

The project for improving the performance of selected company in the automotive industry in the Czech Republic

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Thesis Guidelines:

Introduction

Define the objectives and the application methods used in the Master thesis.

I. Theoretical part

- Prepare literature review focused on company performance.

II. Practical part

- Overview the current trends in the automotive industry in the Czech Republic.
- Analyse the current performance of a selected company in the automotive industry in the Czech Republic and compare it with relevant benchmark.
- Calculate the economic value added for the company.
- Prepare a proposal for improving company's performance and submit the proposal to risk and cost analysis.

Conclusion

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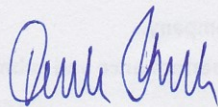
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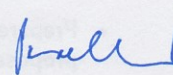
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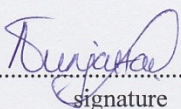
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ABSTRAKT

Tato diplomová práce je zaměřena na měření a hodnocení výkonnosti společnosti XYZ působící v automobilovém průmyslu v České republice. Základním předpokladem pro vypracování projektu byly teoretické znalosti o různých tradičních i moderních přístupech pro měření výkonnosti se zaměřením na pokročilý přístup EVA. Malá část projektu byla zaměřena na přezkoumání trendů v automobilovém průmyslu. Pro tento účel bylo využito sekundárních dat. Praktická část byla zpracována analýzou výkonnosti společnosti XYZ na základě tradičních ukazatelů a následně podle zvoleného pokročilého ukazatele EVA. Navíc byly zjištěny generátory hodnot a prezentován jejich vliv na hodnotu společnosti. Rovněž výsledná hodnota EVA společnosti XYZ byla porovnána s výsledky svých konkurentů. Na konci jsou autorem odvozené aplikovatelné závěry o hodnotě firmy XYZ a o tom, jak zlepšit výkon včetně analýzy rizik a nákladů.

Klíčová slova: automobilový průmysl, výkonnost, tvorba hodnot, trendy, měřítka

ABSTRACT

This diploma thesis is focused on measuring and evaluating the performances of XYZ company, working in the automotive industry in the Czech Republic. The main assumption used in the project was theoretical expertise of different approaches for measuring performance, traditional as well as modern one, and highlighting the advance approach EVA. A small part of the project was focused on reviewing the trends in the automotive industry. Secondary data were used for that purpose. Practical part was created by analyzing the performance of XYZ company based on traditional measures and finally evaluated by the advanced EVA. Moreover, value generators were detected and presented their effects on company's value. Additionally, company's result on EVA was compared with the results of its competitors. In the end, author derives an applicable conclusion about the value of XYZ company and how to improve its performance including risk and cost analysis.

Keywords: automotive industry, performance, value creation, trends, measures

MOTTO:

“The price of success is hard work, dedication to the job at hand, and the determination that whether we win or lose, we have applied the best of ourselves to the task at hand.”

Vince Lombardi

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INTRODUCTION

Leaving in the era of globalization means living in a modern world. However, at the same time, it is an era fast development changes touching all sides of human's lives. Thus, it is crucial for every person to understand the movements and benefit from them.

The automotive industry in the Czech Republic has great tradition and is known all around the world. Therefore, it is vital for the Czech Republic to follow the trends and their impacts on one of its core industries. Additionally, it is important to continuously measure the performance of companies working in this industry, as a key for growth. Good health of individual companies will result in strong industry and growing country. Nowadays, there are a plenty of measures for analyzing the performance of a company. The calculation of performance measure is not a difficult task. The real challenge is to choose the right one. It is crucial because based on the results management will develop future strategies. Furthermore, it is also important for investors to know the health of a company in the decision-making process for new investments.

Bear in mind the importance of choosing the right performance measures, the position of automotive industry in the Czech Republic, as well as the presence of information technology and digitalization in the auto sector, the project was created.

Since globalization has an impact on each company, regardless the size or region on which it operates, it is crucial to be knowledgeable about the new trends and be ready to respond on them. A special accent should be put on information technology and digitalization because they dictate the industry development. Furthermore, regulatory pressure, environment pollution and cost reduction are key areas, creating the path for future growth of market players. Future market position and competitive power will be driven by the promptness to respond on these challenges.

In this project, will be present the performance of selected company in the automotive industry using the traditional measures as well as a modern one. Going back to the performance of the company (in the project named as XYZ company, to protect the identity of the same), generators that create/destroy value will be detected, analyze their sensitivity to changes and modify in a way that will improve the value of XYZ company. The project also contains an extensive theoretical background of performance measurement tools. Important topics like, advantages and disadvantages of each tool, as well as the difference between traditional and modern tools are discussed.

Based on the analysis, XYZ company is going through a difficult period. There are a lot of challenges in front of them. Unfortunately, during the last years, the company's value was decreasing. In addition, new trends are adding pressure to the company. Thus, it is not expected a positive change in near future. Contrary, the negative trend will continue, moving the company from value creator to value destroyer.

To analyze the current performance of XYZ company, traditional performance measures were used. The biggest disadvantage of traditional measures is their point of view - analyzing only individual segments of company's performance. They are not able to combine all aspects and present the company's performance in total. Thus, cannot be used for detecting value generators. For that purpose, the economic model of EVA was used. The accounting model of EVA was used for comparison the performance of XYZ company with its competitors as well as the sector's performance.

Bearing in mind current conditions, alarming areas were detected on which XYZ company should act and sharply improve the results. Moreover, the trend will go in opposite direction – from value destroying to value creating. As a result, the expectation for future development can be positive. However, a small percentage change on paper is not as easy in practice. Even more, there is a question of management willingness to act. Anyway, presenting the impact of those changes are worth to be undertaken, because it means a step forward to brighter future and dismisses of possible distress or bankruptcy.

OBJECTIVES AND METHODS OF MASTER THESIS PROCESSING

The purpose of this work is to assess current trends i.e. innovations and challenges in the automotive industry worldwide. After this the purpose will be to evaluate the performance of a company working in the automotive industry in the Czech Republic, determine the factors important for creating value and giving a proposal for their improvement.

Research questions:

1. What theoretical information about performance measures are available?
2. What are the current innovations in the automotive industry among the world and in the Czech Republic?
3. What are results of performance evaluation of selected company in the automotive industry in the Czech Republic and what is the direction of potential future improvement?

Methodological approach:

The author will use available literature sources to complete the literature overview with books, articles and information from official resources. The global trends worldwide will be explained mainly by using secondary data, surveys done by companies with reputation, and relevant articles. Quantitative data will be applied for analysis the performance of selected company in the automotive industry in the Czech Republic. Author will also use following research methods- analysis, synthesis, induction, deduction, and mathematical methods.

Delimitation:

The study cannot consider every small condition that can influence an automotive company so here the author will go through the most important and relevant to the study conditions.

Dispositions:

This thesis consists of the following chapters:

Chapter 1: ***History of performance measures***. It describes the development and improvements of performance measures during the centuries, starting from B.C. when the first forms of measures appeared till today.

Chapter 2: ***Traditional performance measures***. In this chapter, traditional measures are presented in more details, discussing their advantages and disadvantages.

Chapter 3: ***Modern performance measures***. The chapter for modern performance measures review the more advance measures and their benefits over traditional measures. However, as any other measure they also have some disadvantages, which are presented in this chapter.

Chapter 4: *Automotive industry in the Czech Republic*. Here are discussed the most important players in the auto industry and why this industry is so important for the Czech Republic.

Chapter 5: *Global trends in the automotive industry*. The goal of this chapter is to present the most important innovations that will drive the automotive industry worldwide. Besides the main factors that directly influence the automotive industry, the effect of indirect factors is also discussed.

Chapter 6: *Project for improving the performance of XYZ company*. This chapter consist of analysis of current financial position of XYZ company. Also, the value of the company is calculated and detected the generators that create or destroy value. In the end, suggestions for improving the performance are given.

Chapter 7: *Risk and cost analysis*. The last chapter deals with the risk and costs connected to the realization of the project.

I. THEORETICAL PART

1 HISTORY OF PERFORMANCE MEASUREMENT

This chapter will present the development of performance measurement tools starting from B.C. till today.

1.1 BRIEF OVERVIEW OF PERFORMANCE MEASURES HISTORY

Performance measurement is a process of collecting and analyzing information resulting with a report regarding the performance of an individual, group, organization, etc.

Measuring is in the realm of mathematics. We need to take measures in order to keep track, i.e. to follow the performance of our work. In other words, we need it to check the results of our work and used resources. It is considered that the earliest measurement activities in history are from 35000 B.C. (Lebombo bone) and 9 000 – 6 500 B.C. (Ishango bone). The first trial tools for measuring were used to measure intervals of time.

An important measurement tool, the Salamis metrological relief, dating back to the 4th century B.C. It was used in the architecture and is worth to mention, because it was the first tool that correlates different measuring systems used in Ancient Greece: Doric, Ionic and Common. In the business world, the first measuring is linked to Mesopotamia, where for the first time a form of banking appeared (3000 – 2000 B.C.) and for the first-time law is used to regulate banking operations (1792 – 1750 B.C., The Code of Hammurabi). (Brudan, 2010)

Speaking about the financial engineering, the earliest example will shift us back in 624 – 547 B.C. to the philosopher Thales of Miletus in ancient Greece. As Aristotle wrote in his book “Politics” (Book 1, part XI): “*According to the story, he knew by his skill in the stars while it was yet winter that there would be a great harvest of olives in the coming year; so having little money, he gave deposits for the use of all olive-presses in Chios and Miletus, which he hired at a low price. When the harvest-time came, and many wanted all at once and of a sudden, he let them out at any rate he pleased. Thus he showed the world that philosophers can easily be rich if they like, but their ambition is another sort.*”. This excerpt, shows that what Thales did is, as we call it today, a call option contract on oil presses for the spring olive harvest. (Jowett, 1991, p. 1998)

The first book in financial engineering (*Liber Abaci* or *Book of Calculations*) was written in 1202 by Leonordo of Pisa. This book is remarkable by two things. In this book, the Hindu-Arabic numbers were used (in Europe) for the first time. However, the more important thing is, as Goetzmann (2004) argues, it calculates the PV of alternative cash flows as part of the development of general method for showing investment returns. Additionally, in this book he gives a solution for complex interest rate problems. Leonordo of Pisa will be remembered by his contribution: setting the basics of credit and banking in Europe, and introducing the PV concept.

In the 1490s, Venetians set standards for measurement in business. They evaluated the performance of their sailing expeditions as a difference between the investment, a ship owner made, and received money from sold goods. This was the basic idea for developing the double-entry bookkeeping system. In 1494, Luca Pacioli, elaborated such system in his book ‘Summa de arithmetica, geometrica, proportioni et proportionalita’ (‘Everything on arithmetic, geometry, proportions and proportionality’). (Brudan, 2010)

At the beginning of 20th Century, a French doctoral student, Louis Bachelier (2006), defended his thesis “Théorie de la Spéculation” (Theory of Speculation). Nowadays it is recognized as the root of modern mathematical finance. His spearhead work regarding financial markets were also a motive for boosting of today’s “Efficient Market Hypothesis” and related theories like CAPM model.

One of the earliest books on performance measurement is *Efficient Democracy*, written by William Allen (2016), a secretary of the Committee on Physical Welfare of School Children and General Agent of the New York Association for Improving the Conditions of the Poor.

In the period between 1920-1925, *DuPont*, as a new method for calculating the performance measures (as a return on investments), started to be used.

In 1951, General Electric presented the use of key performance measures, developed on initiative of the CEO, Ralph Cordiner. These measures were clustered in categories. For example, market share, productivity, profitability, and public responsibility. (Brudan, 2010)

Next year, 1952, Harry Markowitz (1955) published his paper “*Portfolio Selection*”. It is the first paper of mathematical finance which become immediately popular and draw attention outside academia. Additionally, it is the base of today’s MPT. Previously, investors created portfolios by comparing the risks and returns on individual stocks. Markowitz argued that such way of thinking is incorrect and investors should create portfolios based on their total risk-return characteristics. Furthermore, he presented the concept of efficient frontier, which later was a base for James Tobin's super-efficient portfolio and the CML and William Sharpe's CAPM. Markowitz was also successful in the area of linear programming. Also, he created a computer language SIMSCRIPT. “*In 1989, Markowitz received The John von Neumann Award from the Operations Research Society of America for his work in portfolio theory, sparse matrix techniques and SIMSCRIPT. In 1990, he shared Nobel Prize for Economics for his work in portfolio theory.*” (Akyildirim, 2014, p. 57-63)

After two decades, in 1970s, General Motors introduced a new system of performance measures based on non-financial indicators. It was beginning of new era in the performance measurement.

In 1992, Balance Scorecard was introduced as a new tool for computing performance measures. Additionally, in the 1990s, performance measurement become very popular across a variety of sectors, especially government. However, not all implementations of performance measurement systems were successful. On the other side, each experience, either good or bad, contributed to more informed decision making about how and when to implement some measure. (Brudan, 2010)

Nowadays, companies are working in a much more dynamic environment, where information are available to everyone and investors have a plenty of choices for investing their wealth. Therefore, managers are looking for tools that will add value to its shareholders and attract more investors. They are not focusing only on one particular performance, like profitability, but adding value to the company and reaching their targets. In other word, they analyze the company as a whole. For achieving this goals managers are using tools like: EVA, Balance Scorecard, CFOI, FCF and many others so called “Modern performance measurement tools”.

2 TRADITIONAL PERFORMANCE MEASURES

In this chapter, will be presented the traditional performance measure tolls by category. Furthermore, each category will be discussed in more details, covering the advantages and disadvantages of each tool. In the end, the overall problems with financial statement analysis will be presented.

2.1 FINANCIAL STATEMENTS

Each company, at the end of fiscal year, as well as in the interim period, is preparing their financial statements. The reason is, presenting the results of the undertake activities as well as the usage of assets. There are three main financial statements required from each company to report: Income statement, Balance sheet and Cash flow statement. Mostly, the financial statements are prepared based on international accounting standards like IFRS or GAAP to make them understandable and easy for usage worldwide. (Scholleová, 2012)

Financial statements are often audited. According to the law, in the Czech Republic, each company that has CZK 40 million gross assets/year, CZK 80 million turnover/year or 50 employees has to be audited. The joined stock companies should meet at least one of the criteria for two consecutive accounting periods, while the other companies have to meet at least two criteria. The audit is done to check whether the financial statements give a true and fair view of the financial position of the company at the period end, and its financial performance and its cash flows for the same period are in accordance with IFRS. (IFAC, 2010)

2.1.1 Income statement

The income statement provides an overview of revenues, expenses, profit and earnings per share. The bottom line of the income statements gives information about the value we created for our shareholders/owners. The income statement covers a range of time, providing data from two years for comparison. (Brigham, 2010, p. 52-53)

2.1.2 Balance sheet

The balance sheet provides an overview of assets, liabilities and shareholder's equities. While the income statement provides data for particular period of time, the balance sheet presents data at a given point in time (quarter, half year or period end). The basic rule of the balance sheet is: assets must be equal to the sum of liabilities and shareholder's equities.

$$\text{Assets} = \text{liabilities} + \text{shareholder's equities}$$

In the balance sheet, assets are listed based on their liquidities, from the most liquid to the less liquid. On the other side, the liabilities are listed based on the time of payment (current liabilities are expected to be paid within a year, while the non-current liabilities are expected to be paid after more than one year). (Ross, 2016, p. 21-29)

2.1.3 Cash flow statement

The cash flow statement is presenting the level of cash that inflows and outflows from the company. The last line of this report shows the level of free/unused cash that company has and is available for future plans or increased liquidity. The cash flow statement merges the balance sheet and the income statement in three main parts: operating, investing and financing. The operating cash flow represents the flow of cash made from the core activities of the business. The investing cash flow represents the buying or selling of assets (tangible or intangible). Finally, the financing cash flow includes activities i.e. flow of cash connected to debt and equity. (Kislingerová, 2010, p. 73)

2.1.4 Horizontal analysis

A horizontal or trend analysis is part of fundamental analysis. It is used for comparison ratios or line items in the financial statement of a company over the time. Horizontal analysis determines how the company, as a whole or specific parts, is growing. Additionally, it can be used to compare the performance of the company in relation to its competitors or industry. (Scholleová, 2012, p. 166)

2.1.5 Vertical analysis

Vertical analysis is a tool used to determine the proportion of each line item, in the financial statement, in the total account. The results are shown as percentages.

The main advantage of vertical analysis is ability to compare financial report of different sized businesses. Additionally, it can be helpful to detect the relative annual changes inside one business. Moreover, vertical analysis can be used to compare the proportion of each item within the total account to previous periods. (Scholleová, 2012, p. 166)

2.2 RATIOS

2.2.1 Profitability ratios

2.2.1.1 Return on capital (ROC)

Return on capital or return on invested capital is used to measure how efficient the company used the money (investments) to generate returns.

$$\text{ROC} = \frac{\text{after-tax interest} + \text{net income}}{\text{total capital}} \quad [1]$$

The first step for calculating ROC is to sum up after-tax interest and net income. The reason why tax shield on debt interest is not included is to calculate the income a company would earn if it was financed only by equities. The tax advantages of debt are included in the weighted average cost of capital (WACC). This advantages are picked up when we compare ROC with the WACC. However, it is approximately correct to compare ROC with WACC. (Brealey, 2017, p. 732-752)

2.2.1.2 Profit margin

Profit margin is the amount of net income earned by each CZK of sales.

$$\text{Profit margin} = \frac{\text{net income}}{\text{sales}} \quad [2]$$

A low profit margin, on operational level, may indicate that profitability of the company is endangered. On the other side, a low profit margin can be a result of poor industry performance in which a company operates.

Profit margin can be used as an indicator for company's ability to manage its expenses. An increase in expenses will result with sharper decline in the profit margin. This mean that the company is struggling to manage its cost and could be used as an alarm for improvement.

However, the profit margin is only useful for comparison the performance of companies within one industry. Moreover, it cannot be used for measuring the performance of companies with no profit. (Pavelková, 2012, p. 23)

2.2.1.3 Return on equity (ROE)

Return on equities measures how much profit the company earns per each CZK of equity.

$$\text{ROE} = \frac{\text{net income}}{\text{equity}} \quad [3]$$

In order to find out whether the company is earning enough return to its shareholders, i.e. whether the ROE is positive we have to compare it with the cost of equities. ROE shows the efficiency of management to generate profit with the money shareholders have invested. It measures how stockholders fared during the year. Because benefiting shareholders is one of basic goals of each company, ROE is, in an accounting sense, the true bottom-line measure of performance. (Brealey, 2017, p. 732-752)

2.2.1.4 Return on assets (ROA)

Return on assets measures how much profit per CZK of assets the company earns.

$$\text{ROA} = \frac{\text{after-tax interest+net income}}{\text{total assets}} \quad [4]$$

When interest payments are adjusted by tax shield, the result is how much the company will earn when it is financed only by equities. This adjustment is very useful when we want to compare the profitability of companies with different capital structures. (Brealey, 2017, p. 732-752)

Although ROA and ROE are good and very often used measures, they are accounting based measures. This means that they rely on the book value of assets and the book value of equity. Therefore, is not possible to compare them with market value based measures. (Ross, 2016, p. 57-68)

2.2.2 Efficiency ratios

2.2.2.1 Asset turnover ratio

$$\text{Asset turnover ratio} = \frac{\text{sales}}{\text{total assets}} \quad [5]$$

This ratio measures how much sales are generated per one CZK of assets. In other words, it measures how efficiently a company is using its assets to generate sales. The problem may arise when deciding which amount of assets to be used: at the beginning of the year or in the end of the year? If the assets are turned over slowly, then it is better to use the value at the beginning of the year. Contrary, if there is fast turnover, which appears more often, it is better to use an average measure. (Brealey, 2017, p. 732-752)

2.2.2.2 Inventory turnover

$$\text{Inventory turnover} = \frac{\text{cost of good sold}}{\text{inventory}} \quad [6]$$

Inventory turnover ratio measures how many times the inventories are turned over (sold and replaced) in a particular period of time. In other words, it measures how fast a company is selling the inventories. The results are usually compared against the industry average. As higher this ratio is, as better inventories are managed. (Scholleová, 2012, p. 178-179)

2.2.2.3 Days' sales in inventory

$$\text{Days' sales in inventory} = \frac{365}{\text{inventory turnover}} \quad [7]$$

As a sequel of the inventory turnover ratio is the days' sales in inventory ratio. It measures how many days the company needs to turn the inventories into sales. Contrary to inventory turnover ratio, as lower this ratio is, as better inventories are managed. (Pavelková, 2012, p. 33)

2.2.2.4 Receivable turnover

$$\text{Receivable turnover} = \frac{\text{sales}}{\text{receivables at start of year}} \quad [8]$$

Receivable turnover ratio measures the efficiency of a company to manage the credits issued to its customers and collect on that credits.

If this ratio is high, it means that a company has small portion of unpaid sales. On one side, this can be interpreted as high efficient credit department and quick reaction on late payment, or simply customers are paying quickly. On the other side, this can be a result of a restrictive credit policy of a company. (Brealey, 2017, p. 732-752)

2.2.2.5 Account receivable period

$$\text{Account receivable period} = \frac{\text{receivables at start of year}}{\text{average daily sales}} \quad [9]$$

This ratio measures the average length of time customers need to pay their liabilities. As faster a firm turn over its receivables as shorter is the collecting period. This ratio together with the inventory period ratio, could be good indicators for highlight inefficient areas. (Scholleová, 2012, p. 179-180)

2.2.3 Leverage ratios

2.2.3.1 Debt ratio

$$\text{Debt ratio} = \frac{\text{total liabilities}}{\text{total assets}} \quad [10]$$

Debt ratio measures the total leverage of a company i.e. the portion of assets that is financed by debt. As higher this ratio is, as more leverage the company has. Many times, companies use high leverage as a tool for grow. However, more leverage means higher financial risk and higher risk of distress. (Pavelková, 2012, p. 28)

2.2.3.2 Time-interest-earned ratio

$$\text{Time-interest-earned ratio} = \frac{EBIT}{\text{interest payment}} \quad [11]$$

This ratio is a measure of how much the interest obligations are covered by earnings. “*The regular interest payment is a hurdle that companies must keep jumping if they are to avoid default. Times-interest-earned measures how much clear air there is between hurdle and hurdler.*” However, the problem of this ratio is that it does not show the whole story. There is no information whether the company is generating enough cash to repay its debt. (Brealey, 2017, p. 732-752)

2.2.3.3 Cash coverage ratio

$$\text{Cash coverage ratio} = \frac{EBIT + \text{depreciation}}{\text{interest payments}} \quad [12]$$

Cash coverage ratio determines the level of available cash for paying interest expenses. A good result of this ratio is: greater or equal to 1, meaning that the available cash is higher or equal to interest expenses.

The problem with the time-interest-earned ratio is not giving a true value of the available cash for paying interest, because it is based on EBIT. To calculate EBIT, depreciation is deducted, which is a noncash expense. On the other side the interest is definitely a cash outflow. Thus, in order to find the true value of available cash for paying interest, depreciation should be added back. The EBITD (earnings before interest, taxes and depreciation) is a basic measure for calculating the ability of a company to generate cash from operational activities. Also, it is used as a measure of available cash to meet financial obligations. Many times instead of EBITD, EBITDA (earnings before interest, taxes, depreciation and amortization) is used. In this case, besides the depreciation also amortization is added which refers to a noncash deduction applied to an intangible asset. (Ross, 2016, p. 57-68)

2.2.4 Liquidity ratios

2.2.4.1 Net-working-capital-to-total-assets ratio

The difference between current assets and current liabilities is known as net working capital. It is positive if current assets exceed current liabilities. In other words, this means that at the end of the year a company will have more available cash than needed for paying the liabilities. Having positive net working capital means healthy firm. (Mulačová, 2013, p. 154)

$$\text{Net-working-capital-to-total-assets ratio} = \frac{\text{net working capital}}{\text{total assets}} \quad [13]$$

2.2.4.2 Current ratio

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}} \quad [14]$$

Current ratio is a measure of short – term liquidity. The results can be expressed in currency (usually dollars or CZK) or times. For creditors, as higher the current ratio is as better. But, for company this may indicate inefficient use of current assets. The expected result when calculating this ratio is at least 1 (current assets and current liabilities are equal). Any number above 1 is good and affects working capital positively (current assets exceed current liabilities).

As any other ratio, the current ratio is affected by various types of transactions. Imagine the company is borrowing on long-term to raise money. In this situation, cash will increase (short-term effect), but the short-term liabilities will not increase. The long-term debt is the one that will increase. Thus, the short-term assets will increase, while the short-term liabilities will not change. Finally, the current ratio will rise.

However, having a low current ratio may not be a bad sign if the company has a huge reserves of untapped borrowing power. (Ross, 2016, p. 57-68)

2.2.4.3 Quick ratio

$$\text{Quick ratio} = \frac{\text{current assets} - \text{inventory}}{\text{current liabilities}} \quad [15]$$

Another liquidity ratio is quick ratio. It measures the ability of a company to pay their short – term liabilities by the most liquid assets. This ratio gives an information about the amount of liquid assets available for each unit of current liabilities.

The least liquid component of current assets are inventories. Additionally, their book values are least reliable for measuring the market value, because the quality of inventories is not reflected. Moreover, inventories are susceptible to damage or lost. Sometimes, the increasing number of inventories is a result of overestimated sales or overestimated production. In such case, a substantial portion of company's liquidity is lock up in slow-moving inventory. (Kislingerová, 2010, p. 105)

2.2.4.4 Cash ratio

$$\text{Cash ratio} = \frac{\text{cash} + \text{marketable securities}}{\text{current liabilities}} \quad [16]$$

Cash ratio measures the ability of a company to repay its short-term debt. It is very often used by investors or creditors when they are making decision for extending a debt of the asking party (company). The cash ratio is more conservative view of company's ability to pay its liabilities, by using only cash and cash equivalents. In other words, it measures the ability of a company to pay its current liabilities without selling or liquidate other assets.

Cash ratio lower than 1 may indicate financial problems. However, it may be a result of a company's strategy or simply the nature of the industry in which the company operates. On the other side, to high cash ratio does not necessary reflect strong performance. It may indicate an inefficient utilization of cash. (Pavelková, 2012, p. 32)

2.2.5 Market value

The values of assets that are presented in the balance sheet are known as “*book value of assets*”. Very often these numbers are not showing what the assets are actually worth. This means that, assets are shown at historical cost i.e. how much the company paid for them, regardless the time (how old they are) and how much they are worth today.

For current-assets, book value and market value might be close, because it is expect to be converted into cash for a relatively short period of time. Contrary, having similar values (book value and market value) for fixed assets is on the level of coincidence. Analyzing the difference between the book value and the market value is important for understanding gains and losses and their impacts. Changes in the book values mostly appear as a result of some changes in accounting standards. However, this changes have no impact on the market value of assets. In fact, the market value of assets has nothing with the accounting. It depends on things like riskiness and cash flows. (Ross, 2016, p. 57-68)

2.2.5.1 Earnings per share (EPS)

$$\text{EPS} = \frac{\text{net income}}{\text{shares outstanding}} \quad [17]$$

Earnings per share is a ratio determining the portion of net income per one share outstanding. In general, it is considered to be the most important indicator in calculating the price of a share. When companies are evaluated by its earning per share an important variable is often ignored – the required capital. Two companies can have the same EPS, but different structure of equity and debt. The company which has less equity, uses its capital more efficiently and in the end makes the company better or more attractive. Unfortunately, this ratio can be used for manipulation (behind high EPS there is not always a successful and healthy company). Thus, an investment decision must rely on more financial measures. (Brealey, 2017, p. 732-752)

2.2.5.2 Price-earnings ratio (P/E)

$$\text{P/E} = \frac{\text{price per share}}{\text{earnings per share}} \quad [18]$$

Price-earnings ratio measures the willingness of investors to pay, per CZK of current earnings. High results of this ratio are often taken to mean a bright, growing future for a company. Additionally, it can be seen as a benchmark, by taking the median of P/E ratios over a period of time, and indicate whether a stock is worth buying or not. (Pavelková, 2012, p. 35)

2.2.5.3 Price – sales ratio (P/S)

$$P/S = \frac{\text{price per share}}{\text{sales per share}} \quad [19]$$

Price to sales ratio measures the value of each CZK of sales (revenues) of a company. If the result is low, it may indicate an undervaluation. On the other side, too high result, compared to the industry average, could signify overvaluation. As all other ratios, it can be used only for comparison the performance of companies operating in same industry.

In some cases, like rent start – up, companies are in loss for extended period and calculating P/E is meaningless. However, these companies still have some revenues and we can have a look on them. (Ross, 2016, p. 57-68)

2.2.5.4 Market-to-book ratio

$$\text{Market-to-book ratio} = \frac{\text{market value per share}}{\text{book value per share}} \quad [20]$$

The book value per share is calculated by dividing the total equities by the number of shares outstanding. We already mentioned, the book value is an accounting number and it reflects historical costs. On the other side the market value per share is reflecting how much the shares are worth today. Thus, the market-to-book ratio is comparing the market value of firm's investments to their costs. If the value of this ratio is less than 1, it could mean that a company was not very successful in the process of creating value for its shareholders. (Brigham, 2010, p. 101-102)

2.3 PROBLEMS WITH FINANCIAL STATEMENTS ANALYSIS

One of the basic problems with financial statements analysis is missing a reliable theory that can be used to identify which quantities to look at, as well as to establish benchmarks. Therefore, it is difficult to classify the ratios (as more or less relevant) or determine which number is a good result. (Shim, 1998, p. 31)

Additionally, many companies are conglomerates, owning more businesses that are not connected and belong to different industries. Since, the consolidated financial statements of such companies do not fit to any industry, it is difficult to find a proper benchmark to evaluate the performance.

Another problem is that the major competitors are located all around the globe. Typical example is the automotive industry. Although, nowadays we are using International Accounting Standards, that should make the understanding and comparison of financial reports between different countries easier, still it is not that perfect. For example, while the USA is using the GAAP, Europe is using the IFRS. Even though these standards helped a lot, the existence of different standards make difficult the comparison of financial statements across the globe.

But problems can appear even when the companies work in the same industry. As Ross (2016, p. 63) says in his book *Fundamental of Corporate Finance*: “First, different firms use different accounting procedures – for inventory, for example. This makes it difficult to compare statements. Second, different firms end their fiscal years at different times. For firms in seasonal businesses (such as a retailer with a large Christmas season), this can lead to difficulties in comparing balance sheets because of fluctuations in accounts during the year. Finally, for any particular firm, unusual or transient events, such as a one-time profit from an asset sale, may affect financial performance. In comparing firms, such events can give misleading signals.”

3 MODERN PERFORMANCE MEASURES

Modern performance measures are developed based on the disadvantages of traditional measures. They are created to cover the areas traditional measures cannot. However, as any other measure, they have some disadvantages. Therefore, in this chapter a deeper look on the most important modern measures will be presented, discussing their advantages as well as disadvantages.

3.1 PRESENT VALUE

According to Ross (2016, p. 132-144) present value is the value of money or cash flow that will be received in the future, discounted at present. Discount factor represents the time value of money- *a CZK today is worth than a CZK tomorrow*, because it can be invested today and start earning interest immediately. In other words, discount factor shows the present value of 1CZK received in the future.

$$\text{Discount factor} = \frac{1}{1+r} \quad [21]$$

The rate of return r is the benefit/price investors ask for accepting delayed payment. It should reflect the opportunity cost by investing in a project, that bears some level of risk, rather than investing in government securities, treated as risk free.

Present value can be calculated by multiplying the discount factor with the expected payoffs (C_n):

$PV = \text{discount factor} * C_1 + \text{discount factor} * C_2 + \text{discount factor} * C_3 + \dots + \text{discount factor} * C_n$

$$PV = \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_n}{(1+r)^n} \quad [22]$$

(Škoda Auto, 2008, p. 11)

3.2 NET PRESENT VALUE

The main goal of shareholders is to get as higher as possible return on their investments. An investment is worth undertaking only if it creates value. This means that an investment worth more on the market than the cost for its acquiring. This difference, between the value of a project and its costs, is known as Net Present Value (NPV). Many times, companies instead of calculation NPV compare the expected rate of return of a project with the return of same risk investment on the capital market. The company should accept all projects that provide higher return than the same risk investments in the capital market. If the expected rate of return is calculated correctly it should identify projects that increase firm value.

The formula for calculating the NPV is following:

$$\text{NPV} = C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_n}{(1+r)^n} \quad [23]$$

Where:

NPV – net present value

C_0 – initial investment

$C_1, C_2, C_3, \dots, C_n$ – expected cash flow in each year of the economic life of the project

r – opportunity cost of capital. (Brealey, 2017, p. 105-122)

Based on formula [23], in order to calculate NPV first of all, expected cash flow of a project have to be calculated in each year of its economic life. After that, opportunity cost of capital (r) have to be determined. This rate should reflect both the time value of money and the risk of a project. The third step is to calculate the Present Value (PV) of a project. In this step all future cash flows are discounted to present. As mentioned before, the reason for this is because the CZK earned today is not equal with the one earned tomorrow (time value of money). The CZK earned today can be invested immediately and earn interest on it. Therefore, we must check whether the risk we are undertaking is worth or not. The last step is to subtract the initial investment from the PV. (Shim, 1998, p. 204)

The process of making an investment decision is not that simple. First of all, possible opportunities have to be found out. Secondly, costs for doing a project and bringing it to market have to be estimated. At this point total cost of the investment and its market value need to be estimated. Finally, if the difference between them is positive a decision for investing can be undertaken. If the $\text{NPV} = 0$ than investors will be indifferent whether to accept the project or not. In such a situation, the project will not create a value nor destroy value. However, there is a risk that estimates were not correct and based on that the undertaken decision was wrong. (Ross, 2016, p. 273-277)

In practice, a company usually have more than two options to choose. In such a situation, it is not a good idea to sum up the NPV of all projects together and make a decision. This can lead the investor to an inferior decision. If investors are not careful, they may be tricked and decide that the group of good and bad project is better than the good project on its own. (Brealey, 2017, p. 105-122)

3.3 ECONOMIC VALUE ADDED (EVA)

The value-based management is based on two premises: the primary goal of any business is to create value for its shareholders, and markets are too competitive to build such value without a plan. Having a plan mean to have the right culture, systems and processes that will result in higher returns for shareholders.

Another measure, in the list, of corporate performance, is EVA or economic value added. EVA is registered trademark of Stern Stewart &Co. It differs from other measures by including the cost of all capital employed in a company, against the profit. However, EVA is not only a measure. It is a framework that guides every decision in an organization, from the operational level to the very top management. Additionally, it can help to improve the corporate culture and make employees more pleased. The last, but not the least important, it can contribute to increasing the wealth of shareholders and satisfaction of customers and managers. (Stern Stewart &Co., 2017)

The cost of capital, charged in EVA is the opportunity cost of capital – the return that investors could earn if they put their money in another project, stocks or bonds with the same or comparable level of risk. Just as lenders demand interest on the debt, shareholders also expect a return on their investment. In other words, EVA is the profit as shareholders measure it. (Brigham, 2010, p. 68)

EVA is not something new. It is based on the idea of the English economist Alfred Marshall (19th century): for investors to earn pure economic profits, sales must be sufficient to cover all costs, including operating expenses (such as labour and materials) and capital charges. Such economic profits are the basis of value creation. (Young, 2013, p. 814-816)

Another prove that EVA is nothing that was not known before we can find if we return to the fundamental elements of business management. “As Peter Drucker put in his 1995 Harvard Business Review article: EVA is based on something we have known for a long time: What we call profits, the money left to serve equity, is usually not profit at all. Until a business returns a profit that is greater than the cost of capital, it operates at a loss. Never mind that it pays taxes as if it had a genuine profit. The enterprise still returns less to the economy than it devours in resources... Until then it does not create wealth; it destroys it.” (Ehrbar, 1998)

In fact, EVA combines modern financial theory with classical economics to solve problems of running a business, and the result is a framework applicable to all companies at any time and any environment. In some companies, individual products may be evaluated by the operating profit or business units by the return on assets. An investment may be assessed by discounted cash flow, while the acquisitions, by the effects on the growth of earnings. Instead of using a plenty of measures, based on different terms, EVA provides a consistent focus and allow all decisions to be made, monitored, transferred and assessed in same conditions. (Wagner, 2009)

The EVA system allows managers to make decisions based on superior information. However, the information itself cannot help managers to choose the right actions to maximise the wealth of shareholders and the economic profit. What is more remarkable for EVA is, it changes the behaviour through the organisation, as crucial, and use it as a base for incentive compensation. (Ehrbar, 1998)

The most important difference in EVA bonus plan is, managers are identical as the owners i.e. EVA bonus plan makes managers act and think like owners. Their bonuses are calculated as a percentage of increases in EVA. Additionally, EVA bonus plan breakdown two fundamental rules established by the big compensation consulting companies:

- Rule No.1: Bonuses do not have caps – there is no need for upper limits in bonuses since there is an increase in EVA. The biggest advantage of this idea is, managers will be motivated to improve the performance, even though the current ones are adequate. A part of any exceptional bonus goes into, as Al Ehrbar call them in his book EVA: the real key to creating wealth, “bonus bank” for future payment if EVA drops. We can imagine this bonus banks as “guardians” who protect the system of anyone’s desires to sacrifice the future of the company for short-term gains. Moreover, it is motivation for managers to work hard in the downturns, as well as to seek for new sources of sustainable, long-term improvement in the expansion.

- Rule No.2: Formula automatically resets targets for EVA improvement instead of negotiating a budgeted level of improvement each year – Managers with conventional incentive plans will tend to achieve easy goals to be sure that they will get their bonuses. On the other hand, managers working with EVA bonus plan, are stimulated to propose aggressive budgets, because they will not be punished for any short-term failure, and will be extra paid for anything they do achieve. (Ehrbar, 1998, p. 41-55)

In the end, EVA is not about finance nor economics. It is about people – the most valuable resource in each company. The success of any business, depends on creativity and the will for improvement that each person possesses, usually to a greater level than they get credit for. However, by adopting EVA, it does not mean that managers will automatically transform into responsible people willing to rise profit through every economic climate. Although the creation of wealth asks for more effort and creativity, having better information and better motivation bring a company closer to success. (Wagner, 2009)

3.3.1 EVA calculation

By definition, Economic Value Added (EVA) is a measure of company's performance based on wealth created for shareholders and calculated as a difference between the net operating profit after tax and the capital charges. Or:

$$EVA = NOPAT - \text{Capital charges} \quad [24]$$

$$EVA = NOPAT - (\text{Invested capital} * WACC) \quad [25]$$

From the formula, it is clear that one of the advantages of EVA is: it can be calculated at any divisional level, compared to the market-based measures that can be computed only at the consolidated level. If the net profit of operational activities after tax, invested capital and the costs of invested capital are known, then EVA can be calculated for any business including, departments, business lines, products or regions. (Pavelková, 2012, p. 52)

Furthermore, the entity does not have to be publicly traded. There are also other ways for calculating EVA. For example:

$$RONA = \frac{NOPAT}{\text{Net assets}} \quad [26]$$

$$EVA = (RONA - WACC) * \text{Invested capital} \quad [27]$$

If RONA is greater than WACC, EVA is positive and vice a verse, if RONA is less than WACC, EVA is negative. Unfortunately, there is some risk of using RONA for calculating EVA. Divisional managers may avoid value-creating projects because they will reduce RONA, or they might accept value-destroying projects because they will increase RONA. Thus, relying only on RONA can lead to suboptimal behaviour. (Wagner, 2009, p. 182)

Despite all, RONA has positive aspects too. Firstly, it captures the productivity gains achieved by the employees. An important characteristic of RONA is that it considers the assets used by the employees to achieve the goals. Besides the fact that it does not measure capital charges precisely, it reminds managers that costs are made for acquiring and holding assets. (Pavelková, 2012,)

Returning to the formula, EVA increases whenever a company can achieve at least one of the following:

- Increase return on existing capital – if the company can increase RONA and at the same time keep WACC and invested capital unchanged, EVA will increase.
- Profitable growth – investing in a new project for which expected return is higher than WACC, will create value.
- Remove value-destroying activities – whenever a business or business unit is closed or sold, invested capital decreases. If such reduction is compensated, or even higher, by the improvement in the spread between RONA and WACC, EVA increases.

- Extend the period over which is expected RONA to be greater than WACC
- Reduce the cost of capital

(Ehrbar, 1998)

All profit measures, are flows by definition. Since EVA is a profit measure, it is also a flow. However, there is one significant difference between EVA and the other accounting profit measures. EVA measures the economic profit. While the accounting profit includes only the operating costs of doing business, EVA incorporates all capital costs (adding the opportunity cost of capital). Without the prospect of economic profit, wealth cannot be created. (Kislingerová, 2010, p. 122-123)

The relation between EVA and wealth creation can be explained by the following equation:

$$\text{Market value} = \text{invested capital} + \text{present value of future EVAs} \quad [28]$$

The value of a company, at any date, depends on the capital market's expectations of future EVAs. The higher the expectations are, the higher the value of a company. The expectations of future EVAs come from two sources: continuity of achieved performance results and EVA improvement. If we add the invested capital to the capitalized value of current EVA (EVA/WACC), the result is a current operational value (COV). In other words, it is the value of the company if the capital market expects the same EVA performance to continue at the same level in the future as the once achieved in the recent years. Thus:

$$\text{COV} = \text{invested capital} + \text{capitalized value of current EVA} \quad [29]$$

$$\text{Capitalized value of current EVA} = \frac{\text{current level of EVA}}{\text{WACC}} \quad [30]$$

$$\text{Market value} = \text{COV} + \text{future growth value} \quad [31]$$

$$\text{Market value} = \text{invested capital} + \text{capitalized value of current EVA} + \text{future growth value} \quad [32]$$

In fact, future growth value is the capitalized value of expected EVA improvement i.e. the present value of expected EVA improvements in future, discounted at the WACC.

$$\text{Market value} = \text{invested capital} + \text{capitalized value of current EVA} + \text{capitalized value of expected EVA improvements} \quad [33]$$

Capitalized value of current EVA and capitalized value of expected EVA improvements are directly proportional. As a result, for a company's share price to increase the one of these variables, or both, have to rise. (Ehrbar, 1998, p. 70-75)

EVA provides identical results as the DCF model. However, DCF has a significant advantage over EVA – forecast the expected cash flows in the future. On the other side future EVAs are not cash flows. Therefore, they cannot be used for estimating, for example, cash budget or cash needs.

3.3.2 EVA and MVA

Market value as a measure gives no information about the creation of wealth. It tells the value of the company, but there is no information about the amount invested to achieve that value. Wealth is created only if there is a positive difference between the market value and the capital invested. If the difference, between market value and capital invested, is negative wealth is destroyed. This difference is also known as market value added (MVA). The formula is:

$$\text{MVA} = \text{total market value} - \text{total capital} \quad [34]$$

(Brigham, 2010, p. 69-70)

Without a doubt, MVA measures the wealth creation. It measures the flow of cash. In other words, it calculates the difference between the amount invested into a company, and how much investors can get if they decide to sell it at today's market price. As higher MVA, as greater the shareholders' wealth. Furthermore, MVA can be used as an external measure of management performance. It shows the market view on management efficiency and how the resources are utilised under their control. MVA also reflects how managers positioned a company on the long-term because MVA, in fact, is the present value of future EVAs. (Young, 2013, p. 31)

Since stock prices are expectational, and the creation of MVA is strongly affected by the share price, no performance measure can perfectly correlate with MVA. Still, EVA can explain 50% of MVA changes. In the list of measures that can explain the changes in MVA are also: ROE (35%), Cash Flow (just above 20%), EPS (near 20%) and Sales (less than 10%). (Stern, 2013, p. 952-953)

The market value of a company also includes investors judgment about the risk. Therefore, MVA is automatically risk-adjusted. It is beneficial for comparison companies that work in different industries, have a different size or operate in various regions. (Young, 2013, p. 31)

A small disadvantage of MVA is, it shows the value at one point in time. If we want to measure the performance of management, it will be better to analyse the change of MVA over a longer period, one to five years. An increase in MVA will mean that the company increased the wealth of its shareholders and improved its market value without raising additional funds. Contrary, if MVA decreases, the wealth of the shareholders will be eroded. The changes in MVA can be caused by many factors. The most important one is the management. The success of the company does not depend on the industry in which it runs, but on the right strategy and quality of Directorate executing that strategy. (Mařík, 2005, p. 9)

Despite, MVA has many advantages there are a few situations where it is not very useful measure. While the goal of each company should be to create as higher MVA as possible, it is not preferable measure for daily decisions. An overall change in the stock market can deluge the input of managers on short – term. Secondly, it can be calculated only for companies that are publicly traded and only on a consolidated level. Consequently, MVA cannot be used to measure the performance of individual parts or products. Thus, managers have to focus on alternative internal measures and use MVA as an external conviction. (Stern, 2013, p. 952-953)

3.3.3 EVA and EPS

The first thing of those companies who want to improve its MVA is to abandon usage of earning per share as a measure of performance. The idea that investors will look only at EPS when making an investment decision is entirely wrong. Manipulating with numbers and showing high EPS can end with distress situations and bankruptcy at worst. We can remember of one such example: the ENRON company – an American energy company located in Houston, Texas. By using accounting loopholes and poor financial reporting, they were able to hide billions of dollars' debt from failed contracts and projects. Moreover, they successfully pressured Arthur Anderson, one of the top five audit company, to ignore the issues. In the mid-2000, ENRON's EPS reached the pick with \$90.75. Since this high performance was not real, in short-term the EPS started to fall and at the end of November ended with less than \$1. ENRON ended with bankruptcy and pulled Arthur Anderson too. ENRON scandal was cited as the biggest audit failure in American history. (Pavelková, 2012, p. 71-72)

Such manipulations are typical for the manufacturing industries. Near the end of the quarter, unwanted goods are shipped to the distributors to report higher sales and earnings. However, distributors did not demand that goods and they will not pay for the same till they resale it. The final result is increased receivables of the company and reduced cash flow. In some extreme cases, the desire to show high earnings ends with fraud. As an example, the disk – manufacturer “Miniscribe” filed for bankruptcy in 1990 when directors found out that the company had literary been shipping bricks to their distributors. (Ehrbar, 1998)

Manipulations will make the reported earnings to look better than they are. In fact, the shareholders are worse off by at least the amount of receivable financing. Maybe the craftiest effect of looking at earnings is the way that encourages managers to invest in mature industries. Any investment, even with negative NPV, will look attractive for managers as long as the return is higher than the after-tax borrowing rate on additional debt. (Young, 2013)

Focusing on earnings, as a performance measure and decision rule for investing, is known as accounting model of valuation. According to this model, the most important measures are EPS, ROE and earnings growth. They determine the future profits and share price. On the other hand, is the economic model. This model relies on two things: the expected cash that business can generate over its life-cycle and the risk of expected cash. Academic researchers, supported by empirical evidence prove that the economic model is a better measure for determining share price and that the accounting model is incorrect. Additionally, it is proven that EVA, derived from the economic model, is much more closely with changes in MVA than any other measure. (Stern, 2013)

EVA is also connected with share price. As the expectations for corporate EVA increases, so do the share price. Per the opinion of Young (2013, p. 814-816): companies can use EVA as a target and motivate managers to focus on goals that capital market wants. Additionally, he says, this approach is especially useful for executives one or two levels below top management who have little direct influence over share price and for whom stock option are less efficient.

EVA is like magic. First of all, by including the cost of all capital, it discourages managers to invest in projects with a smaller return than the cost of capital. Secondly, EVA calculation requires adjustments on some categories/lines in the traditional accounting, like research and development and amortization of goodwill. The accounting anomalies of international accounting standards are corrected, by the adjustments. This process is helpful to get a more accurate value of wealth creation. Moreover, as already mentioned, EVA is most directly linked to MVA. Thus, it can be said that MVA is the present value of future EVAs. MVA and EVA are directly proportional – if EVA increase, investors will expect MVA to increase too. Many examples are showing the relation between MVA and EVA. One of them is IBM. In 1984 its EVA reached the pick at \$4.7 billion, and after that started falling straight to -\$204 million. MVA followed the same trend, from more than \$50 billion in 1985 to almost \$0 in 1989. On the other side, earning declined but were still positive in the same period. To be more precise from \$6.6 billion dropped to \$5.8 billion in 1989. If IMB focused on EVA and MVA, instead of earning, they would not fall from No.1 to No.1000 on the performance 1000. (Ehrbar, 1998)

To sum up, EPS is not a good performance measure, because it can be manipulated by accounting. Moreover, it does not give information about variables that create value, like operating margin, costs of capital and competitive advantage period. Contrary, EVA provide clear information about the business and financial risks, as important variables to determine the returns. Furthermore, it examines the cash flow and sustainability of returns a fundamental for wealth creation. (Ehrbar, 1998, p. 67-80)

3.3.4 Best practice EVA

Eva includes all necessary drivers of value creation. If analyse EVA as capital invested multiplied be the difference between actual and expected return, including the business and financial risks, the four top components of value creation will be determined. These factors are: the cost of capital for business risk, the amount of debt, current level of operating profit and capital expenditures. Managers can influence on factors like: the level of debt, operating profit and capital expenditures, but the impact on the cost of capital for business risk is almost impossible.

EVA is a measure of profit and cares for investing in profitable growth. Due to, managers should focus on growing when the returns are higher than the cost of capital. If the returns are lower than the cost of capital, it is better to redeploy the capital. The last option is to improve the return on existing capital and have optimal capital structure. (Stern, 2013, p. 952-953)

Furthermore, (Young, 2013, p. 814-816) gives examples of several ways of improvement, after adopting EVA: Firstly, EVA companies are more likely to reduce inventories, and shorten the time of collecting receivables i.e. EVA companies have higher turnover. Secondly, EVA companies tend to overhaul existing assets, rather than buying a new once, or if there an increase in demand managers will try to acquire and satisfy the growing needs with the existing assets. Thirdly, EVA companies use more debt than equities. The reason for such decision is because debt financing is always cheaper than equity funding and managers want to minimise the cost of capital. The last but not the least, it helps to invest in profitable growth. The NPV of future cash flows of a particular investment is equal to the value of incremental EVAs. This means that EVA will increase to the extent that investments are made in projects with positive NPV. However, in the short run, EVA may decline. Because of that, companies have to be aware that senior managers are focused on long-term effects to create value, regardless the short-term effects.

If value creation is the long-term goal, then the best tool for achieving it is EVA. The other return measures give a wrong or partial answer. However, if EVA is not implemented correctly, the result will be disappointing. It can happen if the organisation calculates EVA without thinking about the behavioural consequences and the need for balance between simplicity and accuracy. (Stern, 2013, p. 952-953)

In order, not to have misleading results, there are few bits of advice about implementing EVA. According to Young (2013, p.814-816) the implementation of EVA, as an essential framework, has to start with the board and the CEO. However, CFO will carry much weight. He points out on a few problems. The first step is to decide which adjustment are appropriate for the business. Next, maybe there will be a need for upgrading the accounting and IT system to deliver divisional EVA figures regularly. Additionally, he suggests implementing EVA only for large business units. Of course, implementation can be done on lower levels but it will require more arbitrary calculations, and thus companies usually rely on other key performance indicators. Speaking of the bonuses, he suggests limiting EVA-link bonuses to senior managers. The last advice is that anyone whose performance are evaluated or paid, in any way, by EVA must understand it and need to be trained.

On the other side, Stern (2013, p. 952-953) looks on EVA from a bit different prospective. Based on his opinion, to implement EVA successfully, first of all, a company should calculate EVA as a difference between input (annual charge on total capital) and the output (adjusted operating profit after tax). Additionally, he says that we should look on EVA as a transparent, responsible and accountable management system with strong control on performance consideration. If we want to get correct information from EVA, we should put a fair EVA-based system of transfer pricing in place. As final, he suggests encouraging managers to invest in growing when returns are higher than costs or redeploy the capital in contrary. Also, managers should insist on better returns on current capital and improve the capital structure to an optimal level.

3.3.5 EVA disadvantages

Although EVA is an excellent concept, like any other, it has some limitations. There are two main problems regarding EVA: First, it discourages managers from investing, because increased capital charges decline EVA, at least in the short run, and also their bonuses. The second problem is related to the calculation of EVA at divisional or lower level.

3.3.5.1 Discouraging from investment problem

As we mentioned before, EVA can lead managers to underinvest, both in tangible and intangible assets. This fear comes as a result of capital charges imposed by EVA, as well as, the belief that managers will try to boost EVA's results to increase their bonuses. Such managers will not invest in projects for which is not expected to offer an immediate payoff. However, if EVA is implemented properly, it is almost impossible to reduce incentives for undertaking a value-creating project. Contrary should increase them. (Brewer, 1992)

3.3.5.2 Synergy problem

When we calculate EVA for divisions, the first assumption is that these units are independent. In other words, we assume there is no synergy between divisions or on a higher level of the company. However, the reality is opposite.

The share facilities, on the other side, require cost allocation in the business units to be done on full, not partial costs. Inadequate cost allocation could be a reason for a wrong decision. For example, if research and development expenses are allocated based on the revenues, while revenues do not cause the expenses to increase, incremental sales, which in fact increase the wealth of shareholders, may be rejected, looking as unprofitable. (Ehrbar, 1998)

Secondly, each company has vertical synergy, providing the business with better control over the entire value chain. To establish business units' revenues/expenses in the vertical integration requires transfer prices. Again, bad transfer prices can lead bad decisions. As an example, if raw materials are overpriced, a department might decide to reduce the production, because it causes EVA to decrease. If supply division's EVA were taken into account, the sales would cause EVA to increase. (Brewer, 1992)

Calculating EVA for individual units has no meaning and will not lead to meaningful results about the performance of the company if shared facilities represent a significant portion of the assets or expenses. In these cases, the most of the employees are part of one big business unit, and their individual activities have an irrelevant impact on business units' performance. The implications of EVA incentives is insignificant also. (Ehrbar, 1998)

Contrary, when shared facilities represent a small portion of the total assets or expenses, cost allocation or transfer pricing issues rarely present a major obstacle to successful EVA implementation.

Besides these two most significant problems, there are others, also important, limitations of EVA. Some of them will be presented in following.

3.3.5.3 Financial orientation

EVA relies on numbers calculated based on accounting methods of revenues realization and expenses recognition. Managers can manipulate these figures, if motivated for that, so that they will be following the decision they want to make. In other words, managers will destroy corporate wealth for personal gain. (Brewer, 1992)

3.3.5.4 Short – term orientation

The objective of performance measures is to match employees' effort and accomplishments with their compensations. For example, if a manager has some innovative idea, research it, create a project about it, organize it, present in front of the seniors and after approving start to implement it in particular year, some bonuses/compensation should be afforded in the same year as a motivation for his/her effort. Unfortunately, financial measures, such as EVA, does not work on this principle when they evaluate employee's performance. (Ehrbar, 1998)

3.3.5.5 Result orientation

Accountants, in the financial history, have reputation of “co-workers who arrive on the scene after a period of disappointing performance”. In other words, they indicate on bad performance with a long time lag, when there is no place for improvement. Their reports state what is known to everyone already – the achieved performance are lower than expected. But, they do not offer a solution for the problem and help managers responsible for continuous improvement of value delivered to customers. Like its forerunner financial metrics, EVA is guilty of this charge. (Brewer, 1992)

II. PRACTICAL PART

4 AUTOMOTIVE INDUSTRY IN THE CZECH REPUBLIC

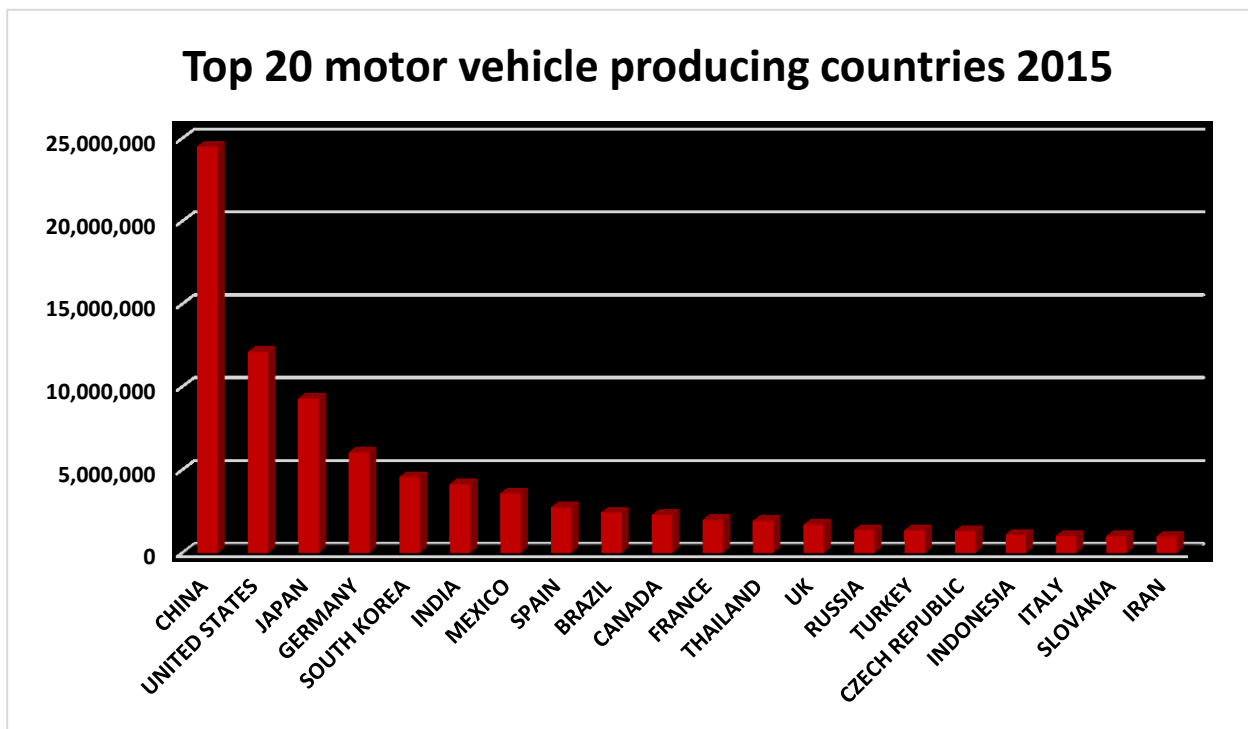
This chapter will introduce the automotive industry in the Czech Republic. Also, will be discussed why this industry is so important for the country.

4.1 AUTOMOTIVE INDUSTRY IN THE CZECH REPUBLIC

Recently, the automotive industry is undergoing a lot of changes and challenges, which may transfer the entire industry. This is not only a result of the pressure of new technology features but also new production process and new business models. Main trends include even higher demand for cost reduction and an increase in production efficiency. This means that in future, growth and success will depend on portfolio diversification, globalization and innovation.

Also, the automotive industry has the biggest impact on pollution (CO₂ emission). Thus, problems with pollution and environment regulations are still one of the largest challenges for this industry. The innovations include: better safety standards, ESP systems, e-call features, reduction of consumption, compressed natural gas and hydrogen fuels. However, the most exciting changes include connecting mobile phones with cars and autonomous driving systems.

The automotive industry is one of the most important sectors for the Czech Republic, both concerning performance and labour market. It accounts for more than 20% of Czech output and export and employees more than 150 000 people. Such high performances are the result of long engineering tradition, right infrastructure and skilled workforce. The annual production of passenger cars per 1000 inhabitants in 2015 was 123, placing the Czech Republic in the top 20 world vehicle producers, holding the 16th place. (Kozelský, 2015)



Graph 1: Top 20 motor vehicle producing countries 2015

Source: OICA, Eurostat

The top three light commercial vehicles (LCV) manufacturers, in the Czech Republic, are: Škoda Auto, Hyundai Motors Manufacturing Czech and Toyota Peugeot Citroën Automobile. Besides them and manufacturers of trucks and buses, the automotive industry includes a vast network of suppliers.

Škoda Auto – one of the oldest car producers in the world. Its origins were from 1895 when Václav Laurin and Václav Klement established the company. In the last 25 years, Škoda is part of Volkswagen group. The entrance of Volkswagen group into Škoda had a significant impact on production and know-how, as well as on brand which improves every year. Besides Škoda Auto, the other brands of Volkswagen group are: Audi, Bentley, Bugatti, Lamborghini, Porsche, SEAT and Volkswagen marques. Škoda Auto operates 13 factories in 6 countries in Europe and Asia and export vehicles in more than 100 countries. Its headquarter is located in Mláda Boleslav. In 2015, for the second time in their history, they produced more than a million cars and delivered to customers. The Chinese market remained on the first position by the amount of vehicle provided on individual market. Total revenues in 2015 climbed to CZK 314.9 billion. (Škoda Auto, 2015)

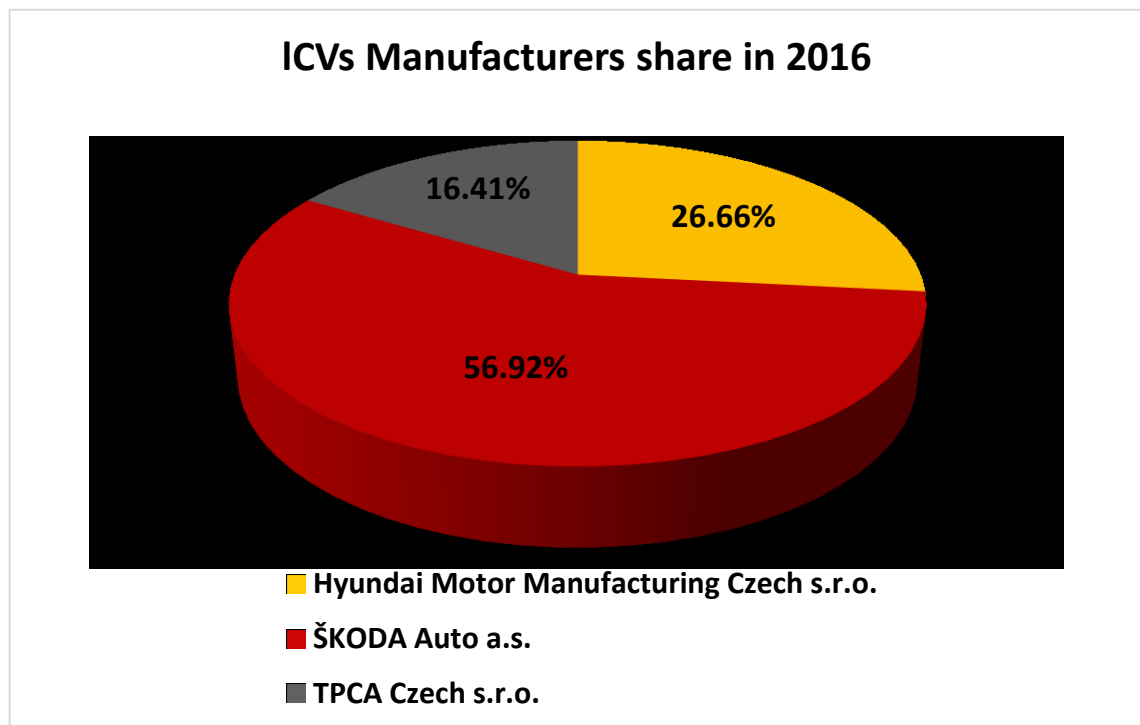
Hyundai Motors Manufacturing Czech – The first facility was built in Nošovice in 2008 with a capacity of 200 000 cars per year. This limit was reached just in two years. Upon initiation of three shifts in 2011, the production capacity increased to 300 000. Thanks to improvements in output lines, in 2015, the company was able to produce and sell more vehicles than the expectations (342 000 provided, 330 000 forecasted). The year-to-year improvement was 6.9%. Hyundai produce only three models in Czech Republic: ix20, ix35 and i30. One part of its production capacities are intended to its sister company Kia Motors, located in Žilina, Slovakia. (Hyundai Motor, 2015)

Toyota Peugeot Citroën Automobile (TPCA) – TPCA headquarter is located in Kolín, with a production capacity of around 300 000 units annually. Located about 60km from Prague, it represents one of the biggest foreign investments in Central Europe. Currently, in the Czech Republic are produced urban car models: Toyota Aygo, Peugeot 108 and Citroën C1 which are fuel efficient with low emissions. What is remarkable for TPCA is that 80% of its suppliers are from the Czech Republic and 99% of production is exported mainly to France, UK, Italy, the Netherlands and Germany. The company has around 3000 employees. Revenues achieved in 2015 were CZK 39,3 million. (Czech Invest, 2017)



Picture 1: Map of companies in the automotive industry located in the Czech Republic

Source: (Czech Invest, 2017)



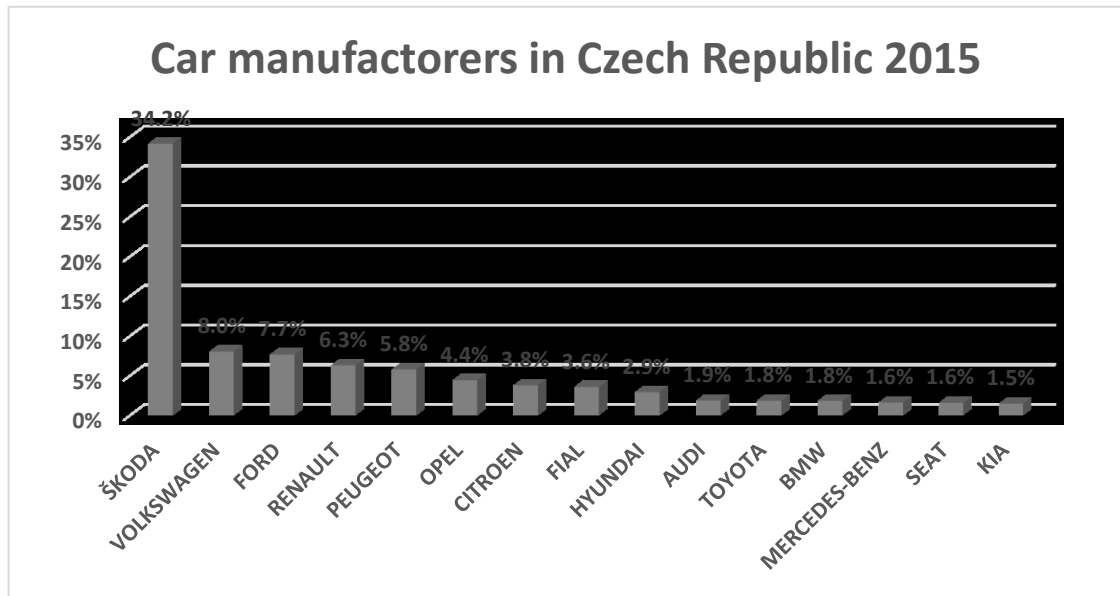
Graph 2: Market share of LCVs producers in Czech Republic in 2016

Source: (Automotive Industry Association, 2016)

The total production of LCVs in the Czech Republic in 2016 was 1,344,182 vehicles, increasing by 8.30% compared to 2015. Same trend is present in sales and export, increasing by 3.89% and 8.63% respectively. (Automotive Industry Association, 2016)

These results indicate that automotive industry will continue to be of great importance for the Czech Republic. This is evident by the significant results of Škoda Auto thanks to the record sales of the new models Fabia and Superb, as well as the speeding production of Hyundai in Nošovice. The future results will depend on the situation in Western and Central Europe, oil prices and exchange rate developments.

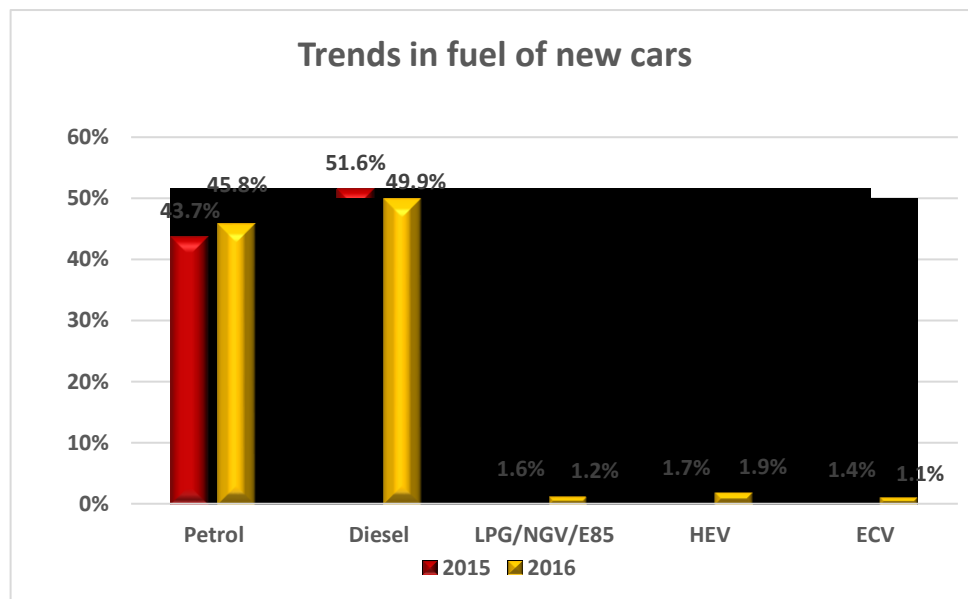
The increasing trend of manufactured vehicles is followed by the rising number of newly registered cars. In 2016, this figure was 259 693 units, which represents an increase of 12.5% compared to 2015 when this number was 230 857 units. (Automotive Industry Association, 2016)



Graph 3: Car Manufacturers by brand in Czech Republic for the period end September 2015

Source: (Automotive Industry Association, 2016)

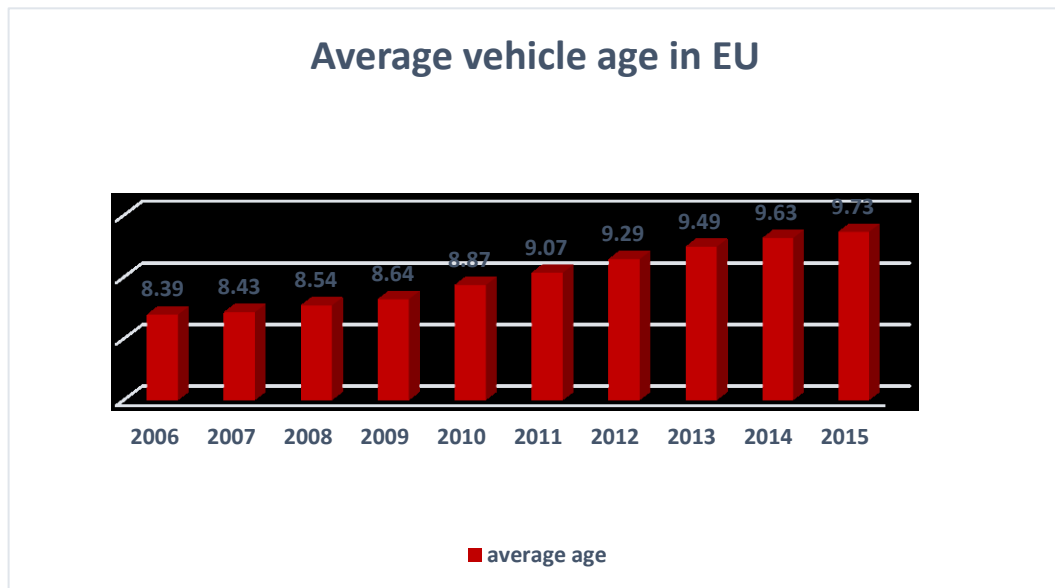
From graph 3, the number one brand continues to be Škoda Auto, represented by 34.15%. The second place is reserved for the other brands of Volkswagen group. However, there is a huge difference between them. The other brands of Volkswagen group are present with only 8.01%. In top 5 brands, besides the mentioned above, are Ford, Renault and Peugeot. The group of top 15 brands represent 86.74% of the total amount of cars in the Czech Republic. (Automotive Industry Association, 2016)



Graph 4: Trends in fuel type of new cars between 2015 and 2016

Source: (ACEA, 2017)

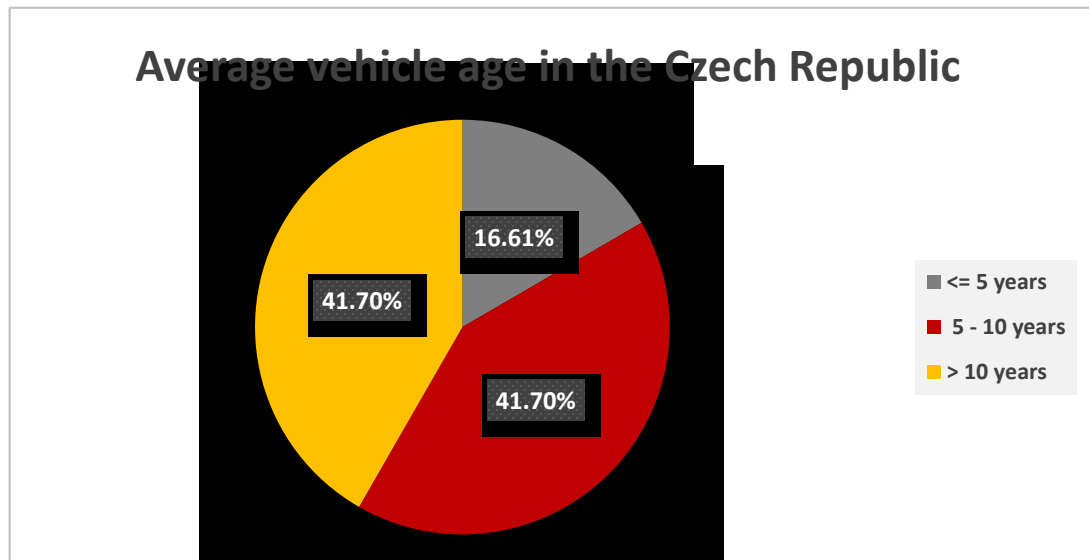
The graph 4 shows the trend in fuels of new vehicles in the period between 2015 and 2016 in Western Europe (EU15 + EFTA). Although slightly decreased, half of new cars, run on diesel, remaining it as the most preferred fuel. On the other side, petrol has an upward trend moving up for 2%, from almost 44% to nearly 46%. Alternative fuels, are still present on a very low level, mainly because of needed infrastructure changes. Limited charging stations, discourage people from buying cars that run on alternative fuels. Once more can be seen, hybrid HEV have brighter future than ECV because they can be recharged on traditional petrol stations, with some adjustments on the stations. This means that there will be more available recharging points. Moreover, the investments for adjusting current petrol stations will be lower and will take less time than creating new recharging network for electric batteries. (ACEA, 2017)



Graph 5: Average vehicle age in EU

Source: (ACEA, 2016)

During the last decade, the average age of vehicles in use continuously increased. There are plenty of reasons for this trend. First of all, during the Great Depression, production of new cars sharply decreased and with millions of vehicles shortage, naturally, the average age of vehicles in use increased. Another consequence of recession is reduced purchasing power of parity, i.e. many customers are still not able to afford buying new car. On the other side, some clients are able to buy a new car, but they lost the confidence in car manufacturers. Thus, they will purchase a new car only if there is no other choice. (ACEA, 2016)



Graph 6: Average vehicle age in the Czech Republic

Source: (ACEA, 2016)

Since the Czech Republic is part of Europe and is affected by the same problems as the other European countries, it follows the European trends. Cars between 5 and 10 years old, show same pattern as the one older than 10 years. On the other side, there are only 17% of all registered cars in the Czech Republic that are not older than 5 (five) years. This means that people are avoiding changes or they do not have enough means to support such investment. (ACEA, 2016)

5 GLOBAL TRENDS IN THE AUTOMOTIVE INDUSTRY

Being knowledgeable about worldwide trends is key for creating long-term strategies. Thus, in this chapter the most important trends in the automotive industry will be analyzed and how they will move the industry in the future.

5.1 SUSTAINABLE PRODUCTION

In 1987, the World Commission on the Environment and Development defined sustainability as: *“development which meets the needs of the present without compromising the ability of future generations to respond to their needs”* (Ashby, 2012, p. 497-516). A decade after, Elkington introduced the concept of triple bottom line (3BL) expressing: *sustainability combines social, environmental and economic dimensions. These three factors should be simultaneously considered by any organization which attempts to shift toward sustainable practices.* (De Medeiros, 2014, p. 76-86)

Producing and consuming goods in a sustainable way is one of the biggest challenges for individuals, companies as well as governments. Therefore, many states applied legal frameworks for controlling carbon emissions and responsibilities of individual industries as a response to the threat of climate change. Individuals also have responsibilities to keep the environment sustainable by using energy efficient products, made from eco-materials. (Akenji, 2014, p. 13-23)

Regarding the social dimension, companies are responsible for the well-being of their employees and also for their satisfaction at the work place. Additionally, customers can contribute to social sustainability by blacklisting any brand or unethical practice, or by buying fair trade products. (Gimenez, 2012, p. 531-543)

The impact of manufacturers' activities on the environment, climate changes and natural resources, are constantly monitored by organizations like the Intergovernmental Panel on Climate Change. Speaking about the problem of greenhouse gas (GHG), the automotive industry has the biggest impact, because GHG is used in production as well as at manufacturing level. Thus, this industry is facing many challenges such as handling automotive residual and affordable transportation model. The importance of these challenges is becoming more important since the number of new automobiles increases every year. For example, in 2013, the number of passenger cars worldwide was 69.5 million units, in 2014 rose to 72 million and in 2015 raised to 73.5 million. (ACEA, 2015)

The CO₂ emissions cause environment and health hazards that cannot be ignored anymore. An additional problem is waste generated by the end-of-life vehicles (ELV), because its number sharply increased (around 40%), reaching 14 million tonnes in the last 6 years in Europe. Developing countries are also becoming significant consumers of vehicles, making these problems even more severe. (Passarini, 2012, p. 28-36)

The biggest challenges connected with sustainable production can be categorized into three sections: financial, technical and behavioural. From financial aspect, lack of resources can harm companies to become more sustainable. Moreover, markets are driven by low prices, which is a significant disadvantage for moving forward to cleaner production (Sharma, 2014, p. 1-11). From technical aspect, there is a big room for development and improvement of sustainable systems. The last part is behavioural. From this point of view, shareholders and their willingness for development, are crucial for reshaping the automotive industry and moving to more sustainable production and consumption habits. (Gimenez, 2012, p. 531-543)

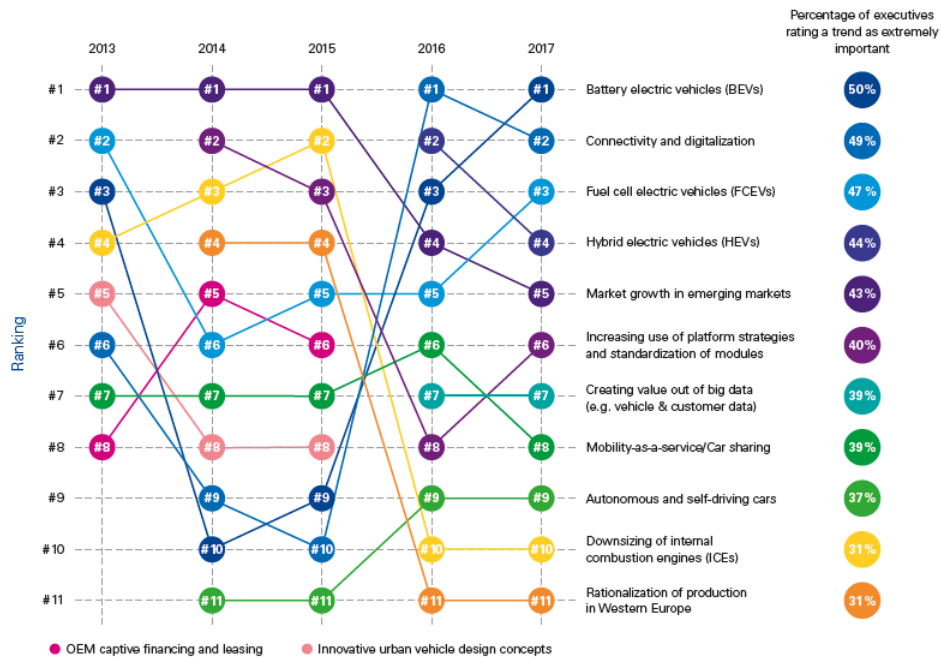
Estelle Pallaro, Nachiappan Subramanian, students at the Business School, and Mohammad D.Abdulrahman, Chang Liu, students at the School of Economics, all students at the University of Nottingham Ningbo China, did a research about sustainable production and consumption in the automotive industry. The authors looked for primary drivers of sustainable production and consumption. Their analyses ended with the following conclusions. First of all, companies must comply with the regulations on their target markets. Secondly, customers pressure the automotive suppliers to pay more attention on environmental management systems and become eligible for sourcing activities. Thirdly, reducing the cost, is another motivation for investing in sustainable solutions. Apart from these drivers, increasing safety at the workplaces as well as the possibility of creating new job positions can move companies to become more sustainable and look for more sustainable solutions. (Rallaro, 2015)

5.2 GLOBAL TRENDS IN THE AUTOMOTIVE INDUSTRY

One of the top 4 audit companies, KPMG, did a survey in the automotive industry on a global level to find out the trends in the auto industry until 2025.

Based on their analysis battery electric vehicles and connectivity and digitalization are the top trends for 2017, represented with 50% and 49% respectively. Within 2-years electric cars jumped from number 9 to number 1 trend, because e-mobility was underestimated in OEMs business models. On the other side, connectivity and digitalization was overestimated. The massive regulatory restrictions pulled this pattern on the second place and at the same time increased the pressure to react, making e-mobility top trend.

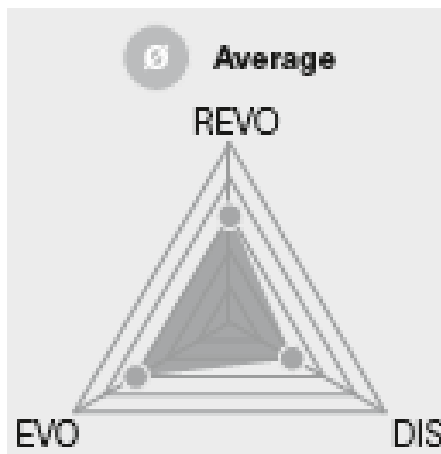
Searching for alternatives fuels, remain between the top trends, reminding of its great importance and urgency since the pollution is alarming. (KPMG, 2017)



Picture 2: Global trends in the automotive industry

Source: (KPMG, 2017)

The automotive industry is lost in translation between evolutionary, revolutionary and disruptive trends. In other words, in the next period, the auto sector should manage, without neglecting, the evolutionary, revolutionary and disruptive trends and fill the gap between automotive and digital world. Also, the shorter the innovation cycle, the more disruptive the trend. Speaking from a perspective of today's business models of automotive firms, this means that patterns are more evolutionary than disruptive. (KPMG, 2017)

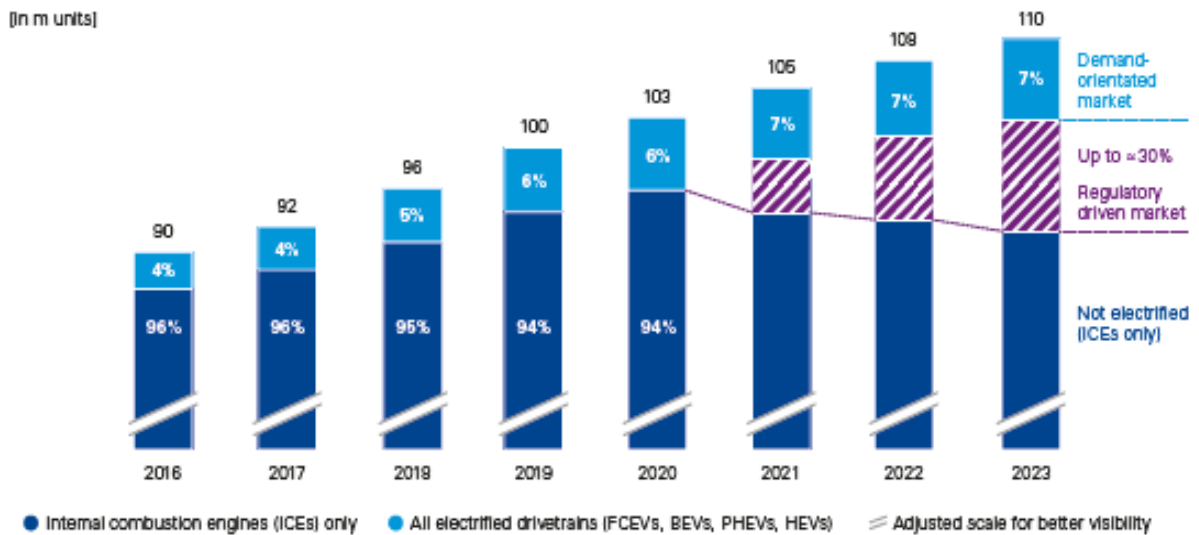


Picture 3: Average trend path

Source: (KPMG, 2017)

Just two years ago one of the hottest trends was a downsizing of internal combustion engines (ICEs), taking the second place. Just after one year, it dramatically felt down on the 10th place and continue to be at the same place in 2017. However, based on the OEMs opinion, ICEs are still necessary and have to be managed, mainly because the revolutionary electric drivetrains require more time for implementation and adaptation into existing platform.

Considering the development based on market demand, it is believed that the share of alternative powertrains will rise by only a few percentage, from current 4% to 7% till 2023. However, taking in mind the high pressure on market, by regulators, to reduce CO₂ emissions, it is believed that e-mobility future will be brighter and more revolutionary, rising to 30% of the global market production by 2023. (ACEA, 2016)



Picture 4: Global automotive light vehicle production (ICEs and electrified)

Source: (ACEA, 2016)

Companies working in Silicon Valley, with their current activities show significant interest in the automotive industry. The big limbo is how far these companies, such as Google, will define their place in mobility market and what kind of package will offer (car, digital system, customer support, service solutions and so on). Although there is high uncertainty regarding their future activities, the opinion among experts is positive and they expect a new car model to be launch by the Silicon Valley players till 2020. This new model may present a direct competition to traditional OEMs. If new model will be launched, it is most likely to include radical elements and components. Such model is expected because Silicon Valley companies have the core competence in connecting people. (Industry Week, © 2017)

Currently, companies from converging industries are cooperating, and the tendency toward cross-section cooperation apparently increased. However, there is a high interest of online businesses to move into the offline world. It is not clear for now, what will be the effect of their entrance into the auto market i.e. whether OEMs and ICT companies will cooperate or compete. The possible cooperation or competition will depend on the strategy of individual players and the role they want to play in the future. On one side ICTs lack the experience in car production. Thus, they may decide to cooperate with OEMs. On the other hand, there are already some OEMs which applied digital systems in their models without a Silicon Valley player. In this situation, ICTs will compete with OEMs. (McKinsey & Company, 2016)

5.2.1 Fuel alternative: Electricity, natural gas and hydrogen

The automotive industry is competitive and faces a lot of challenges. Therefore, every larger car manufacturer is investing in alternative fuels. One of the most important alternative fuel is electric power. However, Škoda Auto, for example, focus on another alternative fuel, i.e. compressed natural gas (CNG). On the other side, Japanese companies, like Toyota, support hydrogen power. Audi focused on developing eco-friendly e-diesel fuel consisting only of water and air. All these examples can be used to prove the trend and the awareness of companies for the need of alternative fuels. Different companies focus on different types of fuel, based on their analyses and believes. However, it is high probable that the implementation of new fuels and its mass expansion will primary depend on the availability of refueling and recharging stations, vehicle prices and the distance they can travel by single charging. (Czech Invest, 2015)

Electromobility: The cost per kilometer with an electric car is between 1 and 3 cents. Unfortunately, the further development is currently prevented by the high acquisition cost, the battery life and a limited number of charging stations. In Europe, some bigger movement further is not expected before 2020. It will depend on the EU's emission rules, technology developments and regulation policies of individual countries. (Kozelský, 2015)

On the other side, the future of BEVs is also not very bright. More than half of executives believe that BEVs will fail due to the infrastructure problem. Although they are ranked as number one trend, there is still no high demand for BEVs because of above mentioned problem – not enough charging stations. Additionally, solving this problem requires a lot of time, and its progress will vary from region to region. The infrastructure is not the only problem. The industry is still seeking for a solution to make batteries more efficient and cheaper, and also, develop a second life program for batteries. A faith of these problems is found in fuel cell electric vehicles (FCEVs) as a real breakthrough for electric mobility. Experts are convenient that FCEVs will solve the recharging and infrastructure issues BEVs face with. FCEVs engines are using oxygen from the air and compressed hydrogen to generate electricity to power the motor. The refueling process will be done very quickly (on a traditional gas station), compared to the recharging process of BEVs that takes 25-45 minutes. As usual, there is always one "but". FCEVs also face some challenges like the cooling of hydrogen or the safety storage in a car. (KPMG, 2017)

Besides all advantages and disadvantages, one thing is for sure true – traditional market players have to work hard if they want to continue operating and try to develop some similar solution as BEVs and FCEVs. For the first time, they should think far beyond the vehicle and its delivery. (KPMG, 2017)

5.2.2 New technologies: Connectivity and autonomous control system

Regarding technology, an exciting innovation takes place in connecting mobile phones and vehicles by applications and independent monitoring systems. For example, Mazda has a system by which you can start the engine via a cell phone. The advanced sensors, help vehicles to brake in an emergency, monitor surrounding objects, park without a human help or keep the car in the proper lanes. (KPMG, 2016)

In addition, what will cause changes is the introduction of self-driving cars. Self-driving cars are already tested by many companies like Audi, Toyota, Mercedes, BMW and even Google. While in presence, customers' preferences and focus are on ecological vehicles that are comfortable or fast (increasing the adrenalin like sport models), in the future, the focus will be on relaxing and socialization, work and concentration, entertainment, and enjoy driving. Since there will be no more need for human assistance to control the car, customers will focus on efficiently using the time while travelling. (Industry Week, © 2017)

Moreover, once the self-driving cars are introduced, it will no longer be important for customers whether they sit in pure BEVs or FCEVs. Unfortunately, it is not expected to be put in use before 2025, since there is a risk of potential accidents, which should be additionally tested and proved that is eliminated or at least minimized. Moreover, it requires creating and adopting specific regulatory policies. What is probably soon, is the link between cars and GPS navigation and implementation of smart traffic control system, including communication between vehicles. (KPMG, 2017)

One of the results of new technologies development is a possible arrival of new operators, for example Google, in the industry. However, as pioneers in this field, the entrance will require massive resources investments for the development of their car models. (Kozelský, 2015)

5.2.3 Industry 4.0: Production digitalization

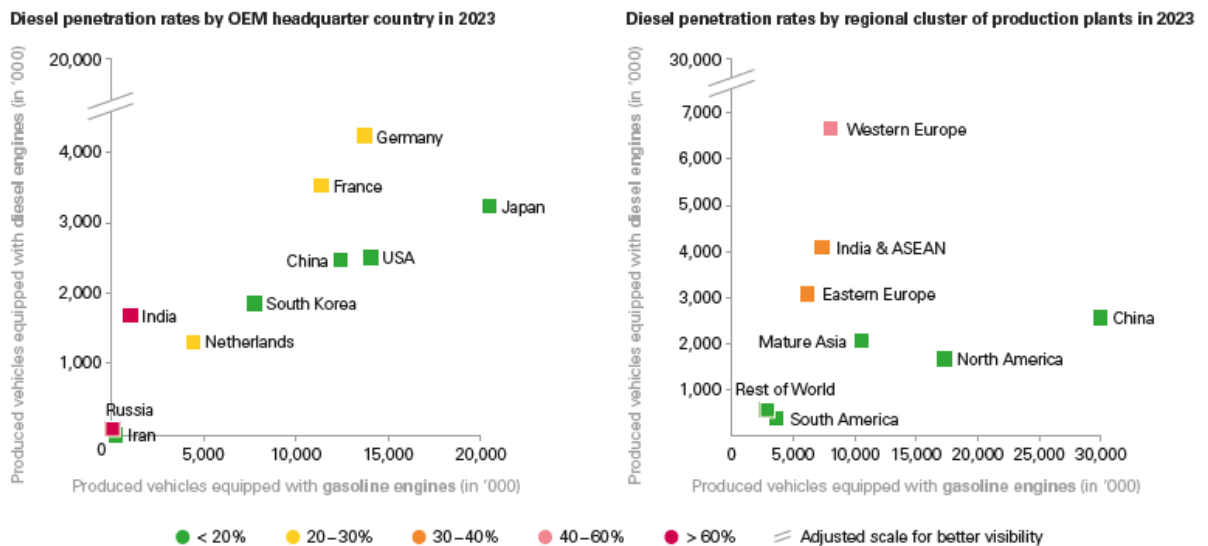
The 4th industrial revolution includes digitalization. It represents a major opportunity for Czech automotive industry. In other words, it means interconnecting all intelligent devices, products, production lines, logistic and service into one consolidated intelligent information network. Smart devices or customers, suppliers and manufacturers will interact with each other, without human help and satisfy the needs of clients in real time. This means that customers will not have to visit dealers if they want to buy a car, but simply create it via internet based on their individual preferences. However, customers will not buy the cars, but lease it for a particular period. The production process will be carried out in a way that when a customer creates an order, the intelligent system will analyze it and send a request for its production to the component manufacturer where robots will assemble the vehicle and deliver it. (Kozelský, 2015)

Additionally, the production lines will not be owned by producers, but only borrowed. The productivity in this industry will increase even more when chips, sensors and 3D printers will be implemented. The primary role of employees' will be to control robots and cooperate with them. (Harrington, 2015)

5.2.4 Tightening of environment and safety standards

One of the EU goals is to reduce CO₂ emissions from 130 g/km to 95 g/km till 2021. Additionally, EU policies require tightening of safety standards, including airbags, ABS, ESP systems, and e-call system which will be mandatory for all new vehicles by 1 April 2018. It is predicted that reduction of CO₂ emissions in Europe will cost car producers up to EUR 13 billion. Thus, cars producers focus on using new materials, like nanofibers or carbon fibers, which allows reduction of vehicle weight and at the same time maintaining strong standards. (Kozelský, 2015)

From a regulatory perspective, the most debated topic in the last years is diesel technology. Based on the information from the *Global automotive executive survey 201*, done by KGMP, more than every second executive believes diesel will be dead. The reason for such opinion is due to the alarming problem of CO₂ emissions. Eliminating diesel engines could be dramatic for some manufacturers and regions, like India, where diesel share is more than 60%. However, diesel cannot be entirely eliminated, because of its benefits, such as its application on long distance heavy truck engines. Moreover, it is quite probable that its usage will continue be applicable for long distance travelling, in rural areas, and emerging countries. (KPMG, 2017)



Picture 5: Global automotive light vehicle production by engine technology in 2023

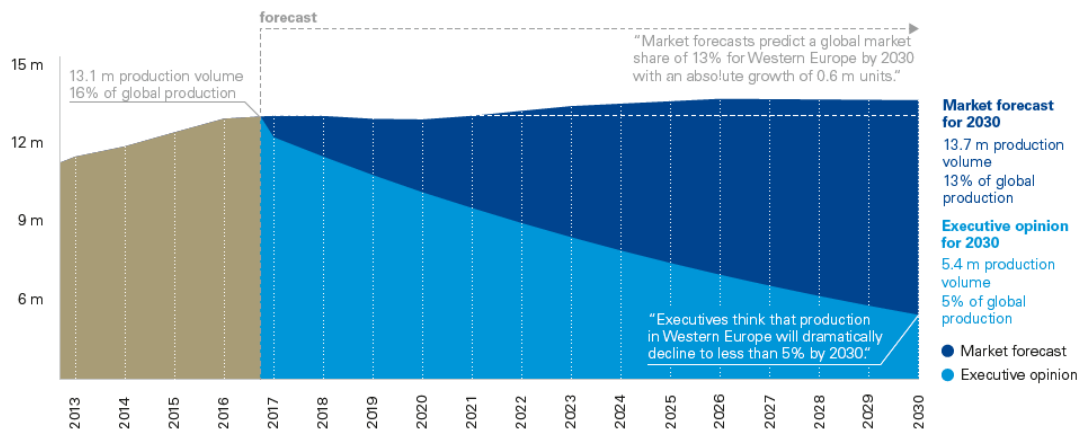
Source: (KPMG, 2017)

Moving away from the car itself, as primer source of revenues in the automotive industry, will be the digital ecosystem. Consequently, current value drivers have to be reevaluated or new one should be added into the business models. The new digital ecosystems will not have a positive impact only on economic efficiency, but also affect the ecologic footprint of future mobility. In other words, this means a better allocation of resources, increased number of kilometers driven but more efficiently and less personal cars produced and sold. Since the information and data, are the core element of digitalization, the automotive industry must see it as core element too. A key challenge will be how to create a profitable business model since it is far away from current practices. Therefore, new capabilities and competencies should be developed. (Roland Berger, 2016)

5.2.5 Continuing cost reduction

Thanks to the globalization and open markets, car manufacturers are pressured to reduce production costs and increase production efficiency. Therefore, large car producers will lessen the number of suppliers and continue to cooperate only with those who can supply parts on a global level and add value to their products. Further focus on suppliers, that car manufacturers will be looking at, is production effectiveness and components' prices. The goal is to minimize recalls of vehicles for service, for which usually suppliers are blamed and which harm car entities. (Kozelský, 2015)

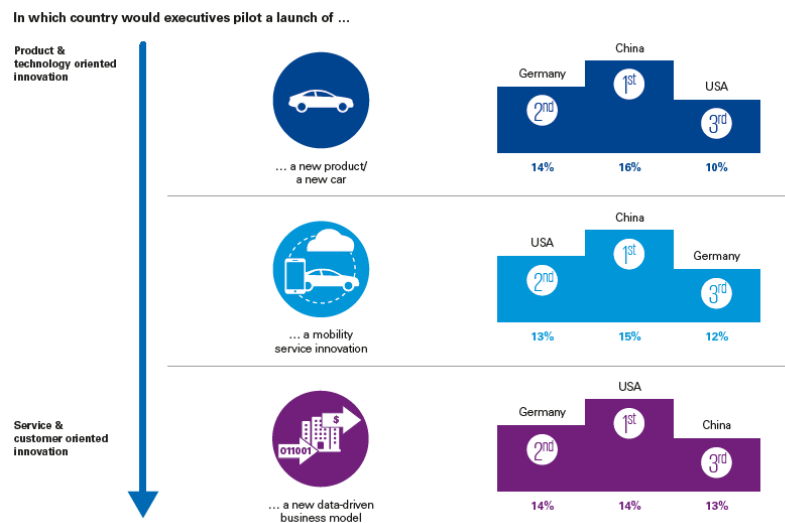
China is the largest automotive sales market. Thanks to globalization and the emergence of China, has led to high dependence for some car producers in Western Europe. The opinion among executives, to be more precise 65%, partially or totally agree that less than 5% of the global car production will be done in Western Europe by 2030. In numbers, it will represent a drop from 13.1 million vehicles to only 5.4 million vehicles. On the other side, current forecast shows that the global share volume will slightly drop to 13%. From the past experience, reality will be between those two extremes. (KPMG, 2017)



Picture 6: Automotive LVCs production in Western Europe 2013 - 2030

Source: (KPMG, 2017)

Although China is high growing market, especially for mass and volume production, the innovation will be still driven by traditional Western players. In other words, the innovation will be developed for China, but not by Chinese operators. Additionally, China is ranked as the top market to pilot a launch of new cars or services. It is a result of increasing urbanization and environmental pollution. China is followed by the USA and Germany as the top three countries to pilot a launch of new cars or services mainly because of their long and successful history in the automotive industry. When it comes to launching of new data-driven business models, China is placed on the third position. Countries like China may be more suitable for applying innovation, especially customer-oriented innovation, because consumers on this market are more adaptable to new and disruptive concepts. (Roland Berger, 2016)



Picture 7: Countries in which to pilot a launch of an innovation

Source: (Roland Berger, 2016)

5.2.6 Car sharing

The upcoming generation ("Generation Z") is characterized by people with a lower need for owning a car. This generation will be more interested in transporting from one point to another. For achieving their goal, they will be assisted by smartphone applications, unlimited internet access and the new concept of "shared mobility". This concept is based on the principle that one "travels by car only when necessary". Such services will be mainly used by those who do not use cars every day or travel less than 10km per year. It will be utilized, for example, by families who sometimes need a second car, students as well as young people. The access to this service will be secure and available 24/7, usually via a chip card, a smartphone app or SMS. Additionally, it will be cheaper and more flexible than renting a car. A contract will be signed only once, and the user will pay per kilometer travelled. This service is already available in the Czech Republic, and the most popular providers are "Car4Way "and "Autonapůl". (Kozelský, 2015)

Car sharing will be very useful service, especially in large cities and urban areas. However, car sharing will not stop car selling. Still, there will be people who want to own a car, mainly because they want to be independent and the desire for freedom. (Industry Week, © 2017)

5.2.7 Deep learning

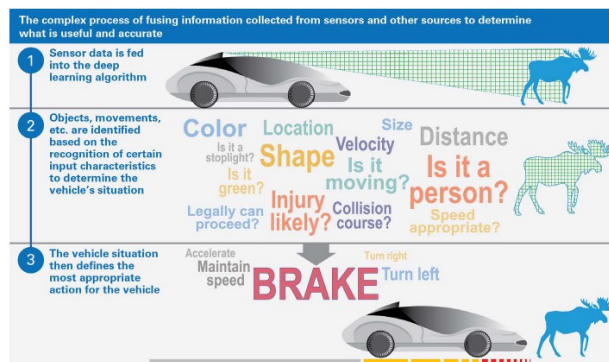
Thanks to the fast technology development and its implication, the automotive industry is facing many changes. These changes are driven by deep learning. If companies want to survive in and around automotive ecosystems, they must understand and implement these profound developments with far-reaching implications. New mobility services, worth more than 1 trillion dollars, will emerge production and services related to self-mobility and connectivity, by 2030. (McKinsey & Company, 2016)

Deep learning will have an impact on the automotive industry in three main ways:

First of all, it will enable fast development of self-driving vehicles. The new way of mobility will be very useful, especially for currently unserved population. Additionally, it will shift the ownership model - there will be fewer people who want to own a personal vehicle, and what matter will be the kilometers travelled.

Secondly, the number of crashed will dramatically fall, thanks to implementation of many sensors and zero-error systems. It is predicted that around 1 million lives will be saved globally. Furthermore, improvements in urban land use, labour productivity and sustainability will decrease externalities connected with today's persona vehicles ecosystems.

The last, but not the least, car manufacturers will focus on building a host of new capabilities and use the benefits of the new environment. In other words, innovation and product development priority will be concentrated on designing system of sensors, so-called "nervous system", GPU – based supercomputer, actuators and connectivity. The "nervous system" will be built in a way as the humans' nervous system, able to identify objects, movements, and other systems in the surrounding, based on imputed characteristics, and define the most appropriate action. The basic idea behind this scheme is the model of Microsoft's "Cortana" or Apple's "Siri". (KPMG, 2016)



Picture 8: "nervous system" of sensors

Source: (KPMG, 2016)

Deep learning is nearly upon us. Tesla already announced launching a new deep-learning model of car. Its system will continuously improve through software updates until it reaches full autonomy. Tesla is not the only one example. In Pittsburgh, you can find a self-driving Uber, and Singapore has the first self-driving taxis debut. Most of car manufacturers are scheduling their first autonomous models on-sale for the model year 2020 or 2021. Initially, those models will be limited to well mapped urban areas, lower distraction highways or suburban environment, depending on the design and producer's targets. However, it is estimated that thanks to the deep-learning, the current limitations will be eliminated just in a few years and fully autonomous vehicles will be available for any choose destination. (Shapiro, 2016; Levandowski, 2016; Liang, 2016)

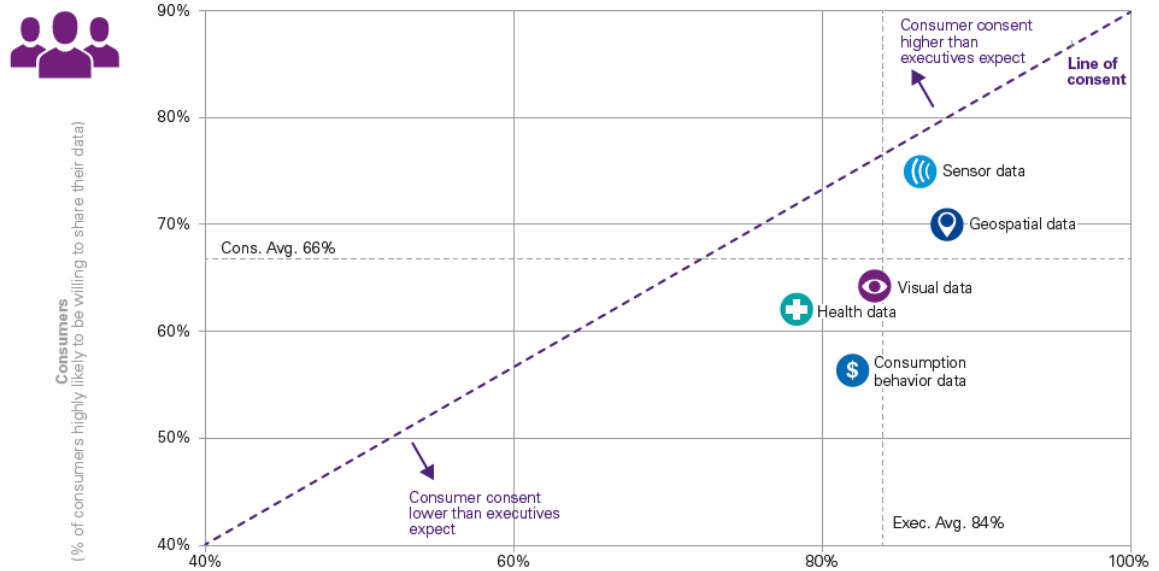
Some impacts of deep-learning can be seen in the following areas:

- **Safer roads** – the biggest advantage of autonomous vehicles will be reduced number of accidents. Drivers errors, mostly related to the time it takes for drivers to react, will be eliminated. According to the NHTSA analysis (2016), driver's errors cause 94% of accidents. What is more remarkable, the fatal accidents will be almost eliminated – meaning saving an enormous number of lives. Just in the United States, there were 40 000 fatal traffic accidents in 2016, a 6% increase year-on-year. Based on the interview with Dr.Panagiotis Tsiotras, professor of Aerospace Engineering at Georgia Tech, done by KPMG (2016) believes that deep learning will soon be able to detect when a human driver is impaired. In other words, the new safety systems will be capable to turn on a car to autonomous mode if it detects that a driver poses a danger.
- **Mobility for all** – very soon cars will be seen more as a service rather than like product owned. Many researches end up with a conclusion that mobility may become a dominant travel model in most urban areas. This is a logical reflection of increased focus on autonomous mobility. Nowadays, car manufacturers are competing for higher market share, while just in a few years they will compete to become leaders in autonomy. (KPMG, 2016)
- **Autonomous mobility-on-demand** – autonomous mobility will increase saving of customers over buying cars. Moreover, having a car whenever and wherever you need it, may replace car ownership, especially in urban areas. If autonomous mobility did not replace car ownership, at least it will affect the type of cars sold, pricing and profitability of cars. (KPMG, 2016)
- **Democratising of transportation** – decreased labour costs of mobility, i.e. cost of a ride, will make mobility available to people with different income categories.
- **Happier and more productive lives** – nowadays, it is required full concentration of driver on the road. Autonomous mobility will allow riders to enjoy more productive and less stressful use of their time: working, relaxing, socializing, etc. The car interior also may face some changes and adaptations based on the needs. For example, beds for overnight travel, desks for work, mini bars for entertainment and so on. Analysts predict infotainment systems will add \$65 billion of operating profit to the overall value chain till 2025. (Moazed, 2016)

- **Better utilization of resources** – improved mobility will require less produced cars. Based on the estimations, self-driving cars will have potential to replace four personal owned cars. Moving toward autonomous mobility, hundreds of billions dollars' capital will be saved, and billions tonnes of steel, aluminium, rubber and plastic will be replaced with new much efficient and more ecologic resources. (Ozimek, 2014)
- **Relief of congested urban infrastructure** – Nowadays, the occupancy rate is 1.67 passengers on average. Thanks to the self-driving cars, it is expected this number to rise between 8-9 people in high-volume commuter vans, especially in high-density cities. Moreover, potential consolidated vehicles could minimize or eliminate on-street parking by expanding existing lanes of travel. In the end, better utilization of vehicles and increased vehicle to infrastructure connectivity may contribute to better traffic flows. (KPMG, 2016)
- **Improved urban land use** – experts' estimations count parking difficulties for 30% - 60% of downtown traffic. The introduction of autonomous cars will decrease this problem because there will be no need for individual parking space and reallocate garages to less costly areas. Self-driving cars will drop off passengers and by using telematics data will find the most appropriate location for parking. Moreover, it will reduce the stress on drivers when parking and save their time. (Thompson, 2016)

5.2.8 External factors affecting the trends in automotive industry

The key element of the new business model will be data. Thus, the key question is who has the upstream and downstream data generated in a vehicle? Car producers and technology companies take for granted that customers will share with them all information they have for small benefits and rewards. Experts are sharing the same opinion. Around 80% of executives believe that customers are willing to share their data. In comparison, only 60% of customers (20% less), are likely to share their data. Such difference in opinions draws attention that executives should think and create attractive incentive shames and reward systems in exchange for data. Furthermore, the percentage of customers asking for direct monetary benefits in exchange for their data is increasing year-to-year. For example, just in one year, from 2016 to 2017, the percentage of customers asking for direct monetary benefits grow from 82% to 84%. (KPMG, 2017)



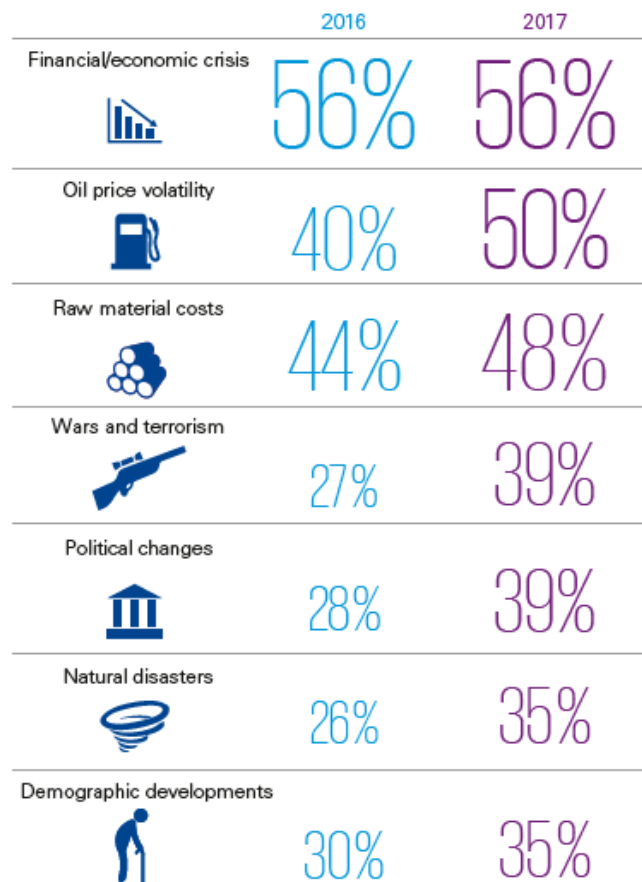
Picture 9: Consumers vs Executives opinion about data sharing

Source: (KPMG, 2017)

Besides the factors mentioned above, geopolitical risks and macroeconomic turmoil also have an impact on customers’ preferences and indirectly determines the trends. Starting ten years ago, since 2007, the financial crisis, volatility of oil prices, moving forward to Brexit, war and terrorism, USA elections, and geopolitical tensions between the east and west influence the automotive industry. Financial crisis, followed by the changes in oil prices, affect production and development in the automotive industry the most. Insecure geopolitical environment, like political circumstances in the Middle East, or political development in Turkey, becomes as strong as the fear of wars and terrorism. Increased concerns are reflection of the events happened by the end of 2016 especially in Europe. Moreover, 2017 may be a political year of hell.

Looking at the North American market, after the victory of Donald Trump on the last President elections, changes in the free trade agreements, emission regulation, or limitation of import can seriously affect the automotive industry in terms of production and sales.

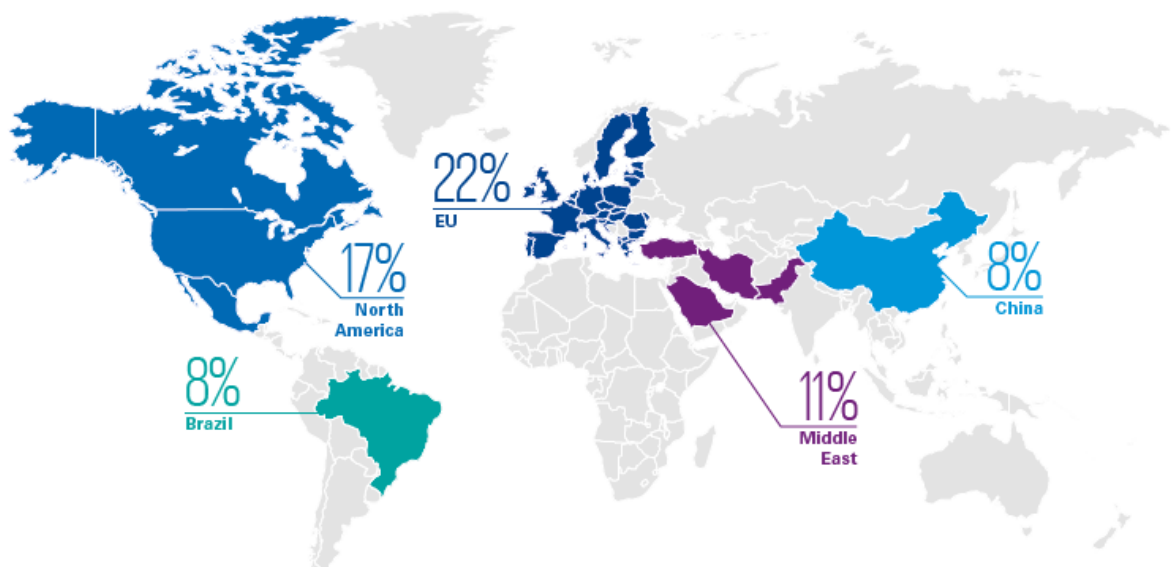
In the end of the list of factors influencing the strategy in the automotive industry is the demographic development, increasing from 30% to 35%. The fear of natural disasters become as important as the demographic development, growing by 9% from 26% in 2016 to 35% in 2017. (KPMG, 2017)



Picture 10: Macroeconomic changes affecting automotive industry

Source: (KPMG, 2017)

Analyzing the risk of political and economic disruption, most of the executives believes that EU member countries have the highest risk of disruption, represented by 22%. After that follows North America with 17%, the Middle East with 11% and the last are China and Brazil having the smallest portion of 8%. The rating reflects the disruptive political and economic events of 2016, like Brexit in Europe, or President elections in the USA. (KPMG, 2017)



Picture 11: Regions with high risk of political and economic disruption

Source: (KPMG, 2017)

In most cases is looked on Brexit as a step toward the downfall of EU. It is believed that the EU will not exist after 2025. If this will become real, it will not only endanger the free trade zone within the Union but also put in risk the automotive industry worldwide. The President elections in France, and Federal Parliament election in Germany, as countries in the heart of Europe, are scheduled for spring and autumn 2017. It remains open what will be the result of these elections and on which direction they will move in the next period. (Ahlstorm, 2017)

6 PROJECT FOR IMPROVING THE PERFORMANCE OF XYZ COMPANY

In this chapter, will be presented XYZ company and its performance. Additionally, a detailed look on value generators will be presented and their sensitivity on changes. Also, the performance of the company will be compared with the performance of competitors. Summarizing all relevant factors, a solution for improving company's performance will be created.

6.1 XYZ COMPANY PROFILE

XYZ is a leading company engaged in the development, design and manufacture of sophisticated sheet metal stampings and assemblies in lightweight structures, used mainly for safety and comfort in cars.

XYZ was founded in 1919 in Oberkirch, Germany. Almost a century, XZY Group, acquired a unique experience in forming and joining of steel. The parent company in Oberkirch currently employs about 1,500 employees. As a global company, XZY has additional offices in Canada, the Czech Republic, China and Mexico and currently employs more than 3,000 workers. The following analysis will be focused only on the subsidiary in the Czech Republic. (Authors interview with manager of XYZ company, 2017)

XYZ is part of the global automotive industry in development and production of innovative products dedicated mainly to mechanical assembly for electrics and electronics, safety components for airbags, seats and steering and components and subsystems for body and chassis.

The company XYZ Czech Republic a.s. was founded in 1997, located in Valašské Meziříčí. It is specialized in production of progressive and transfer tools for sheet metal stamping and stamping and assembly chair component. It offers comprehensive services in development, construction, production tools and production and assembly of metal components for the automotive industry. (Authors interview with manager of XYZ company, 2017)

The company has only one shareholder – the mother company in Germany, which exercises the powers on General Meetings. The company is managed by a Director and Supervisory Board. The Supervisory Board consist of one chairman and 3 members.

6.2 PRODUCTS

XYZ has an extensive pallet of products and supports automotive manufacturers in many ways. The products can be classified into three main groups:

- **Mechanical components** – represented by two products: axis of cooling fan and ESC/ABS cooling plate
- **Safety components** – is the largest group of products. This group includes: seating parts and small structures, airbag parts (occupant safety systems), brake system components, locks/latches and steering components
- **Structural components** – is the second largest group represented by three products: heating shields, dashboard crossbeam parts and car body structure parts.

In production processes, the company is using high-quality manufacturing technology. There are two main materials for production: steel and aluminium. (Authors interview with manager of XYZ company, 2017)

6.3 CORPORATE SOCIAL RESPONSIBILITIES

XYZ Czech Republic a.s. addresses environmental issues in areas of waste management, packaging, air and water protection, chemicals, safety and fire protection, as well as comprehensively monitoring and addressing additional environmental problems in these areas and legislative obligations arising from the same. (XYZ Annual report, 2017)

Within production activities of the company, generated waste is threatened based on existing legislation. Additionally, the company each year prepares an emergency plan, waste management plan and identification of pollution sources and report them to relevant administrative office.

Since the company is using a lot of chemicals, it is obliged to report about the same to appropriate authorities based on the Act on chemical substances and chemical products. The company, in its safety data sheets, has an available database of all chemicals used and rules for handling hazard situations.

In the environmental field, the company runs regular trainings for its employees, focusing on continual progress for removing/minimizing all kinds of waste. Additionally, as part of the compulsory trainings for employees are conducted crisis drills for example: liquidation of oil leakage and fire prevention.

The plan for development emphasis on maximum protection of the environment and installation of energy-saving technologies. Within the framework of investment projects is construction of new buildings operating with maximum emphasis on environmental friendliness, protection of air, soil and water. (Authors interview with manager of XYZ company, 2017)

Last control on EMS system according to ISO 14001: 2004 was completed in September 2015.

6.4 RESEARCH AND DEVELOPMENT

Within the area of research and development, the company continued with its activities associated with high-strength sheets and testing new technologies for processing sheet metal. During 2016 were evaluated results of testing carried out on a project running between 2014 and 2015, which are then applied in demand procedures for acquiring new projects and for technological know-how to support customers in the final development phase of products. Another phase of the project focused on testing high-strength steel is planned for the year 2017. (Authors interview with manager of XYZ company, 2017)

The focus in 2016 was also to stabilize the assembly technologies and subsequent optimization of complex welded and assembled subassemblies seats of cars and start mass production to full and stable serial deliveries. (XYZ Annual report, 2017)

6.5 ECONOMY AND EXPECTED DEVELOPMENT OF THE COMPANY

In 2016, the company achieved significant increase, which reached record levels - the company's sales increased by more than 30%. Due to this dynamic growth, especially in the second half of the year, XYZ intensively focused on solving the problem with production capacities and increased product costs. As a temporary solution for the production capacity problem, the company borrowed capacities from its subsidiaries and other partner companies in the area of sheet metal forming. This necessary step, resulted with complex organizational and managerial structure, requiring lots of efforts to manage it and led to increased costs of production and quality of serial production. Stable and good results were achieved in the division of production tools. Despite the increase in sales of the company, there was also a decrease in operating result compared to the previous year. (XYZ Annual report, 2017)

In the area of investments, the company continued the completion of construction of logistics and assembly halls and the construction of its third mill hall in size of 2.700 m². The mill hall was installed in April 2016, with a compression force of 1,250 tonnes. In the second half of the year it was already intensely exploited to minimize the shortage of production capacity. At the beginning of the year, XYZ ordered another mill with a compression force of 800 tonnes. However, the delivery and basic installation were implemented at the end of 2016. The company expects full capacity utilization of this mill since April 2017. (XYZ Annual report, 2017)

In the first half of 2016, the project for modernization of engineering department ended. Also, additional office space was created for some administrative services. Thanks to the implemented changes the company get a modern and pleasant environment for further improvement of processes, development and motivation of technical and administrative staff.

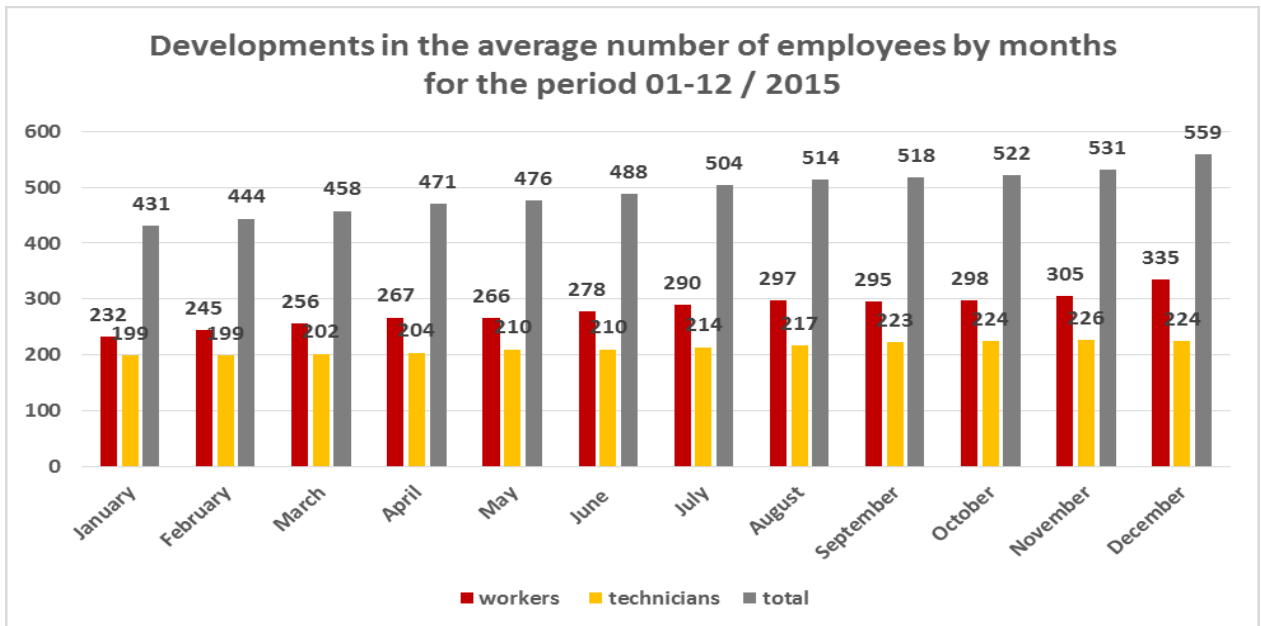
Highly dynamic revenue growth was followed by intensive activities in the field of recruitment and retention of personnel of the company. As part of human resources strategy, focusing on recruitment of new employees, a modern form of personnel marketing was used, especially communication via social networks. In the future, cooperation with universities is planned.

Financial Strategy of XYZ continues to be gradually increasing its share of funding resources obtained from the XZY Group. The collaboration with current banking partners was indeed partly restricted but remain open. As part of the financial strategy in the following years will continue to be the usage of hedging tools against exchange rate risks and interest rate fluctuations. As part of the Group financial strategy, the company will continue to develop tools for cash management, risk management and other tools to ensure financial stability and efficiency.

To summaries, 2016 was all together, the swing between successes and failures, celebrations and hard toil in order not to jeopardize supplies to customers. The following years are expected to be even more challenging, with plans for further expansions and records – the fourth phase of growth. (XYZ Annual report, 2017)

6.6 HUMAN RESOURCES

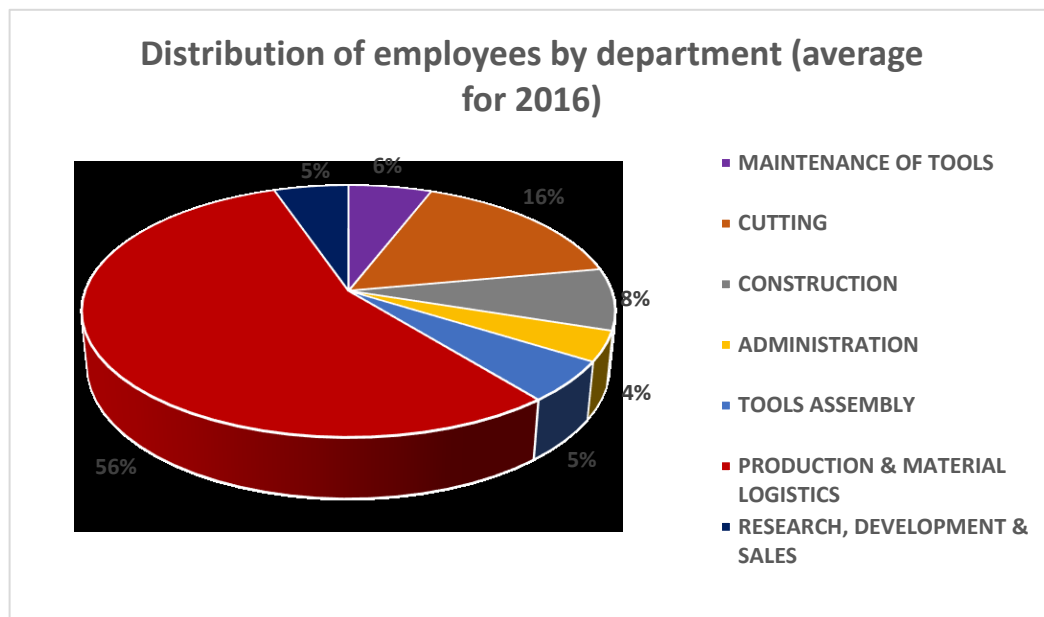
The average number of employees in 2016 rose to 493 compared with an average of 415 employees in 2015. On 31.12.2016. the number of full-time employees was 559. The average number of employees does not include employees with part-time contracts. (XYZ Annual report,



2017)

Graph 7: Average number of employees in 2015

Source: XYZ Annual report, 2017



Graph 8: Average number of employees by department in 2016

Source: XYZ Annual report, 2017

6.6.1 Recruitment

Due to the significant growth of the company and at the same time a very low level of unemployment in the region and in the Czech Republic, the company focus on brand promotion and personnel marketing. It organizes a series of excursions for elementary and secondary schools as well as direct promotion in schools. On the last Open Day attended approximately 3,600 people. (XYZ Annual report, 2017)

In line with the corporate HR strategies were created corporate profiles on social networks (Facebook and LinkedIn), which are used within the brand promotion, advertising vacant positions and active recruitment.

In collaboration with other major employers in the region was formed "Alliance for engineering education" in the secondary school Josefa Sousedíka in Vsetín. The aim is to increase interest in studying engineering disciplines, updating curricula and providing scholarships to students. In 2016, 5 students received a scholarship for the programs: machinist, mechanic, fitter and toolmaker. The scholarship is tied to merit disciplinary criteria and practice in the company. After graduation students are offered an employment contract. In this area, the company cooperates with many high schools in Valašském Meziříčí and in Hranice. In the following years, the goal of the scholarship program will be to expand to other departments and to ensure enough qualified staff in the future. (Authors interview with manager of XYZ company, 2017)

6.6.2 Employee training

In 2016, XYZ intensively developed extraordinary skills trainings. Additionally, a large-scale project called "skilled worker" was launched. The aim was to create a qualification matrix for the whole series production as well as manuals. Implementation of the project results will take place in 2017. The final goal is to ensure sufficient qualified personnel in the burgeoning mass production.

The company organizes mandatory legal trainings on regular bases like: health and safety, environment protection, trainings for drivers of company's vehicles, motor trucks, forklifts, binder and crane operators. In addition, the company focuses on improving language skills of its employees, especially English and German language on a weekly basis. (Authors interview with manager of XYZ company, 2017)

6.6.3 Care of employees

In 2016, XYZ provided its employees, as part of the "Social benefits program", the following benefits:

- The contribution of transportation to job
- Contribution to pension insurance
- Catering allowance
- The remuneration to the life and work jubilee
- The remuneration upon retirement
- Contribution to family in case of death of employee
- Discounted telephone tariffs for employees and their family members
- Free flu vaccinations and vitamin packages
- Vouchers to purchase fruits and vegetables
- Premium purchase drinks
- Corporate loans
- 2 days of annual leave beyond the law

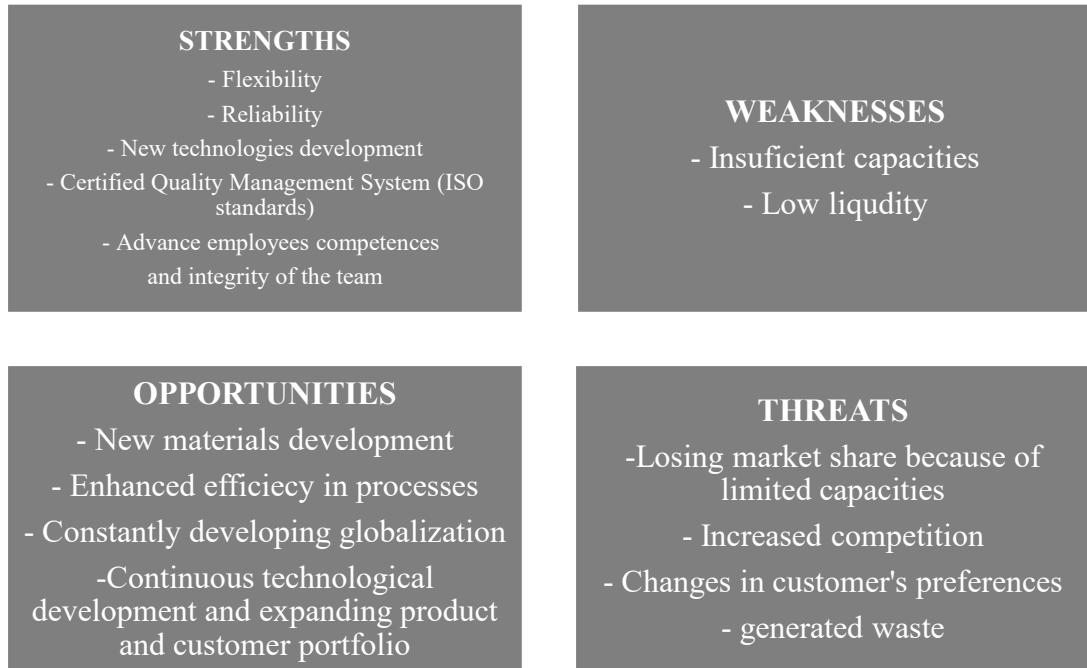
(XYZ Annual report, 2017)

6.6.4 Employee Motivation

Employees are twice a year informed about important events in the company, through joint meetings with company management. As part of the workshops, in June was organized Sports Day, which was attended to employees and their families. The traditional Christmas party for employees and their partners took place as every year. (XYZ Annual report, 2017)

6.7 SWOT ANALYSIS

SWOT is an acronym for strengths, weaknesses, opportunities and threats. It is a strategic tool used for evaluating these elements in a way that the company will maximize their strengths by using the opportunities and on the other side to minimize the threats and eliminate weaknesses.



Picture 12: SWOT analysis of XYZ company

Source: Own processing

6.8 RATIOS

Based on the Czech classification system (CZ-NACE) the XYZ company belongs to the category C 29.3 – Producing parts for motor vehicles and their engines. Therefore, as a benchmark will be used the performance of that sector (i.e. C 29.3). All necessary information can be found on the official web page of the Ministry of industry and trade (MPO, 2015).

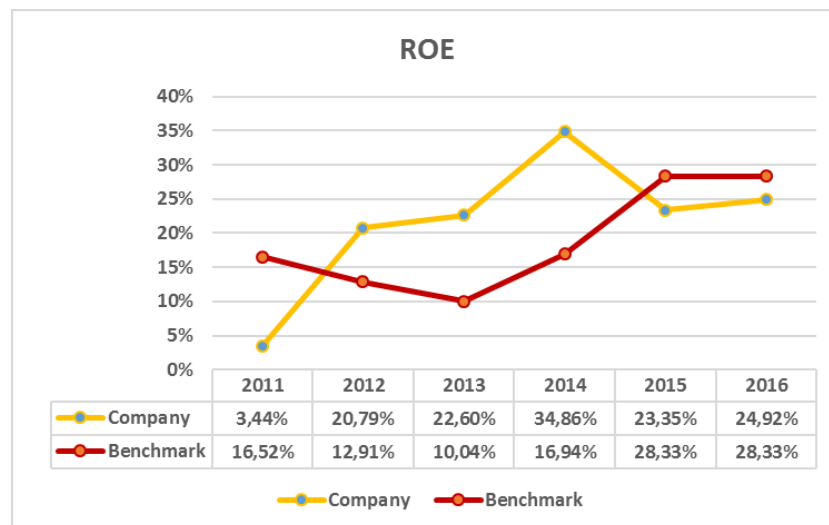
6.8.1 Profitability ratios

In the group of profitability ratios, first of all, will be analyzed ROE. As presented in table 1, the company has a high return on equity, except in 2011 as a result of recovering period after the global economic crises followed by the financial crises in Europe. In the previous periods (before 2011), the company faced with negative results, i.e. loss. However, although it is low, still is good, taking the conditions in which the company operated. High ROE means that the company is using invested capital effectively and create great return to shareholders. After the recovering period, in 2012, the company's ROE dramatically increased from 3.44% to 20.79%. In this year the average performance of the sector was only 12.91%. Based on this, can be concluded that the XYZ company pass the recovering period fast and even more, was able to achieve better results than the benchmark. This trend continued till 2014, but with moderate speed: 22.60% in 2013 and 34.86% in 2014. In 2015, ROE fell from 34.86% to 23.35% and again increased in 2016 to 24.92%. Moreover, in the last two years the company's performance are lower than the sector's performance. The fact can be explained by the continuous increase in equities, to be more precise, legal reserves. In the last five years, the average increase was 70%. The increase of equities is part of the long-term strategy of XYZ company.

Table 1: Profitability ratios and their benchmarks

		2011	2012	2013	2014	2015	2016
ROA	Company	1,02%	7,63%	9,60%	13,89%	8,09%	8,48%
	Benchmark	7,13%	6,11%	4,50%	7,47%	12,97%	12,97%
ROE	Company	3,44%	20,79%	22,60%	34,86%	23,35%	24,92%
	Benchmark	16,52%	12,91%	10,04%	16,94%	28,33%	28,33%
Gross profit margin	Company	7,45%	10,06%	13,87%	13,39%	12,44%	12,21%
	Benchmark	10,34%	10,03%	9,49%	8,80%	8,73%	8,73%
Operating profit margin	Company	4,15%	8,00%	10,82%	12,98%	9,99%	10,01%
	Benchmark	6,65%	6,32%	6,29%	7,09%	6,70%	6,70%
Net profit margin	Company	0,98%	7,45%	8,97%	12,34%	9,23%	9,03%
	Benchmark	4,19%	3,52%	2,59%	4,00%	6,37%	6,37%

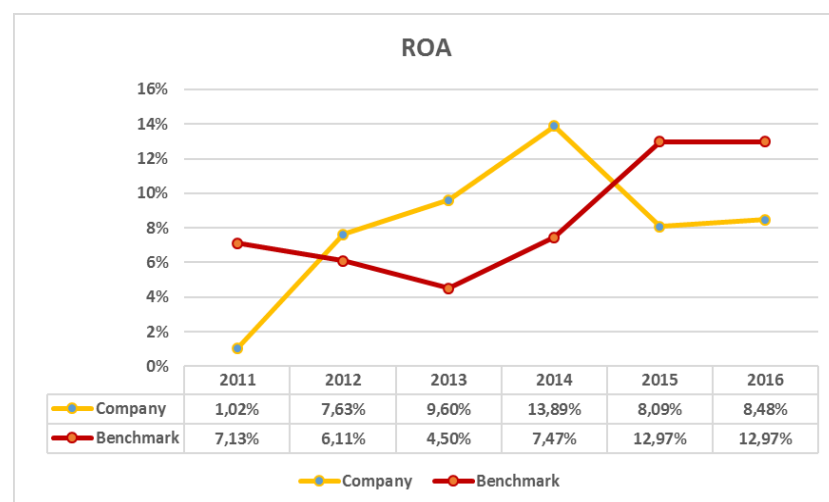
Source: Own processing; MPO, 2016



Graph 9: Company’s ROE and its benchmark

Source: Own processing

The company’s ROA shows similar results as ROE, following the same trend. It increases dramatically after the crises, from 1.02% to 7.63% in 2012. The increasing trend continued, but with much moderate trend than ROE. In 2015, ROA followed the decreasing trend of ROE. But again, the drop was much more modest, falling from 13.89% in 2014 to 8.09% in 2015 and increasing to 8.48% in 2016. In the case of ROA, the company’s performances are slightly above the benchmark in 2012, doubled in 2013 and 2014 and dropped down for approximately 40% in 2015 and 2016. The great ROA results are directly connected to the increase in equity. The company increase their investments in property as well as non - tangible assets, which increased their assets by around 20% on average in the last 5 years.

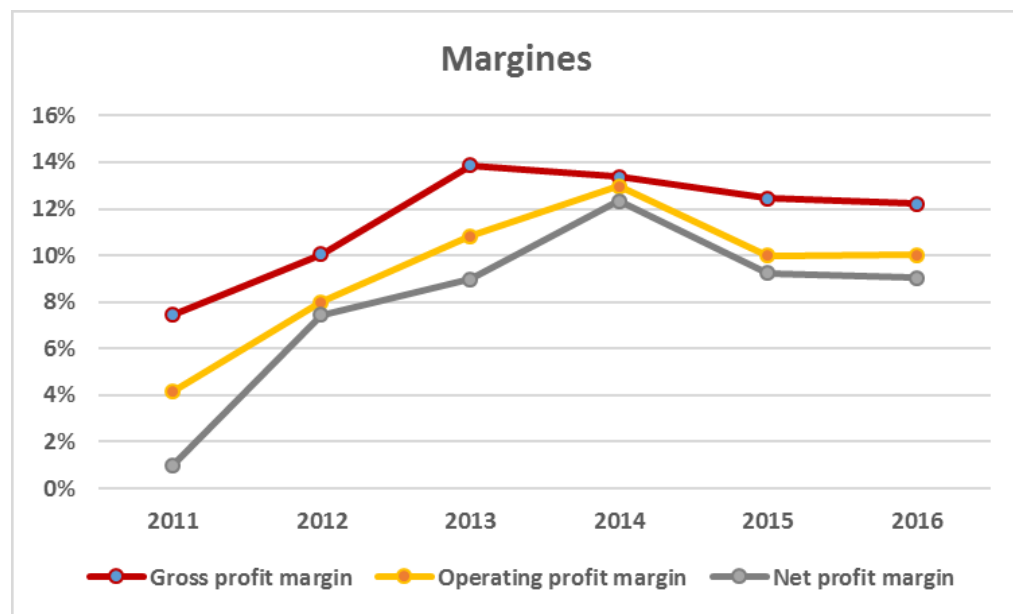


Graph 10: Company’s ROA and its benchmark

Source: Own processing

Another three important profitability ratios are Gross profit margin (GPM), Operating profit margin (OPM) and Net profit margin (NPM). They show the ability of the company to earn profit after paying all or most critical costs. The result is presented as a percentage. There is one important fact to be noticed. Looking at the Table 1 above, all margins are showing better results than the sector in the analyzed period. In other words, they follow the trend of other profitability ratios i.e. ROA and ROE. Additionally, if analyzed only the company margins (graph 11), can be seen that they move in a same way.

Although the company faced with negative net margins in the previous period, i.e. before 2011, they still were able to end the year 2011 with low, 0.98% but positive margin. In 2014, NPM reached its pick, with 12.34% which is approximately 3 times more than the benchmark. Moreover, NPM and OPM are really close. This means that the highest portion of the profit comes from the core business. It is an important information, showing that the company is doing their business good.



Graph 11: Gross profit margin, Operating profit margin, Net profit margin

Source: Own processing

6.8.2 Liquidity ratios

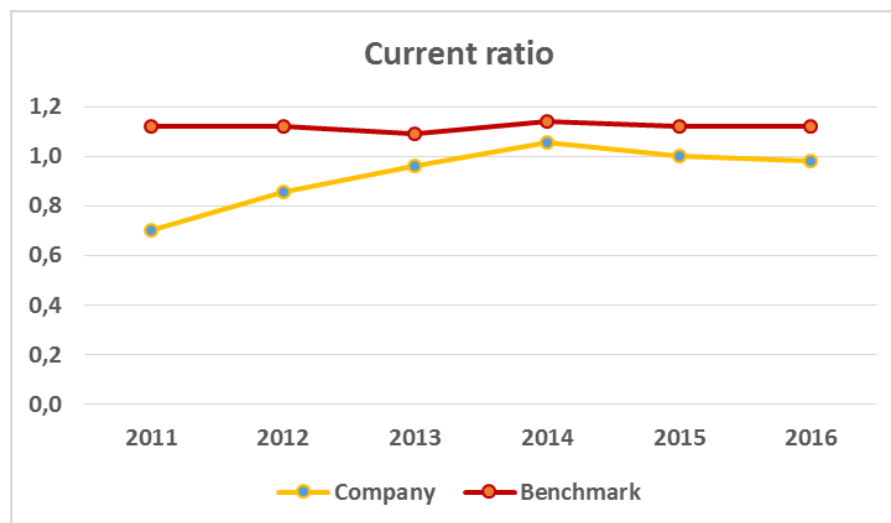
While the profitability ratios were showing magnificent results, liquidity ratios are showing the opposite. In addition, a closer look on each of them will be presented.

Table 2: Liquidity ratios and their benchmarks

		2011	2012	2013	2014	2015	2016
Current ratio	Company	0,70	0,86	0,96	1,05	1,00	0,98
	Benchmark	1,12	1,12	1,09	1,14	1,12	1,12
Quick ratio	Company	0,44	0,46	0,49	0,54	0,55	0,54
	Benchmark	0,86	0,85	0,84	0,88	0,85	0,85
Cash ratio	Company	0,02	0,02	0,03	0,02	0,03	0,03
	Benchmark	0,15	0,15	0,15	0,12	0,12	0,12

Source: Own processing; MPO, 2016

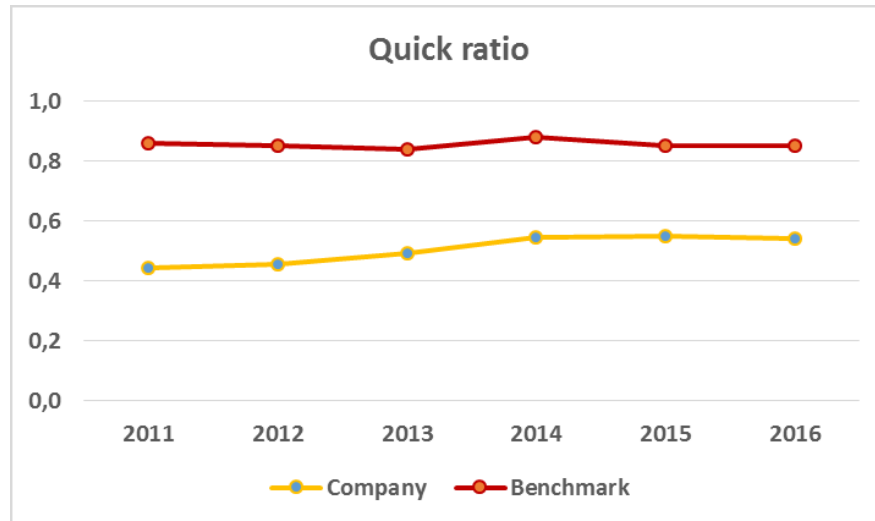
As already mentioned, current ratio measures the ability of the company to pay firstly its short term obligations and after that the long term ones. As presented in graph 12, the company has some problems with liquidity. In the whole analyzed period its performance is lower than the average sector performance. The lowest results were in 2011, when the gap is highest, showing 0.42 points less than the sector. In the following years, it rises moving from 0.86 in 2012 to 1.05 in 2014 when it reaches the peak. After that, in 2015 and 2016, it slightly decreased to 1.00 and 0.98 respectively. On one side, although the company's performance is significantly below the benchmark, the gap tends to decrease. On the other side, it can be a warning sign that the company's liquidity is disfigured.



Graph 12: Current ratio and its benchmark

Source: Own processing

The results of quick ratios are even worse than current ratio. In the period between 2011-2015, they move in a range between 0.44 to 0.54 points. It represents just above 50% of the average sector performance, in the same period. In another word, the company can cover only half of its current liabilities from its most liquid assets. Keeping so low level of liquidity can cause a lot of problems for the company in the future. First of all, they will not be able to cover its liabilities, which will cause problems with continuity in the business. Additionally, with such liquidity, the company cannot ask for new credits from banks, since good liquidity is one of the conditions to get the their trust.



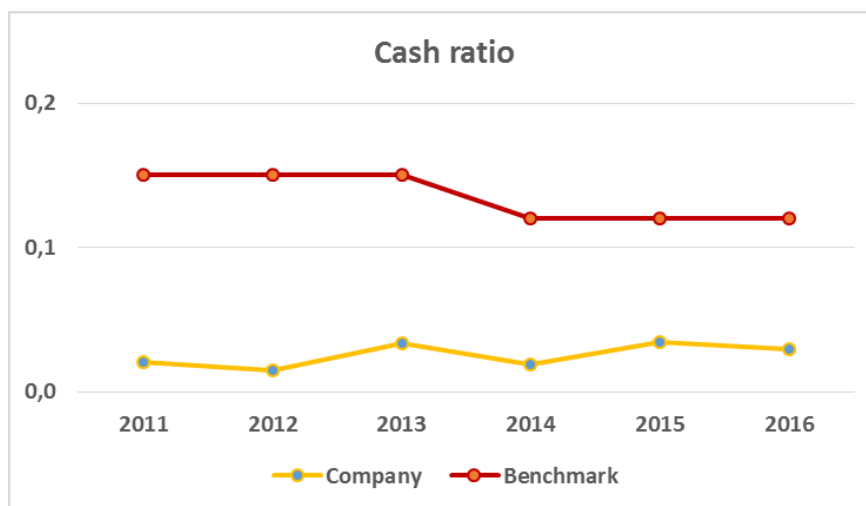
Graph 13: Quick ratio and its benchmark

Source: Own processing

The most liquid assets a company can have are cash and cash equivalents. From all liquidity ratios, cash ratio is the most alarming. During whole period it shows solid, but very low results, moving from 0.02 to 0.03 points. Compared to sector's results, in the same period, between 2011 – 2015, it is around 7 times less. It is true that, by keeping a lot of assets in cash, a company lose the opportunity to earn interest on them. On the other side, it allows the management “to sleep calmly” because they will be able to react on any unpredicted risk and liabilities. Following aggressive strategy, as the company does, is acceptable when a company want to enter a new market or launch a new product. However, it is not recommended to keep such strategy on long – term.

Having good liquidity is a key for keeping the going concern in doing business. It is more important to have good liquidity performance than profitability once. If the company is liquid, it can continue operating, on short-run, even if it is not profitable. However, if the company is not liquid, but is profitable, as in this case, there is a high probability that it will face with a distress in near future, and even more, may end with bankruptcy.

In the following period, the company need to focus on improving its liquidity and move to much moderate strategy, because they already are using the aggressive strategy too long.



Graph 14: Cash ratio and its benchmark

Source: Own processing

6.8.3 Activity ratios

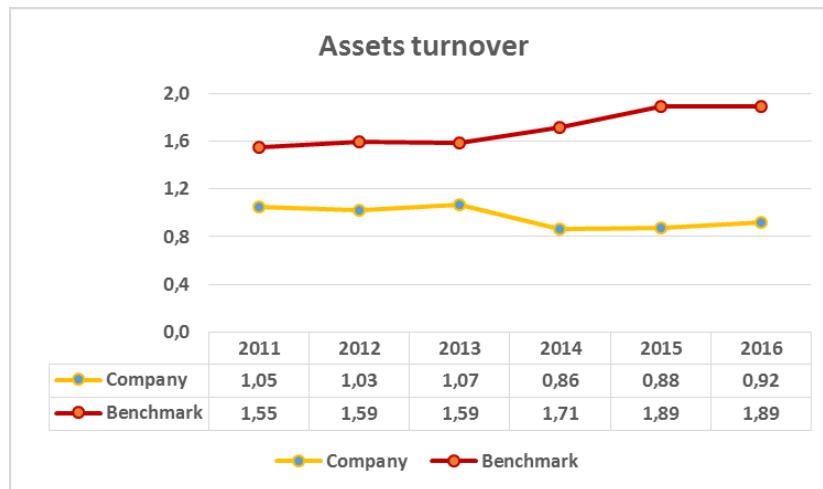
The company's efficiency can be analyzed by activity ratios. The following table compares the company productivity and productivity of the sector on average. In addition, a closer look on each of them will be done and also graphically present the results of each ratio.

Table 3: Activity ratios and their benchmarks

		2011	2012	2013	2014	2015	2016
Assets turnover	Company	1,05	1,03	1,07	0,86	0,88	0,92
	Benchmark	1,55	1,59	1,59	1,71	1,89	1,89
Receivables turnover	Receivables turnover	4,95	4,65	4,96	3,58	3,85	4,04
	Benchmark	4,60	4,90	4,61	4,67	5,16	5,16
Days in receivables	Days in receivables	73,80	78,49	73,54	101,83	94,73	90,42
	Benchmark	79,36	74,43	79,11	78,22	70,67	70,67
Inventory turnover	Inventory turnover	14,91	23,62	38,60	15,10	15,52	17,25
	Benchmark	12,57	12,47	12,66	13,32	14,22	14,22
Days in inventory	Days in inventory	24,49	15,45	9,45	24,17	23,52	21,16
	Benchmark	29,03	29,27	28,82	27,40	25,67	25,67

Source: Own processing; MPO, 2016

Looking at graph 15, clearly can be seen that the company is not using their assets as efficient as the sector. However, between 2011-2013 the results are more than positive. During this years, the XYZ company was able to produce more sales than the amount of assets, which is the goal of each company. In other words, XYZ was able to generate more than 1 CZK per 1CZK of assets. The last three years were not so successful as the previous one. To be able to say that the result is good, asset turnover ratio should be at least 1, meaning that the company generates 1 CZK per 1 CZK of assets. Unfortunately, during 2014-2016, the company generated less than 1CZK per 1 CZK of assets. The reduction in the last period is a result of different growth tempo of assets and sales. Such a decrease, in the last years, was noticed in all ratios and will follow in all other ratios.

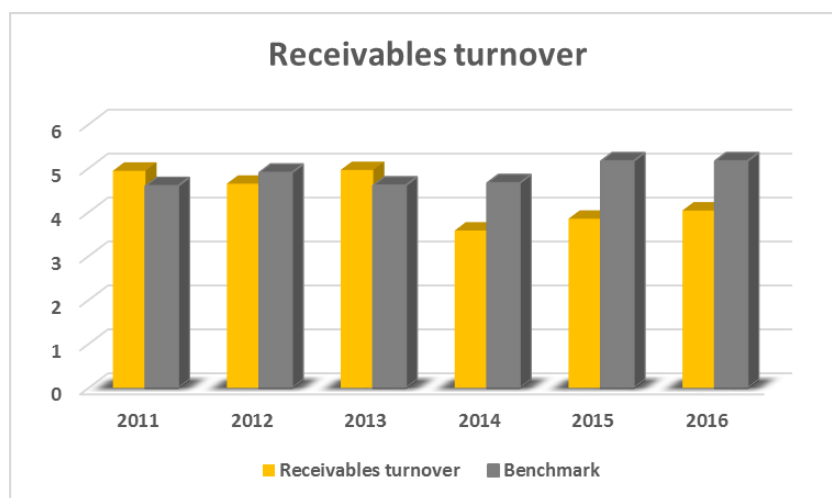


Graph 15: Assets turnover and its benchmark

Source: Own processing

Receivables turnover explains the ability of management to operate the company. During the first half of analyzed period, the company was showing better results than the sector, except in 2012 when XYZ achieved slightly lower results, meaning that management successfully collected on issued credits to customers. The movements in the period between 2011-2013 are only slight. Therefore, can be concluded that the company’s performance is in line with the benchmark. Unfortunately, during the second half, XYZ company shows significantly weaker results, compared to the sector. Moreover, analyzing just the company performance, the decline is moderate, falling from 5 times to 4 time. Thus, a detailed investigation is recommended.

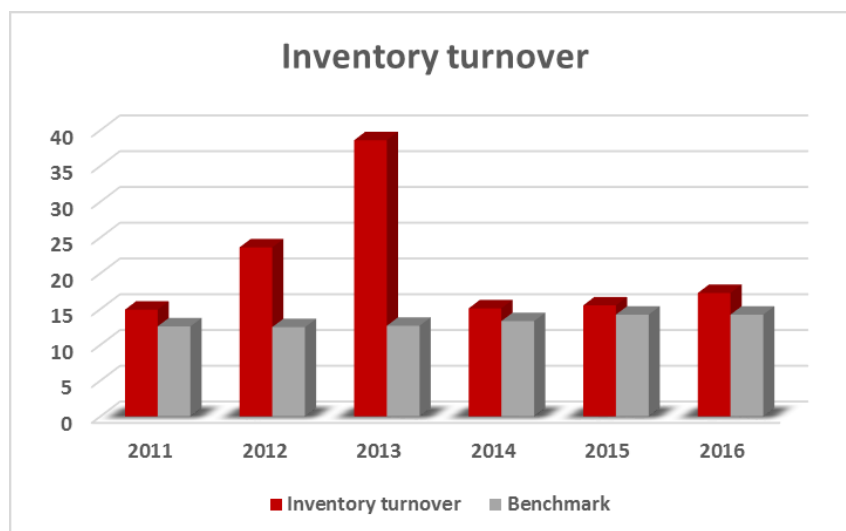
Receivables turnover is impacting the days in receivables. Once more can be pointed the reasonability of detailed investigation, mentioned above, since the days in receivables moved from less than 3 months, in the year between 2011-2013, to more than 3 month in the last years. On the other side, the sector has quite stable performance of around 2.5 months for days in receivables. One of the solutions for improving this problem is to look at credit policy and reevaluate it.



Graph 16: Receivables turnover and its benchmarks

Source: Own processing

The last in this group is inventory turnover ratio and days in inventory. Opposite to receivables turnover ratio, it is showing higher results than the sector. Having greater results means that the company can sell and replace its inventories much more times than the other companies in the same sector. In other words, our company need fewer days to sell their products, to be more precise, less than one month. In 2013, they were able to sell their products just in 9.5 days. In the last three years, the trend is downward (as for all other ratios). Between 2014-2015 the company's day's in inventory ratio was close to the benchmark.



Graph 17: Inventory turnover and its benchmark

Source: Own processing

6.8.4 Debt ratios

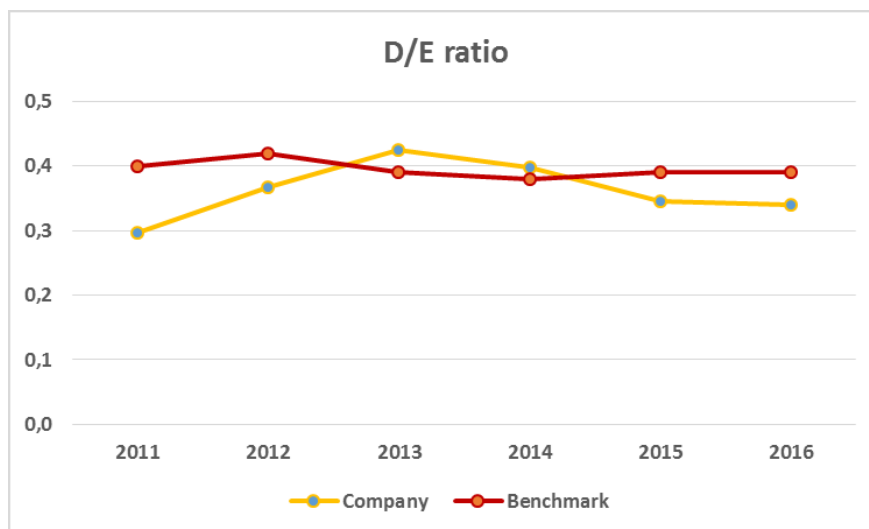
The last subgroup in the group of ratios are debt ratios. In table 4, is presented a summary of company's performances and relevant benchmarks for the most important ratios in this group.

Table 4: Debt ratios and their benchmarks

		2011	2012	2013	2014	2015	2016
D/E ratio	Company	0,30	0,37	0,42	0,40	0,35	0,34
	Benchmark	0,40	0,42	0,39	0,38	0,39	0,39
D/total capital	Company	0,70	0,63	0,57	0,60	0,65	0,66
	Benchmark	0,60	0,58	0,61	0,62	0,61	0,61
Interest coverage ratio	Company	0,39	3,68	6,85	17,09	6,77	6,77
	Benchmark	7,31	7,01	7,82	12,03	20,20	20,20

Source: Own processing; MPO, 2016

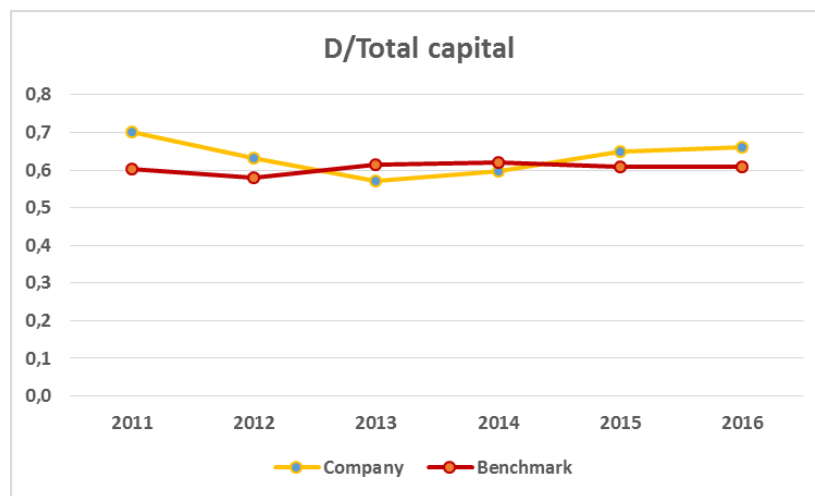
Graph 18, shows the relation between company's D/E ratio and its benchmark. During the period between 2011 and 2016, the company has similar results as the sector. It shows quite stable trend with slight movements between 30% and 40%. It was slightly rising from 2011 to 2013 when reached its pick with 42% and then again started to fall to 35% in 2015 and 34% in 2016. Overall, any dramatic changes or fluctuations cannot be observed. On the other side, the benchmark is in the range between 39% in the last two years to 40% in 2011.



Graph 18: D/E ratio and its benchmark

Source: Own processing

As known the D/Total capital gives information about the portion of assets financed by debt. Looking at graph 19, company's portion is higher than the sector's average, except in 2013 and 2014. However, the difference is not so high. As a conclusion, can be said that the company's performance is in line with the benchmark. XYZ's D/Total capital varies between 60% - 70% in the period between 2011-2016, while the benchmark in the same period ranges between 58% -62%. Higher debt portion means higher leverage but in the same time higher risk. Anyway, there is no need for any changes in the capital structure because the level of debt does not exceed 60% except in 2011. Taking in mind that debt financing is cheaper than equity financing, the author firmly believes that such capital structure is acceptable and there is no need for any improvements.



Graph 19: D/Total capital and its benchmark

Source: Own processing

6.9 ECONOMIC VALUE ADDED

The XYZ company is using the accounting model of EVA for measuring their performance. In this model $EVA = ((ROE - r_e) * Equity)$. However, the value of EVA calculated by this model is only indicative, because it is based on unadjusted accounting data. (XYZ Annual report, 2017)

In following analyses, will be used the economic model of EVA, which is one of the best models for measuring the performance of a company. It is especially advantageous due to the possibility to identify and effectively manage areas of operational, financial and investment activities which significantly affect the performance and competitiveness of the company. Using this model, forces the management to look for sources of value creation or so-called “value generators”.

Calculating EVA, based on the economic model can be done by the formula: $EVA = (RONA - WACC) * C$.

The focus of following parts will be adjusting the accounting data and calculate NOA, NOPAT, WACC and EVA.

6.9.1 Net operating assets (NOA)

The goal of calculating NOA is to separate operating activities from financial activities. For that purpose, balance sheet, should be adjusted so that the operating activities are valued independently. The financial activities do not create value for the company because it does not operate in financial industry. By adjusting the balance sheet, investors will get a more accurate picture about the company's value.

Table 5: Total assets

(in thousand CZK)	2011	2012	2013	2014	2015	2016
Total assets	894 605	944 317	1 092 354	1 790 452	2 043 070	2 087 343

Source: Own processing

For calculating NOA the following adjustments are needed:

- Deduct non-operating assets
- Add back off-balance sheet items
- Deduct non-interest bearing assets

6.9.1.1 Deduct non-operating assets

As previously mentioned NOA should include only assets used for core/operating business activities. All other assets should be excluded. In particular, the following items should be considered:

- **Current financial assets**

Based on ratio analyses in the previous chapter, the cash ratio of XZY company is on a very low level, compared to the benchmark. The recommended value of MPO for cash ratio is between 0.12-0.15. Unfortunately, in the analyzed period, the company is facing with capacity problems, and therefore they needed to focus on much more aggressive and riskier strategy. The price of fast and massive development programs that are still going on is negative results on liquidity, followed by increased costs of debt. However, management is aware of this problem. Even more, in the balance sheet can be noticed that the company is undertaking actions for improvement, although it is not a successful period for them. This information was gained during the interview with the manager. Additionally, they mentioned that in the next period they will focus on improving the liquidity of the company. Therefore, adjustments will not be done and the current results will be treated as acceptable.

- **Long term investments**

Core criteria for allocating the long-term investment should be the purpose of these investments i.e. whether they are connected to the operating activities or not. All long-term investments the XYZ company have, are used for the primary business activities. Thus, they will not be removed from the balance sheet.

- **Unfinished assets**

Although these assets, are intended for operations connected to the core business of the company, in the analyzed period they were not finished. In other words, they cannot be used immediately and do not generate profit. Therefore, such items should be deducted.

Additionally, total assets should be corrected by the amount of unfinished tangible and intangible assets. These assets are intended for operational needs but does not participate in the creation of today's results. Therefore, should be deduct from total assets.

Table 6: *Unfinished assets*

(in thousand CZK)	2014	2015	2016
Unfinished intangible assets	119	0	0
Unfinished tangible assets	130 453	11 046	5 418
Total unfinished assets	130 572	11 046	5 418

Source: *Own processing*

6.9.1.2 Add back off-balance sheet items

In this part, should be added back all items that the company is using in their everyday activities, but are not shown in the balance sheet. Such items are:

- **Goodwill**

The goodwill is an intangible asset that arises from company's brand, good customer's relation, good vendor relationship on any patent or property technology. In the case of XYZ company, it arises from the patents they own. In fact, the patent is owned by the parent company, but based on the internal policies, some portions are delivered to the daughter companies.

Table 7: *Goodwill*

(in thousand CZK)	2011	2012	2013	2014	2015	2016
Goodwill	33 906	36 938	39 443	109 128	87 416	33 906
Difference		3 032	2 505	69 685	-21 712	-53 510

Source: *Own processing*

From the table, it can be concluded that the goodwill was increasing till 2014, when it reached the pick. Unfortunately, in the last two years started to drop. A significant drop was recorded in 2016, when the goodwill decreased for approximately 60% in comparison to year 2015. It is a consequence of the capacity problems that the company is facing with and fail to meet customer's requirements

- **Leasing**

The XZY company is using leasing in many forms. All of them should be added back to the balance sheet. First of all, future leasing payments should be discounted to the present value. The discounted leasing payments for the period between 2017-2021 are presented Appendix 4. For discounting the future payments, was used the method of "Present Value". More details about the amount of leasing for the analyzed period, i.e. for the period between 2011-2016, can be found Appendix 3.

- **Revaluation of fixed assets**

Tangible assets are recorded based on their historical accounting price, which should be adjusted by the depreciation, based on their usage. Long-term financial assets are valued using market price. In the case of XZY valuation difference was found only in 2015, when the company bought computers and computer's equipment for a significantly lower price. Such low price was gained during the auction on which computers and computer's equipment were bought. The market value of these property is 1627 thousand CZK. This difference should be added back to the equities.

Table 8: Revaluation of fixed assets

	2014	2015	2016
Valuation difference	0	1627	0
Additional depreciation	0	204	0
Valuation difference - Depreciation	0	1423	0

Source: Own processing

Due to positive valuation difference, an additional amount of depreciation should be calculated that subsequently will reflect in lower profit. As the expected life of the asset is 8 years, additional depreciation for 2015 was calculated amounting to 204 thousand CZK. Assets will be adjusted by the valuation difference lowered by the amount of depreciation.

6.9.1.3 Deduct non-interest bearing assets

Total assets should be adjusted by those liability items that do not bear interest. These items should be deducted from total liabilities. Such adjustments are needed for calculating EVA because NOA is multiplied by the cost of capital. The non-bearing items do not have cost, and because of that need to be deducted.

Table 9: Non- interest bearing assets

(in thousand CZK)	2014	2015	2016
Accruals	9 169	7 180	7 539
Total current liabilities	339 776	593 641	656 108
Other non-current liabilities	162 400	376 053	394 856
Legal reserves	28 476	46 876	49 220
Total	539 821	1 023 750	1 107 723

Source: Own processing

All adjustments would be summarized in the following table:

Table 10: NOA

(in thousand euro)	2014	2015	2016
Fixed assets	545817	906019	956006.1
Intangible assets	7510	10909	11454.45
Tangible assets	538307	895110	944551.7
NWC	397791	-65055	-101093
Inventories	419741	403635	423816.8
Trade and other receivables	432060	464542	487769.1
Cash and cash equivalents	15375	30974	32522.7
Accruals	70436	59544	62521.2
Non-interest bearing items	539821	1023750	1107723
NOA	943608	840964	854913.4

Source: Own processing

6.9.2 Net operating profit after tax (NOPAT)

The most important thing is to achieve symmetry between NOA and NOPAT. The assets that are included in NOA have some costs, which is needed to be included in NOPAT. To determine the company's NOPAT a few adjustments are required.

The adjustment process starts from the earnings before interest and tax.

Table 11: EBIT

(in thousand CZK)	2014	2015	2016
EBIT	213 881	215 614	236 735,4

Source: Own processing

6.9.2.1 Implied interest expenses

Interests expenses paid on loans should be deducted from financial costs and added back to NOPAT. The reason is that such expenditures are connected to the core operations of the business. The same logic is applicable for the leases payments. They are determined by multiplying the estimated contract costs and the amount of lease liability for the current year.

Table 12: Interest expenses

(in thousand CZK)	2014	2015	2016
Loans expenses	1652	1215.58	1031.4
Leases expenses	711.44	476.66	179
Implied interest expenses	2363.44	1692.24	1210.4

Source: Own processing

6.9.2.2 Non-operating profit

The calculation based on Income statement also includes items that will not be repeated. It is profit that appeared just in a particular year and is not related to the core business activities. Such an example are sales of fixed assets. Sales of fixed assets are determined as a difference between the price for a fixed asset was sold and its net book value. They should be excluded from the NOPAT calculation.

Table 13: Sale of fixed assets

(in thousand CZK)	2014	2015	2016
Sale of fixed assets	515	143	157.3

Source: Own processing

6.9.2.3 Differed tax liability

Another important category that needs to be adjusted is tax. The differed tax liability should be added back to NOPAT. Such action is required because differed tax is connected to future tax liability the company should pay. However, it is only calculated "theoretically", but in a particular year, any cash did not outflow. In other words, it was not a real expense for the company.

Table 14: Differed tax liability

(in thousand CZK)	2014	2015	2016
Differed tax	108	120	126
Difference	11	12	6
SUM			36,5

Source: Own processing

6.9.2.4 Provision

Provision is an account which records a present liability of an entity and has its equivalent expense in the income statement. Sometimes, the term reserve is used instead of provision. A provision can be a liability of uncertain timing and amount. The provision amount should be added back to NOPAT.

Table 15: Provision

(in thousand CZK)	2014	2015	2016
Provisions	18 510	14 327	15 043
Difference	5 685	-4 183	716
SUM			11 761

Source: Own processing

Now, we can summarize all adjustments and calculate NOPAT:

Table 16: NOPAT

(in thousand CZK)	2014	2015	2016
Operating profit + financial income	213 881	215 614	236 735,4
Provision	5 685	-4 183	716
Diff.tax	11	12	6
Leasing	2 102	126	-8,9525
Implied interest expenses	2 363,44	1 692,24	1 210,41
Sale of fixed assets	515	143	157,3
Goodwill	69 685	-21 712	-53 510
NOPAT	293 190	191 382	184 980

Source: Own processing

6.9.3 WACC

For calculating the weighted average cost of capital (WACC), first, we need to calculate the costs of individual elements in the capital structure and multiply it with their portion in the total capital. The sum of all items will present the WACC. The formula of WACC is:

$$\text{WACC} = C_d * \frac{D}{TC} + C_e * \frac{E}{TC} \quad [35]$$

(Pavelková, 2012, p. 63)

Costs of debt appear in a form of interest that the company is paying.

Cost of debt before tax will be calculated by taking in account the interest company is paying on debt and leasing. Based on the IFRS and underlying accounting principles, because of the interest the company is paying for the debt, they will pay less tax. Therefore, the cost of debt should be adjusted for the tax rate i.e. to calculate leverage cost of debt. The formula for calculating leveraged cost of debt is:

$$\text{Leverage cost of debt} = \text{Cost of debt before tax} * (1 - \text{tax rate}) \quad [36]$$

Table 17: Cost of debt before tax

	2014	2015	2016
Interest payed on loans	13 549	13 264	16 425
Interest payed on leasing	12 871	12 468	15 603
Cost of debt before tax	12.43%	12.88%	16.12%

Source: Own processing

Cost on loans was calculated by dividing interest paid on loans and total average debt. Cost of leasing was calculated based of the formula where the lease cost equals an interest rate at which the sum of current lease payment and the remaining cost of lease is equal to its market price.

Furthermore, in the calculation also should be considered the effect of the tax shield. In the last period, based on the company's strategy, they started to employ people with working disabilities. Therefore, the company is benefited and each year is paying lower income tax, based on the percentage of employed individuals with disabilities. Thus, in 2014 the effective income tax rate was 18.32%, in 2015 it was 16.54% and in 2016 15.5%. Due to this fact, the total cost of debt should be adjusted.

After adjusting the costs of individual elements in the debt structure, the total adjusted cost of debt can be calculated.

Table 18: Adjusted cost of debt

In thousand CZK	2014	2015	2016
Cost of debt before tax	12.43%	12.88%	16.12%
Tax shield	2.28%	2.13%	2.5%
Adjusted cost of debt	10.15%	10.75%	13.62%

Source: Own processing

From the table, it is clear that after the adjustments the total cost of debt decreased. It is a result of the tax shield effect. In 2014, there is a really small effect, because the percentage of employees with working disabilities was low. In fact, the company started this program in 2014, like trial, and because of positive results, they continued in the following years. Moreover, it is expected that in the future the percentage of employees with working disabilities will increase and also the effect of the tax shield.

Because the company is not publicly listed, for calculating the cost of equity CAPM model will be used. CAPM can be calculated by the formula:

$$\text{CAPM} = R_{fr} + \beta \cdot (R_m - R_{fr}) \quad [37]$$

(Pavelková, 2012, p. 168)

Currently, lot of economies are facing with low ad even negative risk free rate. Unfortunately, these rates can't be used to calculate the cost of equity, because in that case the result of CAPM will be negative and it is incorrect. Therefore, based on the theory, the average risk - free rate from the previous years (recommended the last 10 years) should be used. Table 19 reflects the calculations of CAPM.

Table 19: Cost of equity

	2014	2015	2016
Risk-free rate	2.53%	2.53%	2.53%
Risk premium	7.07%	7.07%	7.07%
Beta coefficient	1,14	1,08	1,42
CAPM	12.50%	11.97%	15.026%

Source: Own processing

However, there is also a need for small adjustments. For the previous calculation, the unleveraged β was used. The unleveraged β is used when the company has no debt. Unfortunately, this is not such a case. Therefore, an adjust should be done to include the financial effect of leveraged β . In other words, change it from unleveraged to leveraged.

Table 20: CAPM adjusted

	2014	2015	2016
Risk-free rate	2.53%	2.53%	2.53%
Risk premium	7.07%	7.07%	7.07%
Beta coefficient (unleveraged)	1,14	1,08	1,42
Beta coefficient (leveraged)	1,28	1,62	2,03
CAPM adjusted	11.60%	13.98%	16.88%

Source: Own processing

After adjusting the cost of equity, it increased. It is a result of an increase in leveraged β , as well as in the structure of the capital. It can be clearly noticed that the spread between the cost of debt and the cost of equity is even higher.

Before calculate the adjusted WACC, briefly the adjusted capital structure will be presented.

Table 21: Adjusted capital structure

(in thousand CZK)	2014	2015	2016
Equity	713 454	707 930	729 726
Adjustments (deduct)	130 572	11 046	5 418
Adjustments (add back)	0	1 423	0
Adjusted equity	582 882	698 307	724 308
Loans	343 126	125 066	113 014
Leasing	17 600	17 591	17 591
Adjusted Debt	360 726	142 657	130 605
Total capital	943 608	840 964	854 913

Source: Own processing

Now the adjusted WACC can be calculated.

Table 22: Adjusted WACC

	2014	2015	2016
Adjusted cost of debt	10.15%	10.75%	13.62%
Adjusted cost of equity	11.60%	13.98%	16.88%
D/TC	38.23%	16.96%	15.28%
E/TC	61.77%	83.04%	84.72%
Adjusted WACC	11.05%	13.43%	16.38%

Source: Own processing

To summarize, in the analyzed period, the WACC increases. First of all, it is a result of sharp increase in the equity portion as part of the long-term strategy of the company. The increase in equity portion is followed by a moderate increase in the cost of equity, moving from 11.60% in 2014, to 13.98% in 2015 and reached its pick in 2016 at 16.88%. On the other side, the portion of debt moderately decreased. However, the cost of debt continued to increase, but with lower speed. Only in 2016, the increase in cost of debt is significant, rising from 10.75% to 13.62%. The growing trend in WACC is mostly a result of high portion on equities. In other words, a high portion of assets are financed by the more expensive equities. Although it is part of the XYZ company's strategy, the portion of equities is too high. Additionally, it is not positive concerning value creating for the shareholders.

6.9.4 EVA

After making all adjustments, the EVA can be calculated. In the following table, it will be calculated based on the formula:

$$\text{EVA} = \text{NOPAT} - \text{WACC} * \text{C} \quad [38]$$

The graph is showing the results of WACC, EVA and RONA, where

$$\text{RONA} = \frac{\text{NOPAT}}{\text{NOA}} \quad [39]$$

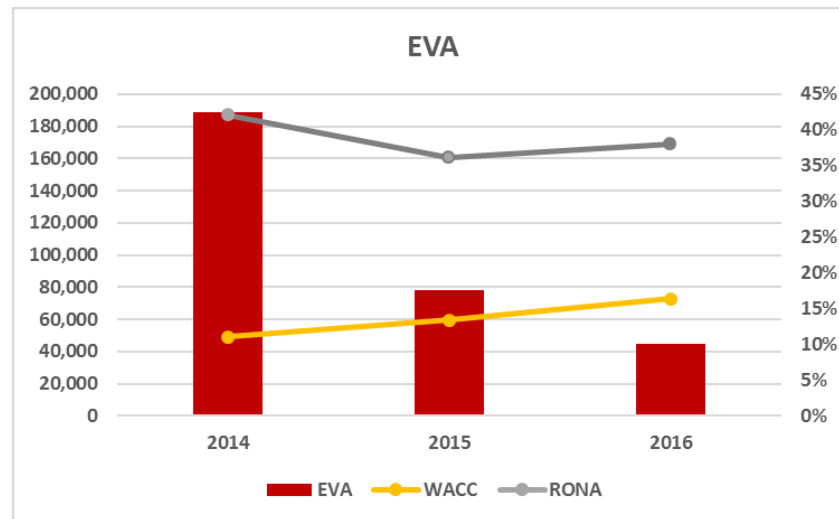
$$\text{EVA} = (\text{RONA} - \text{WACC}) * \text{C} \quad [40]$$

(Pavelková, 2012, p. 52-53)

Table 23: EVA

In thousand CZK	2014	2015	2016
NOPAT	293 190.44	191 382.2	184 979.6
NOA	943 608	840 964	854 913.35
WACC	11.05%	13.43%	16.38%
EVA	188 921.8	78 440.7	44 944.79

Source: Own processing



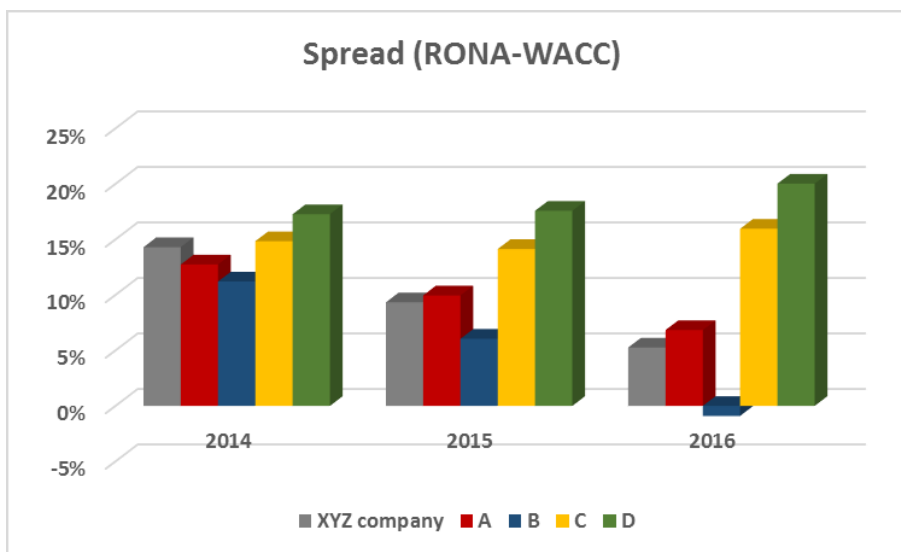
Graph 20: EVA

Source: Own processing

To sum up, during the analyzed period the company XYZ created value for its shareholders. However, it is showing downturn trend falling from CZK 188 921.8 thousand in 2014 to CZK 78440.7 thousand in 2015 and reaching the bottom at 2016 with only CZK 44944.79 thousand. As already mentioned the WACC growth significantly. Besides the fact that EVA is decreasing significantly and WACC is increasing, it is expected result since the company is facing a lot of problems connected to production capacity and massive changes through which the company is going on.

6.10 COMPARISON OF EVA RESULTS BETWEEN XYZ COMPANY AND ITS COMPETITORS

The following graph is showing the movements of spread (RONA-WACC) in the period 2014-2016. The results of XYZ company are compared with four other most relevant competitors, having a similar pallet of products and operate on the territory of the Czech Republic. The necessary information about competitor's performances was taken from PhD students, studying at Tomas Bata University, who are working on the ongoing project connected to the performance of automotive industry in the Czech Republic. The calculations are presented in Appendix 5.



Graph 21: Comparison of EVA results – XYZ vs. competitors

Source: Own processing

Looking at the graph 21, it can be concluded that, XYZ has average results (is in the middle). Companies C and D are showing an upward trend during the years. In each year, they create more value for their shareholders. In the case of company C, EVA insignificantly decreased by 0.71% in 2015, but in 2016 it increased for additional 2%. The company D is showing a growing trend, but with the same speed as company C. In 2015, its EVA grew up for 0.31% and in 2016 by 2.62%. Company A and XYZ company have similar results. However, the falls of company A are much moderate than the falls of XYZ company. During whole period company B is showing the lowest results. Even more, in 2016, company B had negative results.

To sum up, XYZ company is performing good (compared to its competitors and all problems and changes it is going through). However, while almost all competitors have growing trend, XYZ company has declining trend. In other words, the spread in performance between XYZ company and its competitors is increasing in each year. Although, the company is creating value for its shareholders, in each year the amount is decreasing, and therefore the company needs to take corrective measures.

6.11 BENCHMARKING USING THE ACCOUNTING EVA

The aim of this chapter will be to compare EVA results of XYZ company with the sector results in the last three years. Based on so-called "benchmarking" strengths and weaknesses of the company can be determined. Because of lack of information, needed for adjustments of financial statements and the long and complicated process for calculating the economic model of EVA, accounting model of EVA will be used. The necessary information about sector performances will be taken from the reports of the Ministry of Industry and Trade of the Czech Republic (mpo.cz).

In the reports of the Ministry of Industry and Trade of the Czech Republic EVA is calculated on the formula:

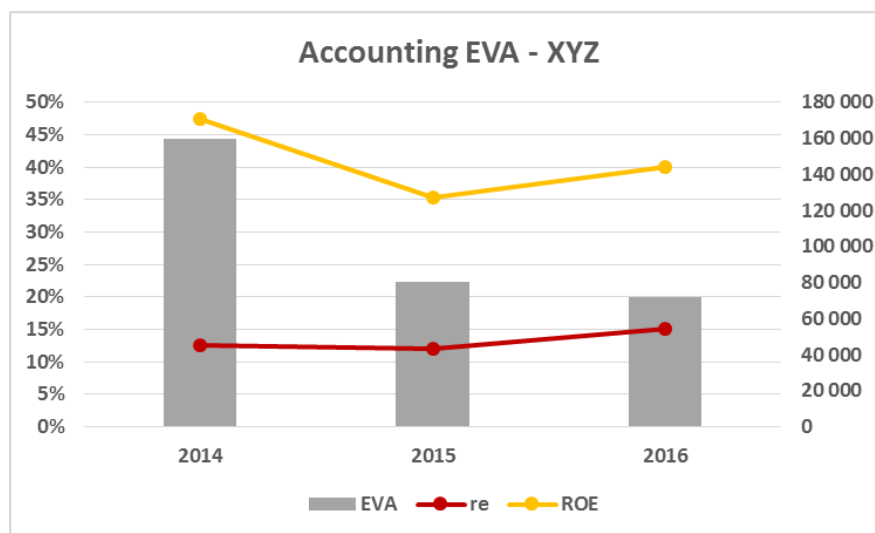
$$EVA = (ROE - r_e) * E, \quad [41]$$

The calculations of accounting model of EVA for the company XYZ are presented in the table below. The r_e values are taken from table 19 and ROE values are presented in table 1. Additionally, the values for equity, as part of the total capital structure, can be found in table 21.

Table 24: Accounting model EVA - XYZ

	2014	2015	2016
re	12.50%	11.97%	15.03%
ROE	34.86%	23.35%	24.92%
Spread	22.36%	11.38%	9.89%
Equity	713 454	707 930	729 726
EVA	159 528	80 562	72 170

Source: Own processing



Graph 22: Accounting model EVA - XYZ

Source: Own processing

As in graph 23, during the whole period the company's EVA (based on the accounting model as well as the economic model) has positive values. Unfortunately, they are showing downwards trend. Looking at graph 23, an interesting trend is found. In 2014, EVA based on economic model was higher than EVA based on accounting model. In 2015, the spread in results was insignificant, only 3% and in 2016 it moved in opposite way, i.e. accounting EVA was higher than economic EVA. To be more precise, it was 38%. In another way, the decline of EVA based on the economic model was with higher speed than the accounting model of EVA.

In addition, company's performance based on the accounting model of EVA, are inversely proportional to the sector's performance. In other words, the company is going on wrong direction. While the sector is growing, and improve the results during the years, the XYZ company is destroying value.

Table 25: Accounting model EVA - Sector

	2014	2015	2016
re	12.94%	12.47%	12.47%
ROE	16.94%	28.33%	28.33%
Spread	4.00%	15.86%	15.86%
Equity	115 025 743	119 671 328	119 671 328
EVA	4 597 618	18 976 829	18 976 829

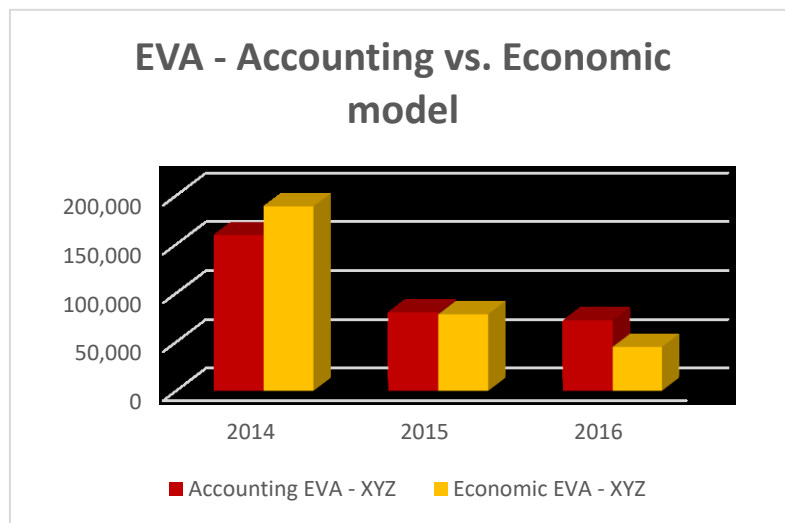
Source: Own processing

Table 26: EVA – accounting vs. economic model

(in thousand CZK)	2014	2015	2016
Accounting EVA - XYZ	159 528	80 562	72 170
Accounting EVA - Sector	4 597 618	18 976 829	18 976 829
Economic EVA – XYZ	188 921.8	78 440.7	44 944.79

Source: Own processing

Not only the downward trend, the company's EVA performance are far below (in 2014 approximately 4% and in 2015 and 2016 less than 1%) the sector's results. In other words, the company is creating much lower value for its shareholders than its competitors. Looking at the economic model of EVA, the results are even lower. Unfortunately, the economic model of EVA cannot be compare with the accounting EVA of sector since the calculation approaches are not equal. However, if there will be no changes in the following period, the company may face with even worst results and even more, distress and possible bankruptcy.



Graph 23: EVA – accounting vs. economic model

Source: Own processing

6.12 IDENTIFICATION OF VALUE GENERATORS

To identify the generators that are creating company's EVA, a pyramid decomposition will be used. Based on the principle of gradual unfolding, every single part of the company can be analyzed, and specific indicators will be identified. Moreover, the linkage between sub-indicators will be determined, as well as their impact on main indicators.

In addition, a pyramid decomposition of the economic model of EVA for XZY company will be presented for the period 2014-2016. Total pyramid decomposition is shown in Appendix 6.

Decomposition begins with the total amount of EVA, where the annual change is analyzed, i.e. the difference between the values from 2014 to 2015 and from 2015 to 2016. It is more than clear that the company is creating value for its shareholders. However, it is decreasing over the years. Thus, in following, the factors that are causing a decline of CZK 146 157 thousand will be detected. Based on the formula for calculating EVA, the main factors for creating values are the spread (RONA – WACC) and the invested capital or NOA. The value of spread has a negative impact (destroy value) in total. From 2014 to 2015 it decreased by 10.19% and fall for additional 4.8% in 2016. On the other side, the invested capital fell in 2015, causing a negative impact, but in 2016 it slightly increased, mitigating the increased fall of the spread in the same period.

EVA			=	EVA		
191,552	85,021	-106,531		year 2014	year 2015	EVA increment
85,021	45,396	-39,626	year 2015	year 2016	EVA increment	

RONA - WACC			*	NOA		
20.30%	10.11%	-		943,608	840,964	-
10.11%	5.31%	-	840,964	854,913	+	

As already mentioned, the spread is determined of RONA and WACC. RONA and WACC are opposite related. In other words, as greater RONA is and as lower WACC is, more value will be generated. As presented above, RONA is decreasing over the years. Contrary, WACC is increasing in the same period. Although opposite, both generators had same impact on EVA, destroying value and causing a deeper adverse effect.

Core elements that are affecting RONA are: profit margin (NOPAT/Sales) and the turnover of invested capital (Sales/Invested Capital). The profit margin dramatically falls, from 19% in 2014 to 11% in 2015, and the trend continued in 2016, moderately going down to 9.3%. On the other side, the turnover of invested capital increased during the years, causing a positive impact on value creation. However, the decline of profit margin is much significant that the growth of assets turnover. Therefore, the final effect is decreasing of RONA.

RONA			*	Sales/Invest. Capital		
31.35%	23.54%	-		1.65	2.14	+
23.54%	21.69%	-	2.14	2.33	+	

NOPAT/Sales		
19%	11%	-
11%	9,3%	-

The reduction of profit margin is due to declining added value as well as a reduction of other costs and revenues. Although the added value goes down, the trend is only slight. The highest fall is detected in the category of other costs and revenues, with a dramatic decline of 7.4% in 2015 and continued to fall for additional 0.8% in 2016. Unfortunately, it is not clear what the category of "others" contain. Anyway, it is definitely true that the spread between revenues and cost in this category is negative. On the other side, personal costs and depreciation are decreasing and positively impacting EVA i.e. creating value. If lower depreciation is a result of a decline in investment, the future development and competitiveness of the company can be endangered. Fortunately, it is not the case on XYZ company. On the contrary, they current focus is the development itself.

NOPAT/Sales											
19%	11%	-									
11%	9,3%	-									

Value added/Sales			Personal Costs/Sales			Depreciation/Sales			Other Costs and Revenues/Sales					
29%	27,9%	-	-	15,7%	15,5%	+	-	3,7%	3,4%	+	+	9,4%	2%	-
27,9%	26,8%	-		15,5%	15,4%	+		3,4%	3,3%	+		2%	1,2%	-

Invested capital has different effects on EVA during the years. In the period between 2014-2015, the invested capital decreased by 11%, causing EVA to increase. In the next period between 2015-2016, the invested capital increased by 1.6%, affecting EVA negatively. However, in this period, the negative impact of the invested capital was lower than the positive impact of increased sales, so the final effect regarding the turnover of invested capital was positive.

Invest. Capital											
943,608	840,964	+									
840,964	854,913	-									

Net Working Capital			Long-term Capital			Other Assets				
327,355	-123,599	-	+	547,817	905,019	-	+	70,436	59,544	+
-123,599	-163,614	-		905,019	956,006	-		59,544	62,529	-

Except in 2014, the net working capital is negative. In other words, the company has a problem with liquidity. Even more, the issue is becoming much severe every year. In other words, not only that the company had negative net working capital in 2015, but it becomes even deeper in 2016, increasing by 32%. Additionally, the amount of long-term assets increased negatively impacting value creation. The only one category that had a positive impact in the period 2014-2015 was "other assets" i.e. accruals. What is remarkable, it is the only category with positive impact in the previously mentioned period. However, the final result was a positive effect on the invested capital i.e. decreasing its amount. Unfortunately, in the next period, the amount of accruals increased and had to be also marked as a generator which destroys value.

The long-term capital is mostly affected by the tangible fixed assets. During the years, their amount is increasing and affect EVA negatively. Moreover, their trend is followed by the intangible assets which additionally affect value to be destroyed. In the analyzed period, the company did not have financial assets.

Long-term Capital		
547,817	905,019	-
905,019	956,006	-

Tangibles			+	Intangibles			+	Financial		
538,307	894,110	-		7,510	10,909	-		0	0	
894,110	944,552	-		10,909	11,454	-		0	0	

The items that create net working capital are fluctuating in general. In 2014-2015, the decrease in inventories by 4% and the almost twofold increase of short-term liabilities had positive effect. On the other side, the growth of receivables by 7% and twice higher short-term financial assets negatively affected EVA. Fortunately, the final effect on net working capital in this period was positive. On the other side, during the period between 2015-2016, the negative trend on receivables and short-term financial assets were followed by inventories. Only, the short-term liabilities continued to increase. However, their impact was not significant enough, and the final effect on the new working capital was negative.

Net Working Capital		
327,355	-123,599	+
-123,599	-163,614	-

Inventories			+	Receivables			+	Financial Assets			-	Short-term Liabilities		
419,741	403,635	+		432,060	465,542	-		15,375	30,974	-		539,821	1,023,750	+
403,635	423,817	-		465,542	487,769	-		30,974	32,523	-		1,023,750	1,107,723	+

Another factor, which positively affects the growth of EVA are sales. During the years they show an upward trend, growing by 16% in 2015 and 10.6% in 2016. The upward trend of sales in 2015, was followed by 11% decrease in invested capital which together created 0.49 points improvement on capital turnover. In the period between 2015-2016, the invested capital increased by 1.6%. However, its impact is irrelevant compared to the 10.6% increase in sales, and the final impact on capital turnover was an improvement of 0.19 points.

Sales/Invest. Capital		
1.65	2.14	+
2.14	2.33	+

Sales		
1,551,909	1,798,497	+
1,798,497	1,990,042	+

/

Invest. Capital		
943,608	840,964	+
840,964	854,913	-

Going back to the formula: $EVA = (RONA - WACC) * C$. After looking at factors that are determining RONA, the next focus will be on WACC. To calculate the cost of equity, CAPM model was used. The basis of the CAPM is the risk-free rate, r_f , to which is attributed coefficient β multiplied by the risk premium. The risk-free rate did not have an impact, since an average rate was used for the calculation. The reason for applying an average rate was explained in the chapter 6.9.3. Also, the risk premium did not change over the years. Thus, the only factor that defines the cost of equity is β (beta) coefficient. During the years, its value was increasing. Between the years 2014-2015 its value grew by 0.34 points, and in the next period β (beta) jumped to 2.03 points. Since the only factor that affects cost of equity has negative impact, the final effect on the cost of equities was negative. On one side the percentage of equities in the total capital structure had an upward trend, which made the adverse effect deeper.

The second part of WACC is debt and its costs. During the analyzed period, the cost of debt increased, causing a fall in value creation. On the other side, the percentage of debt in the total capital structure had opposite effect. It continuously fell, and at the same time was adding value to EVA. The overall effect on WACC was negative, since 3 out of four sub-generators had negative effect. In the period between 2014-2015, WACC increased by 2.4% and in the next period, it grew for additional 2.95%.

WACC		
11.05	13.43	-
13.43	16.38	-

Equity/Capital			*	Cost of Equity			+	Debt/Capital			*	Cost of Debt		
0.62	0.83	-		11.60	13.98	-		0.38	0.17	+		10.15	10.75	-
0.83	0.85	-		13.98	16.88	-		0.17	0.15	+		10.75	13.62	-

Risk free rate			+	$\beta * Risk\ Premium$		
2.53	2.53	x		9.050	11.453	-
2.53	2.53	x		11.453	14.352	-

Koefficient β			*	Risk Premium		
1.28	1.62	-		7.07	7.07	x
1.62	2.03	-		7.07	7.07	x

To sum up, the XYZ company, in the period 2014-2016 creates value for its shareholders. However, in the recent years, there is a significant decrease of EVA. This is mainly due to the reduction in profit margin (mostly affected by a drop in the value added and the negative relation between other revenues and costs), as well as fluctuations of NOA and the negative effect of WACC.

6.13 SENSITIVITY ANALYSIS

The aim of this analysis is to determine the sensitivity of the economic value added to changes in all factors that affect it, and which have already been identified in previous pyramid decomposition. Also, the focus will be on the generators of EVA for XYZ company in 2016, assuming that the value of each factor has changed by 10%. The goal is to determine the level of sensitivity (fluctuation) of each factor by constant change in percentage. In Appendix 7 are presented the results of sensitivity analysis.

On one side, EVA value is most sensitive to changes in the ratio of value added to sales (change in EVA + CZK 87 160 thousand). Other generators that positively affect EVA are sales (+ CZK 8 171 thousand) and RONA (+ CZK 8 171 thousand).

On the other side, all other generators are showing adverse change. Generator on which EVA is significantly sensitive is personnel expenses to sales (EVA change of - CZK 86 252 thousand). The changes in inventories (- CZK 27 238 thousand) as well as the WACC (- CZK 26 330 thousand) are not insignificant and worth to mention. Moreover, generators that ask for additional attention are equity to total capital and depreciation to sales.

6.14 EVA AS PERFORMANCE MEASURE

Based on the financial analysis for XYZ company, EVA calculation, as well as benchmarking and pyramid decomposition of EVA with contemporary design sensitivity analysis, concrete possibilities of future EVA can be created.

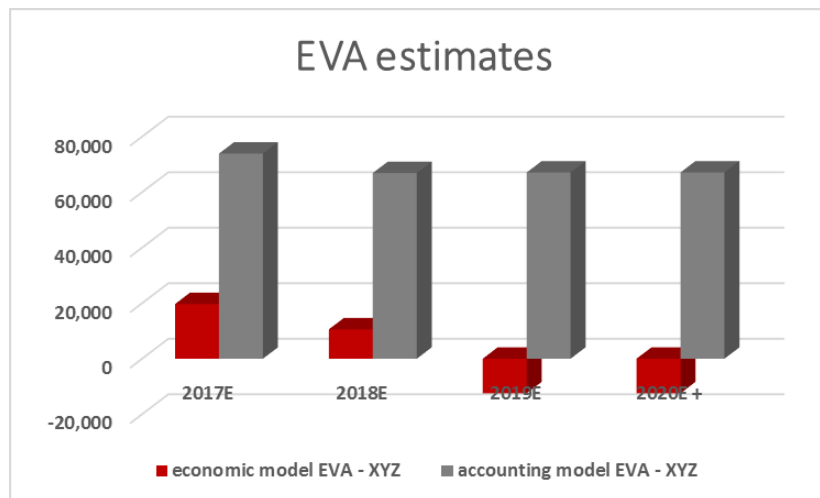
6.14.1 EVA as main measure for company's performance

XYZ company should use EVA concept as the main measure of their performance because it represents a shelter for evaluating all activities and decisions made, based on their contribution to value creation.

Due to simplicity in calculation XYZ company is using the accounting model of EVA, where $EVA = (ROE - (PRIBOR\ 12M + 10\%)) * Equity$. This model is also used by the Ministry of Industry and Trade of Czech Republic. From one side, it is positive that the company is using the same method as the Ministry of Industry and Trade does, because they can compare their performance more accurately. On the other side, the problem with this model is that it is based on unadjusted accounting data and therefore the results can be misleading.

If results for company's EVA based on the accounting model and the economic model are compared, significant differences can be found. Based on the accounting model, EVA is decreasing with lower dynamic than EVA based on economic model. While in 2014, accounting EVA was lower than economic EVA, in 2015 the both measures showed similar results. In 2016 the proportion was opposite; i.e. accounting EVA was higher than economic EVA. Thus, managers cannot be confident about the future of the company and continue using the already established strategy. Regardless used method, the conclusion is same. The company is destroying value each year. However, by relying on the accounting model, a real picture about the amount of decreased value cannot be observed. It should be an alarm for managers that the current strategy is not working as they expected and corrective actions are required.

In following, will be presented the expectations about future EVAs using the current trends. The aim is to acknowledge the diversity of economic and financial results of EVA, assuming continuity of the same pattern development generators in future periods. The results are presented in the graph below.



Graph 24: EVA estimates

Source: Own processing

Estimations about the development of EVA based on the accounting model for the XYZ company as well as for the sector and, also the estimates for the development of EVA based on the economic model for the XYZ company are presented in Appendix 8.

From graph 24 can be concluded, in the future period, based on the accounting model, EVA will insignificantly decrease. Based on this model, a positive recommendation about XYZ company should be issued as an excellent opportunity for future investments. Unfortunately, it will be a wrong decision.

Looking at the economic model of EVA, in the future period, it will continue to drop. In each year, the decline will be greater than before, and the spread between accounting and economic model of EVA will be higher. Just after two years, in 2019, it is expected EVA to be negative. This, a positive recommendation about XYZ cannot be issued, since it is not good opportunity for future investment and is an example of company that destroys value to its shareholders.

Comparing these two models, we can find the importance of adjustment for calculating EVA. It is true that adjusting is a laborious and time-consuming process and detecting all areas in the company that requires changes may be quite hard. As better adjustments are, more accurate will be the EVA result. However, even making just the basic adjustments, EVA will be more closely to the economic reality. In addition, should be noted that the purpose of changes is not only useful to have a more accurate calculation of EVA but also to correct the management processes in the company.

6.14.2 EVA pyramid decomposition for identifying value generators

A detailed breakdown of EVA components and linkage between sub-factors that affects the leading indicators were presented in chapter 6.12. Moreover, in chapter 6.13 was also presented the sensitivity analysis, showing the dynamic of sensitivity of each generator on corresponding change.

For assessment company's performance, it is also necessary to compare planned and real progress over time as well as to compare with its competitors working in the same sector. It is preferable to be used benchmarking method since its aim is to be a base for how the things should be done. Benchmarking will help XYZ company to understand their position on the market and detect their strengths and weaknesses. The benchmark analyses was presented in chapter 6.11.

To determine whether the XYZ company is achieving growth in the value of EVA, a start point is the formula for EVA. To identify value generators, a modified formula of EVA should be used, where $EVA = (RONA - WACC) * C$. From the formula, to increase value created the spread (RONA-WACC) should be maximized. In other words, the return on net assets should be as high as possible, and the weighted average cost of capital should be as low as possible. Unfortunately, the XYZ company is showing the contrary. RONA is decreasing with a moderate trend, and at the same time, the WACC is increasing. From the both sides (generators), the spread is affected negatively and thus, EVA is decreasing.

6.14.3 RONA (return on net assets)

RONA or return on net assets is a ration of NOPAT and NOA(Capital). Its value will increase if NOPAT grows faster than NOA. Also, significant factors will be presented that affects company's RONA.

6.14.3.1 Profit margin

A significant factor affecting the amount of RONA is the profit margin or NOPAT/Sales. In other words, it presents the ability of the company to create profit from sales. This key generator is showing negative trend as it is shown in the pyramid decomposition. The decrease comes from the drop of value added/sales and other costs and revenues/sales. The decline in value added/sales is a result of increased costs of materials connected to the project of new capacities development. Additionally, changes in the basic standards regarding quality (as a result of new trends in the automotive industry, like new safety systems), required additional costs for the company and start of new projects for modification of production processes. Furthermore, Value added/sales shows the highest positive sensitivity. Thus, the company have to focus on increase the value of this ratio in the next period, because it will bring significant improvements regarding value creation. (approximately + CZK 230 000 thousand).

Reaching the desired level of sales depends on the realized production and costs of production. Therefore, sales can be increased by either increasing the product's price or the number of goods sold. However, working in a competitive environment the both possibilities are quite challenging and sensitive. If the company increase the price, it will lose some percentage of market share. On the other side, if the company decide to increase the number of produced goods, with the same level of capacity, they need to decrease the quality of the products. Currently, the company is working on increasing its capacity, so they will be able to increase the production without affecting the quality. Still, it is not expected that there will be a positive impact soon on value added/sales ratio, because the whole development project requires additional phases that will be going on in next years. Moreover, there is a high pressure on prices, which are influenced by strong competition from the East, i.e. low-cost countries like China.

Other costs and revenues/sales generator has the lowest negative impact. Focusing on correcting the negative spread between other revenues and costs can also positively affect EVA. On the other side, personal costs/sales ratio is the biggest value destroyer. Regarding this ratio, the XYZ company is on a right way, (going down through the years) and this trend is expected to continue with even faster dynamic. The decrease in personal costs is connected to the benefits the company possesses by employing people with disabilities. This project is quite new, and already is showing positive results. Therefore, the company is planning to increase the number of employees with working disabilities, will the level they can replace the other workers. Therefore, an even higher positive effect on personal costs/sales ratio is expected.

Gradual reduction of depreciation has a positive impact on EVA. However, it is expected in the following years, depreciation to increase since new tangible fixed assets will be added, and an additional amount of depreciation should be calculated. Also, depreciation/sales ratio is one of the most sensitive generators that destroy value. On the other hand, if the gain of investment is greater than the cost of capital, it will influence the value creation positively. Therefore, the final effect on depreciation/sales is a bit tricky.

6.14.3.2 Turnover of invested capital (Assets turnover)

Asset turnover reflects the ability of managers to use effectively overall (long-term and short-term) assets of the company. The more sales company is capable to produce and sell, the better. Thus, assets should be used rationally. In other words, assets turnover is related to efficient investment decisions and management of net working capital.

The turnover on invested capital (sales/capital) increased, because of increase in sales, although the capital was fluctuating (in the period 2014-2015 it had a positive effect and in period 2015-2016 the effect was negative). The adverse effect of invested capital was due to increase fixed assets as well as negative net working capital (NWC). NWC is the most critical point for the company i.e. the most significant bottleneck. All sub-factors are negatively affecting NWC.

First, inventory increased. But, increase in inventories is not critical since the days in inventories are on a low level (in 2016 it was only 2 days). Second, and most critical are receivables. An increase in receivables is negatively affecting EVA. In addition to this, the days in receivables is very high (around 3 months). This means that the company is managing well the collection on sold goods. In the end, it affected cash ratio to be much below than the benchmark. Nevertheless, the XYZ company is producing sufficient volume of sales, they are not efficient. In other words, the company is making costs of production, sell the manufactured goods, but is not collect cash very often, that can be used in the next production cycle. As a result, debt is increasing. Moreover, the new projects connected with additional capacities and development processes, increase the liabilities, further hampering the situation.

Although assets turnover had positive effect on EVA, the negative effect of profit margin was greater. In the period between 2014-2015 the fall of profit margin was about 43%, while the positive effect of assets turnover was only 30%. The same was in the next period (2015-2016), where the decrease of profit margin was 16% and the positive effect of assets turnover was just 8%.

6.14.4 WACC

The amount of economic value added is significantly affected by the cost of capital, owed by the company. The cost of capital is associated with the capital structure itself (the proportion of debt and equity) as well as the operations and risk of the business.

In 2015, there was a decrease in the capital, because some small nonprofitable lines were closed and the fixed assets were sold. Regardless Nevertheless, WACC continued to increase. It was mainly due to the growth in cost of equity caused by the rise in β coefficient. However, movements of these factors, like β coefficient, are determined by the market itself and the company cannot affect or control them. In 2016, the invested capital increased again because some parts of the new capacities were ready for usage. Consequently, the increase in equities, was followed by an increase in the cost of equity.

WACC is positively affected by the decline of debt portion in the total capital. On the other hand, while the debt portion is decreasing, the cost of debt is increasing. The increase of cost of debt especially in 2016, is due to liquidity problems the company has and the creditors wanted a high return for bearing high risk.

Overall, the WACC is increasing during the years proportionally, by approximately 20%. Still, the company can operate at a relatively acceptable cost of capital, which is positive regarding creating shareholder value. However, since the trend is upward and is not expected to be changed, it is an critical category that requires immediate actions.

6.14.5 NOA

Comparing the percentage of current assets to total assets, results are almost the same (45% for XYZ company, and 50% benchmark). However, the portion of inventories to total assets in the industry is 15%, while the company is showing higher portion, to be more precise 20%. Therefore, the company should consider a reduction in the share of inventories in current assets, which would result in an increase in creating shareholder value. Stock levels should be such as not to unnecessarily tie money in inventories (invested in purchased material, work in progress, excessive warehouses capacities, etc.), but on the other side be at the appropriate level, to be sufficient for production needs.

The proposed changes, including their impact on the individual indicators that influence EVA, are summarized in the table below.

Table 27: EVA improvement

	Original value (2016)	Change	New value
Value added/Sales	26.80%	10.00%	29.48%
Other Costs and Revenues/Sale	1.20%	10.00%	1.32%
Inventories	423,817	-10.00%	381,435

	Original value (2016)	New value	Difference
NOPAT/Sales	9.30%	12.10%	76.86%
Sales/Invest. Capital	2.33	2.50%	7.30%
RONA	21.69%	30.25%	39.46%
WACC	16.38%	15.57%	-5%
EVA	45,396	125,501	276%

Source: Own processing

Based on the information in the tables above, by 10% changes in critical sub-indicators, while maintaining the other generators in their original values, EVA increased by 276% or from CZK 45 396 thousand to CZK 125 501 thousand.

From all elements mentioned in table 30, the most important is the effect of WACC. The long-term strategy of XYZ strategy is to increase the level of equity in the capital structure. Currently, equities represent 80% of total capital structure. Based on the theory it is recommended to have balance between the cost and equities. In ideal case, each part should represent 50%. The XYZ company has unreasonably high portion of equities. There could not be found a reasonable explanation, why the company is relying on the more expensive equities. If the company will be able to change the capital structure in a way: 60% equities and 40% debt, the WACC will fall for 5%, assuming cost of equities and cost of debt will not change. The positive effect on WACC, followed by increase in RONA for almost 40% will result in almost 3 times higher EVA.

6.15 OTHER FUNCIONAL ADVANTAGES OF EVA IN CORPORATE PERFORMANCE MANAGEMENT

The concept of EVA should also be used for other purposes, which would also contribute to increasing the performance of a company.

6.15.1 Using EVA for corporate valuation

Using EVA as corporate valuation method, as one of the income approach methods, based on anticipated revenues is above all other methods because it affects the main factors creating business value.

To determine the company's value, a two-phase model is used. In the first phase is determined the present value of the company for a definite period of time. In the second phase is calculated the value of a company assuming going- on concept. It is clear that, if the XYZ company desire to increase the company's value, they have to achieve a higher amount of EVA in current years and create growth opportunities.

6.15.2 EVA as remuneration base

XYZ company can use EVA as a motivational tool and tied manager's remunerations to EVA results. In other words, the goals of shareholders and managers should go in the same direction, which requires changes, especially in management approach and way of thinking. The company would have to determine the exact terms of the particular evaluation work not only for managers but also for all other lower level employees. By motivate workers to such performances, will result in an increase in EVA.

More details about implementing EVA concept is not under the scope of this thesis. However, it can serve as motivation for starting a new project.

7 RISK AND COST ANALYSIS

Despite the fact of careful analysis of important trends as well as generators that create EVA, and detected correlation between the same, there is still a risk of default of prediction. Even if a small economical factor will change its development, the effect may be significant as presented in the sensitivity analysis in chapter 6.13. Moreover, the future development of any business relates to many other parts of people life as culture, politics and social ones. As a result of globalization, the interconnection moved outside the country borders and unexpected changes in one country (like America or EU) can influence the overall situation in other country.

On the other side EVA calculation requires many adjustments. Missing a small information, that management did not wanted to provide or simply dismissed it, can affect the result and end with an inaccurate recommendation for investment.

7.1 RISKS ASSOCIATED WITH GLOBAL TRENDS

7.1.1 Risk associated with digitalization

The IT is more present in automotive industry. Firstly, it affected the equipment of cars, making them move automatic. Secondly, it starts to take place in the manufacturing process of cars. “Smart systems” require advance elements (part). Unfortunately, the company is focusing on traditional way of producing vehicle parts. While the implementation of “smart systems” is moving forward rapidly, the XYZ is not able to modify its production process with the same speed and respond on the new customer’s preferences. Because of that, the company may face with a distress. Although the technology is moving fast, the changes in regulations are slow. Such time lag, can be beneficial for the company and give room for improvement and partially or totally answer on changes.

7.1.2 Risk associated with environment regulation

On one side XYZ company uses chemical in its production processes that increase the pollution. On the other side, the regulations regarding pollution are more and more strict. Even now, the company is facing with problems connected to pollution reduction. To be in line with regulations, the company should change its production processes. Such changes can be, corrections in production processes, or replacing the polluting chemicals with alternative less polluting once. This will cause additional costs for the company and risk of default i.e. not been successful to fulfill legal requirements on time.

7.1.3 Risk associated with cost reduction

Thanks to globalization and open markets, car manufacturers are pressured to reduce the production costs and increase production efficiency. Therefore, large car producers will lessen the number of suppliers and will continue to cooperate only with those who can supply parts on a global level and add value to the innovation of their products. Further focus on suppliers that car manufacturers will be looking on is production effectiveness and components' prices. Thus, the high portion of production is moving from expensive Europe to much cheaper Asia (China). In meantime, XYZ company is focusing and investing in new capacities. Moreover, till the time it will be ready to answer on higher demand and increase its market share, the competition is growing and will answer the increased demand faster. In the end, the added capacities will be not needed. Also, it is high probable that car manufacturers, like Škoda, will cooperate with suppliers in Asia, since they are cheaper and fast. It can endanger the existence of many producers of car components in the Czech Republic like the XYZ company.

7.2 PROBLEMS ASSOCIATED WITH EVA ADJUSTMENTS

7.2.1 Political factor

XYZ company is part of a global company. Thus, it is sensitive on political changes. Regarding the political risk, the hottest topics are Donald Trump's first 100 days in office, next steps of UK to formally trigger the exit of EU and upcoming elections in Netherlands, France and Germany. The termination of these uncertainties will affect the exchange rates and in the end, will have an implication in the financial result of each company. Moreover, European Central Bank officials are discussing to risk interest rates, even before the end of their quantitative easing program. (Ahlstorm, 2017)

In addition, the Czech National Bank, is supporting the export by weakening the "Czech koruna". However, the support is already too long present and it expensive for the country. If the support will be halted, it will negatively affect the export and especially the automotive industry.

In the end, the financial results will be negatively affected. The sells will be more expensive and exporters will lose their competitive power. Bearing in mind the fact of continuous cost reduction trend, if this risk accomplishes, it will make Czech suppliers less competitive and they will lose their market share. Moreover, the current calculation of EVA and the value of the XYZ company will not be applicable anymore, since the company will not be able to sell their product by the current prices.

7.2.2 Problem associated with cost of equities

Calculating the cost of equity is one of the biggest challenges. Based on the long-term company strategy, the percentage of equities in the capital structure will increase. Thus, calculating cost of equity correctly is from great importance.

What makes the calculation of cost of equity challenging first of all, are the risk-free rates. In last years, Europe is facing with very low (close to zero) and even negative returns on so called “risk-free” investments i.e. 10Y government bonds. If such rates are used, they will not be able to reflect the real cost of equity (it will be negative and has non -sense).

Based on the theory of Damodaran (2014), one of the solutions is to be used the average risk-free rate from the last 10 years. In this case, the cost of equity will be closer to the reality, but still is not absolutely correct. When the risk – free rate is adjusted, also the risk premium should be adjusted in the same way. In the case of XYZ, the cost of equity was calculated based on this model.

Although such solution is accepted among economist, there is still possible risk of misleading calculation. The risk is especially highlighted in the case of XYZ company, since the portion of equity in the capital structure is high. If this risk materializes, the cost will be wrong recommendation about the company’s value. Moreover, the recommendation for future improvement will not be accurate anymore.

CONCLUSION

The importance of automotive industry for Czech Republic is doubtless. Furthermore, as developed country with tradition in this industry, can be convinced that, new trends will influence the industry and future position on the global market will depend on its readiness to respond on these movements. Some companies, like Škoda Auto, already took actions. As solution for decreasing pollution and reducing CO₂ emissions, alternative fuels are introduced. Alternative fuels are connected to another important trend – electronic cars, especially in the USA. It is still not clear which trend will dominate, since the usage of electronic cars requires further investment in infrastructure. On the other side, by using alternative fuels, current infrastructure (petrol stations) can continue be used with slight modifications.

Additionally, thanks to the advance control systems, self-driving cars will be introduced soon. In fact, already is Singapore self-driving Uber is available. Self-driving cars are based on advance deep-learning smart system. This system will turn on automatic control whenever it notices that driver is unable to control the vehicle, or react in danger situations. The benefits of deep-learning smart system are: less stressful driving, people will enjoy their time while travelling and be able to use it for relaxing, socialization or efficient working. The mass usage of self-driving cars will depend mostly of how fast regulations will be approved.

Industry 4.0 revolution, will reshape production processes. Thanks to digitalization, all smart devices will be interconnected and help suppliers and manufacturers to satisfy the needs of clients in real time without personal communication.

Globalization and open markets pressured manufacturers to reduce the production costs and increase production efficiency. Keeping competitive power and market position will be driven by the ability to manage costs. Since resources, especially human resources, are much cheaper in Asia, high portion of production is moved from Western Europe to China. It is expected, less than 5% of vehicle production to be done in Western Europe till 2030. Anyway, innovation will continue be developed by Western Europe players like Germany and USA.

In the end, the upcoming generation (Generation Z) is characterized by lower need for owning cars. This generation is more interested in transporting from one point to another. Thus, a new concept of “shared mobility” is developed. Such service will be mainly used by those who do not use cars every day or travel less then 10km per year. Additionally, it will be used by families who temporary need additional car. This service is already available in the Czech Republic, and the most popular providers are “Car4Way” and “Autonapůl”.

XYZ company operates on the territory of the Czech Republic and is part of the global XYZ company. It supports car manufacturers with mechanical, safety and structural components.

Based on Czech classification system (CZ-NACE) the XYZ company belongs to category C 29.3 – Producing parts for motor vehicles and their engines. Therefore, the performances of this sector were used as a benchmark. Looking at traditional performance measures, the company is performing well. The only critical category is liquidity. It is crucial to have good liquidity because if the company is liquid but not profitable it can continue operate in short-run. On the other side, if the company is profitable but not liquid, the probability that will face distress is higher.

EVA, the best measure for calculating company's value, showed a decreasing trend. The decrease was caused by all three elements of the formula. On one side, NOPAT was decreasing and in the same time NOA was increasing. On the other side, although increasing, WACC was still on quite acceptable level. However, compared to its competitors the company was showing average results. Moreover, on global level, many companies failed to cover their cost of capital. It can be concluded, last years were not difficult only for the company, but in general.

The accounting model of EVA was calculated, so the performances of XYZ company can be compared to the benchmark. The company's EVA, based on accounting model as well as the economic model, shows downward trend. However, the decrease based on the accounting model is not as dramatic as the one based on the economic model. While the company's EVA is decreasing, the sector's EVA is growing.

The most sensitive parameters are: value added/sales, sales and RONA, affecting company's EVA positively. On the other side, the most significant value destroyers are: personnel expenses/sales, inventories and WACC.

Summarizing all facts, a recommendation for managers was created. If managers will be able to improve the most sensitive categories by 10% and change the capital structure in a way: 60% equities and 40% debt, EVA will be 3 times better than it is now. If no actions will be taken in the next 3 years, XYZ company will not only decrease value but it will start to be value destroying company meaning that EVA will be negative. With such EVA results, it will not be surprise if XYZ company soon face with distress and possible bankruptcy.

All stated aims and objectives have been fulfilled. The first aim about theoretical background, was fulfilled by literature review focused on company performance, through available books, relevant articles. The second aim, review of trend in the automotive industry, was fulfilled by careful analysis of available articles published by relevant sources. The third aim, calculating the economic value added of XYZ company, was done by adjusting the financial results of the company in a way to be applicable for EVA calculation. The last aim, was fulfilled by detecting generators that affect EVA in positive and negative way and find a solution to improve the results. Also, as part of the last aim, was risk and cost analysis, which was fulfilled by submitting the project to possible risk and costs.

All in all, XYZ company can have bright future and present good opportunity for future investment, only if above recommendation will be undertaken in the next period.

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LIST OF ABBREVIATIONS

ABS – anti – lock braking system

BEVs – Batter electric vehicles

CAPM – Capital asset pricing model

CFROI – Cash flow returns on investment

CML – Capital market line

CNG – compressed natural gas

COV – Current operational value

DCF – Discounted cash flow

DIS – Disruptive

EBIT – Earning before interest and taxes

EBITD – Earnings before interest, taxes and depreciation

EBITDA – Earnings before interest, taxes, depreciation and amortization

ECV – electrochemical capacitance-voltage

ELV – end of life vehicle

EMS – electronic manufacturing services

EPS – Earnings per share

ESC – electronic stability control

ESP – electronic stability program

EVA – Economic value added

EVO – Evolutionary

FCEVs – Fuel cell electric vehicles

FCF – Free cash flow

GAAP – General accepted accounting principles

GHG – greenhouse gases

GPM – gross profit margin

GPU – Graphics processing unit

HEV – hybrid electric vehicle

ICEs – Internal combustion engines

ICT – Information and Communications Technology

IFRS – International financial reporting standards

IRR – Internal rate of return

LCV – light commercial vehicle

MIRR – Modified internal rate of return

MPO – Ministry of industry and trade

MPT – Modern portfolio theory

MVA – Market value added

NHTSA – National highway traffic safety administration

NOPAT – Net operating profit after tax

NPM – net profit margin

NPV – Net present value

OEMs – Original equipment manufacturers

OPM – operating profit margin

P/E – Price-earnings ration

P/S – Price-sales ratio

PV – Present value

r_e – cost of equity

REVO – Revolutionary

ROA – Return on assets

ROC – Return on capital

ROE – Return on equities

RONA – Return on net assets

WACC – Weighted average cost of capital

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Appendices 1: Balanced sheet

Balance sheet	2011	2012	2013	2014	2015	2016
Non-current assets						
Property, plant and equipment	444740	411039	421255	668879	904733	949970
Intangible assets	6006	5241	5086	7629	10909	11454
Goodwill	33906	36938	39443	109128	87416	33906
Investment in subsidiaries	14531.5	14365	57439	67204	81317	85383
Total non-current assets	499183.5	467583	523223	852840	1084375	1080713
Current assets						
Inventories	116232	189963	242137	419741	403635	423817
trade and other receivables	189242	208169	235543	432060	464542	487769
Cash and cash equivalents	9332	7104	17349	15375	30974	32523
Total current assets	314806	405236	495029	867176	899151	944109
Accruals	80615	71498	74102	70436	59544	62521
Total assets	894604.5	944317	1092354	1790452	2043070	2087343
Equity and Liabilities						
Share capital and reserves						
Share capital and reserves	2000	2000	2000	2000	2000	2000
Share premium	270013	270013	270013	270013	270013	270013
Legal reserves	6760	15275	27606	28476	46876	49220
Translation reserves	600	600	600			
Earning from period	9155	72091	104848	248703	165286	173550
Retained earnings	-22430	-13275	58816	164262	223755	234943
Total share capital and reserves	266098	346704	463883	713454	707930	729726
Non-current liabilities						
Bank loans	176915	123107	107326	81972	51786	54375
Deferred tax liabilities	89.5	94	97	108	120	126
Other non-current liabilities	0	0	0	162400	376053	394856
Total non-current liabilities	177004.5	123201	107423	244480	427959	449357
Current liabilities						
Trade and other payables	110455	108046	184756	530992	720153	769762
Tax liabilities	5388	2459	3763	2281	3147	3304
Bank current liabilities	288824	318429	235800	43094	61228	64289
Provisions	3282	7724	12825	18510	14327	15043
Deposits	26915	32288	57373	210533	99564	46661
Other current liabilities	15279	4078	20921	17939	1582	1661
Total current liabilities	450143	473024	515438	823349	900001	900721
Total liabilities	627147.5	596225	622861	1067829	1327960	1350078
Accruals	1359	1388	5610	9169	7180	7539
Total equity and liabilities	894604.5	944317	1092354	1790452	2043070	2087343

Source: XYZ company annual reports

Appendices 2: Income statement

	2011	2012	2013	2014	2015	2016
Revenue	935937	968062	1169064	1548633	1789885	1968874
Raw materials and consumables used	684562	675032	790785	1097438	1288590	1417449
Staff costs	181636	195611	216079	243873	278638	306502
Depreciation and amortization expense	47043	48568	49214	57223	60216	66238
Research and development expense	4400	4400	4400	4400	4400	4400
Other operating income/(expense) net	53262	53356	53548	64632	55989	61588
sale of fixed assets	7473	241	13511	515	143	157
Changes in translation reserves	27259	26108	40073	20339	39622	43584
Profit from operations	45626	80258	117350	198277	183065	200931.5
Income from revaluation of securities and derivatives	828	12399	2643	5443	5744	6318
Expenses of revaluation of securities and derivatives	13010	1978	25042	20014	0	0
Interest income	18	16	7	2449	2520	2772
Interest expense	23494	19568	15307	14549	24400	26840
Other financial income	43745	40938	28285	7712	24285	26714
Other financial expenses	55702	39980	57449	17024	16080	17688
Profit before tax	-1989	72085	50487	162294	175134	192207
Income tax	17933	2861	45576	84064	4779	5257
Profit after tax	15944	74946	96063	246358	170355	186950
Other comprehensive income						
Net value gain on cash flow hedges						
Changes in translation reserves						
Total comprehensive income for the year	15944	74946	96063	246358	170355	186950
Net profit attributable to						
Equity holders of the company	15944	74946	96063	246358	170355	186950
Total comprehensive income attributable to						
Equity holders of the company	15944	74946	96063	246358	170355	186950

Source: XYZ company annual reports

Appendices 3: Leasing 1

LEASING	time	price	2011	2012	2013	2014	2015	2016
Lis BEUTLER 500t	96	30042	4705	4827	4954	5287	5239	5187
Svařovací linka MOTOMAN	72	5455	1032	1058	1086	1158	1149	1135
Svařovací lis NIMAK II	60	2740	613	629	646	688	513	380
Montážní zařízení Motorträger	60	2816	627	635	649	692	573	458
Obráběcí centrum TRIMILL VC 2314	60	11162	632	2552	2620	2791	2771	2743
Optické měřicí zařízení ATOS II Triple Scan	60	2916		659	676	721	715	701
Osobní automobily	36	4936	1549	1821	2169	2635	2759	2787
IT technika	36	2246	233	799	1354	1650	2057	2468
Vysokozdvíhné vozíky	36	3969	16	652	1218	1852	1824	1733

Source: Own processing

Appendices 4: Leasing 2

LEASING	2017	PV of payment	2018	PV of payment	2019	PV of payment	2020	PV of payment	2021	PV of payment
Lis BEUTLER 500t	5083	3720	4881	2668	4882	1913	4784	1372,317107	4688	984,2313592
Svařovací linka MOTOMAN	1101	805	1088	572	1086	406	1004	288,1447104	974	204,5497868
Svařovací lis NIMAK II	349	256	321	172	296	116	272	78,01295888	250	52,52365156
Montážní zařízení Motorträger	385	282	323	173	272	106	228	65,46788888	192	40,2463483
Obráběcí centrum TRIMILL VC 2314	2688	1967	2635	1411	2582	1012	2530	725,8428524	2480	520,5774087
Optické měřicí zařízení ATOS II Triple Scan	680	497	659	353	640	251	620	177,9449371	602	126,3206522
Osobní automobily	2784	2037	2728	1461	2674	1048	2620	731,5941151	2568	539,0463281
IT technika	2493	1825	2508	1349	2543	997	2569	736,8305335	2569	539,2426815
Vysokozdvížečné vozíky	1663	1217	1597	855	1533	601	1472	422,1827332	1413	296,6113949
SUM		12607		9014		6460		4618		3903
Implied interest expenses		4619,379615		3303,000894		2363,453046		1692,238752		1210,403099

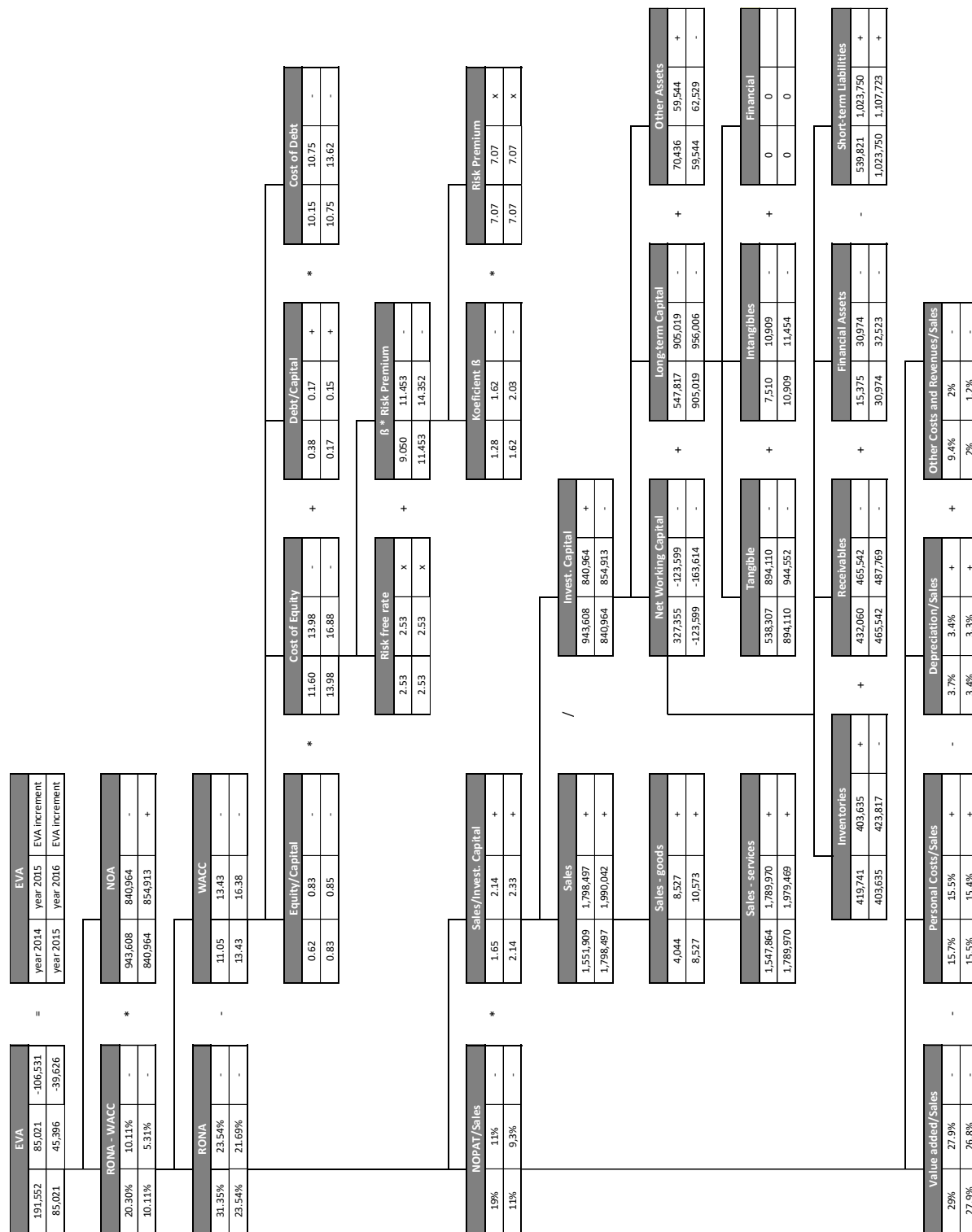
Source: Own processing

Appendices 5: Comparison of EVA results – XYZ vs. competitors

XYZ company	(in thousand CZK)	2014	2015	2016
	NOPAT	293190.4	191382.2	184979.6
	NOA	943608	840964	854913.35
	WACC	11.05%	13.43%	16.38%
	EVA	134921.72	78440.73	44944.79
	RONA	31.35%	22.76%	21.64%
	RONA-WACC	20.30%	9.33%	5.26%
A	(in thousand euro)	2014	2015	2016
	NOPAT	244930.9696	250809.3129	256828.7364
	NOA	962480.16	1010604.168	1040922.293
	WACC	12.71%	14.87%	17.84%
	EVA	122623.8033	100554.959	71114.35503
	RONA	25.45%	24.82%	24.67%
	RONA-WACC	12.74%	9.95%	6.83%
B	(in thousand euro)	2014	2015	2016
	NOPAT	215271.36	182980.656	137235.492
	NOA	962480.16	1029853.771	1091644.997
	WACC	11.16%	11.72%	13.48%
	EVA	107853.7617	62296.98436	-9877.90373
	RONA	22.37%	17.77%	12.57%
	RONA-WACC	11.21%	6.05%	-0.90%
C	(in thousand euro)	2014	2015	2016
	NOPAT	275068.96	302575.856	360065.2686
	NOA	1019096.64	1090433.405	1134050.741
	WACC	12.16%	13.61%	15.79%
	EVA	151197.7634	154128.614	180978.5159
	RONA	26.99%	27.75%	31.75%
	RONA-WACC	14.84%	14.13%	15.96%
D	(in thousand euro)	2014	2015	2016
	NOPAT	287028.48	312861.0432	359790.1997
	NOA	1037968.8	1110626.616	1221689.278
	WACC	10.39%	10.59%	9.43%
	EVA	179214.6607	195193.0409	244593.2254
	RONA	27.65%	28.17%	29.45%
	RONA-WACC	17.27%	17.58%	20.02%

Source: Own processing

Appendices 6: Pyramid decomposition



Source: Own processing

Appendices 7: Sensitivity analysis

Generator	2016	Percentage change(10%)	EVA before change	EVA after change	Difference
Tangible assets	944552	1039007	45396	27238	-18158
Intangible assets	11454	12599	45396	34047	-11349
Inventories	423817	466199	45396	18158	-27238
Receivables	487769	536546	45396	27692	-17704
Short-term financial assets	32523	35775	45396	33139	-12257
Short-term liabilities	1107723	1218495	45396	38133	-7263
Sales	1990042	2189046	45396	53567	8171
Value added/Sales	26.80%	29.48%	45396	132556	87160
Personnel costs/sales	15.40%	16.94%	45396	-40856	-86252
Depreciation/Sales	3.30%	3.63%	45396	23152	-22244
Other costs and revenues/sales	1.20%	1.32%	45396	42672	-2724
Risk-free rate	2.53%	2.78%	45396	30869	-14527
Cost of equity	16.88%	18.57%	45396	22698	-22698
Cost of debt	13.62%	14.98%	45396	30869	-14527
Beta coefficient	2.03	2.23	45396	26330	-19066
Risk premium	7.07%	7.78%	45396	26330	-19066
WACC	16.38%	18.02%	45396	19066	-26330
Equity/Capital	0.85	0.94	45396	22698	-22698
Capital	854913	940404	45396	38133	-7263
RONA	21.69%	23.86%	45396	53567	8171

Source: Own processing

Appendices 8: EVA estimates

Economic model EVA - XYZ							
In thousand CZK	2014	2015	2016	2017E	2018E	2019E	2020E +
NOPAT	293,190.44	191,382.20	184,979.60	177,580.42	170,477.20	163,658.11	163,658.11
NOA	943 608	840,964	854,913.35	1,025,896.02	1,128,485.62	1,297,758.47	1,297,758.47
WACC	11.05%	13.43%	16.38%	17.53%	18.93%	20.82%	20.82%
EVA	188 921.8	78 440.7	44 944.79	19,694	10,604	-12,439	-12,439

Accounting model EVA - XYZ							
In thousand CZK	2014	2015	2016	2017E	2018E	2019E	2020E +
re	12.50%	11.97%	15.03%	16.53%	18.79%	19.54%	19.54%
ROE	34.86%	23.35%	24.92%	26.42%	27.47%	28.02%	28.02%
Spread	22.36%	11.38%	9.89%	9.88%	8.68%	8.48%	8.48%
Equity	713,454	707,930	729,726	747,969	770,408	791,209	791,209
EVA	159,528	80 562	72,170	73,916	66,905	67,112	67,112

Accounting model EVA - Sector							
In thousand CZK	2014	2015	2016	2017E	2018E	2019E	2020E +
re	12.94%	12.47%	12.47%	12.32%	11.96%	11.72%	11.72%
ROE	16.94%	28.33%	28.33%	30.31%	33.04%	35.68%	35.68%
Spread	4.00%	15.86%	15.86%	17.99%	21.08%	23.96%	23.96%
Equity	115,025,743	119,671,328	119,671,328	124,458,181	134,613,968	139,998,527	139,998,527
EVA	4,597,618	18,976,829	18,976,829	22,393,885	28,378,346	33,550,061	33,550,061

EVA estimates							
In thousand CZK	2014	2015	2016	2017E	2018E	2019E	2020E +
economic model EVA - XYZ	188,922	78,441	44,945	19,694	10,604	-12,439	-12,439
accounting model EVA - XYZ	159,528	80,562	72,170	73,916	66,905	67,112	67,112
accounting model EVA - sector	4,597,618	18,976,829	18,976,829	22,393,885	28,378,346	33,550,061	33,550,061

Source: Own processing