZK	0 CZK

Source: (own data)

In the graph below are presented depreciation methods. Sum-of-Years-digit method and Double Declining Balance method are accelerated methods. Depreciation expense is higher in the beginning and tends to fall at the end of useful life. In the case of Straight-line method, the depreciation expense is constant over the lifetime period.

Figure 2 Comparison of Depreciation methods



Source: (own data, own presentation)

3.3.4 Changes in Net Working Capital

Net Working Capital, also known as Working Capital, is the difference between the corporation's current assets and current liabilities.

$$NWC = \text{Current Assets} - \text{Current Liabilities}$$

Current assets are represented by cash and cash equivalents, accounts receivable and inventory such as raw material or finished goods. On the other hand, under current asset falls accounts payable. Net Working Capital may result in positive or negative values. The positive result of Net Working Capital occurs when the current assets are higher than the current liabilities. This situation is the expected situation and it tells us more about the short-term financial health of the company. If current assets exceed current liabilities, creditors or banking institution know that the company has enough financial resources to cover its short-term debts. (Siddaiah, 2010, p. 307) For these purposes is frequently used working capital ratio which tells more about the ability to pay the short-term debts.

$$\text{Working Capital Ratio} = (\text{Current Assets}/\text{Current Liabilities})$$

Companies with good short-term financial health have Working Capital Ratio between 1.2 and 2. The ratio of 1.3 tells us that the company has enough financial resources to pay 130% of its current liabilities. Ratios higher than 2 may indicate that the management of the company does not use its current assets effectively to generate the maximum possible revenues. Working Capital Ratio lower than 1 and the negative result of Net Working Capital indicates that current liabilities are higher than current assets. The company have liquidity problems and may have difficulties to pay back money to its creditors and banking institutions. (Picardo, 2018)

Changes in Net Working Capital measure the changes in current assets and current liabilities from year to year.

$$\Delta NWC = NWC_X - NWC_{X-1}$$

Positive values indicate that the company is increasing its Net Working Capital. The ability of the company to pay its short-term debts is improving from year to year. Negative values indicate that this firm's ability to pay short-term debts is worse from year to year. These measures are frequently used and observed by the investors and creditors to get additional information about the company's performance.

3.3.5 Capital Expenditures

Capital Expenditures are financial resources used by the company in order to purchase, repair or upgrade property, plant or equipment. Capital Expenditures are usually used when new projects of the company are launched, when the company is trying to expand or when the company needs to modernize its production according to the latest production trends. (Hayes, 2018)

$$\text{Capital Expenditures} = PPE_X - PPE_{X-1}$$

Capital Expenditures are calculated as the value of Property, Plant, and Equipment in the year (x) minus the value of Property, Plant and Equipment in the year (x-1). Positive values signify that the company spent financial resources to acquire, improve or upgrade the state of Property, Plant and Equipment. Negative values show that the company did not use the funds to invest in assets. This is a very unpleasant situation because the Property, Plant, and Equipment lose its value thanks to the depreciation. In the best interest of each company is to invest money at least up to the value of depreciation. In this case, the Capital Expenditures calculated as $PPE_X - PPE_{X-1}$ will be equal to 0.

3.4 Weighted Average Cost of Capital

Weighted Average Cost of Capital, also known as WACC, is the calculation of a firm's cost of capital where both categories of capital are proportionally weighted. (Investopedia, 2018, C) The Company may use two different ways of capital inflow to finance its assets. The first inflow of capital represents the shareholders. These equity owners buy shares of the company with the intent to receive dividends. Share are firstly sold during the initial public offering when the company changes its status to the joint-stock company. Lately, are new shares issued during secondary public offering or can be traded on stock markets. The second possible inflow of capital is represented by lenders. These lenders, mainly banking institutions, provide financial resources to receive interest. In other words, the cost of capital relates to shareholders and the cost of debt with institutions which receives interest for its services. Weighted Average Cost of Capital is the minimum required return that company has to create to pay out dividends and satisfy creditors. (Fernandes, 2014, p. 32) It the company does not pay out dividends. Shareholders will sell these shares on stock markets and the company will lose its values. The higher the supply is the lower the prices are.

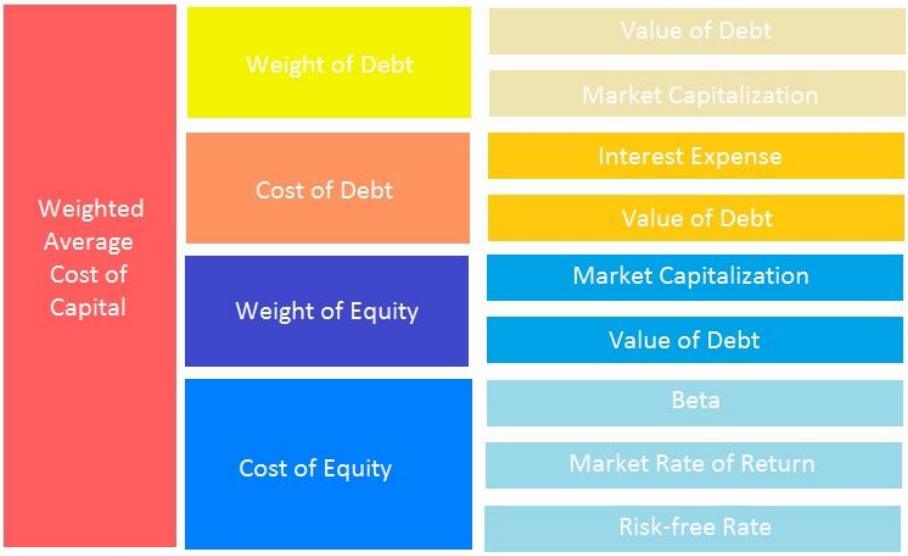
Imagine the situation where the company wants to establish the project and needs to accumulate $200. This sum is proportionally financed by shareholders, who bought shares for $100 and expect a 10% return on investment and by lenders who invested $100 and expect to receive interest of 5%. The Weighted Average Cost of Capital is 7,5%. This project will be successful if it generates returns of $15 per year.

Weighted Average Cost of Capital can be also used to calculate the yield returns on every dollar spent. The only thing which is necessary to know is the WACC and the yield returns. For example, let's have a company with yield returns of 17% and WACC of 9%. It means that the company is yielding 8% of returns on every dollar spent in the company after paying dividends to investors and interest to lenders. Other interpretation of these examples could be that the company is creating 8 cent revenues for every dollar invested.

To calculate a firm's Weighted Average Cost of Capital we need to know Weight of the Debt, Weight of Equity, Cost of Debt and the Cost of Equity. WACC is the sum of weights which are multiplied by its costs.

$$WACC = (\text{Weight of Debt})K_D + (\text{Weight of Equity})K_E$$

Table 6 Components of WACC



Source: (own presentation)

3.4.1 Cost of Equity

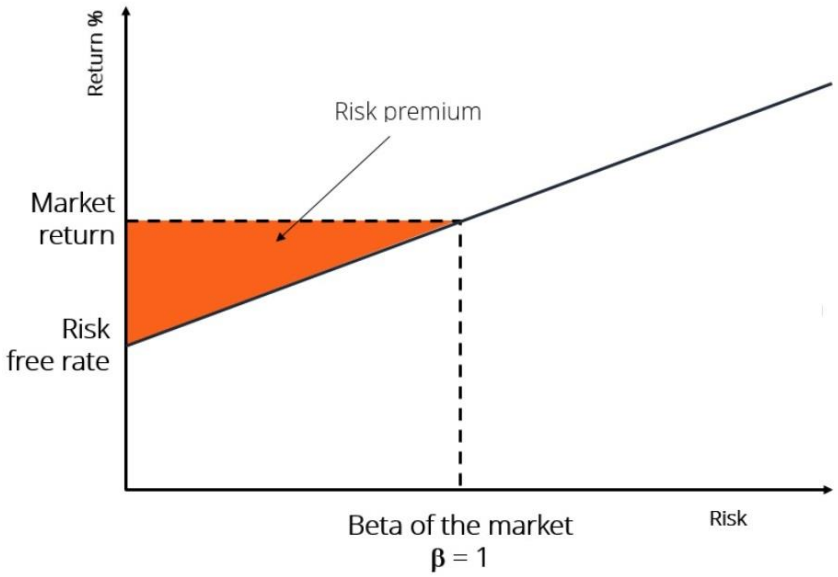
Shareholders own the assets of the company through shares and face the risks related to falling and rising prices on the stock market. As compensation for the risks they expect to receive dividends which are observed by the company as the cost connected to equity. Most frequently used models to calculate Cost of Equity are dividend capitalization model and capital asset pricing model also known as CAPM. First model "Dividend Capitalization Model" is based on the assumption that the company pays out dividends. In this case, dividends are observed as king of obligation to pay which is not true in all cases. (Investopedia, 2018, D)

3.4.1.1 Capital Asset Pricing Model

CAPM model can be used on any stock company. Even if the company does not pay out dividends. Capital Asset Pricing Model is much more complicated than Dividend Capitalization Model. According to the Capital Asset Pricing Model Cost of Equity is established on the volatility of the stock and level of risk related to this stock compared to the general market. (Roche, 2005, p.63) This model will be used in the Practical Part for the calculation of Cost of Equity.

$$\text{CAPM: Cost of Equity} = \text{Risk-Free Rate} + \beta*(\text{Market Rate of Return} - \text{Risk-Free Rate})$$

Figure 3 Capital Asset Pricing Model



Source: (Corporate Finance Institute, 2018)

3.4.1.2 Risk-Free Rate

Each investment is connected with risks. Investors are looking for the highest possible yields with the lowest possible risks. However, higher yields are usually connected with higher risks a vice versa. As a risk-free rate of return is considered such investment which is associated with the lowest risks, also called zero risk. The risk-free rate represents an interest which shareholder should anticipate from a perfectly risk-free investment. Therefore, the risk-free rate is the lowest return that the investor expects from its investment. No investor is willing to accept additional risk unless he gets higher revenues. Risk-free is only theoretical value, in practice, each investment has to face some risks. Generally, the Treasury bill or government bonds are considered to be the safest investment. For the further calculations in the Practical Part, the Risk-Free Rate of Return will be determined according to the yield of United States 10-year bonds which is 0,5%. (Stowe, 2007, p. 48-49)

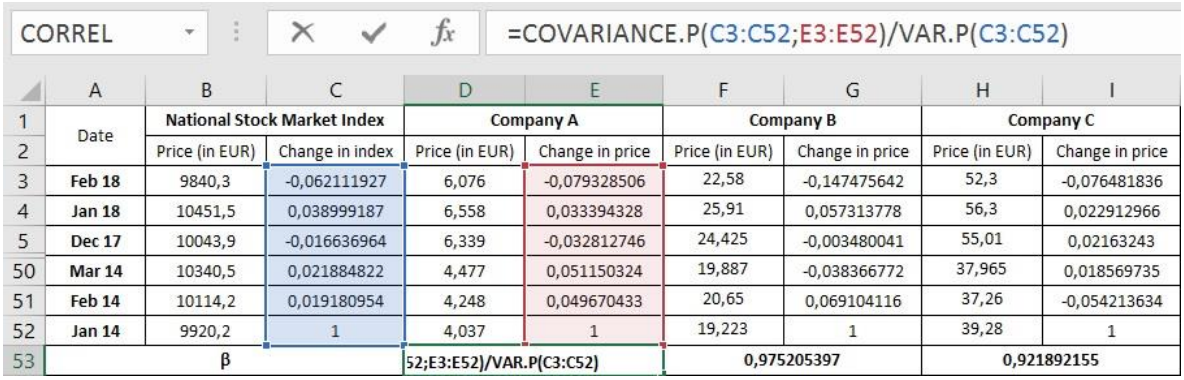
3.4.1.3 β – Beta

One of the variables used for calculation of Capital Asset Pricing Model is β which represents the volatility or systematic risk of certain share compared to the overall market. In fact, variable β measures the differences between returns of the market, in our case

National Stock Market Indices, and returns of companies which are operating in this market. We can distinguish three levels of Beta. For example, the stock market prices of the company have a tendency to grow and fall faster than the general market. In this case, Beta will be greater than 1. On the other hand, Beta lower than 1, signifies volatility of stock which is smaller than the rest of the market. The unique situation represents Beta which is equal to 1. Stock market prices have a tendency to copy the development of the general market. (Livingstone and Grossmann, 2002, p. 614) To estimate Beta, we have to find monthly changes in market prices of National Stock Market Index and companies operating in this index. The Beta will be calculated as Covariance of these changes between index and company and then divided by the variance of changes in the index.

$$\text{Beta} = \text{Covariance}\ (r_i, r_m)/\text{Variance}\ (r_m)$$

Table 7 Beta Calculation



	A	B	C	D	E	F	G	H	I
1	Date	National Stock Market Index		Company A		Company B		Company C	
2		Price (in EUR)	Change in index	Price (in EUR)	Change in price	Price (in EUR)	Change in price	Price (in EUR)	Change in price
3	Feb 18	9840,3	-0,062111927	6,076	-0,079328506	22,58	-0,147475642	52,3	-0,076481836
4	Jan 18	10451,5	0,038999187	6,558	0,033394328	25,91	0,057313778	56,3	0,022912966
5	Dec 17	10043,9	-0,016636964	6,339	-0,032812746	24,425	-0,003480041	55,01	0,02163243
50	Mar 14	10340,5	0,021884822	4,477	0,051150324	19,887	-0,038366772	37,965	0,018569735
51	Feb 14	10114,2	0,019180954	4,248	0,049670433	20,65	0,069104116	37,26	-0,054213634
52	Jan 14	9920,2	1	4,037	1	19,223	1	39,28	1
53	β			52;E3:E52)/VAR.P(C3:C52)		0,975205397		0,921892155	

Source: (own data, own presentation)

3.4.1.4 Market Rate of Return

Share are grouped in various types of indexes such as global, national, industrial etc. Market Rate of Return is expected a gain of the investor who bought a share of any company represented in that index. Very famous indexes for assessment of Market Rate of Return are Dow Jones Industrial Average and S&P 500. However, both are indexes covering mainly American companies. For the purposes of the evaluation of the European stock market, we will use the Market Rate of Return based on EURO Stoxx 50. In 2017, the Market Rate of Return of EURO Stoxx 50 was 6,47%.

EURO Stoxx 50 is Eurozone stock market index which was introduced in 1998. The aim of this index is to cover 50, so-called "blue-chip" companies, operating in

Eurozone. The composition of this index is reviewed each year in September and the index is available in many currencies such as EUR, USD, GBP etc. (Stoxx.com, 2018)

3.4.2 Cost of Debt

The company has two possibilities of how to finance its activities or new projects. One source of financial means is from shareholders and the other from lenders. Cost of Debt is the rate which the company has to pay on its debts on average. Not only loans provided by banking institutions are included in the Cost of Debt, but also interest, that the company agreed to pay, when new bonds were issued.

Cost of Debt will be calculated according to the formula below. Cost of Debt is equal to Interest Expense, which is presented in the annual Income Statement, divided by Value of the Debt, which is presented in the Balance Sheet of the company.

$$\text{Cost of Debt} = \text{Interest Expense}/\text{Value of the Debt}$$

3.4.3 Weight of Debt

The Weight of Debt is one of the measures that describe the capital structure of the company. The Weight of Debt tells us how many percents of the equity is financed by loans.

The Weight of Debt is calculated as Value of Debt, presented in the Balance Sheet, divided by the sum of Market Capitalization and Value of Debt.

$$\text{Weight of Debt} = \text{Value of Debt}/(\text{Market Capitalization} + \text{Value of Debt})$$

3.4.3.1 Market Capitalization

Market Capitalization, in other words, Market Cap, refers to the company value based on the price of its shares. To calculate Market Capitalization, we have to multiply the number of common outstanding shares by the actual market price. (Cunningham and Mansfield, 1996, p. 98) Market Capitalization change very often because prices of shares traded on stock market exchanges differ from one minute to another. Detailed information about the current market price and the number of outstanding shares can be found on webpages such as Investing.com or Bloomberg.com.

Market Capitalization = Current Market Price* Number of Common Outstanding Shares

Types of Market Capitalization:

Large-Capitalization – As large-cap companies are considered businesses with a market capitalization greater than $10 billion. These companies are usually well-known firms and have been on the market for several years. Investing in this kind of companies does not bring a huge return in a short period of time, but the profits are observed after a few years. Investments in large-cap companies bring to investor stable growth in share value and regular dividend pay-out.

Middle-Capitalization – Market capitalization of these companies is between $2 billion and $10 billion. These companies are relatively new players on the market and are famous for their rapid growth. This growth is supported by the process of expansion. These investments into middle-capitalization companies are interesting for shareholders who are looking for a high return. Higher returns bring also higher risks than investors have to face.

Small-Capitalization – Companies with market capitalization from $300 million to $2 billion are classified as small-cap. These companies are very young and usually operate in the market or new industry only for few years. With these companies are linked highest returns due to possible expansion. However, nobody knows if these companies will be able to fight with greater and stable enterprises. (Investopedia, 2018, E)

3.4.4 Weight of Equity

Another measure next to the Weight of Debt is the Weight of the Equity. This measure describes how many percents of equity is financed by the shareholders. The sum of Weight of Debt and Weight of Equity has to be equal to 1. There are not any other capital inflows.

The Weight of Equity is calculated as Market Capitalization divided by the sum of Market Capitalization and Value of Debt.

Weight of Equity = Market Capitalization/(Market Capitalization + Value of Debt)

3.5 Company Value Model

Company value will be calculated according to the formula below. This model is based on Free Cash Flow for the Firm, Weighted Average Cost of Capital and Growth Rate.

$$CV = FCFF_{t=0} + \frac{FCFF_{t=0}(1 + Growth\ Rate)}{1 + WACC} + \frac{FCFF_{t=0}(1 + Growth\ Rate)^2}{(1 + WACC)^2} + \frac{\frac{FCFF_{t=0}(1 + Growth\ Rate)^3}{Growth\ Rate}}{(1 + WACC)^3}$$

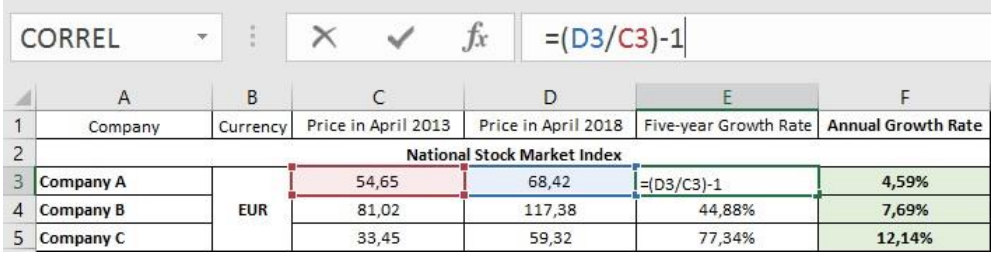
3.5.1 Growth Rate

Growth Rate represents a percentage change of certain variable over a selected period of time. Investors may be interested in various growth rates which indicate the company's performance such as revenues, earnings or dividends. The assessment of the appropriate annual growth rate is one of the most complicated tasks. Company's performance may be excellent over a long time period. However, nobody knows what will happen to economy or market where the company is operating in next year. The slowdown of the economy is not the only factor. The company has to face also political risks, currency risks, company-specific risks or natural disasters.

In our case, we will be interested in the compound annual growth rate of prices of shares which is a necessary component of our formula. The compound annual growth rate shows the average year over year growth rate for a given period. (Michael and Albert J, 2015, p. 28) This compound annual growth rate will be based on the five-year term period. For computation will be used the stock market price from April 2013 and April 2018. The compound annual growth rate will be calculated according to the formula below.

$$CAGR = (Ending\ Value/Beginning\ Value)^{(1/number\ of\ years)} - 1$$

Table 8 Growth Rate Calculation



	A	B	C	D	E	F
1	Company	Currency	Price in April 2013	Price in April 2018	Five-year Growth Rate	Annual Growth Rate
2	National Stock Market Index					
3	Company A	EUR	54,65	68,42	=(D3/C3)-1	4,59%
4	Company B		81,02	117,38	44,88%	7,69%
5	Company C		33,45	59,32	77,34%	12,14%

Source: (own data, own presentation)

3.6 Price per Share

According to the formula presented in the previous part the overall Company Value is calculated. Finally, the Price per Share can be obtained after the division of Company Value by the number of outstanding shares which is presented by the company.

$$\text{Price per Share} = \text{Company Value}/\text{Number of outstanding shares}$$

3.6.1 Interpretation of results

After the model is completed, three different situations may occur.

Calculated Value > Market Value

When the calculated value is greater than the market value we can conclude that the shares of a certain company are undervalued. Investors should invest their financial resources and expect the growth in share value. The market price of a share should grow according to this model and financial statements from certain date up to the calculated value.

Calculated Value < Market Value

Calculated price per share is lower than the market price of share. This result tells us that the shares of the selected company are overvalued. Investors holding this kind of shares should sell them on the stock market. If they do not do so, they may face a decline in market prices. The market prices of a shares should drop to the calculated value.

Calculated Value = Market Value

The situation where the calculated value will be equal to market value is very unique. Stock market prices are changing from one minute to another, so in a few moments, the situation may be different. We can speak about this situation when the prices fluctuate around each other. It is up to the investor whether to sell these shares or wait for several days.An investor can also base its decision on some other financial models which are evaluating the prices of shares or performance of the company.

3.7 Literature review

Free Cash Flow for the Firm is a cash-based calculation, which can be used by shareholders as the initial point for company analysis. Free Cash Flow for the Firm represents the amount of money that can be used for deployment, stock buybacks, dividends, and debt repayments. (Christy, 2009)

There are many shareholders and investors with a strong preference for Free Cash Flow valuation models over the dividend discount models. The reason is that companies pay fewer dividends than the value of their Free Cash Flow. Dividends are money paid to shareholders, Free Cash Flow is cash flow available to shareholders if they controlled the company. (Stowe, 2007, p. 134)

Companies with negative Free Cash Flow have to borrow additional funds to cover their interest and debt obligations, or cut their long-term investment, or issue additional shares. (Palepu, 2009, p. 221)

A company's Weighted Average Cost of Capital establishes the level of return on capital the company must achieve to cover its Cost of Capital. (Dickie, 2006, p. 227)

Calculation of Weighted Average Cost of Capital may be used in many situations. The measure is appropriate for project selection in capital budgeting. The proportions of debt financing and equity financing may differ according to the specifications of the project. (Grabowski, Harrington and Nunes, 2017, p. 79)

The Capital Asset Pricing Model is a measure that tries to evaluate shares, securities or assets by relating expected risk and rate of return. The idea of Capital Asset Pricing Modes is based on the fact that shareholders demand additional expected return if they have to face additional risk. (Pahl, 2007, p. 18)

Investors require that share with Beta of 1,3 will give them a higher return than share with Beta of 1. The results of studies generally show a positive relationship between Beta and future returns. (Arnold, 2004, p. 247)

The risk-free rate is the interest rate, which represents interest rate on totally risk-free security. However, there are no risk-free securities, as the most risk-free securities are considered treasury bills. (Brigham and Houston, 2017, p. 197)

4 Practical Part

For the evaluation of the European stock market were selected companies from the table below. Companies were selected from national stock market indexes such as CAC 40, IBEX 35, DAX 30 and AEX. From each national stock market index were selected three companies according to market capitalization. First selected company belongs to companies with high market capitalization from € 37 billion. Second company belongs to medium market capitalization with the range from € 17 to € 37 billion. Group of low market capitalization is formed by companies with market capitalization up to € 13 billion.

Market Capitalization	Range
High	more than € 37 billion
Medium	from € 13 up to € 37 billion
Low	less than € 13 billion

National stock market index	Selected companies
DAX 30	Siemens, Fresenius SE and Lufthansa
IBEX 35	Iberdrola, Grifols, Viscofan
CAC 40	Vinci, STMicroelectronics, Veolia Environnement
AEX	Unilever, Wolters Kluwer, Aalberts Industries

Table 9 Market Capitalization on February 28, 2018

Market Capitalization								
Number	CAC 40 (in EUR)		IBEX 35 (in EUR)		DAX 30 (in EUR)		AEX (in EUR)	
1.	Louis Vuitton	125.20B	Santander	95.70B	SAP	113.13B	Royal Dutch Shell A	235.52B
2.	Total	120.79B	BBVA	50.46B	Siemens AG	103.00B	Unilever NV DRC	144.29B
3.	L'Oreal	99.38B	Telefonica	39.67B	Allianz	83.43B	ASML Holding	75.16B
4.	Sanofi	82.84B	Iberdrola	39.60B	BASF	81.62B	Heineken	49.81B
5.	BNP Paribas	81.83B	Amadeus	26.34B	Bayer	81.12B	ING Groep	46.76B
6.	Airbus Group	76.46B	Caixabank	26.11B	Daimler	78.88B	Relx NV	39.49B
7.	AXA	62.85B	Aena	25.34B	Volkswagen VZO	74.27B	Philips	35.87B
8.	Kering	49.58B	Repsol	22.12B	Deutsche Telekom AG	63.26B	Ahold Delhaize	26.50B
9.	Vinci	48.94B	Abertis	19.33B	BMW ST	58.40B	ArcelorMittal	26.08B
10.	Danone	44.67B	Endesa	18.67B	Deutsche Post	48.48B	WFD Unibail Rodamco	25.78B
11.	Air Liquide	44.28B	Gas Natural	17.70B	Continental AG	47.70B	Akzo Nobel	20.21B
12.	Schneider Electric	43.04B	Grifols	14.93B	Henkel VZO	44.02B	Koninklijke DSM	16.35B
13.	Credit Agricole	40.34B	Gamesa	14.00B	Adidas	38.52B	Wolters Kluwer	16.03B
14.	Safran	38.10B	Ferrovial	13.17B	Fresenius SE	36.09B	NN Group NV	12.59B
15.	Societe Generale	37.87B	Bankia	12.64B	Linde	34.08B	ABN AMRO	11.17B
16.	Orange	37.16B	B. Sabadell	10.69B	Deutsche Bank AG	30.04B	Aegon	11.02B
17.	Pernod Ricard	35.87B	ACS	9.06B	Muench. Rueckvers.	29.53B	Randstad	9.90B
18.	Engie	31.83B	Red Electrica	8.78B	Fresenius ST	27.21B	Koninklijke KPN	9.50B
19.	ArcelorMittal	29.55B	Mapfre	8.48B	Infineon	26.87B	ASR Nederland	5.68B
20.	Vivendi	27.36B	Bankinter	7.80B	E.ON SE	23.21B	Vopak NV	5.44B
21.	Renault	26.22B	Merlin Properties SA	5.21B	Beiersdorf AG	22.92B	Galapagos	4.60B
22.	Saint Gobain	25.88B	Enagas	4.93B	Deutsche Boerse	20.42B	Gemalto	4.53B
23.	Essilor International	23.57B	Acciona	3.97B	Vonovia	18.29B	Altice	4.23B
24.	Michelin	22.69B	Inmobiliaria Colonial	3.91B	Heidelbergcement	16.57B	Aalberts Industries	4.05B
25.	STMicroelectronics	19.36B	Cellnex Telecom	3.83B	Commerzbank	15.98B	Philips Lighting	3.30B
26.	Unibail Rodamco	19.00B	Acerinox	3.36B	Thyssenkrupp AG	14.38B		
27.	Cap Gemini	17.26B	Mediaset	3.17B	RWE AG ST	13.49B		
28.	Legrand	17.26B	Melia Hotels	2.57B	Lufthansa	12.34B		
29.	Peugeot	16.46B	Viscofan	2.49B	Merck	11.94B		
30.	Bouygues	15.46B	DIA	2.43B	Prosiebensat	6.61B		
31.	Sodexo	15.02B	Indra A	1.96B				
32.	Carrefour	14.62B	Tecnicas Reunidas	1.44B				
33.	Publicis Groupe	14.11B						
34.	Accor	13.91B						
35.	Valeo SA	13.07B						
36.	Solvay	12.41B						
37.	Atos	11.41B						
38.	Veolia Environnement	11.30B						
39.	TechnipFMC	8.00B						

4.1 DAX 30

Siemens AG, Fresenius SE & Co. KGaA and Deutsche Lufthansa AG are selected companies from DAX 30 used for evaluation of the German stock market.

4.1.1 Siemens AG

Company overview – Siemens in one of the most famous German companies with headquarter in Berlin and Munich. The company was founded on October 12, 1847, by Werner von Siemens. Siemens is a multi-industry company with many fields of operations. The basic divisions of the company are Industry, Energy, Healthcare and Infrastructure & Cities. There are more than 285 production and manufacturing facilities in around 190 countries all over the world. During the last five years, the number of employees fluctuated from 348 to 372 thousand. The most successful areas where the highest growth was noticed are Electrification, Automation, and Digitalization. Siemens is a component of Euro Stoxx 50 and also part of the DAX 30 stock market index.

Position of Siemens AG: According to the distribution of the companies into high, medium and low Market Capitalization, Siemens AG belongs to the group of high Market Capitalization with € 103,00 billion. On April 7, 2018, the price per share was € 104,5.

Interpretation of result and recommendation for investors:

- Free Cash Flow for the Firm reaches a positive value of € 4,74 billion which tells us about good financial health of the company.
- Companies assets are mainly financed by the Equity funding (76%) and the rest (24%) by the Debt funding. The Weighted Average Cost of Capital is 5,73%.
- Based on the financial statements from September 2017 and calculations the company value reached € 96,2 billion. The number of outstanding shares in September 2017 was 815.518.880.
- New calculated price per share is € 117,97. The calculated price per share is higher than the market prices. According to financial statements from September 2017, investors should invest their financial resources and buy shares of Siemens AG. The expected growth in the price of shares is up to € 117,97.

Table 10 Siemens AG

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**7,64**	**Taxes =**	**2,18**
Depreciation =	**1,93**	**Amortization =**	**1,28**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	43,39	Current Assets(2017) =	58,43
Current Liabilities (2016) =	42,92	Current Assets(2016) =	55,33
NWC =	Current Asset - Current liabilities		
NWC(2017) =	15,04		
NWC(2016) =	12,41	**ΔNWC =**	**2,63**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	27,02		
PPE(2016) =	25,72	**CAPEX =**	**1,3**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**4,74**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**1,05**	**Value of the Debt =**	**32,3**
Return of Market (in %) =	**0,0647**	**β =**	**1,007**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**103**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**3,25%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,51%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,238728751**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,761271249**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,73%**
COMPANY VALUE			
Growth Rate =	**5,82%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 96,20 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	815518880	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**117,97**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.1.2 Fresenius SE & Co. KGaA

Company overview - Fresenius is a German-based company which operates in the field of medical care. The Company was founded in 1912 by Germain businessman and pharmacist Eduard Fresenius. Under the Fresenius Group, we can find four divisions: Fresenius Medical Care, Fresenius Helios, Fresenius Kabi, and Fresenius Vamed. Fresenius Medical Care is the biggest hospital operator in Germany with more than 110 hospitals and the capacity to cure more than 4 million people every year. In 2016 Fresenius become the largest hospital group in Europe when the company decided to buy the Spanish hospital group and merged it with Helios. The number of employees is increasing, according to the annual report presented by the company in October 2017, Fresenius had 270 thousand of employees. Fresenius, the company with the headquarter in Bad Homburg, is part of DAX 30 and the component of Euro Stoxx 50.

Position of Fresenius SE & Co. KGaA: Fresenius belongs to the group of companies with the medium Market Capitalization with € 36,09 billion. On April 7, 2018, the price per share was € 63,38.

Interpretation of result and recommendation for investors:

- Free Cash Flow for Firm has a positive value of € 3,01 billion. However, it is mainly because of relatively high EBIT, Depreciation and negative values of NWC and CAPEX. Negative values of Changes in Net Working Capital shows that the company may have difficulties to pay its short-term debts. Also, Capital Expenditures have negative values which means that Fresenius did not invest in property, plant or equipment which later become part of depreciation expense.

- The Cost of the Debt in the case of Fresenius is relatively high 5,5%. The company prefers to use the Equity funding which represents 85% of capital inflow.

- According to the calculations, the price per share should be € 64,46. The market price is € 63,38. Calculated price is higher than the market price, shares are traded undervalued. Shareholders should invest their funds and expect the growth in price. However, the difference between calculated and market price is very low (difference of € 1,08). We can conclude that shares are correctly rated.

Table 11 Fresenius SE & Co. KGaA

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**2,14**	**Taxes =**	**0,454**
Depreciation =	**0,622**	**Amortization =**	**0,112**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	5,3	Current Assets(2017) =	6,36
Current Liabilities (2016) =	5,3	Current Assets(2016) =	6,87
NWC =	Current Asset - Current liabilities		
NWC(2017) =	1,06		
NWC(2016) =	1,57	**ΔNWC =**	**-0,51**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	7,66		
PPE(2016) =	7,74	**CAPEX =**	**-0,08**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**3,01**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,361**	**Value of the Debt =**	**6,559**
Return of Market (in %) =	**0,0647**	**β =**	**0,9653**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**36,09**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**5,50%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,26%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,153790241**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,846209759**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**6,14%**
COMPANY VALUE			
Growth Rate =	**14,83%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 35,74 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	554536698	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**64,46**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.1.3 Deutsche Lufthansa AG

Company overview – Lufthansa is the biggest airline in Germany with headquarter in Cologne and one of the founding members of Star Alliance. Lufthansa together with its subsidiaries such as Air Dolomiti, Austrian Airlines, Brussels Airlines, and Eurowings form the largest airline in Europe taking into consideration fleet size and the number of passengers transported during 2017. In 2017 Lufthansa provided working opportunity for 129 424 employees. However, relations between the company and its employees are very fragile during last few years. There were in total 14 strikes in 2017 and many flights were canceled. Company lost part of its credibility and the financial losses were noticed.

Position of Deutsche Lufthansa AG: Lufthansa falls into the group of companies with the lowest Market Capitalization up to 13 billion. On February 28, 2018, the Market Capitalization was € 12,34 billion. On April 6, 2018, the price per share was € 26,35.

Interpretation of result and recommendation for investors:

- Free Cash Flow for the firm has a positive value of € 1,361 billion. Lufthansa has the highest Capital Expenditures out of the companies from DAX 30, which were selected for the evaluation. In 2017, the company invested almost € 3 billion on property, plant, and equipment.

- Company's Beta is lower than one, precisely 0,9847. In this case, the fluctuations in the prices of shares are smaller than in the general market.

- Lufthansa's Weighted Average Cost of Capital is 5,19%. WACC is mainly influenced by the Cost of Debt which is very low only 3,05%. Compared to Siemens and Fresenius the Weight of the Debt is high 35,6%.

- The calculated value of the company is much higher than the value of Market Capitalization on February 28, 2017. New calculated price per share is € 40,04 and the market price per share on April 6, 2018, was € 26,35. Out of the three companies evaluated in DAX 30, Lufthansa shows the highest potential in the growth of price per share. Investors should definitely invest in shares of Lufthansa.

Table 12 Lufthansa AG

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**2,38**	**Taxes =**	**0,789**
Depreciation =	**1,97**	**Amortization =**	**0**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	12,64	Current Assets(2017) =	11,03
Current Liabilities (2016) =	11,01	Current Assets(2016) =	10,19
NWC =	Current Asset - Current liabilities		
NWC(2017) =	-1,61		
NWC(2016) =	-0,82	**ΔNWC =**	**-0,79**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	38,17		
PPE(2016) =	35,18	**CAPEX =**	**2,99**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**1,361**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,208**	**Value of the Debt =**	**6,812**
Return of Market (in %) =	**0,0647**	**β =**	**0,9847**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**12,34**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**3,05%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,38%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,355680869**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,644319131**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,19%**
COMPANY VALUE			
Growth Rate =	**11,12%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 18,87 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	471259644	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**40,04**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.2 IBEX 35

For the evaluation of the Spanish stock market are selected following companies from IBEX 35: Iberdrola, S.A; Grifols, S.A. and Viscofan, S. A.

4.2.1 Iberdrola, S.A.

Company overview – Iberdrola is a multinational company with headquarters in Bilbao, which focuses on the production of energy and distribution of gas and electricity to consumers. Since its foundation in 1992, the company has achieved many successes. Taking into consideration the Market Capitalization, Iberdrola is the largest energy enterprise in Spain. The company operates on four continents and provides services for more than 31 million customers. Iberdrola forms the component of Euro Stoxx 50 and IBEX 35.

Position of Iberdrola, S.A.: Iberdrola is in the group of companies with the highest Market Capitalization. On February 28, 2018, the Market Capitalization reached € 39,6 billion. Stock market price per share was € 6,01 on April 7, 2018.

Interpretation of result and recommendation for investors:

- According to financial statements from 2017 and 2016, in both years Current Liabilities are higher than Current Assets. Net Working Capital for 2017 as well as for 2016 is negative. However, Change in NWC from 2016 to 2017 is positive.

- Iberdrola has high Value of the Debt € 37,88 billion, almost as high as the value Market Capitalization. Company's sources of capital are in balances. Financial resources coming from shareholders represent 51% of equity and the debt represents the remaining part. Cost of Debt is very low only 2,75% which also support company's decision to use debt funding. WACC is 4,53%.

- Calculated price per share is € 10,36 and the stock market price is € 6,01. Shares of Iberdrola traded on the stock market exchange are undervalued. According to the calculations based on financial statements from December 2017, price per share will grow up to € 10,36. Iberdrola is one of the good opportunities where investors will benefit. Investors should purchase shares of Iberdrola, S.A.

Table 13 Iberdrola, S.A.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**2,1**	**Taxes =**	**1,4**
Depreciation =	**2,64**	**Amortization =**	**0,542**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	16,73	Current Assets(2017) =	13,8
Current Liabilities (2016) =	14,08	Current Assets(2016) =	10,73
NWC =	Current Asset - Current liabilities		
NWC(2017) =	-2,93		
NWC(2016) =	-3,35	**ΔNWC =**	**0,42**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	101,77		
PPE(2016) =	103,31	**CAPEX =**	**-1,54**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**5,002**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**1,04**	**Value of the Debt =**	**37,88**
Return of Market (in %) =	**0,0647**	**β =**	**0,9619**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**39,6**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**2,75%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,24%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,488900361**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,511099639**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**4,53%**
COMPANY VALUE			
Growth Rate =	**12,51%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 66,32 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	6402466914	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**10,36**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.2.2 Grifols, S.A.

Company overview – Grifols is a Spanish multinational company which concentrates on the production of chemicals and pharmaceuticals. Grifols mainly focuses on products based on blood plasma. The company was founded in 1940 by the scientist Dr. José A. Grifols Roig and current headquarters is located in Barcelona. Grifols possess more than 150 centers in the United States where millions of liters of blood plasma are donated every year. The company operates in more than 30 countries and employs about 20 thousand people. Grifols went public in 2006 and since this year shares are traded on Madrid Stock Exchange. Two years later Grifols became part of IBEX 35.

Position of Grifols, S.A.: On February 28, 2018, the Market Capitalization of Grifols was € 14,92 billion. The company belongs to the group of middle Market Capitalization. The stock market price on April 7, 2018, was € 22,77.

Interpretation of result and recommendation for investors:

- Free Cash Flow for Firm is € 1,2 billion. The company has almost no changes in Net Working Capital. From 2016 to 2017 Net Working Capital decreased by € 77 million and the Capital Expenditures increased by € 20 million.

- The Beta of 0,9752 signifies that the volatility of shares of Grifols will be lower than the volatility of the general market.

- Grifols's Weighted Average Cost of Capital is 5,75%. The company prefers to use equity funding (71%) rather than the debt funding (29%).

- Company's annual growth rate from April 2013 to April 2018 is 8,36%. In comparison with other medium scale companies used for evaluation, Grifols has the lowest annual growth rate based five-year period.

- By the division of calculated company value by the number of outstanding shares, we get to the new price per share which is € 29,06. Calculated price is higher than the market price. Share are undervalued and the recommendation for investors is clear. Investors should purchase shares of Grifols and expect growth.

Table 14 Grifols, S.A.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**0,999**	**Taxes =**	**0,034**
Depreciation =	**0,151**	**Amortization =**	**0,064**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	0,977	Current Assets(2017) =	2,95
Current Liabilities (2016) =	1,07	Current Assets(2016) =	3,12
NWC =	Current Asset - Current liabilities		
NWC(2017) =	1,973		
NWC(2016) =	2,05	**ΔNWC =**	**-0,077**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	2,64		
PPE(2016) =	2,62	**CAPEX =**	**0,02**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**1,237**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,259**	**Value of the Debt =**	**5,994**
Return of Market (in %) =	**0,0647**	**β =**	**0,9752**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**14,93**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**4,32%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,32%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,286465303**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,713534697**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,75%**
COMPANY VALUE			
Growth Rate =	**8,36%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 19,85 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	683257102	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**29,06**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.2.3 Viscofan, S.A.

Company overview – Viscofan is a Spanish producer of various covers used in meat production. The company produces covers of four types: plastic, fibrous, collagen and cellulose. These covers are used in meat production to replace common animal casings. The company was established in 1975 and its shares are traded on Madrid Stock Exchange since 1986. Viscofan has 10 manufacturing centers all over the world, one of the centers is also located in the Czech Republic. Majority of its products is exported to more than 100 countries.

Position of Viscofan, S.A.: Viscofan is the smallest company used for analysis. Therefore, a company belongs to the group of companies with the lowest Market Capitalization. On February 28, 2018, the Market Capitalization was € 2,41 billion. The price per share on April 7, 2018, was € 56,25.

Interpretation of result and recommendation for investors:

- Free Cash Flow for Firm has a positive value of € 121 million. There are almost no Changes in Net Working Capital from 2016 to 2017. Capital Expenditures increased from 2016 to 2017 by € 60 million.

- Company's Beta is the lowest out of all companies used for the analysis. Beta is only 0,92 which means that the volatility of shares will be definitely lower than fluctuations on the general market.

- Viscofan has the biggest gap between equity funding and debt funding. In total 97% of the company's assets are financed by the shareholders and the remaining 3% by loans.

- The growth rate of the company is relatively low only 7,35%. This is the lowest growth rate out of all low and medium Market Capitalization companies.

- New calculated price per share is € 43,13. Calculated price is lower than the market prices. Shares of Viscofan traded on the stock market exchange are overvalued. Shareholders should sell shares of Viscofan in order to minimize their financial losses.

Table 15 Viscofan, S.A.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**0,146**	**Taxes =**	**0,023**
Depreciation =	**0,052**	**Amortization =**	**0,003**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	0,113	Current Assets(2017) =	0,445
Current Liabilities (2016) =	0,118	Current Assets(2016) =	0,453
NWC =	Current Asset - Current liabilities		
NWC(2017) =	0,332		
NWC(2016) =	0,335	**ΔNWC =**	**-0,003**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	1,17		
PPE(2016) =	1,11	**CAPEX =**	**0,06**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**0,121**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,001**	**Value of the Debt =**	**0,068**
Return of Market (in %) =	**0,0647**	**β =**	**0,9218**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**2,49**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**1,47%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,00%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,026583268**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,973416732**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,88%**
COMPANY VALUE			
Growth Rate =	**7,35%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 2,12 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	46603682	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**46,13**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.3 CAC 40

For the evaluation of the French stock market are selected companies from CAC 40. These companies are the following: Vinci S.A; STMicroelectronics N. V. and Veolia Environnement S.A.

4.3.1 Vinci S.A.

Company overview – Vinci S.A. is a French-based company operating in the field of constructions. The company was founded in 1899 and its original name was "Société Générale d'Enterprises". In 2000 this name was changed to Vinci. The company operates in more than 100 countries and all over the world company employs more than 194 thousand people. Vinci forms the component of Euro Stoxx 50 and CAC 40.

Position of Vinci, S.A.: Vinci belongs to companies with high Market Capitalization. On February 28, 2018, the Market Capitalization was € 48.94 billion. Stock market price on April 4, 2018, was € 80,22.

Interpretation of result and recommendation for investors:

- In comparison with other high Market Capitalization companies, Vinci has the lowest value of Free Cash Flow for Firm. On the other hand, the Change in Net Working Capital is positive in the value of € 2,09 billion.
- Company's Beta is lower than 1 which means that the volatility of shares of Vinci is lower than the volatility on the general market.
- Weighted Average Cost of Capital equals to 5,2%. In total 70% of the company's assets is financed by shareholders and the rest (30%) by loans.
- Company Value according to the calculations is lower than the value of Market Capitalization. There is a huge difference of 18, 86 billion.
- Calculated price per share is € 54, 22. New price is lower than the stock market price. Shares of Vinci S.A. are overvalued. According to the calculation based on financial statements from September 2017, investors may expect fall in price. Investors holding stock of Vinci should sell these shares.

Table 16 Vinci S.A.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**4,31**	**Taxes =**	**1,27**
Depreciation =	**0,985**	**Amortization =**	**1,14**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	30,03	Current Assets(2017) =	26,28
Current Liabilities (2016) =	29,82	Current Assets(2016) =	23,98
NWC =	Current Asset - Current liabilities		
NWC(2017) =	-3,75		
NWC(2016) =	-5,84	**ΔNWC =**	**2,09**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	13,42		
PPE(2016) =	12,97	**CAPEX =**	**0,45**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**2,625**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,567**	**Value of the Debt =**	**21,44**
Return of Market (in %) =	**0,0647**	**β =**	**0,9747**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**48,94**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**2,64%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,32%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,304631998**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,695368002**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,20%**
COMPANY VALUE			
Growth Rate =	**17,25%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 30,08 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	554899580	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**54,22**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.3.2 STMicroelectronics N.V.

Company overview – STMicroelectronics is a multinational electronics company which focuses on the production of components such as integrated circuits, transistors, memories, and many others. STMicroelectronics is a French-Italian company, it was established in 1987 by the merge of Italian SGS Microelettronica and French company Thomson. Top management and the main administrative center are located in Geneva. However, the company is officially registered in Amsterdam. The number of employees in 2017 exceeded 45 thousand. STMicroelectronics forms the component of CAC 40. Shares of the company are traded on the European Stock Exchange, New York Stock Exchange and Italy's Stock Exchange which is called Borsa Italiana.

Position of STMicroelectronics N. V.: Company belongs to the group of middle Market Capitalization. On February 28, 2018, the Market Capitalization was € 19,36 billion. Shares of STMicroelectronics were traded on April 7, 2018, for € 17,34.

Interpretation of result and recommendation for investors:

- Free Cash Flow for the Firm has a positive value of 1,348 billion. There are no changes in Capital Expenditures from 2016 to 2017. The company has a decrease in Change of Net Working Capital in the value of € 80 million.

- Company's Beta is greater than 1. Decreases and increases in prices of shares are higher than the changes in the general market.

- The company prefers to use Equity funding rather than Debt funding. 94% of all assets are financed by the financial resources coming from shareholders and 6% from banking loans.

- The annual growth rate is 21,3% which is one of the highest rates calculated.

- According to the analysis based on the financial statements from September 2017, price per share should be € 15,98. New calculated price per share is lower than the market price on April 7, 2018. Share are overvalued. Investors should sell shares of STMicroelectronics.

Table 17 STMicroelectronics N.V.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**0,709**	**Taxes =**	**0,016**
Depreciation =	**0,524**	**Amortization =**	**0,051**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	1,68	Current Assets(2017) =	4,25
Current Liabilities (2016) =	1,51	Current Assets(2016) =	4,16
NWC =	Current Asset - Current liabilities		
NWC(2017) =	2,57		
NWC(2016) =	2,65	**ΔNWC =**	**-0,08**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	16,13		
PPE(2016) =	16,13	**CAPEX =**	**0**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**1,348**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,046**	**Value of the Debt =**	**1,32**
Return of Market (in %) =	**0,0647**	**β =**	**1,0157**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**19,36**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**3,48%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,56%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,063829787**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,936170213**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**6,36%**
COMPANY VALUE			
Growth Rate =	**21,30%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 14,19 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	887810197	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**15,98**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.3.3 Veolia Environnement S.A.

Company overview – Veolia Environnement is a French company operating in the field of public services. Company's current name was introduced in 2003 when the Vivendi S.A. was renamed to Veolia Environnement S.A. Long history of the company dates back to the nineteenth century when the predecessor of Veolia known as "Compagnie Générale des Eaux" was founded. The company manages three main areas: water management, waste management, and energy services. In 2016 the number of employees reached 163 thousand. Veolia Environnement forms the component of CAC 40 and its shares are traded on London Stock Exchange.

Position of Veolia Environnement S.A.: Veolia Environnement belongs to companies with low Market Capitalization. Company's Market Capitalization on February 28, 2018, was € 11,3 billion. Price per share on April 7, 2018, was € 19,33.

Interpretation of result and recommendation for investors:

- Free Cash Flow for Firm has a positive value of € 1,084 billion. Net Working Capital in 2016 was negative. Company's current liabilities in 2016 exceeded current assets. This situation improved in 2017 when current assets were higher than current liabilities. The company had positive Changes in Net Working Capital in the value of € 1,29 billion.

- In the case of Veolia Environnement, the majority of financial resources comes from bank loans, the value of the Debt is higher than the value of the Market Capitalization. Debt funding represents 58% and the Cost of Debt is relatively low only 2,31%. Remaining part of 42% is financed by shareholders where the Cost of Equity is 6,29%. Weighted Average Cost of Capital is 3,99%.

- According to the calculations based on financial statements from September 2017, calculated company value is € 14,3 billion. New price per share is € 26,02 which is higher than the price per share traded on stock exchanges. Shares of Veolia are undervalued. Investors should invest their financial resources and purchase shares of Veolia. They can expect the growth in price per share up to € 26,02.

Table 18 Veolia Environnement S.A.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**1,12**	**Taxes =**	**0,227**
Depreciation =	**0,963**	**Amortization =**	**0,628**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	15,89	Current Assets(2017) =	16,67
Current Liabilities (2016) =	16	Current Assets(2016) =	15,49
NWC =	Current Asset - Current liabilities		
NWC(2017) =	0,78		
NWC(2016) =	-0,51	**ΔNWC =**	**1,29**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	7,29		
PPE(2016) =	7,18	**CAPEX =**	**0,11**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**1,084**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,357**	**Value of the Debt =**	**15,48**
Return of Market (in %) =	**0,0647**	**β =**	**0,9701**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**11,3**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**2,31%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,29%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,578043316**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,421956684**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**3,99%**
COMPANY VALUE			
Growth Rate =	**13,05%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 14,30 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	549659988	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**26,02**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.4 AEX

For the evaluation of the Dutch stock market were selected companies from the Amsterdam Exchange Index, generally known as AEX. Among selected companies are Unilever N.V; Wolters Kluwer N.V. and Aalberts Industries N.V.

4.4.1 Unilever N.V.

Company overview – Company was established in 1929 when the Dutch company Margarine Union agreed to merge with British company Lever Brother. New common name Unilever is the combination of names of original companies. The company sells its products in more than 190 countries and owns around 400 brands. The most famous brands are Axe, Dove, Lipton or Magnum. Unilever operates in fields such as personal care, home care, food, and refreshment. During the last five years, the number of employees decreased to 165 thousand. The company forms the component of various indexes such as Euro Stoxx 50, CAC 40 and FTSE 100 index which is the stock market index of the United Kingdom.

Position of Unilever N.V.: Unilever is a company with high Market Capitalization. On February 28, 2018, the Market Capitalization reached € 144,29 billion. On April 7, 2018, price per share was € 46,97.

Interpretation of result and recommendation for investors:

- Unilever has the highest value of Free Cash for the Firm out of all companies used for the evaluation of the European stock market. Unilever's FCFF is € 9,77 billion.
- The Beta of the company is equal to 1 which is a very rare situation. Fluctuations in prices of shares match with the fluctuations on the general stock market.
- Weighted Average Cost of Capital is 5,89%. In total 86% of assets are financed by the Shareholders with the Cost of Equity equal to 6,47%
- Calculated price per share is higher than the stock market price on April 7, 2018. Share are traded undervalued. Investors should invest their funds and expect the growth in price per share up to € 58,55.

Table 19 Unilever N.V.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**8,54**	**Taxes =**	**1,67**
Depreciation =	**1,54**	**Amortization =**	**0**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	23,18	Current Assets(2017) =	16,98
Current Liabilities (2016) =	20,56	Current Assets(2016) =	13,88
NWC =	Current Asset - Current liabilities		
NWC(2017) =	-6,2		
NWC(2016) =	-6,68	**ΔNWC =**	**0,48**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	19,42		
PPE(2016) =	21,26	**CAPEX =**	**-1,84**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**9,77**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,569**	**Value of the Debt =**	**23,84**
Return of Market (in %) =	**0,0647**	**β =**	**1**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**144,29**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**2,39%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,47%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,14179504**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,85820496**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,89%**
COMPANY VALUE			
Growth Rate =	**7,98%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 160,35 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	2738881591	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**58,55**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.4.2 Wolters Kluwer N.V.

Company overview – Wolters Kluwer is one of the world's leading publishers and providers of information services. The company was officially founded in 1987 by the merge of Kluwer and the company called Wolters-Samson. However, the history of the former Kluwer company goes back to 1836. Wolters Kluwer operates in fields such as legal solutions, tax & accounting, and health & governance. Majority of the company's revenues comes from software and services. The number of employees is around 19 thousand and the headquarters of the company is located in Alphen aan den Rijn in the Netherlands. Company forms the component of Amsterdam Exchange Index.

Position of Wolters Kluwer N.V.: Wolters Kluwer belongs to the group of companies with middle Market Capitalization. The Market Capitalization was € 16,03 billion on February 28, 2018. Shares of the company were traded on stock market exchanges for the price of € 43,28 on April 7, 2018.

Interpretation of result and recommendation for investors:

- Wolters Kluwer has negative values of Net Working Capital in 2016 and 2017. These negative values may signify difficulties related to pay its short-term debts. Even the Change in Net Working Capital from 2016 to 2017 is negative which means that the situation got worse in 2017. Company's Free Cash Flow for Firm is € 1,266 billion.

- Weighted Average Cost of Capital is 5,93%. Wolters Kluwer prefers to use equity funding. 84% of the company's assets are financed by the shareholders with Cost of Equity equal to 6,38%. Remaining 16% is financed by loans with the Cost of Debt equal to 3,64%.

- Company's Annual Growth Rate from 2013 to 2018 is 21,68 which is the highest growth rate out of all companies used for the analysis.

- Calculated price per share is € 48,39. New calculated price per share is higher than the market prices. Shares of Wolters Kluwer are traded undervalued. Investors should invest and buy shares of this company.

Table 20 Wolters Kluwer N.V.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**0,8**	**Taxes =**	**0,094**
Depreciation =	**0,03**	**Amortization =**	**0,366**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	3,52	Current Assets(2017) =	2,68
Current Liabilities (2016) =	3,2	Current Assets(2016) =	2,45
NWC =	Current Asset - Current liabilities		
NWC(2017) =	-0,84		
NWC(2016) =	-0,75	**ΔNWC =**	**-0,09**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	0,495		
PPE(2016) =	0,569	**CAPEX =**	**-0,074**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**1,266**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,112**	**Value of the Debt =**	**3,08**
Return of Market (in %) =	**0,0647**	**β =**	**0,9848**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**16,03**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**3,64%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,38%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,161172161**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,838827839**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,93%**
COMPANY VALUE			
Growth Rate =	**21,68%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 13,38 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	276600000	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**48,39**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

4.4.3 Aalberts Industries N.V.

Company overview – Aalberts Industries is a Dutch company focusing on providing crucial technologies for ground-breaking industries and everyday life. The company was founded in 1975 by Jan Aalberts and twelve years later in 1987 went public. Headquarters of the company is located in Langbroek in Netherland and the number of employees in 2017 was 16 thousand. The company is divided into four strategic businesses: building installations, climate control, industrial controls, and industrial services. The company operates in more than 50 counties situated in Europe, North America, and Asia. Aalberts Industries forms the component of Amsterdam Exchange Index.

Position of Aalberts Industries N.V.: Aalberts Industries belong to the group of companies with low Market Capitalization. Market Capitalization of the company was € 4,05 billion on February 28, 2018. Shares of Aalberts Industries were traded for € 41,54 on April 7, 2018.

Interpretation of result and recommendation for investors:

- Change in Net Working Capital from 2016 to 2017 is positive. Company's ability to pay its short-term debts has increased thanks to the decrease in current liabilities and an increase in current assets. The company has no Capital Expenditures in 2017, the value of property, plant, and equipment is € 2,3 billion. The company has Free Cash Flow for the Firm in the value of € 291 million.

- The company tends to use Equity funding rather than Debt funding. Financial resources coming from Shareholders represents 87% of the company's assets where the Cost of Equity is 6,42%. Remaining 13% of the company is financed by the Debt with the Cost of the Debt equal to 2,78%. Weighted Average Cost of the Capital is equal to 5,94%.

- The calculated company value is € 3,22 billion. The alculated value of the company is lower than the value of Market Capitalization. Calculated price per share is € 29,19. Calculated price per share is lower than the stock market price. Shares of Aalberts Industries are overvalued. Investors should sell shares of Aalberts Industries in order to minimize it's financial loses.

Table 21 Aalberts Industries N.V.

FREE CASH FLOW FOR THE FIRM (in billions of €)			
FCFF	will be calculated	Current Assets	taken from Balance Sheet
Changes in NWC	will be calculated	Current Liabilities	taken from Balance Sheet
Capital Expenditures	will be calculated	PPE	taken from Balance Sheet
Depreciation	taken from Cash Flow	EBIT	taken from Income State.
Amortization	taken from Cash Flow	Taxes	taken from Income State.
EBIT =	**0,301**	**Taxes =**	**0,068**
Depreciation =	**0,068**	**Amortization =**	**0,033**
ΔNET WORKING CAPITAL = NWC(2017) - NWC(2016)			
Current Liabilities (2017) =	0,757	Current Assets(2017) =	0,994
Current Liabilities (2016) =	0,761	Current Assets(2016) =	0,955
NWC =	Current Asset - Current liabilities		
NWC(2017) =	0,237		
NWC(2016) =	0,194	**ΔNWC =**	**0,043**
CAPITAL EXPENDITURES = PPE(2017) - PPE(2016)			
PPE(2017) =	2,3		
PPE(2016) =	2,3	**CAPEX =**	**0**
FCFF = EBIT - Taxes + Depreciation + Amortization - Changes in NWC - CAPEX			
		FCFF =	**0,291**
WEIGHTED AVERAGE COST OF CAPITAL			
WACC	will be calculated	Interest Expense	taken from Income State.
Cost of Debt	will be calculated	Value of the Debt	taken from Balance Sheet
Cost of Equity	will be calculated	Market Capitalization	presented by DAX 30
Weight of Debt	will be calculated	Risk Free	yield of US 10-year bonds
Weight of Equity	will be calculated	Return of market	by EURO Stoxx 50
Beta	calculated in appendix		
Interest Expense =	**0,017**	**Value of the Debt =**	**0,612**
Return of Market (in %) =	**0,0647**	**β =**	**0,9922**
Risk Free (in %) =	**0,005**	**Market Cap. =**	**4,05**
COST OF DEBT = Interest Expense/Value of the Debt			
		COST OF DEBT =	**2,78%**
COST OF EQUITY = RF + β*(RM - RF)			
		COST OF EQUITY =	**6,42%**
WEIGHT OF DEBT = Value of Debt/(Market Capitalization + Value of Debt)			
		WEIGHT OF DEBT =	**0,131274131**
WEIGHT OF EQUITY = Market Capitalization/(Market Cap. + Value of Debt)			
		WEIGHT OF EQUITY =	**0,868725869**
WACC = Weight of Debt*Cost of Debt + Weight of Equity*Cost of Equity			
		WACC =	**5,94%**
COMPANY VALUE			
Growth Rate =	**19,13%**	calculated in appendix	
CV = FCFF + FCFF*(1+GR)/1+WACC + FCFF*(1+GR)^2/(1+WACC)^2 + (FCFF*(1+GR)^3/GR)/(1+WACC)^3			
		CV =	**€ 3,22 billion**
PRICE PER SHARE			
Num. of Outstanding shares =	110580102	presented by company	
PRICE PER SHARE = Company Value/Number of Outstanding Shares			
		PRICE PER SHARE IN € =	**29,19**

Source:(own calculations, own presentation, data from MarketWatch, 2018)

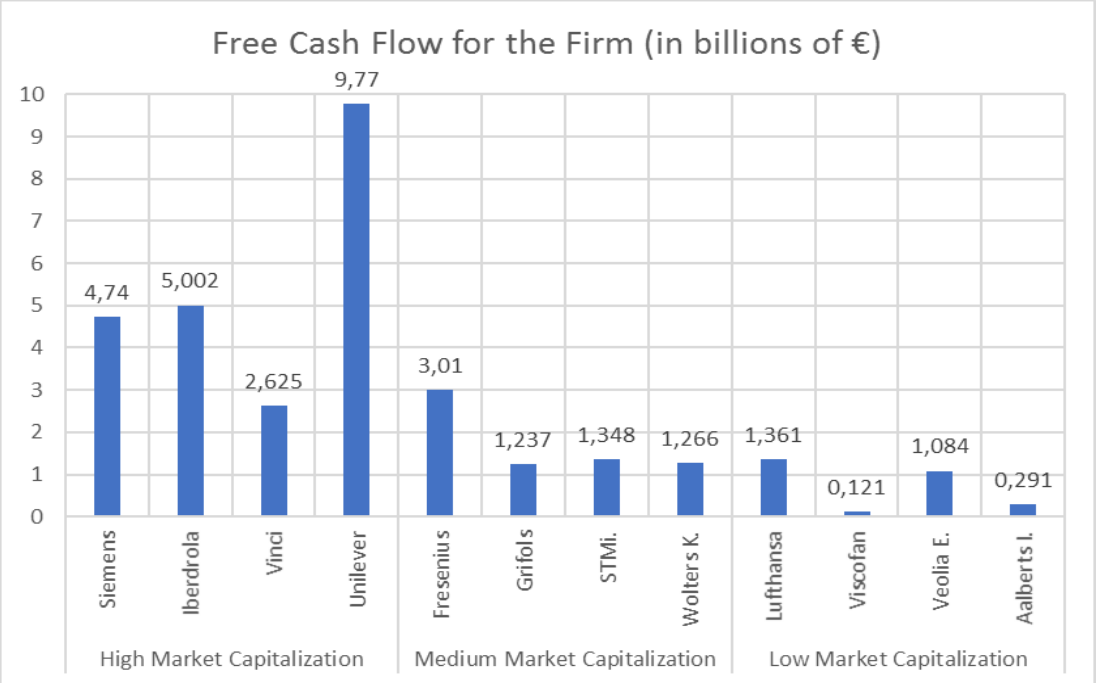
5 Results and Discussion

Practical Part was focused on the evaluation of companies from European stock market indexes. Companies were selected from national indexes such as DAX 30, IBEX 35, CAC 40 and AEX. From each index were selected three companies with different Market Capitalization. High Market Capitalization included companies with Market Capitalization higher than € 37 billion, group of middle Market Capitalization included companies from € 13 billion up to € 37 billion and the group of low Market Capitalization represents companies up to € 13 billion. The Market Capitalization of the company is not a static value, because it is based on the actual price per share and the number of outstanding shares. For the evaluation of the European stock market were selected companies with Market Capitalization to the date of February 28, 2018. Evaluation of companies was based on various calculations such as Free Cash Flow for the Firm, Changes in Net Working Capital, Capital Expenditures, Beta calculation, Weighted Average Cost of Capital, Price per Share and many others. Data for the calculations were selected from the financial statements such as Balance Sheet, Income Statement or Cash Flow Statement presented by companies in September 2017. In this part, all the findings from the Practical Part will be merged together to provide an overview of the Evaluation of the European Stock Market.

5.1 Free Cash Flow for the Firm

Free Cash Flow for the Firm is one of the measures frequently observed by the Shareholders to assess the financial health of the company. Free Cash Flow for the Firm represents financial resources which are generated by the company after paying all its necessary expenditures. This money is usually used for dividend pay-out, business expansion, buying back stock or reducing debt. In the graph below are grouped companies according to its Market Capitalization. From the left side are companies with high Market Capitalization, in the middle with medium and on the right side with low Market Capitalization. Values of Free Cash Flow for the Firm are presented in billions of €. It is clear to conclude that companies with High Market Capitalization generate higher Free Cash Flow for the Firm than companies from medium or low Market Capitalization. The most successful is Dutch Unilever, company operating in fields of personal care, home care, food, and refreshment. From the group of medium Market Capitalization, the highest value in 2017 reached Fresenius. Its performance is even better than the performance of Vinci which is the company with High Market Capitalization. The lowest values have companies Viscofan and Aalberts Industries.

Figure 4 Free Cash Flow for the Firm

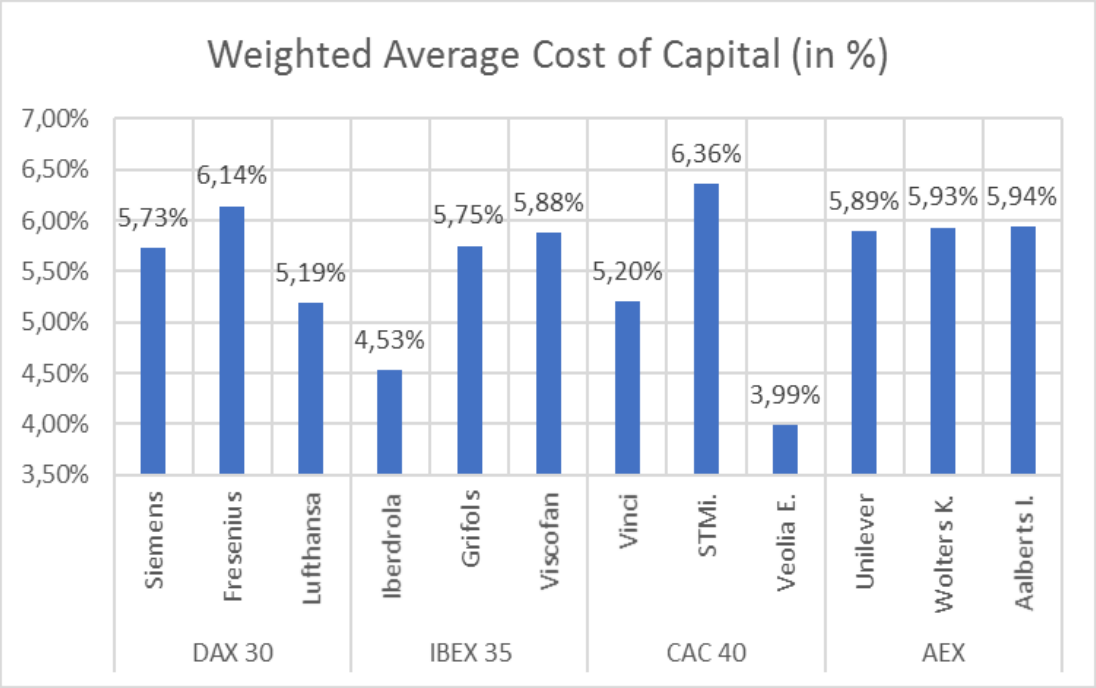


Source:(own data, own presentaion)

5.2 Weighted Average Cost of Capital

The joint-stock company has two possibilities of how to finance its assets. Equity funding represents money invested by shareholders and the Debt funding represents money coming from banking institutions. Weighted Average Cost of Capital puts together the costs of these sources of capital and also consider their proportions. Weighted Average Cost of Capital tells us, how much interest the company has to pay on each Euro received from shareholders or banking institutions. Weighted Average Cost of Capital also provides information about the minimum required return of the company. Is hard to state the appropriate value of WACC. From the point of view of shareholders or possible investors higher values are more favorable because they can see how much of the interest is paid on the average. However, there are also other measures such as Cost of Equity which have greater information value for shareholders about future returns. Company's point of view is slightly different. When the WACC is low, shareholders will sell its share and the demand will be low. Prices of these shares will be lower, and the company will lose its value. On the other hand, high Weighted Average Cost of Capital indicates greater dividend pay-out and higher interest paid on the debt. Interpretation of results will be done from the point of view of shareholders. In order to recommend them companies with the best potential. In the graph below are companies sorted according to national stock market indexes. There are two companies Fresenius and STMicroelectronics with WACC higher than 6%. These relatively high values may be very interesting for shareholders. The stable situation is observed in the Dutch stock market. All three selected companies from the Amsterdam Exchange Index have values in the range from 5,89% to 5,94%. Regarding Weighted Average Cost of Capital Dutch stock market offer interesting possibility for shareholders. The opposite situation is in the case of Veolia Environnement and Iberdrola, the Weighted Average Cost of Capital in is below 5%.

Figure 5 Weighted Average Cost of Capital

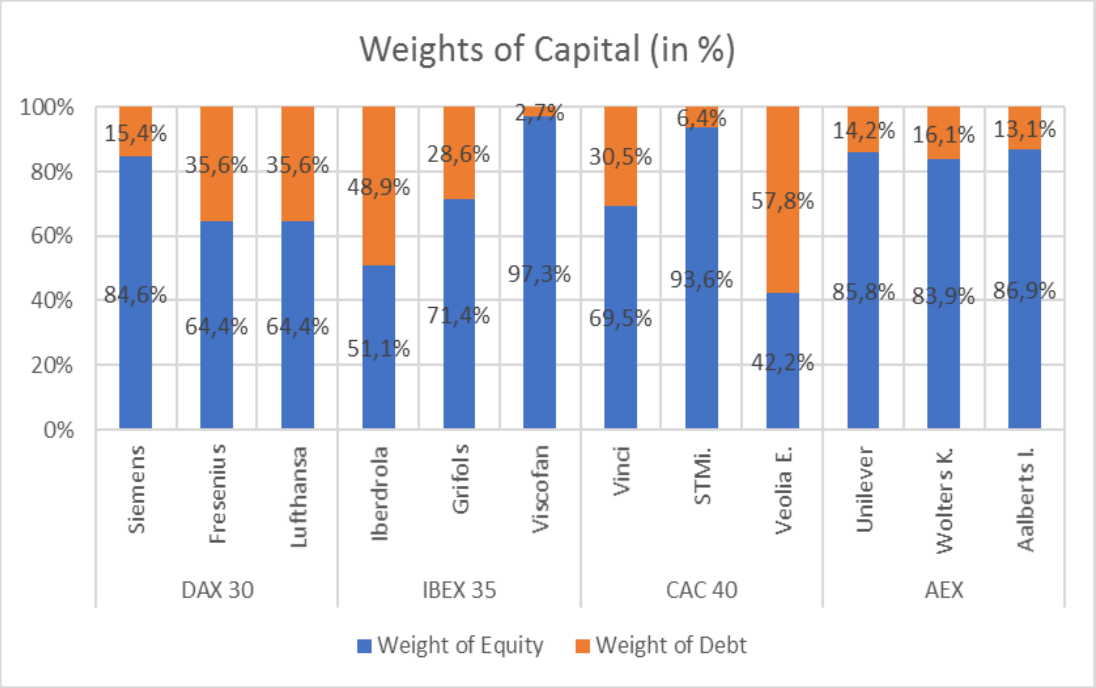


Source:(own data, own presentation)

5.2.1 Weights of Capital

The Weight of Equity and the Weight of Debt describe the capital structure of the company. In the graph below are companies grouped according to stock market indexes. In the blue color is presented the Weight of the Equity and in the orange color Weight of the Debt. These differences in proportions on the European stock market are enormous. Companies such as Viscofan and STMicroelectronics use debt financing minimally. In their case, the portion of the debt is lower than 7%. These companies operate their businesses in the field of public services. The reversed situation is in the case of Iberdrola and Veolia Environnement where the portion of the debt reaches 50% and more. The most obvious differences are in the case of Spanish and French stock market index. Well-balanced is Amsterdam Exchange Index where Unilever, Wolters Kluwer, and Aalberts Industries have on the average 85% of its assets financed by shareholders and 15% financed by banking institutions.

Figure 6 Weights of Capital

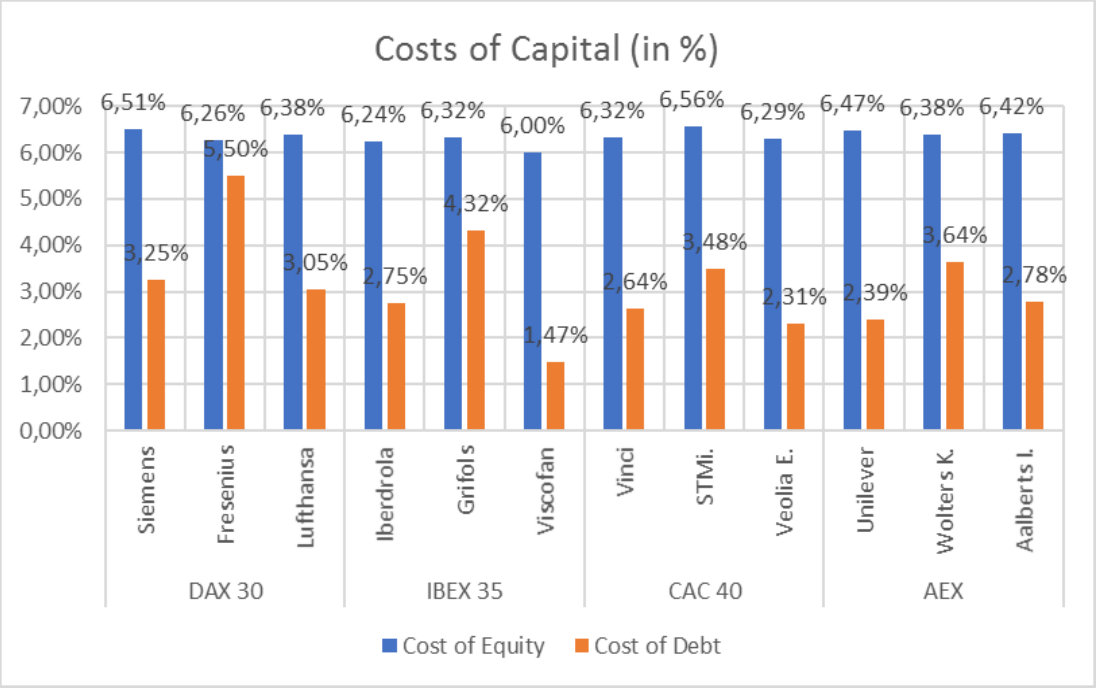


Source:(own data, own presentation)

5.2.2 Costs of Capital

In the graph below are companies sorted according to national stock market indexes. Cost of Equity is presented by blue columns and the Cost of Debt is presented by orange columns. Cost of Equity on the European stock market is stable. All companies used for the evaluation have the Cost of Equity in the range from 6% to 6,56%. These numbers offer to shareholders precise information about the return on the investment. On the other hand, Cost of Debt fluctuates in the wide range from 1,47%, in the case of Viscofan, to 5,5% in the case of German Fresenius.

Figure 7 Cost of Capital

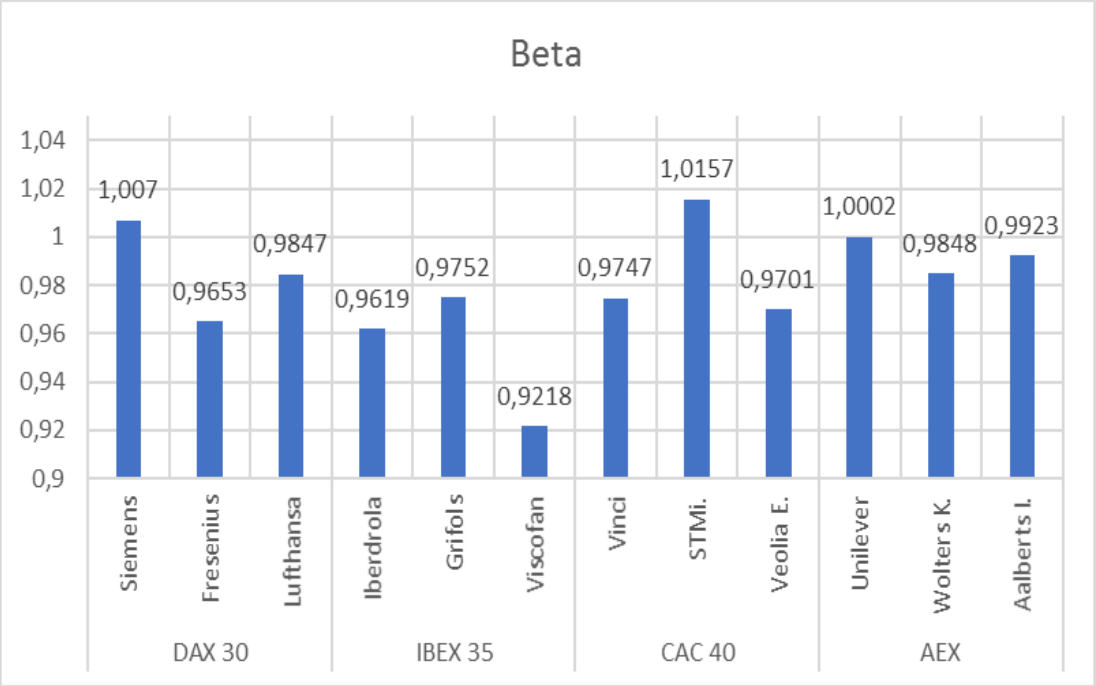


Source:(own data, own presentation)

5.3 Beta Calculation

Beta signifies the volatility of the stock in comparison with the overall market. In the analysis, the general market is represented by national stock market indexes. The most sensitive company selected for the analysis is STMicroelectronics from CAC 40, its Beta is equal to 1,0157. Shares of this company tend to grow and fall faster than other companies from the French national stock market index. On the other hand, Viscofan from IBEX 35 is the least sensitive company used for the evaluation. Company's Beta is equal to 0,9218. Prices of shares of this company will fall and grow slower than prices of shares on the overall market. Twelve companies were selected for the Evaluation of the European Stock Market. Nine of them have Beta lower than 1, in three cases Beta is higher than one. The highest volatility of stock on the average is observed on the Amsterdam Exchange Index. The opposite situation is observed in Spain stock market.

Figure 8 Beta



Source:(own data, own presentation)

5.4 Price per Share

The main goal of the thesis is to evaluate the European stock market and provide recommendations for investors. In this part, the overview with recommendations will be presented. In the table below are companies sorted according to the stock market index and value of market capitalization. In the green color are highlighted companies where the calculated prices per share, based on financial statements from September 2017 and selected mathematical models, are higher than the prices on the stock market. These companies represent interesting opportunities for investors where the growth in price is expected up to the calculated price. In total 7 companies belong to this group. These companies are Siemens, Lufthansa, Iberdrola, Grifols, Veolia Environnement, Unilever, and Wolters Kluwer. In the yellow color is presented the company with a stock market price equal to the calculated price. Companies are properly valued when the difference between the calculated price per share and the stock market price is lower than 2%. In this group belong only one company called Fresenius. In the orange color are presented companies which have calculated price per share lower than the stock market price. Fall in prices is expected in the case of these companies. In this group are 4 companies: Viscofan, Vinci, STMicroelectronics, and Aalbert Industries. All stock market prices are as of April 2018.

From the point of view on national stock market indexes, the best situation is on the German stock market. Two of the three companies are undervalued, and one is properly ranked. German market brings the best possibility for investors with the lowest risks. A comparable situation is on the Spanish and Dutch stock market. Two of the three companies are undervalued, and one is overvalued. After the German stock market also these two markets bring a quite good opportunity to invest. The worst situation is on the French stock market. Investors should refrain from investing in this market and sell shares of undervalued companies. Two of the three companies used for evaluation are undervalued.

From the point of view of different groups of market capitalization, the best opportunity to invest represent companies with high market capitalization. Companies with medium market capitalization represent the second most appropriate opportunity to invest.

The least attractive companies for investors come from a group of low market capitalization.

Table 22 Price per Share comparison

Stock Market Index	Calculated price	High Market Cap.	Stock Market price	Calculated price	Medium Market Cap.	Stock Market price	Calculated price	Low Market Cap.	Stock Market price
DAX 30	€ 117,97	Siemens >	€ 104,50	€ 64,46	Fresenius =	€ 63,38	€ 40,04	Lufthansa >	€ 26,35
IBEX 35	€ 10,36	Iberdrola >	€ 6,01	€ 29,06	Grifols >	€ 22,77	€ 46,13	Viscofan <	€ 56,25
CAC 40	€ 54,22	Vinci <	€ 80,22	€ 15,98	STMi. <	€ 17,34	€ 26,02	Veolia E. >	€ 19,33
AEX	€ 58,55	Unilever >	€ 46,97	€ 48,39	Wolters K. >	€ 43,28	€ 29,19	Aalberts I. <	€ 41,54

Source:(Investing.com, own data, own presentation)

Even though the economic situation in Europe is very good. There is no general trend in the European stock market. Still, there are overvalued and undervalued companies. Shares of seven companies out of twelve on the European stock market are still undervalued and represent a good opportunity for investors. On the other hand, shares of four companies out of twelve are undervalued and represent threads from investors.

6 Conclusion

The aim of the diploma thesis was to provide basic information about the stock market and evaluate companies performing on the European stock market. In the theoretical part are explained various terms related to stock market such as stock market exchange, over-the-counter, initial or secondary public offering. In this part is also provided information about share as security and are described various types and forms of shares. The theoretical part also describes various models such as Free Cash Flow for the Firm, Weighted Average Cost of Capital, Capital Asset Pricing model and many others. Findings from the theoretical part are used in practical part for the evaluation of the European stock market. Companies from four national stock market indexes were selected for the analysis. These indexes include DAX 30, IBEX 35, CAC 40 and AEX. From each national stock market index were selected three companies according to market capitalization and three groups of different market capitalization were created. In total twelve companies were selected for the evaluation. Seven out of twelve companies were undervalued. Price per share on the stock market was lower than the calculated price. In this case, we expect growth in prices per share and shareholders should invest in these companies. Four companies were overvalued. Stock market price was higher than the calculated price per share. Fall in stock market price is expected, shareholders should sell shares of these companies in order to avoid financial loses. One company was properly rated, the difference between the stock market price and the calculated price was lower than 2 %. The best situation for investors is on the German stock market. There was no overvalued company. Two out of three companies were undervalued, and one was correctly rated. Therefore, investors should invest in companies performing in the German stock market. On the other hand, the worst situation for investors is in the French stock market. Two out of three companies were overvalued, and one was undervalued. In the case of Spanish and Dutch stock market, the situation is not clear. Undervalued companies prevail in these markets. However, there are also overvalued companies. From the point of view of different groups of market capitalizations, the best opportunity to invest is represented by the group of high market capitalization. Three out of four companies in this group were undervalued. Medium market capitalization companies represent the second-best opportunity to invest. Two companies were undervalued, one was properly rated, and one was overvalued. Low market capitalization companies represent the worst opportunity for investors. Overvalued

and undervalued companies were in balance. Diploma thesis provides an overview of the stock market and various methods and tools for stock evaluation. I believe that these models and methods, mentioned and used in the diploma thesis, will help investors in their decisions.

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7.3 Presentation or Lecture

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8 Appendix

Table 23 Calculation of Beta for DAX 30 - Siemens, Fresenius, Lufthansa

Date	DAX 30		Siemens		Fresenius		Lufthansa	
	Price (in EUR)	Change in index	Price (in EUR)	Change in price	Price (in EUR)	Change in price	Price (in EUR)	Change in price
Feb 18	12435,8500	-0,0606	108,4400	-0,1265	67,1000	-0,0504	27,6200	-0,0406
Jan 18	13189,4800	0,0206	122,1600	0,0492	70,4800	0,0768	28,7400	-0,0689
Dec 17	12917,6400	-0,0082	116,1500	0,0168	65,0700	0,0685	30,7200	0,0602
Nov 17	13023,9800	-0,0158	114,2000	-0,0727	60,6100	-0,1831	28,8700	0,0509
Oct 17	13229,5700	0,0303	122,5000	0,0269	71,7100	0,0482	27,4000	0,1420
Sep 17	12828,8600	0,0603	119,2000	0,0789	68,2500	-0,0416	23,5100	0,1038
Aug 17	12055,8400	-0,0052	109,8000	-0,0451	71,0900	-0,0048	21,0700	0,1374
Jul 17	12118,2500	-0,0171	114,7500	-0,0488	71,4300	-0,0508	18,1750	-0,0963
Jun 17	12325,1200	-0,0235	120,3500	-0,0557	75,0600	-0,0153	19,9250	0,1320
May 17	12615,0600	0,0140	127,0500	-0,0358	76,2100	0,0236	17,2950	0,0841
Apr 17	12438,0100	0,0101	131,6000	0,0243	74,4100	-0,0124	15,8400	0,0404
Mar 17	12312,8700	0,0389	128,4000	0,0436	75,3300	0,0041	15,2000	0,0901
Feb 17	11834,4100	0,0253	122,8000	0,0533	75,0200	0,0279	13,8300	0,1081
Jan 17	11535,3100	0,0047	116,2500	-0,0047	72,9300	-0,0182	12,3350	0,0053
Dec 16	11481,0600	0,0732	116,8000	0,0873	74,2600	0,0877	12,2700	0,0037
Nov 16	10640,3000	-0,0023	106,6000	0,0295	67,7500	0,0075	12,2250	0,0474
Oct 16	10665,0100	0,0144	103,4500	-0,0072	67,2400	-0,0561	11,6450	0,1494
Sep 16	10511,0200	-0,0078	104,2000	-0,0274	71,0100	0,0787	9,9050	-0,0545
Aug 16	10592,6900	0,0241	107,0500	0,0928	65,4200	-0,0209	10,4450	-0,0177
Jul 16	10337,5000	0,0636	97,1200	0,0547	66,7900	0,0145	10,6300	0,0094
Jun 16	9680,0900	-0,0602	91,8100	-0,0542	65,8200	-0,0305	10,5300	-0,1961
May 16	10262,7400	0,0218	96,7900	0,0586	67,8300	0,0635	12,5950	-0,0766
Apr 16	10038,9700	0,0073	91,1200	-0,0223	63,5200	-0,0109	13,5600	-0,0476
Mar 16	9965,5100	0,0472	93,1500	0,0826	64,2100	0,0519	14,2050	0,0296
Feb 16	9495,4000	-0,0319	85,4600	-0,0318	60,8800	-0,0010	13,7850	0,0232
Jan 16	9798,1100	-0,0964	88,1800	-0,0193	60,9400	-0,0825	13,4650	-0,0817
Dec 15	10743,0100	-0,0595	89,8800	-0,0919	65,9700	-0,0534	14,5650	0,0687
Nov 15	11382,2300	0,0467	98,1400	0,0677	69,4900	0,0394	13,5650	0,0100
Oct 15	10850,1400	0,1096	91,5000	0,1263	66,7500	0,1011	13,4300	0,0748
Sep 15	9660,4400	-0,0620	79,9400	-0,1066	60,0000	-0,0508	12,4250	0,1264
Aug 15	10259,4600	-0,1023	88,4600	-0,1015	63,0500	0,0035	10,8550	-0,1377
Jul 15	11308,9900	0,0322	97,4400	0,0728	62,8300	0,0840	12,3500	0,0636
Jun 15	10944,9700	-0,0428	90,3500	-0,0601	57,5500	-0,0066	11,5650	-0,1068
May 15	11413,8200	-0,0036	95,7800	-0,0181	57,9300	0,0777	12,8000	0,0313
Apr 15	11454,3800	-0,0447	97,5100	-0,0327	53,4300	-0,0404	12,4000	-0,0548
Mar 15	11966,1700	0,0472	100,7000	0,0087	55,5900	0,0793	13,0800	-0,0015
Feb 15	11401,6600	0,0620	99,8200	0,0683	51,1800	0,0082	13,1000	-0,1492
Jan 15	10694,3200	0,0831	93,0000	-0,0081	50,7600	0,1497	15,0550	0,0814
Dec 14	9805,5500	-0,0179	93,7500	-0,0150	43,1600	-0,0101	13,8300	-0,0380
Nov 14	9980,8500	0,0655	95,1600	0,0552	43,5950	0,0584	14,3550	0,1787
Oct 14	9326,8700	-0,0158	89,9100	-0,0496	41,0500	0,0452	11,7900	-0,0606
Sep 14	9474,3000	0,0004	94,3700	-0,0103	39,1950	0,0527	12,5050	-0,0536
Aug 14	9470,1700	0,0066	95,3400	0,0308	37,1300	-0,0046	13,1750	-0,0076
Jul 14	9407,4800	-0,0452	92,4000	-0,0438	37,3000	0,0268	13,2750	-0,1812
Jun 14	9833,0700	-0,0112	96,4500	-0,0105	36,3000	-0,0050	15,6800	-0,2341
May 14	9943,2700	0,0342	97,4600	0,0252	36,4830	-0,0009	19,3500	0,0656
Apr 14	9603,2300	0,0049	95,0000	-0,0284	36,5170	-0,0370	18,0800	-0,0517
Mar 14	9555,9100	-0,0142	97,7000	0,0096	37,8670	0,0088	19,0150	0,0118
Feb 14	9692,0800	0,0398	96,7600	0,0289	37,5330	-0,0271	18,7900	0,0599
β			**1,0069**		**0,9653**		**0,9847**	

Source:(Investing.com, own calculation, own presentation)

Table 24 Calculation of Beta for IBEX 35 - Iberdrola, Grifols, Viscofan

Date	IBEX 35		Iberdrola		Grifols		Viscofan	
	Price (in EUR)	Change in index	Price (in EUR)	Change in price	Price (in EUR)	Change in price	Price (in EUR)	Change in price
Feb 18	9840,3000	-0,0621	6,0760	-0,0793	22,5800	-0,1475	52,3000	-0,0765
Jan 18	10451,5000	0,0390	6,5580	0,0334	25,9100	0,0573	56,3000	0,0229
Dec 17	10043,9000	-0,0166	6,3390	-0,0328	24,4250	-0,0035	55,0100	0,0216
Nov 17	10211,0000	-0,0306	6,5470	-0,0399	24,5100	-0,0965	53,8200	0,0342
Oct 17	10523,5000	0,0135	6,8080	0,0552	26,8750	0,0828	51,9800	0,0029
Sep 17	10381,5000	0,0079	6,4320	-0,0440	24,6500	0,0365	51,8300	0,0218
Aug 17	10299,5000	-0,0197	6,7150	0,0287	23,7500	-0,0002	50,7000	0,0061
Jul 17	10502,2000	0,0055	6,5220	-0,0187	23,7550	-0,0265	50,3900	-0,0280
Jun 17	10444,5000	-0,0417	6,6440	-0,0238	24,3850	-0,0330	51,8000	-0,0508
May 17	10880,0000	0,0151	6,8020	0,0698	25,1900	0,0212	54,4300	-0,0094
Apr 17	10715,8000	0,0236	6,3270	-0,0156	24,6550	0,0675	54,9400	0,1179
Mar 17	10462,9000	0,0867	6,4260	0,0643	22,9900	0,1020	48,4650	-0,0198
Feb 17	9555,5000	0,0251	6,0130	0,0702	20,6450	0,0400	49,4250	0,0488
Jan 17	9315,2000	-0,0040	5,5910	-0,0524	19,8200	0,0474	47,0150	0,0035
Dec 16	9352,1000	0,0710	5,8840	0,0891	18,8800	0,0201	46,8500	0,0288
Nov 16	8688,2000	-0,0524	5,3600	-0,0933	18,5000	0,0265	45,5000	0,0564
Oct 16	9143,3000	0,0398	5,8600	0,0253	18,0100	-0,0650	42,9350	-0,1217
Sep 16	8779,4000	0,0071	5,7120	0,0250	19,1800	0,0099	48,1600	-0,0172
Aug 16	8716,8000	0,0149	5,5690	-0,0415	18,9900	-0,0326	48,9900	0,0233
Jul 16	8587,2000	0,0494	5,8000	0,0284	19,6100	-0,0331	47,8500	-0,0372
Jun 16	8163,3000	-0,1067	5,6350	-0,0014	20,2600	-0,0052	49,6300	-0,0119
May 16	9034,0000	0,0009	5,6430	-0,0177	20,3650	0,0673	50,2200	0,0245
Apr 16	9025,7000	0,0335	5,7430	0,0552	18,9950	-0,0303	48,9900	-0,0747
Mar 16	8723,1000	0,0300	5,4260	-0,0175	19,5700	-0,0322	52,6500	-0,0448
Feb 16	8461,4000	-0,0419	5,5210	-0,0811	20,2000	0,0517	55,0100	-0,0031
Jan 16	8815,8000	-0,0826	5,9690	-0,0062	19,1550	-0,1128	55,1800	-0,0083
Dec 15	9544,2000	-0,0883	6,0060	-0,0123	21,3150	-0,0537	55,6400	-0,0395
Nov 15	10386,9000	0,0025	6,0800	0,0202	22,4600	0,0610	57,8400	0,0813
Oct 15	10360,7000	0,0773	5,9570	0,0846	21,0900	0,1253	53,1400	-0,0139
Sep 15	9559,9000	-0,0731	5,4530	-0,0182	18,4480	0,0093	53,8800	0,0349
Aug 15	10259,0000	-0,0898	5,5520	-0,0611	18,2770	-0,0995	52,0000	-0,0465
Jul 15	11180,7000	0,0368	5,8910	0,0738	20,0950	0,1010	54,4200	0,0031
Jun 15	10769,5000	-0,0416	5,4560	-0,0420	18,0650	-0,0050	54,2500	-0,0304
May 15	11217,6000	-0,0149	5,6850	0,0507	18,1550	-0,0478	55,9000	-0,0152
Apr 15	11385,0000	-0,0120	5,3970	-0,0043	19,0230	-0,0508	56,7500	-0,0026
Mar 15	11521,1000	0,0298	5,4200	-0,0173	19,9900	0,0931	56,9000	0,0315
Feb 15	11178,3000	0,0693	5,5140	-0,0034	18,1280	-0,0274	55,1100	0,0700
Jan 15	10403,3000	0,0119	5,5330	0,0866	18,6250	0,1109	51,2500	0,1402
Dec 14	10279,5000	-0,0478	5,0540	-0,0489	16,5600	-0,0817	44,0650	-0,0498
Nov 14	10770,7000	0,0272	5,3010	0,0513	17,9130	0,0916	46,2600	-0,0125
Oct 14	10477,8000	-0,0332	5,0290	-0,0052	16,2730	0,0033	46,8400	0,0734
Sep 14	10825,5000	0,0089	5,0550	0,0150	16,2200	-0,0922	43,4000	0,0224
Aug 14	10728,8000	0,0020	4,9790	0,0034	17,7150	0,0454	42,4300	0,0127
Jul 14	10707,2000	-0,0202	4,9620	0,0077	16,9100	-0,1802	41,8900	-0,0394
Jun 14	10923,5000	0,0114	4,9240	0,0544	19,9570	0,0041	43,5400	0,0334
May 14	10798,7000	0,0315	4,6560	0,0462	19,8750	0,0314	42,0850	0,1078
Apr 14	10459,0000	0,0113	4,4410	-0,0081	19,2500	-0,0331	37,5500	-0,0111
Mar 14	10340,5000	0,0219	4,4770	0,0512	19,8870	-0,0384	37,9650	0,0186
Feb 14	10114,2000	0,0192	4,2480	0,0497	20,6500	0,0691	37,2600	-0,0542
Jan 14	9920,2000	1,0000	4,0370	1,0000	19,2230	1,0000	39,2800	1,0000
β			**0,9620**		**0,9752**		**0,9219**	

Source:(Investing.com, own calculation, own presentation)

Table 25 Calculation of Beta for CAC 40 - Vinci, STMicroelectronics, Veolia Environ.

Date	CAC 40		Vinci		STMicroelectronics		Veolia Environnement	
	Price (in EUR)	Change in index	Price (in EUR)	Change in price	Price (in EUR)	Change in price	Price (in EUR)	Change in price
Feb 18	5320,4900	-0,0303	81,3200	-0,0698	18,8200	-0,0218	19,9700	-0,0160
Jan 18	5481,9300	0,0309	87,0000	0,0213	19,2300	0,0533	20,2900	-0,0485
Dec 17	5312,5600	-0,0113	85,1500	-0,0081	18,2050	-0,0459	21,2750	0,0009
Nov 17	5372,7900	-0,0243	85,8400	0,0209	19,0400	-0,0609	21,2550	0,0430
Oct 17	5503,2900	0,0315	84,0500	0,0434	20,2000	0,1896	20,3400	0,0388
Sep 17	5329,8100	0,0458	80,4000	0,0379	16,3700	0,1109	19,5500	-0,0082
Aug 17	5085,5900	-0,0016	77,3500	0,0208	14,5550	0,0086	19,7100	0,0332
Jul 17	5093,7700	-0,0053	75,7400	0,0133	14,4300	0,1289	19,0550	0,0291
Jun 17	5120,6800	-0,0318	74,7300	-0,0401	12,5700	-0,1683	18,5000	-0,0589
May 17	5283,6300	0,0031	77,7300	-0,0048	14,6850	-0,0112	19,5900	0,1097
Apr 17	5267,3300	0,0275	78,1000	0,0487	14,8500	0,0350	17,4400	-0,0069
Mar 17	5122,5100	0,0515	74,3000	0,0847	14,3300	-0,0049	17,5600	0,1202
Feb 17	4858,5800	0,0226	68,0100	0,0457	14,4000	0,1531	15,4500	-0,0191
Jan 17	4748,9000	-0,0239	64,9000	0,0031	12,1950	0,1164	15,7450	-0,0273
Dec 16	4862,3100	0,0584	64,7000	0,0536	10,7750	0,1068	16,1750	-0,0080
Nov 16	4578,3400	0,0151	61,2300	-0,0776	9,6240	0,0974	16,3050	-0,2193
Oct 16	4509,2600	0,0135	65,9800	-0,0324	8,6870	0,1636	19,8800	-0,0312
Sep 16	4448,2600	0,0023	68,1200	0,0019	7,2660	0,0775	20,5000	0,0700
Aug 16	4438,2200	-0,0004	67,9900	0,0015	6,7030	0,0263	19,0650	-0,0417
Jul 16	4439,8100	0,0456	67,8900	0,0619	6,5270	0,1963	19,8600	0,0196
Jun 16	4237,4800	-0,0633	63,6900	-0,0612	5,2460	-0,0250	19,4700	-0,0365
May 16	4505,6200	0,0170	67,5900	0,0348	5,3770	0,0024	20,1800	-0,0632
Apr 16	4428,9600	0,0099	65,2400	-0,0035	5,3640	0,0906	21,4550	0,0133
Mar 16	4385,0600	0,0072	65,4700	0,0252	4,8780	-0,0857	21,1700	0,0132
Feb 16	4353,5500	-0,0146	63,8200	0,0219	5,2960	-0,1360	20,8900	-0,0625
Jan 16	4417,0200	-0,0498	62,4200	0,0525	6,0160	-0,0274	22,1950	0,0149
Dec 15	4637,0600	-0,0691	59,1400	-0,0409	6,1810	-0,1128	21,8650	-0,0377
Nov 15	4957,6000	0,0121	61,5600	0,0029	6,8780	0,0845	22,6900	0,0668
Oct 15	4897,6600	0,0903	61,3800	0,0761	6,2970	0,0343	21,1750	0,0352
Sep 15	4455,2900	-0,0444	56,7100	-0,0123	6,0810	-0,0645	20,4300	0,0431
Aug 15	4652,9500	-0,0923	57,4100	-0,0172	6,4730	-0,0989	19,5500	-0,0396
Jul 15	5082,6100	0,0575	58,4000	0,1116	7,1130	-0,0340	20,3250	0,1001
Jun 15	4790,2000	-0,0454	51,8800	-0,0424	7,3550	-0,0570	18,2900	-0,0342
May 15	5007,8900	-0,0077	54,0800	-0,0137	7,7740	0,0841	18,9150	-0,0003
Apr 15	5046,4900	0,0025	54,8200	0,0290	7,1200	-0,2213	18,9200	0,0690
Mar 15	5033,6400	0,0163	53,2300	0,0039	8,6960	0,0823	17,6150	0,0122
Feb 15	4951,4800	0,0701	53,0200	0,1166	7,9800	0,0727	17,4000	0,0658
Jan 15	4604,2500	0,0720	46,8400	0,0284	7,4000	0,1622	16,2550	0,0923
Dec 14	4272,7500	-0,0275	45,5100	0,0446	6,2000	0,0279	14,7550	0,0061
Nov 14	4390,1800	0,0358	43,4800	-0,0356	6,0270	0,1175	14,6650	0,0907
Oct 14	4233,0900	-0,0433	45,0300	-0,0115	5,3190	-0,1506	13,3350	-0,0484
Sep 14	4416,2400	0,0080	45,5500	-0,0814	6,1200	-0,0415	13,9800	0,0004
Aug 14	4381,0400	0,0308	49,2600	-0,0376	6,3740	0,0234	13,9750	0,0533
Jul 14	4246,1400	-0,0416	51,1100	-0,0577	6,2250	-0,0525	13,2300	-0,0518
Jun 14	4422,8400	-0,0219	54,0600	0,0054	6,5520	-0,1203	13,9150	-0,0075
May 14	4519,5700	0,0071	53,7700	-0,0007	7,3400	0,0605	14,0200	0,0414
Apr 14	4487,3900	0,0214	53,8100	0,0080	6,8960	0,0249	13,4400	-0,0685
Mar 14	4391,5000	-0,0038	53,3800	-0,0041	6,7240	0,0231	14,3600	0,0453
Feb 14	4408,0800	0,0550	53,6000	0,1028	6,5690	0,0734	13,7100	0,1495
β			**0,9748**		**1,0157**		**0,9702**	

Source:(Investing.com, own calculation, own presentation)

Table 26 Calculation of Beta for AEX - Unilever, Wolters Kluwer, Aalberts I.

Date	AEX		Unilever NV DRC		Wolters Kluwer		Aalberts Industries	
	Price (in EUR)	Change in index	Price (in EUR)	Change in price	Price (in EUR)	Change in price	Price (in EUR)	Change in price
Feb 18	535,5800	-0,0466	42,9800	-0,0854	41,6800	-0,0228	41,2700	-0,0661
Jan 18	560,5200	0,0284	46,6500	-0,0064	42,6300	-0,0199	44,0000	0,0364
Dec 17	544,5800	0,0082	46,9500	-0,0305	43,4800	-0,0009	42,4000	-0,0118
Nov 17	540,1100	-0,0246	48,3800	-0,0316	43,5200	0,0331	42,9000	0,0131
Oct 17	553,3800	0,0295	49,9100	-0,0026	42,0800	0,0711	42,3400	0,0338
Sep 17	537,0600	0,0391	50,0400	0,0006	39,0900	0,0611	40,9100	0,0863
Aug 17	516,0400	-0,0182	50,0100	0,0142	36,7000	-0,0251	37,3800	0,0128
Jul 17	525,4400	0,0348	49,3000	0,0199	37,6200	0,0149	36,9000	0,0553
Jun 17	507,1500	-0,0334	48,3200	-0,0493	37,0600	-0,0537	34,8600	-0,0327
May 17	524,0700	0,0056	50,7000	0,0503	39,0500	0,0015	36,0000	-0,0117
Apr 17	521,1300	0,0088	48,1500	0,0328	38,9900	0,0005	36,4200	0,0390
Mar 17	516,5400	0,0410	46,5700	0,0509	38,9700	0,0080	35,0000	0,0697
Feb 17	495,3500	0,0376	44,2000	0,1538	38,6600	0,0856	32,5600	0,0034
Jan 17	476,7100	-0,0136	37,4000	-0,0460	35,3500	0,0263	32,4500	0,0502
Dec 16	483,1700	0,0537	39,1200	0,0317	34,4200	0,0116	30,8200	0,0672
Nov 16	457,2100	0,0101	37,8800	-0,0079	34,0200	-0,0364	28,7500	-0,0007
Oct 16	452,5900	0,0006	38,1800	-0,0760	35,2600	-0,0803	28,7700	-0,0549
Sep 16	452,3300	-0,0045	41,0800	-0,0010	38,0900	0,0123	30,3500	0,0099
Aug 16	454,3800	0,0100	41,1200	-0,0078	37,6200	0,0000	30,0500	0,0116
Jul 16	449,8300	0,0310	41,4400	-0,0113	37,6200	0,0282	29,7000	0,0892
Jun 16	435,8800	-0,0275	41,9100	0,0367	36,5600	0,0200	27,0500	-0,1723
May 16	447,8700	0,0183	40,3700	0,0495	35,8300	0,0726	31,7100	0,0564
Apr 16	439,6800	-0,0010	38,3700	-0,0263	33,2300	-0,0557	29,9200	-0,0191
Mar 16	440,1100	0,0292	39,3800	-0,0069	35,0800	0,0080	30,4900	0,0607
Feb 16	427,2700	-0,0094	39,6500	-0,0313	34,8000	0,0994	28,6400	-0,0154
Jan 16	431,2800	-0,0244	40,8900	0,0193	31,3400	0,0121	29,0800	-0,0932
Dec 15	441,8200	-0,0627	40,1000	-0,0354	30,9600	-0,0562	31,7900	0,0170
Nov 15	469,5200	0,0158	41,5200	0,0096	32,7000	0,0581	31,2500	0,0538
Oct 15	462,1200	0,0887	41,1200	0,1272	30,8000	0,1068	29,5700	0,1052
Sep 15	421,1400	-0,0567	35,8900	0,0045	27,5100	-0,0269	26,4600	-0,0472
Aug 15	445,0300	-0,1128	35,7300	-0,1422	28,2500	-0,0683	27,7100	-0,0314
Jul 15	495,2300	0,0457	40,8100	0,0848	30,1800	0,1173	28,5800	0,0679
Jun 15	472,5800	-0,0444	37,3500	-0,0396	26,6400	-0,0638	26,6400	-0,0571
May 15	493,5600	0,0116	38,8300	-0,0059	28,3400	-0,0205	28,1600	0,0170
Apr 15	487,8500	-0,0032	39,0600	0,0038	28,9200	-0,0512	27,6800	-0,0574
Mar 15	489,4100	0,0112	38,9100	0,0003	30,4000	0,0467	29,2700	0,0553
Feb 15	483,9300	0,0693	38,9000	0,0080	28,9800	0,0839	27,6500	0,0738
Jan 15	450,3900	0,0576	38,5900	0,1542	26,5500	0,0452	25,6100	0,0418
Dec 14	424,4700	-0,0033	32,6400	-0,0037	25,3500	0,0702	24,5400	0,0807
Nov 14	425,8600	0,0341	32,7600	0,0553	23,5700	0,0967	22,5600	0,0581
Oct 14	411,3200	-0,0239	30,9500	-0,0187	21,2900	0,0080	21,2500	0,0344
Sep 14	421,1400	0,0190	31,5300	-0,0035	21,1200	0,0019	20,5200	-0,0278
Aug 14	413,1300	0,0214	31,6400	0,0259	21,0800	0,0180	21,0900	-0,0820
Jul 14	404,2900	-0,0219	30,8200	-0,0367	20,7000	-0,0444	22,8200	-0,0447
Jun 14	413,1500	0,0144	31,9500	0,0059	21,6200	-0,0157	23,8400	-0,0126
May 14	407,2100	0,0164	31,7600	0,0274	21,9600	0,0861	24,1400	0,0066
Apr 14	400,5500	-0,0066	30,8900	0,0340	20,0700	-0,0204	23,9800	-0,0550
Mar 14	403,2100	0,0116	29,8400	0,0372	20,4800	-0,0220	25,3000	0,0316
Feb 14	398,5400	0,0293	28,7300	0,0359	20,9300	0,0215	24,5000	0,0531
β			**1,0002**		**0,9848**		**0,9923**	

Source:(Investing.com, own calculation, own presentation)

Table 27 Growth rates of selected companies

Company	Currency	Price in April 2013	Price in April 2018	Five-year Growth Rate	**Annual Growth Rate**
DAX 30					
Siemens	**EUR**	76,84	102	32,74%	**5,82%**
Fresenius		31,74	63,38	99,68%	**14,83%**
Lufthansa		15,18	25,72	69,43%	**11,12%**
CAC 40					
Vinci	**EUR**	36,2	80,22	121,60%	**17,25%**
STMicroelectronics		6,601	17,335	162,61%	**21,30%**
Veolia Environnement		10,465	19,33	84,71%	**13,05%**
IBEX 35					
Iberdrola	**EUR**	3,47	6,258	80,35%	**12,51%**
Grifols		15,235	22,77	49,46%	**8,36%**
Viscofan		39,44	56,25	42,62%	**7,35%**
AEX					
Unilever NV DRC	**EUR**	**32,32**	47,45	**46,81%**	**7,98%**
Wolters Kluwer		**16,8**	44,83	**166,85%**	**21,68%**
Aalberts Industries		**17,02**	40,84	**139,95%**	**19,13%**

Source:(Investing.com, own calculation, own presentation)