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Finanční analýza společnosti Beiersdorf

Financial Analysis of Beiersdorf Company

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4. Financial Analysis of Beiersdorf Company
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The declaration

"Herewith I declare that I elaborated the entire thesis, including all annexes independently."

Ostrava dated 29. 03. 2018

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Contents:

1 Introduction

With the development of economic globalization, the trade between different countries in all over the world is also gradually increasing. Therefore, it also promotes the internationalization of financial markets. The economic trade among countries has brought great economic benefits to all countries and brought great challenges at the same time. Therefore, how to maximum the profits of the company is an important issue nowadays. At this situation, we will have to use financial analysis to help us.

Financial analysis is a process of selecting, evaluating and interpreting financial data. It is to analyze the future prospects of some financial instruments or financial products through some financial methods, such as common-size analysis, financial ratio analysis, and DuPont analysis. To predict their future value in order to achieve the appreciation of the securities. It is necessary for the real or potential shareholders of a company, even some investors. For a real shareholder, he will pay much attention to the value of his shares in the future, so it is very important for him to do some analysis. On the other hand, for potential shareholeders, they usually concentrate more on the tendency of the company. And for investors, they usualy concentrate on the company's situation of profitability. So financial analysis is necessary for all of them.

The goal of this thesis is mainly to analyze the financial situation of Beiersdorf company from 2013 to 2017 by using common-size analysis and financial ratio analysis.

This thesis consists of five chapters. The first chapter is about an introduction of financial analysis.

In chapter 2, there are some details of description about the source of information for financial analysis and two major financial analysis methodologies. The source containsbalance sheet, income statement, and cash flow statement. The two methods includes common-size analysis and financial ratio analysis. Common-size analysis consists of horizontal common-size analysis and vertical common-size analysis. Financial ratio analysis consists of five major kinds of ratios, including profitability ratios, liquidity ratios, solvency ratios, activity ratios and DuPont analysis.

In chapter 3, you can get basic financial characteristics about Beiersdorf, including its history, main strategy, famous brands, competition situation and so on.

In chapter 4, methodologies mentioned in the previous chapters will combined with the real data of Beiersdorf. The data that in this chapter are obtained from the company's annual reports from during 2013 to 2017, which consists of three kinds of financial statement: balance sheet, income statement and cash flow statement. At the end of this thesis, a conclusion of the current condition of Beiersdorf will be stated. And there are also some recommendations to the company's operations.

2 Description of the financial analysis methodology

In this chapter, we will focus mainly on the two financial analysis methodologies. Then learning the different calculations of different methodologies. But before analysising these methodologies, we will introduce the information source of the financial analysis. Therefore, firstly, we will describe the sources through three kinds of statements: balance sheet, income statement, and cash flow statement.

Secondly, we will contribute to the main analysis methodologies. Common-sice analysis can be divided into two parts. First is horizontal common-size analysis. Second is vertical common-size analysis.We will know the evolution situation of the assets by using this methodologies. And next methodology is financial ratio analysis. It includs profitbility ratios, liquidity ratios, solvency ratios, activity ratios and DoPont analysis, financial ratio analysis focus more on the ratios of data rather than the evolution of the data.

2.1 Source of information for financial analysis

Financial analysis is the process of analysising financial data and then give a conclusion of the development situation. Such as the state of operation is very important to a company. So the company will get the results of their profit/loss through financial analysis. So the company will provide some information for their financial analysis.

The source of information for analysis is almost about the annual report of the company. The main form of annual report is financial statements. Therefore in this chapter, we will describe the three kinds of financial statements in details. In order to get enough information, we will describe the structure of these financial statements.

2.1.1   Balance sheet

Balance sheet is the table that summarize the assets and the liabilities of the company. It shows assets in the left-hand side. And liabilities and equity in the right-hand side. It compares the differences between the total assets and total liabilities of the company. Then give the value of the assets at a given point of time. The most important

in balance sheet is that total assets must be equal to the sum of total liabilities and equity. The basic formula and the structure of balance sheet are shown below.

The basic formula is:

$$Total\ assets = Total\ equity + Total\ liability. \qquad (2.1)$$

Tab. 2.1: Balance sheet structure

Balance Sheet Structure	
Assets	**Equity**
Long-term Assets	Capital contributed by owners (par value)
Tangible assets	Share premium (paid in capital)
Intangible assets	Retained earning
Financial investments	**Liabilities**
Current Assets	**Current Liabilities**
Cash and cash equivalents	Account payable
Accounts receivable	Current borrowings
Inventories	Other short liabilities
Other current assets	**Long-term liabilities**
	Long-term bank loans
	Bond issued

Source: Financial Management

Assets are the resources of the company that are generated by purchase (investing activities), business activities or financing activities. They are generated during last trade. And it can bring some benefits to the company. In general, according to the period of time, assets can be divided into long-term assets and current assets.

Long-term assets are the assets that more than 1 year. They are also named fixed assets or non-current assets. The long-term assets are the least liquid assets and with long life. It can't be converted into cash in less than 1 year. Long-term assets usually include tangible assets, intangible assets and long-term financial investments. But on the contrary, current assets can be converted into cash less than one year with no costs. They usually refer to some cash and cash equivalents, account receivable, inventories etc.

Equity represents the investments of shareholders to the company. It can be cash investments and non-cash investments. Most of time it is the contribution of the owners by buying shares. And it also includes share premium and retained earnings. These are the profit of the company.

Liabilities are the debt that must be paid back at some predetermined time. It represents the assets that provided by creditors. It provides some liquid capital for the

company when they needed. As the same with assets, it can be divided into current liabilities and long-term liabilities by paying back time. If the liabilities must be paid back in 1 year, then this is current liabilities. If the liabilities can be paid back over 1 year then it is long-term liabilities. Current liabilities have accounts payable, current borrowings and other short liabilities. Long-term liabilities are usually long-term bank loans and bonds issued by the company.

2.1.2   Income statement (P/L statement)

Income statement is also named profit/loss statement. So it's easy to know that this statement provides information of the profit and loss of the company. In the other word, this statement concentrates main on the revenues and costs of the company during a certain period, often a year. In income statement, net income equals revenue mines cost. The basic formula and the structure of income statement are shown below.

The basic formula is:

$$Net\ income = Revenue - Cost. \tag{2.2}$$

Tab. 2.2: Income statement structure

Income Statement
Operating revenues
Salaries and payroll costs
Other operating expenses
Depreciation
Operating expenses
Operating profit
Financial income
Financial expenses
Net realised and unrealised securities
Net realised and unrealised currency and derivatives
Net financial items
Profit before tax
Tax expense
Net profit

Source: Financial Management

From the structure of income statement, we can see the order of calculating net profit. We will calculate operating costs firstly to get operating profit(EBIT). Then we calculate the financial costs to get profit before tax(EBT). Next, we will calculate the tax costs and reduce this part from EBT to get net profit(EAT).

In this part, we will describe two main subtotals of calculating: Operating activity and financing activity. Operating activity is something about consumption of raw material, consumption of electricity, depreciations, selling of goods etc. After the operating activity, we will get operating revenue and generate operating costs. Then we can get operating profit(EBIT). Financial activity is something related to interest, dividends, coupons etc. It's the activity about investment activity and financial activity. After the financial activity, we can get profit before tax(EBT). If the company know tax rate, it will be clear that net income is the difference between EBT and tax costs.

Income statement is very important to a company. Because the company will know if their operating situation is good by net profit of the company.

2.1.3 Cash flow statement (CF statement)

Cash flow statement (CF statement)

Cash flow statement will react the main influence of the items in balance sheet. It provides the cash inflow and outflow of the items from balance sheet to the company. It gives the data of the cash situation to the company. Net cash flow equals to sum of inflow mines sum of outflow.

There is a wrong point of the relationship between income statement and cash flow statement. Someone thinks that income statement is cash flow. It's not true. Income statement just calculate the accrual basis. In other words, we just calculated revenues and costs if they are recorded. But in cash flow statement, we just calculate the real cash inflows and outflows of the company. The basic formula and the structure of cash flow statement are shown below.

The basic formula is:

$$Net\ cash\ flow = sum\ of\ inflow - sum\ of\ outflow, \qquad (2.3)$$

$$Cash\ at\ the\ end = cash\ at\ the\ beginning \pm net\ cash\ flow. \qquad (2.4)$$

Tab. 2.3: Cash flow statement structure

Cash Flow Statement
Operating activities:
Net income/loss
Net income/loss adjustment by non-cash components (i.e. depreciation, etc.)
Changes in current assets
Changes in current liabilities
Investment activities:
Change in long-term assets
purchase of tangible, intangible assets and financial investments (outflows)
sales of tangible, intangible assets and financial investments(inflows)
Financing activities:
Changes in capital stock (shares issuance, shares buy out)
Changes in long-term debt
bank loans amortization(outflows)
new bank loans received(inflows)
bonds issuance/amortization(inflows/outflows)
Dividends paid to shareholders(outflows)
Net change in cash and cash equivalent
Cash at the beginning of the year
Cash at the end of the year
Supplemental disclosure of cash flow information

Source: Financial Management

Cash flow statement shows us three kinds of activities of cash flow. They are operating activities, investment activities and financing activities.

Operating activities are daily activities of the company. Cash flow from operating activities includes cash inflows and outflows. Cash inflows are related to some activities about cash sales of goods, and the collection of accounts receivable, etc. Cash outflows refer to the cash payment of raw material and salary, taxes, Sometimes, there are accounts payable to be paid.

Investment activities are some activities about the investment to long-tern assets of the company. Therefore, the inflows and outflows of investment activities are the result of selling or purchasing long-term assets. These long-term assets include equipment, plant, factory building, etc.

Financing activities are some activities related to obtain and repay of capital. Such as the equity of the company and the long-term debt, etc. Cash inflows of financing activities are usually about the cash inflows from shares issuing, bonds issuing, and cash

from borrowing. Cash outflows of financing activities will happen when paying out dividends, repayment of bonds' face value, coupons, and paying out bank loans, etc.

2.2 Common-size analysis

In data analysis, if we want to analyze financial data of the company in the same period, it is obviously difficult for us to analyze the results accurately, because these data will be affected by many practical factors. For example, inflation, economic growth, and the company's own mergers and aquization. At the same time, if we know the economic development situation of each different period, we need to compare the company financial data of different periods. It is also difficult to analyze in depth. Therefore, there is a common-size analysis.

Common-size analysis is to fix one part of different data size or different time period, so only one variable is analyzed. In this situation, it will simplify the process of analysis. In common-size analysis, if you determine the size of the analysis data, it is the horizontal common-size analysis. In this case, we only need to analyze the development trend of a company at different periods. If the time period for the analysis is certain, it is the vertical common-size analysis. In this case, we only need to analyze the proportion of the benckmark during the same period which was given. For example, in the balance sheet, total assets are our benchmark. What we need to analyze is the proportion of assets in different time.

2.2.1   Horizontal common-size analysis

Horizontal common-size analysis is the analysis of the evolution of financial statement data duiring a certain period. It refers to the change of information of the company's financial position to a given period. It can help the company to know the relative changes or absolute changes of their financial data over time.

So there are two kind of calculation method:

$$Relative\ change = \frac{U_t - U_{t-1}}{U_{t-1}} \cdot 100\%, \tag{2.5}$$

$$Absolute\ change = U_t - U_{t-1}. \tag{2.6}$$

where the U_t is the amount of benchmark, U_{t-1} is the amount of early or historical period.

From the calculation formula we can know that we have to compare at least two different period of the financial data. The earlist period is our benchemark period. And the later period is compared with the benchemark.

2.2.2   Vertical common-size analysis

Vertical common-size analysis is the analysis of the changes in the proportion of selected years. Such as the changes of total assets, total liabilities, total revenues an so on. In vertical common-size analisis of balance sheet, we usually choose total assets ,total liabilities or equity as the benchemark. The long-term assets and current assets are expressed as percentage of total assets. The clong-term liabilities and current liabilities are expressed as percentage of total liabilities.

To analysis the income statement with vertical common-size analysis, we can choose total revenues as our benchmark. Then the operating costs and financing costs are expressed as the percentage of total revenues.

In vertical common-size analisis, there is one calculation:

$$\%E = \frac{x_i}{\sum_n x_i} \cdot 100. \tag{2.7}$$

where the $\%E$ means the proportion of the project, x_i means the item, $\sum_n x_i$ means the sum of the items.

2.3   Financial ratio analysis

The analysis of a company's financial statements is to satisfy the benefits of shareholders, creditors, or company managers. But in many cases, it is not easy for a company to analyze its financial situation. It's as if we can't evaluate a company's operations from simple financial data. Because the same is an annual profit of 10 million, for an unknown small company is undoubtedly satisfied, but for any listed company, this is not a reasonable profit income.

So profits are related to the size of the company. Profits and other items will appear on the company's financial statements. Therefore, it is difficult for us to

objectively evaluate a project. To conduct accurate analysis of the company's financial statements, we need to use knowledge of financial ratios.

Financial ratios involve calculating and forecasting the financial ratio of a company's operating conditions. Different specific circumstances also correspond to different financial ratios. For example, as the creditor of a company, his primary concern must be the financial ratio related to obtaining his principal in the shortest time. As a company's shareholder, the concern is definitely the company's profit ratio, the company's return rate, and the risk-related ratio, because these are closely related to the shareholders' equity. As a company's manager, the focus is generally on the impact of the company's financial situation, so analyzing the financial health of the company's financial ratio is what they need.

Financial ratio analysis compares the financial data and financial ratios to asses the financial health of one company. It has 5 main types of financial ratios, They are:

- Profitibility ratios,
- Liquidity ratios,
- Solvency ratios,
- Aactivity ratios,
- Dupont analysis.

2.3.1 Profitability ratios

The rate of profitability is the ratio of the profits that measure and calculate an investment. Judging from the literal meaning of profitability, it is known that profitability reflects the position of a company in the market. The profit and loss statement shows that profit equals revenue minus expenses. Earnings can be distributed to shareholders and can also be retained earnings of the company. These benefits are closely related to the company's profitability.

The profitability ratio calculates the return on investment over a defined period of time. The profitability ratio can be calculated by four basic ratios. They are: oporating profit margin(OPM), net profit margin(NPM), return on assets(ROA), return on equity(ROE).

Operating profit margin(OPM)

The operating profit margin calculate the proportion of earning before interest and tax(EBIT) divided by total revenue. It represents the profits which were made by the company during a period of time. It also shows us the ability of a company to use its revenues. And convert the revenue into the earnings of the company. As we all know that the higher of EBIT, the more profits this company will make. Because OPM showes us how much the operating costs are in total revenue.

The formula of OPM is:

$$OPM = \frac{EBIT}{Revenue}. \tag{2.8}$$

Net profit margin(NPM)

Net profit margin is different from operating profit margin. Because it calculate the proportion of earning after tax(EAT) divided by total revenue. Earning afet tax is the net profit of the company. It removes interests and taxes from EBIT. And it represents the net profits of the company over a period of time.It is obvious that the higher of earning after tax, the more profitable this company will be. In other words, the higher of net profit margin, the higher net profits the company will made.

The formula of NPM is:

$$NPM = \frac{EAT}{Revenue}. \tag{2.9}$$

Return on assets(ROA)

ROA meassures how much return the company will receive if it invests to some areas with some assets. Such as the company received the divideds from its investment of shares. So it is a very important indicator of the use of the capital from debtors and shareholders. The higher of return on assets, the higher of the company's utility of its investment.

The formula of ROA is:

$$ROA = \frac{EBIT}{A}. \tag{2.10}$$

where the A means assets.

Return on equity(ROE)

ROE is different from return on assets. Because it measures the net profit of the company from every unit of the equity of shareholders. It is more direct to shareholders to calculate their returns than ROA. Because it measures the net profits of their

investments. So it's often used by the shareholders of the company to calculate their returns from their investments to the company.

The formula of ROE is:

$$ROE = \frac{EAT}{Equity}.$$
(2.11)

where the EAT means earing after tax.

2.3.2　Liquidity ratios

The liquidity ratio measures the ability of a company to repay its short-term debt for a fixed period of time. In reality, a company may face many practical problems, such as losing money, bankruptcy, insolvency, etc. At this moment, the liquidity ratio is an important indicator. The liquidity ratio focuses on the cash inflow and outflow of a company. In circumstances, the liquidity ratio of large-scale companies is relatively high, because larger-scale companies generally have relatively flexible capital turnover, high creditworthiness, and certain guarantees for capital inflows and outflows, so financing is relatively easy. If we want to carefully analyze the liquidity ratio, we need to start with three small ratios. They are current ratio, quick ratio and cash ratio.

Current ratio

Current ratio showes us the relationship between current assets and current liabilities. It measures the ability of one unit liability will be convert into current assets in the future quickly. The higher of the ratio, the quicker the current liability can be transferred into current assets in the future. In most situations, it determined the scale of the company's debt. Because if the scale of debt is large, but the current ratio is really low. It means that the company can hardly repay the debt by current assets in a short time. Therefor th company will be difficult to exist in the market.

Current ratio is calculated as follows:

$$Current\ ratio = \frac{current\ assets}{current\ liabilities}.$$
(2.12)

Quick ratio

Quick ratio is similar to current ratio, but they are not the same. Because the quick ratio is more effecient than current ratio when tesing the liquidity of the company. From their formula we can see the only difference is that quick ratio removes the

influence of inventories. It takes the inventories into considerate, because the number of inventories will influence the liquidity of the current assets. Because inventories are the less liquidity current assets.

Quick ratio is calculated as follows:

$$Quick\ ratio = \frac{current\ assets - inventories}{current\ liabilities}. \qquad (2.13)$$

Cash ratio

Cash ratio pays more attention to the ability of the company to meet the liabilities with cash or marketable securities. It's similar to current ratio. But at here the current assets are replaced by cash and cash markrtable securities. In this ratio, we will not consider other less liquid current assets such as accounts receivable. But just use the most liquid assets.

Cash ratio is calculated as follows:

$$Cash\ ratio = \frac{cash + marketable\ securities}{current\ liabilities}. \qquad (2.14)$$

2.3.3   Solvency ratios

The solvency ratio and the liquidity ratio are similar. They measure the ability of a company to repay its debt. However, unlike liquidity ratios, the solvency ratio measures the ability of a company to repay long-term debt. It also analyzes the repayment of interest in debt. The development of this company is closely related. The solvency ratio has three basic types of ratios. They are: debt ratio, debt-to-equity ratio and interest coverage.

Debt ratio

Debt ratio is also named debt to assets ratio. It calculates the proportion of the debt to the total assets of the company. It refers to the part of the assets of the company which are come from the debt from creditors. It's also an indicator to measure the economic situation of the company. The higher of the ratio, the easier the company to borrow money from other institutions or privates. So the company can expand more easily. Therefore the economic situation of this kind of high debt ratio companies is better than others. But in the other hand, high debt ratio means high liabilities from debtors. It's also an obligation of the company.

Debt ratio is calculated as follow formula:

$$Debt\ ratio = \frac{total\ debt}{total\ assets}. \qquad (2.15)$$

Debt-to-equity ratio

Debt-to-equity ratio is very similar to debt ratio. But it's not the same with the debt ratio. Debt-to-equity ratio calculates the proportion of the total debt of the company to the total equity of the company. We all know that there two kinds of capital resruces of the company. First is from debtors' debt, and second is from shaerholders' equity. So debt-to-equity ratio is related to the capital resruces of the company. In other words, if the ratio is higher than one, it means that the company uses more debt to finance the company than uses equity. It will also indicate the company's situation of development.

Debt-to-equity ratio is calculated as follow formula:

$$Debt-to-equity\ ratio = \frac{total\ debt}{equity}. \qquad (2.16)$$

Interest coverage

Interest coverageshows that if the earning before interest and taxes is ability to pay the interest costs in a certain period. Interest coverage ratio refers to the relationship between the operating profit and financing costs. It indicates the ability of the company to pay its interest Therefore the higher interest coverage ratio means the better situation of the company.For example, if the ratio equals to 4, it means that every 4 units operating profit will pays 1 unit interest. And other 3 units of operating profit will be earning before taxes of the company.

Interest coverage is calculated as follow formula:

$$Interest\ coverage = \frac{EBIT}{interest\ paid}. \qquad (2.17)$$

where the EBIT is earning before interest and taxes.

2.3.4   Activity ratios

The activity ratio focuses on the efficiency of the use of a company's assets. Therefore, activity ratio is also called asset management ratio. The asset management ratio leads the company to focus on the management of assets, such as the management of receivables, inventory management, and management of fixed assets. We often study

whether the investment of a company is correct. What we need to use at this time is the asset management ratio. They can help the company analyze loan recovery issues, accounts receivable issues, inventory issues and other issues of their own asset turnover. To analyze asset management ratios, we can start with four basic aspects: average collection period(ACP), account receivable turnover(ART), inventory turnover(IT), total assets turnover(TAT).

Average collection period(ACP)

Average collection period is accounts receivable divided by revenues and multiply 360 days. It is easy to know that average collection period measures how long it will take to collect accounts receiveable. It records the trades on credit and agreed to get it back in the future. Therefore, if the average collection period of the company is too long, it means the assets management of the company is less efficient.

Average collection period is calculated as follow formula:

$$ACP = \frac{accounts\ receivable}{revenues} \cdot 360. \tag{2.18}$$

Accounts receivable turnover(ART)

From the formula we can easily to find that accounts receivable turnover is the reciprocal of average collection period. Accounts receivable turnover refers to the time period that the accounts receivable are converted into cash. It calculates how many times the account receivable are used again during one year.

Accounts receivable turnover is calculated as follow formula:

$$ART = \frac{revenues}{accounts\ receivable}. \tag{2.19}$$

Inventory turnover(IT)

Inventory turnover is the ratio of costs of goods sold divided by average inventory. It represents the time period of the company to create products and to sell it to consumers. If the ratio of inventory is high, it means the products of the company are sold very well and few inventories are left. But if the ratio is very low, it indicates that the inventories are too much too sell and many inventories are left. It calculates the situation of goods sold and inventories.

Inventory turnover is calculated as follow formula:

$$IT = \frac{cost\ of\ goods\ sold}{average\ inventory}. \tag{2.20}$$

Total assets turnover(TAT)

Total assets turnover is one of the most common ration in activity ratios. It calculates the revenues occupy how much in total assets. In other words, It showes us how successfully the company use its assets and turn them into revenues. If the ratio is 1, It means that one unit of asset bring 1.5 unit of revenue to the company. Therefore the higher the ratio, the more profitable the company is.

Total assets turnover is calculated as follow formula:

$$TAT = \frac{revenues}{total\ assets}.$$
(2.21)

2.3.5 DuPont analysis

DuPont analysis uses a combination of several major financial ratios to comprehensively analyze the financial status of a company. Specifically, it is a classic method used to evaluate the company's profitability and return on shareholders' equity, and to evaluate corporate performance from a financial perspective. The basic idea is to decompose the enterprise's ROE into multiple financial ratio products, which is helpful for in-depth analysis and comparison of business performance. Because this method of analysis was first used by DuPont, it was dubbed the DuPont analysis

Dupont analysis was developed by E.I. du Pont de Nemours in 1919. It was made to learn return ratio better. By using this method, we can analysis the factors that lead to the value of financial ratio. This method is called pyramidal decompositions and Dupont analysis is the fundamental example of this method. The principle of pyramidal compositions is to divided The basic ratio into several different ratios component.

In this part, we will decompose ROE into three component ratios. They are net profit margin, assets turnover, and financial leverage. It will showes us which ratio is The main ratio that lead to the ROE.

It is decomposed as follows:

$$ROE = net\ profit\ margin \cdot assets\ turnover \cdot financial\ leverage,$$
(2.22)

$$ROE = \frac{EAT}{equity} = \frac{EAT}{revenues} \cdot \frac{revenues}{total\ assets} \cdot \frac{total\ assets}{equity}.$$
(2.23)

where $\frac{EAT}{revenues}$ is net profit margin, $\frac{revenues}{total\ assets}$ is assets turnover, $\frac{total\ assets}{equity}$ is financial leverage.

If we want to make some further analysis, we can differ the effects of interest and taxes. Therefore, we can decompose the net profit margin again.

Then it is decomposed as follows:

$$NPM = tax\ burden \cdot interest\ burden \cdot operating\ margin, \qquad (2.24)$$

$$NPM = \frac{EAT}{revenues} = \frac{EAT}{EBT} \cdot \frac{EBT}{EBIT} \cdot \frac{EBIT}{revenues}. \qquad (2.25)$$

where $\frac{EAT}{EBT}$ is tax burden, $\frac{EBT}{EBIT}$ is interest burden, $\frac{EBIT}{revenues}$ is operating margin.

Then, after decomposing the profit margin, we can get a new ROE.

It is decomposed as follows:

$$ROE = \frac{EAT}{equity} = \frac{EAT}{EBT} \cdot \frac{EBT}{EBIT} \cdot \frac{EBIT}{revenues} \cdot \frac{revenues}{total\ assets} \cdot \frac{total\ assets}{equity} \qquad (2.26)$$

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After decomposing the ROE into different ratios. We can use four different methods to analysis the question before: which one of these ratio has caused the change of basic ratio. There are 4 methods to calculate the influence quantification. They are methods of gradual changes, logarithmic decomposition method, functional decomposition method, and integral method.

Method of gradual changes

This method calculates the absolute changes of component ratios. And there is one point important is that the number of equations equals to the number of component ratios.

The formula of method of gradual changes is as follows:

$$\Delta x_{a_1} = \Delta a_1 \cdot a_{2,0} \cdot a_{3,0}$$
$$\Delta x_{a_2} = a_{1,1} \cdot \Delta a_2 \cdot a_{3,0} . \qquad (2.27)$$
$$\Delta x_{a_3} = a_{1,1} \cdot a_{2,1} \cdot \Delta a_3$$

where x is basic ratio, Δ x is absolute change in the basic ratio, a is component ratio, Δ a is absolute change in the component ratio, Δx_{a_1} is absolute change in the basic ratio caused by the change in the first component ratio.

Logarithmic decomposition method

Logarithmic method is also the part of pyramidal decompositions. When comparing with method of gradual changes you will find that it has a obvious advantage.

It is that there is just one formula to use no matter how many component ratios we have. Therefore it greatly reduces our computational burden.

The formula of logarithmic decomposition method is as follows:

$$\Delta x_{a_1} = \frac{\ln I_{a_1}}{\ln I_x} \cdot \Delta x .$$

(2.28)

where x is basic ratio, Δx is absolute change in the basic ratio, $I_x = \frac{x_1}{x_0}$ is index of change in the basic ratio, $I_a = \frac{a_{i,1}}{a_{i,0}}$ is index of change in component ratio.

Functional decomposition method

The difference from the previous methods is that we will calculate the relative changes in not only basic ratio but also component ratios. Therefore we have to calculate relative changes of basic and component ratios first use the formula below (2.29).

The formula of functional decomposition method is as follows:

$$\Delta x_{a_1} = \frac{1}{R_x} \cdot R_{a_1} \cdot \left(1 + \frac{1}{2} \cdot R_{a_2} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} R_{a_2} \cdot R_{a_3} \right) \cdot \Delta x$$

$$\Delta x_{a_2} = \frac{1}{R_x} \cdot R_{a_2} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_3} + \frac{1}{3} R_{a_1} \cdot R_{a_3} \right) \cdot \Delta x .$$

(2.29)

$$\Delta x_{a_3} = \frac{1}{R_x} \cdot R_{a_3} \cdot \left(1 + \frac{1}{2} \cdot R_{a_1} + \frac{1}{2} \cdot R_{a_2} + \frac{1}{3} R_{a_1} \cdot R_{a_2} \right) \cdot \Delta x$$

The method of calculating relative changes of basic and component ratios:

$$\Delta x^{relat} = R_x = \frac{x_1 - x_0}{x_0}$$

$$\Delta a^{relat} = R_{a_1} = \frac{a_1 - a_0}{a_0}$$

(2.30)

Integral decomposition method

Between all of these four methods, the least used is intergral decomposition method. It is similar to functional method since it also has to calculate relative changes first.

The formula of integral decomposition method is as follows:

$$\Delta x_{a_j} = \frac{R_{a_j}}{R_x} \cdot \Delta x .$$

(2.31)

And R_x is calculated as follow formula:

$$R_x = \sum_{j=1}^{N} R_{a_i}.$$

(2.32)

3 Financial characteristics of Beiersdorf

In this chapter, we will introduce the financial characteristics of Beiersdorf. Financial characteristics can give us some information of the company's situation. Therefore, financial characteristics are very important to the financial analysis of the company. Then, we will focus on the history, brands, and competiotion of Beiersdorf. And next is the common-size analysis of Beiersdorf.

3.1 Brief introduction of Beiersdorf

In this part, we will introduce some basic information of Beiersdorf from three aspects: history, brands, and competition.

Then is some brief information about Beiersdorf from its homepage:

"At Beiersdorf we have been caring about skin for more than 130 years. Throughout our history we have built trust by staying close to our consumers and developing innovative skin care brands that are tailored to their needs. We work as one global team, with one focus: making people feel good in their skin. Everywhere. Every day. As we head into the future, we want to become the number one skin care company in the world. "[1]

During hundred years, the company promotes to product high goods' quality by researching and innovating. And this kind of operating strategy has promoted the success of the company. Nivea has become one of the world's most famous skincare brand. And the subsidiary corporations of Beiersdorf have expanded to all over the world.

3.1.1   History of Beiersdorf

With a history of more than 130 years, Beiersdorf was founded in 1882. The history of today's Beiersdorf was started in a small pharmacy which was near Hamburg's famous church. This is the place where Paul C. Beiersdorf founded this company that now bears his name. The founding document of the company was

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[1] Source: https://www.beiersdorf.com/about-us/our-history/milestones.

presented on March 28,1882. Paul C. Beiersdorf manufactured pflaster in his lab using gutta-percha tree. It leads to the foundation of morden pflaster technology.

In 1900s, many famous brands were founded and launched onto the market. Such as the foundation of Eucerin, Nivea cream, Nivea milk, etc. Then in 1909, Labello lip balm quickly became the represents of the lip products. During this period, Beiersdorf had set up his office in London. And its products begun to face all over the world. In 1933, The first Beiersdorf office on South American was opened in Argentina. It means that the company had begun to open the Latin markrt. During the world war and the air strikes on Hamburg, the production facilities were seriously damaged. But after the period, Beiersdorf started to grow rapidly. Therefore, in 1989,the company implemented a new strategy focus to concentrate on the core areas of expertise. And in 1992, Nivea was able to become the world's largest skin care brand.

At the beginning of 21th century, some new reseaches were done. Firstly, the new skin research center was opened in Hamburg which had more than 450 scientists in it. It's one of the most important research center around the world. Secondly, Beiersdorf joined DAX on 2008. It means that the company was accepted into the most important German stock index companies. Thirdly, Beiersdorf introduced Eucerin AQUAporin ACTIVE to the markrt. The new technology was gradually integrated into other products. Finally, Beiersdorf opened production and innovation center in Mexico and India. It means that Beiersdorf was still expanding the scale of their business.

Till now, Beiersdorf has almost 150 subsidiaries all over the world. Over the past 130 years, Beiersdorf has focused on satisfying the demands of different customers. And it has made a great success.

3.1.2　　　Basic information of Beiersdorf

The basic information of Beiersdorf will be described from four aspects: management structure, strategy, way of working, and brands. Through knowing these basic information of the company. We will know the main factors of the company's common financial situation. It will be very helpful to our next financial analysis of this company.

Management structure

The management structure of the company can be divided into two parts. First is Executive Board, the second is Supervisory Board. The Executive Board directs the company and manages the business of the company. It consists of seven members. They work for the company's best interests. And Stefan F. Heidenreich is chief executive officer. Zhengrong Liu is the manager of human resources. The Supervisory Board is to advise the Executive Board of the management of the company and supervise its activities. It consists of twelve members. All of the members are elected at the Annual General Meeting. And six of them are elected by employees. It represents the principle of fairness.

Strategy-Blue Agenda

"The Blue Agenda defines the course of our future."[2] This is the words of Stefan F. Heidenreich, Chairman of the Executive Board of Beiersdorf AG. Blue Agenda is the compass of the company. It defines the cource the company will face their challanges in the future. With it, the company will intend to reach their goals. *"This strategic program is focused on strengthening our brands, increasing our innovative power, expanding our presence in the emerging markets, and on our dedicated employees."*[3]

Way of working

The way of working of Beiersdorf is to be close to consumers. This is very neccessary to the development of their product. In 2009, the company has tried to understand the demand of consumers at an even deeper level. Therefore, they have expanded their consumer research department. They have set research centers in all their global regions to support the research of different products in different regions. Such as their homapage has shown: *"It is important that our products maintain a consistently high quality globally, and that they meet the needs of consumers in different countries, so wherever we are active in the market, we invite consumers to evaluate our products."*[4]

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[2] Source: https://www.beiersdorf.com/about-us/our-profile/strategy.

[3] Source: https://www.beiersdorf.com/about-us/our-profile/strategy.

[4] Source: https://www.beiersdorf.com/research/our-way-of-working/closeness-to-consumers.

Brands

During the development of Beiersdorf company, it has created many famous products to all over the world. Therefore, there are many famous brands. Such as Nivea, Eucerin, La Prairie, Labello, Hansaplast, Florena and so on. Nivea is the most famous brand of Beiersdorf. It has been around for more than 100 years. There are many kinds of products. Nivea face care, Nivea body, Nivea deo, Nivea sun, Nivea men, Nivea haus, etc.

3.1.3   Competition of Beiersdorf

Beiersdorf is a famous company of skin care products. It has made a great success in skin care products. Such as the body care brands and anti-aging products of the company are very popular in many countries. But it still faces many challenges from its competitors. For example, Johnson & Johnson, 3M Company, L'OREAL, etc.

Even though Beiersdorf is one of the most famous skin care company in the world. It still has to identify mew market opportunities and new strategies for existing markets. Because only Nivea and few other products are sold abroad. Most of their products are still can't suit the needs of consumers from different countries. Because different countries and different climits lead to different demand of the skin care products. This will also has an effect on the competition of Beiersdorf.

3.2 Common-size analysis of Beiersdorf

The first part of analysisng Beiersdorf will be started from common-size analysis. And we will divided common-size analysis into two aspects: vertical common-size analysis and horizontal common-size analysis. In order to simplify our analysis, we will give the balance sheet and income statement of Beiersdorf from 2013-2017.

The following table is the balance sheet of Beiersdorf from 2013-2017.

Tab. 3.1: Balance sheet of Beiersdorf AG from 2013 to 2017(in € million).

	2013	2014	2015	2016	2017
Long-term assets	1900	2340	2685	3297	3926
Current assets	3898	3990	4188	4276	4279
Total assets	**5798**	**6330**	**6873**	**7573**	**8205**
long-term liabilities	612	773	746	860	860
current liabilities	1781	1917	1926	2036	2220
Total liabilities	**2393**	**2690**	**2672**	**2896**	**3080**
Equity	**3405**	**3640**	**4201**	**4677**	**5125**
Total equity and liabilities	**5798**	**6330**	**6873**	**7573**	**8205**

Source: Beiersdorf AG Annual Report.

From the balance sheet we can find the basic data of balance sheet. They are items of assets, items of liabilities and equity. We can see that no one of them is changing to one direction. Sometimes they are increasing and sometimes they become decreasing. Therefore it's difficult for us to analysis the certain tendency of these data. Then we will use common-size analysis to explain more details of the reason why these data has changed like this.

The following table is the income statement of Beiersdorf from 2013-2017.

Tab. 3.2: Income statement of Beiersdorf AG from 2013 to 2017(in € million).

	2013	2014	2015	2016	2017
Revenue	6141	6285	6686	6752	7056
Cost of goods sold	-2255	-2671	-2785	-2774	-2910
Gross profit	**3886**	**3614**	**3901**	**3978**	**4146**
Other operating income	171	183	186	41	27
Operating expenses	-3237	-3001	-3125	-3004	-3085
Operating profit	**820**	**796**	**962**	**1015**	**1088**
Net income from investment	23	32	25	43	50
Financial expenses	-28	-17	-19	-18	-116
Earning before tax(EBT)	**815**	**811**	**968**	**1040**	**1022**
Taxation	-272	-274	-297	-313	-333
Earning after tax(EAT)	**543**	**537**	**671**	**727**	**689**

Source: Beiersdorf AG Annual Report.

From the income statement we can know the basic data of income statement. We still can not find a certain variation trend of anyone of them. Because they are changed every year. Therefore we have to use common-size analisis to help us of our analisis. We can know the change of proportion of each items by using vertical common-size analysis. And we can know the absolute changes and relative changes by using horizontal common-size analysis.

### 3.2.1 Vertical common-size analysis of Beiersdorf

Vertical common-size analysis requires ue to ensure a benchmark first before the analysis. In balance sheet, we can choose total assets or total liabilities and equity as benchmark. In income statement, we can choose total revenues as our benchmark to analysis. Then calculating the proportion of each items in the benchmarks. Finally, we can conclude the evolutions of these items and get our results.

If we choose total assets as our benchmark. The following table and chart will help us to analysis.

Tab. 3.3: The proportion of each item in total assets (%)

	2013	2014	2015	2016	2017
Long-term assets	**32.77**	**36.97**	**39.07**	**43.54**	**47.85**
Intangible assets	3.04	1.88	1.73	1.57	1.71
Property, plant, and equipment	13.54	15.23	15.34	13.81	12.50
Non-current financial assets	13.87	16.73	19.18	24.97	30.86
Other non-current assets	0.03	0.05	0.04	0.38	0.28
Deferred tax assets	2.29	3.08	2.78	2.80	2.50
Current assets	**67.23**	**63.03**	**60.93**	**56.46**	**52.15**
Inventories	12.64	12.42	11.23	9.76	10.41
Trade receivable	19.01	20.14	18.30	17.07	16.16
Income tax receivables	0.95	1.79	1.45	1.43	1.32
Other current financial assets	1.66	1.71	1.67	1.89	1.84
Other current assets	2.36	2.69	2.43	2.15	2.06
Securities	13.64	8.88	12.48	12.65	9.38
Cash and cash equivalents	16.97	15.42	13.36	11.51	10.98
Total assets	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Chart. 3.1: The proportion of long-term assets and current assets in total assets

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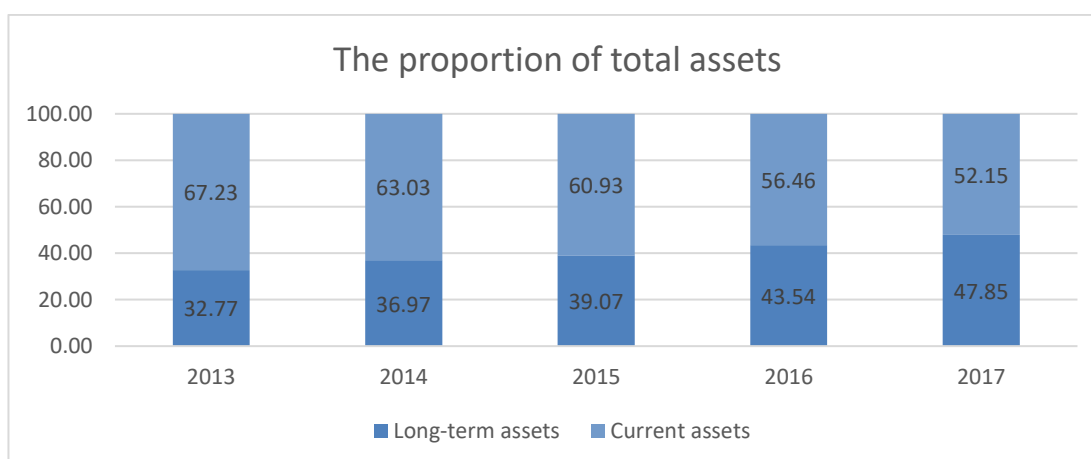
From the Tab 3.3 and Chart 3.1, we can know that from 2013 to 2017, long-term assets of Beiersdorf were always increasing, especially in 2016-2017. As for current assets, they were decreasing all the time from 2013. At the end of 2017, we can find that long-term assets were almost twice as current assets. Even though, long-term assets were less than half of current assets in 2013. We can know that Beiersdorf had been changing its assets structure these years. And it had made a big success.

While looking for the items of long-term assets, we can find the certain changes that lead to the increasing of long-term assets since 2013. The long-term assets consist of intangible assets, property, financial assets, other non-current assets, and deferred tax assets. Except financial assets, other items of long-term assets were changed in a small range. From the table 3.3, we can find the great changes of financial assets. It's because of the aquisition of long-term government and corporate bonds. And we can see the property, plant, and equipment of the company are decreasing the effect of total assets. Because they are accompanied by depreciation day by day.

While looking for the items of current assets, we can find the reasons that why current assets had been decreasing all the time since 2013. While other items of current assets were decreasing, we can see the securities of the company tend to decrease. It was caused by the increasing of the investment of funds in long-term securities. Therefore, the company decreased the proportion of shrt-term securities. From the decreasing of receivables and other assets, we can know that the receivables from affiliated companies have been paid back greadually. Because the receivables of Beiersdorf are consist of financial receivables from its subsidies.

From the tendency of the proportion of total assets, we can know that long-term assets can be more profitable than current assets. Because they can be used for long time and they can create continuos profits for the company.

If we choose total liabilities and equity as our benchmark. The following table and chart will provide ue many important information.

Tab. 3.4: The proportion of each item in total liabilities and equity (%)

	2013	2014	2015	2016	2017
long-term liabilities	10.56	12.21	10.85	11.36	10.48
current liabilities	30.72	30.28	28.02	26.88	27.06
Total liabilities	**41.27**	**42.50**	**38.88**	**38.24**	**37.54**
Equity	**58.73**	**57.50**	**61.12**	**61.76**	**63.86**
Total equity and liabilities	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Chart. 3.2: The proportion of liabilities and equity in total liabilities and equity
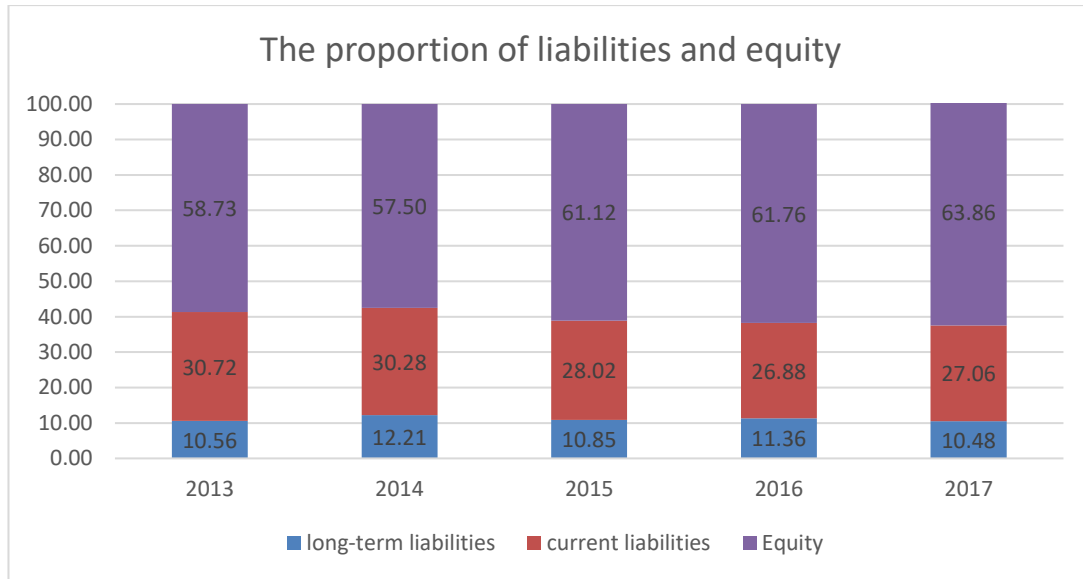
From the Tab 3.4 and Chart 3.2, we can see that equity occupies most of the total liabilities and equity. Because euity is the main capital resources of the company. It's collected from the investment of shareholders at the beginning of the company's operation. And it's obvious that long-term liabilities only occupy a very small part of the total amount. And the liabilities are still one part of the capital resources of the company. Therefore, we can see that the current liabilities were staying stable during these years.

Even though the proportion of equity was very high, it was still increasing year to year. All of this is because the financing of previous equity. It means that the equity is used to invest and make more profit for the company. And the changes of liabilities were main caused by the financial liabilities to affiliated companies.

If we choose total revenues as our benchmark. The following table and chart is related to the data of income statement.

Tab. 3.5: The proportion of each item in total revenues (%)

	2013	2014	2015	2016	2017
Revenue	100.00	100.00	100.00	100.00	100.00
Cost of goods sold	36.72	42.50	41.65	41.08	41.24
Gross profit	**63.28**	**57.50**	**58.35**	**58.92**	**58.76**
Other operating income	2.78	2.91	2.78	0.61	0.38
Operating expenses	52.71	47.75	46.74	44.49	43.72
Operating profit	**13.35**	**12.67**	**14.39**	**15.03**	**15.42**
Net income from investment	0.37	0.51	0.37	0.64	0.71
Financial expenses	0.46	0.27	0.28	0.27	1.64
Earning before tax(EBT)	**13.27**	**12.90**	**14.48**	**15.40**	**14.48**
Taxation	4.43	4.36	4.44	4.64	4.72
Earning after tax(EAT)	**8.84**	**8.54**	**10.04**	**10.77**	**9.76**

From the Tab 3.5, we can find the EAT of Beiersdorf had a general trend of growth. It means that the company's profits are increasing in general. In other words, the company had a good finance situation in the market and it can finance its assets well.

We can see the trend of operating profit was increasing in general. It was due to the rise of operating income increasing at a slightly faster rate than operating expenses. As for the increasing of earning before tax, it was due to higher and higher income from investment. Even though the financial expenses from currency conversion were growing, it still grew slower than investment income.

Also we can find one big information from the table. We can see that the operating profit of Beiersdorf were higher than earning after tax from 2013-2015. But they became lower than EAT from 2016. From this part, we can find the great influence from net income from investment of the company. It can make a big profit for the company.

3.2.2   Horizontal common-size analysis of Beiersdorf

Horizontal common-size analysis requires us to compare the financial items over a perios of time. Therefore, we have to choose a time point as our benchmark. Then we will compare the absolute changes and relative changes of each items. By analysing these changes we can know the performance and the financial situation of the company.

If we analysis balance sheet first. The the following table is absolute changes of each items in balance sheet.

Tab. 3.6: The absolute changes of each item in balance sheet (in € million)

	2013/2014	2014/2015	2015/2016	2016/2017
Long-term assets	440	345	612	629
Current assets	92	198	88	3
Total assets	**532**	**543**	**700**	**632**
long-term liabilities	161	-27	114	0
current liabilities	136	9	110	184
Total liabilities	**297**	**-18**	**224**	**184**
Equity	**235**	**561**	**476**	**448**
Total equity and liabilities	**532**	**543**	**700**	**632**

The following table is relative changes of each items in balance sheet.

Tab. 3.7: The relative changes of each item in balance sheet (%)

	2013/2014	2014/2015	2015/2016	2016/2017
Long-term assets	23.16	14.74	22.79	19.08
Current assets	2.36	4.96	2.10	0.07
Total assets	**9.18**	**8.58**	**10.18**	**8.35**
long-term liabilities	26.31	-3.49	15.28	0.00
current liabilities	7.64	0.47	5.71	9.04
Total liabilities	**12.41**	**-0.67**	**8.38**	**6.35**
Equity	**6.90**	**15.41**	**11.33**	**9.58**
Total equity and liabilities	**9.18**	**8.58**	**10.18**	**8.35**

From the Tab 3.6 and Tab 3.7, we can find that the long-term assets were always increasing from 2013 to 2017. And they increased more and more than previous year. But the current assets decreased during 2013/2014, then increased from 2014 to 2017. and the scale of increasing was smaller and smaller. Therefore it lead to the decreasing of total assets from 2013-2014. But from 2014, the total assets started to increase again. This increase was largrly attributable to the acquizition of long-term bonds.

While looking for the liabilities of the company. We can find that the total liabilities increased all the time from 2013 to 2017. Especially the current liabilities increased a large amount every year. It's because the current liabilities from the affiliated companies. But the long-term liabilities decreased from 2013/2014, then increased from 2014/2015, then decreased again, finally increased again. Therefore long-term liabilities havd less effect on the increasing of total liabilities.

As for equity, we can see the data from tha table, it was increased rapidly during these years. Especially from 2014, it began to increase at the speed of twice than

2013/2014. From the Annual Report of Beiersdorf we can find the reason. Because the company had some interests income and some divided income from its investments over the years.

Then, if we analysis income statement. The following table is absolute changes of each items in income statement.

Tab. 3.8: The absolute changes of each item in income statement (in € million)

	2013/2014	2014/2015	2015/2016	2016/2017
Revenue	144	401	66	304
Cost of goods sold	-416	-114	11	-136
Gross profit	**-272**	**287**	**77**	**168**
Other operating income	12	3	-145	-14
Operating expenses	236	-124	121	-81
Operating profit	**-24**	**166**	**53**	**73**
Net income from investment	9	-7	18	7
Financial expenses	11	-2	1	-98
Earning before tax(EBT)	**-4**	**157**	**72**	**-18**
Taxation	-2	-23	-16	-20
Earning after tax(EAT)	**-6**	**134**	**56**	**-38**

The following table is relative changes of each items in income statement.

Tab. 3.9: The relative changes of each item in income statement (%)

	2013/2014	2014/2015	2015/2016	2016/2017
Revenue	2.34	6.38	0.99	4.50
Cost of goods sold	18.45	4.27	-0.39	0.00
Gross profit	**-7.00**	**7.94**	**1.97**	**4.22**
Other operating income	7.02	1.64	-77.96	-34.15
Operating expenses	-7.29	4.13	-3.87	2.70
Operating profit	**-2.93**	**20.85**	**5.51**	**7.19**
Net income from investment	39.13	-21.88	72.00	16.28
Financial expenses	-39.29	11.76	-5.26	544.44
Earning before tax(EBT)	**-0.49**	**19.36**	**7.44**	**-1.73**
Taxation	0.74	8.39	5.39	6.39
Earning after tax(EAT)	**-1.10**	**24.95**	**8.35**	**-5.23**

From the Tab 3.8 and Tab 3.9, we can see the revenues of Beiersdorf were always increasing. It shows that the company can make ggod use of its assets and it can make more profit with time going on. Looking for the Annual Report of the company, it easy to find that the organic sales growth in Europe were up than previous year. And not only in Europe, but also in America, in Africa, in Asia, in Australis region, the revenues were

reported much organic growth. It means that Beiersdorf is popular in many regions all over the world.

While looking for earning after tax, we can find that it was decreased from 2013/2014, but it incresed rapidly in 2014/2015, and also increased in 2015/2016. Till 2017, it was decreased again. We all know that the net income equals revenues mines expenses. Therefore, it's easy to know that the increasing of expenses leads to the variable change of EAT. Looking from the company's development, we can find the expenses are coming from the inefficiency of selling goods in the Consumer Business Segment. And the continued trend in commodity prices also had a positive effect on expenses.

Therefore, there is a conclusion of Beiersdorf AG. From the data of the company from 2013 to 2017, we can find the profit was increased year by year. Even though the company has the ability to make use of its resources. And it has expanded its subsidies to many countries all over the world. Also, many products were launched to the markrt thanks to the hard working of the scientists of the company. It still has some problems in their operating process. Such as the inefficient of selling goods and the ineffcent of the use of resources. Marketing and selling expenses are very important in reducing the total expenses of the company. therefore, the company still has to do some research and try to improve effcency.

4 Financial ratio analysis of Beiersdorf

In this chapter, we will put financial ratio analysis into practice. So financial data and financial ratio calculation will be used together to analysis the financial situation of Beiersdorf. This chapter will be divided into six parts. Financial ratios will be taken on in the first four parts. Then in fifth part, DuPont analysis will be used for certain analysis. Finally, is the brief conclusion of these ratio analysis.

4.1 Profitability ratios of Beiersdorf

We have known the meaning of profitability ratios from chapter 2. So in this chapter, we will combine pratical data from Beiersdorf with profitbility ratios. And we will analysis the four basic ratios of profitability ratios. They are operating profit margin, net profit margin, return on assets, return on equity.
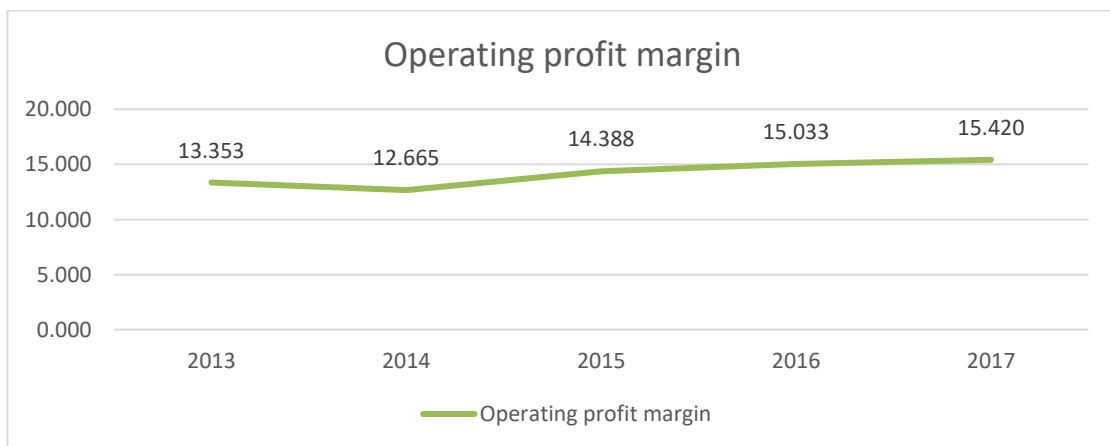
4.1.1 Operating profit margin (OPM)

The following Tab. 4.1 and Chart. 4.1 show the information of operating profit margin of Beiersdorf from 2013 to 2017.

Tab. 4.1: Operating profit margin of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
EBIT	820	796	962	1015	1088
Revenue	6141	6285	6686	6752	7056
Operating profit margin	**13.353**	**12.665**	**14.388**	**15.033**	**15.420**

Chart. 4.1: Trend of operating profit margin of Beiersdorf from 2013 to 2017 (%)

Operating profit margin measures the ability that the company generates its revenues and gets its EBIT. Because of the EBIT is almost the defference from revenues and operating expenses. So operating profit margin also shows the situation of the company's operating expenses. In general, operating profit margin indicates the profitability of the company. It is calculated by EBIT devided by revenues.

From the Tab. 4.1, we can find that operatig profit margin of Beiersdorf was fluctuated between 12% to 16% from 2013 to 2017. And in general, it was increasing. Until 2017, it was increased to highest point 15.42%. From the Chart. 4.1, we can find the trend more clear that the main trend of OPM was increasing. But in 2012, it was decreased a little. However, it was still higher than 12%. Because the EBIT of the company was decreased in 2014 from 820 to 796. Looking from the Annual Report we can find that the cost of goods sold was increased rapidly than the increase of revenue. So the operating profit margin decreased in this year.

From the general trend of operating profit margin, we can conclude that Beiersdorf has ability to stable the increase of its profit. It can manage its operation activities very well. It has a better competitive position in the markrt.
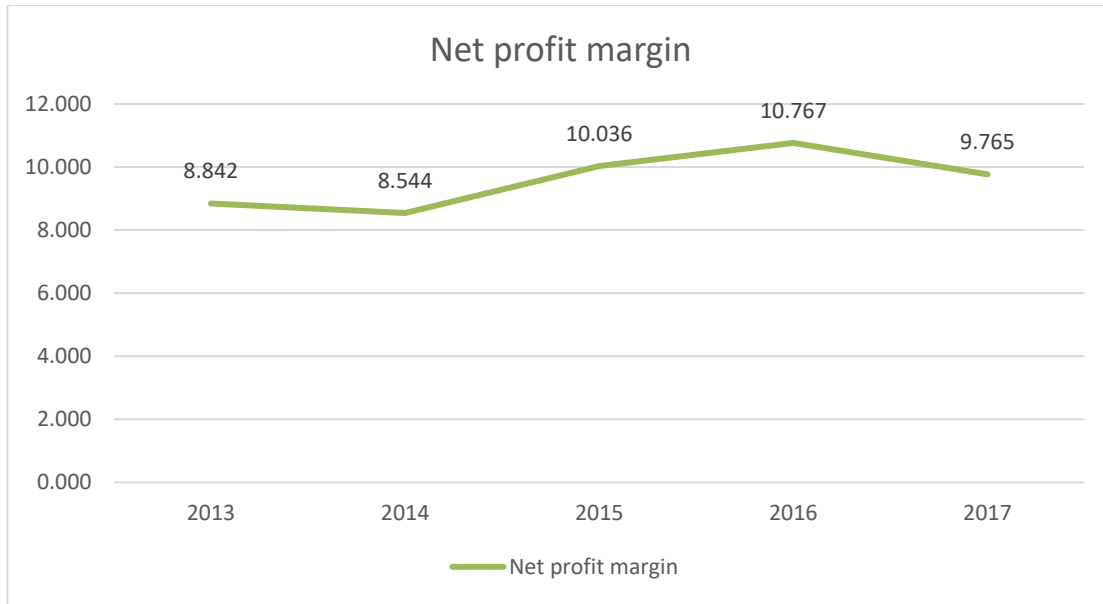
4.1.2　　Net profit margin (NPM)

The following Tab. 4.2 and Chart. 4.2 show the information of net profit margin of Beiersdorf from 2013 to 2017.

Tab. 4.2: Net profit margin of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
EAT	543	537	671	727	689
Revenue	6141	6285	6686	6752	7056
Net profit margin	**8.842**	**8.544**	**10.036**	**10.767**	**9.765**

Chart. 4.2: Trend of net profit margin of Beiersdorf from 2013 to 2017 (%)

Net profit margin calculates also the ability of the company's profitbility. And it is on the basis of operating profit margin. It is calculated by EAT divided by revenues. So it decresed the influence of financial expenses of the company. Therefore, it can tell us the company's profitability more accurately.

From the Tab. 4.2 we can see that the net profit margin of Beiersdorf decreased from 2013 to 2014, and it increased from 2014 to 2016, but it decreased again in 2017. and we can see that the net profit margin was almost lower than 10%. We can get the trend from the Chart. 4.2 more easily. The net profit line declined from 2013 to 2014, and it rised until 2016, then declined again. From the numerator and denominator we can know the reason of the trend. While the revenue was increasing all the time, the EAT decreased in 2014, and increased until 2016, then decreased again in 2017. If we looking the Annual Repor of Beiersdorf, we can find the deeper reason og these changes. The decrease of net profit margin in 2014 was because os the rapid increasing of cost of goods sold. And the decreasing of net profit margin in 2017 was because of the rapid increasing of financial expenses. Because there are many factors affect the result of net profit of the company.

Because of the positive result of the net profit margin, we can know that the company makes profit every year. Even though the net profit margin was fluctuated up and down. It was still higher than 8% every year. And the management of the financial expenses is very important to the profitbility of the company.
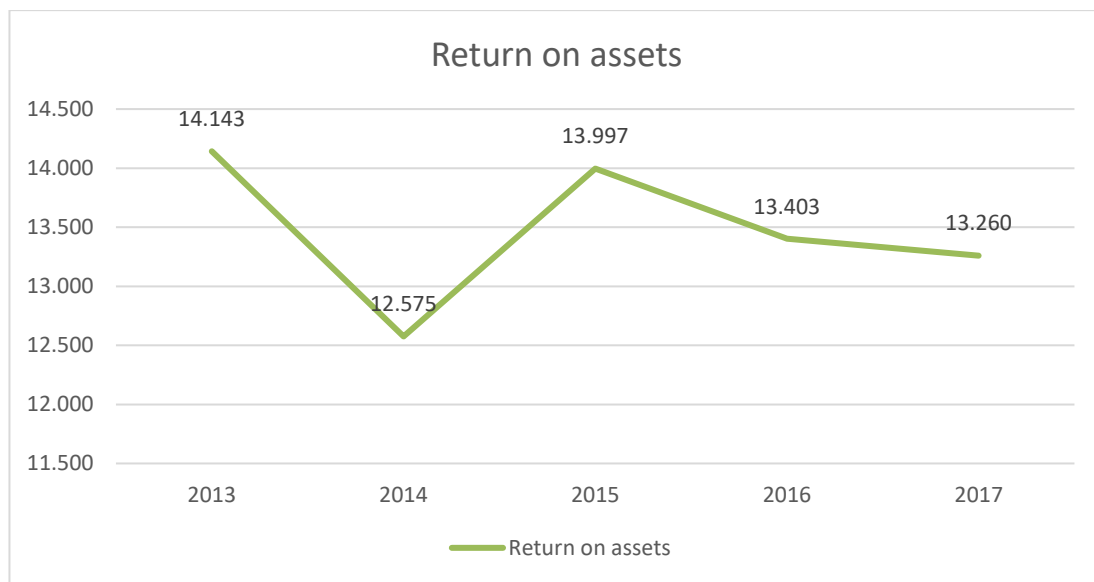
4.1.3   Return on assets (ROA)

The following Tab. 4.3 and Chart. 4.3 show the information about return on assets of Beiersdorf from 2013 to 2017.

Tab. 4.3: Return on assets of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
EBIT	820	796	962	1015	1088
Assets	5798	6330	6873	7573	8205
Return on assets	**14.143**	**12.575**	**13.997**	**13.403**	**13.260**

Chart. 4.3: Trend of return on assets of Beiersdorf from 2013 to 2017 (%)

Return on assets calculates the ability that the company transfers its assets into return. It is calculated by EBIT divided by assets. In other words, this ratio shows the efficiency of the company to use its assets. It also indicates the company's ability to make profit. So it is used to calculate the profitbility of the company. The higher return on assets is, the more profitable the company will be.

From Tab. 4.3 we can find the return on assets of Beiersdorf decreased in 2014, but it increased in 2015, then it decreased again until 2017. In 2014, it reached the lowest point over these years. And from the Chart. 4.3 we can easily find that in 2013, it was the highest number of return on assets. And the return on assets line is between 12% and 15%. While looking from the table, we can see that the EBIT decreased a little in 2014, then it increased all the time until 2017. As for assets, they increased through all of these years. So the lowest point in 2014 was caused by the decrease of EBIT at this year. And

the increased from 2014 to 2017 was caused by the gradual growth of EBIT. And EBIT growth at a slower speed than assets. So return on assets decreased every year from 2015 to 2017.

Looking from the Annual Report we can find that the current assets and long-term assets were increasing gradually from 2013 to 2017. It means that the company was expanding during these years. Therefor it needed more asssets to support more operating and financing activities. Therefore, the company created a good position for its operations. And good position created higher revenues. This is the reason why the revenues increased generally from 2013 to 2017.
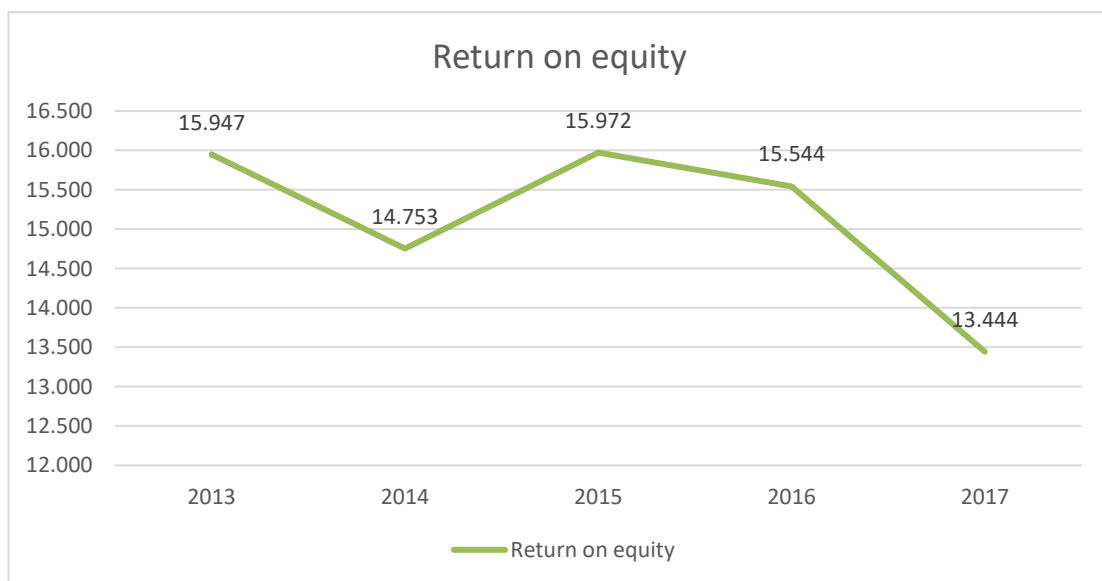
4.1.4 Return on equity (ROE)

The following Tab. 4.4 and Chart. 4.4 show the information of return on equity of Beiersdorf from 2013 to 2017.

Tab. 4.4: Rreturn on equity of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
EAT	543	537	671	727	689
Equity	3405	3640	4201	4677	5125
Return on equity	**15.947**	**14.753**	**15.972**	**15.544**	**13.444**

Chart. 4.4: Trend of return on equity of Beiersdorf from 2013 to 2017 (%)

Return on equity calculates the company's efficiency at generating profits from shareholders' equity. it is calculated by EAT divided by equity. In other words, it measures the return of shareholders' equity.

From Tab.4.4 we can find that return on equity of Beiersdorf decreased at 2014, and increased in 2015, then decreased again from 2015 to 2017. In 2017, it down to the lowest point. We can overview the trend from Chart. 4.4. The return on equity line declined first, then rose in 2015, following declined again until 2017. It's easy to find that the ratio is always more than 13% and lower than 16%. It changed between a small scale. With the data of Tab. 4.4, we can find that the equity was increasing from 2013 to 2017. But the EAT just increased from 2013 to 2016, then decreased in 2017. therefore the return on equity decreased rapidly in 2017. As for the decreasing in 2014 and 2016, it is because the degree of EAT growth is smaller than equity growth. But the increasing in 2015 was because the degree of EAT growth is larger than equity growth.

From the return on equity of Beiersdorf, we can know the eficiency of the company generated its profit from equity was not very well. Because the equity from shareholders was increasing but the net profit was fluctuated. So the return on equity was changeble and declined generally.

4.2 Liquidity ratios of Beiersdorf

From chapter 2 we can know that liquidity ratios indicate the ability of the company to repay its current liabilities with current assets. It has three main parts. Current ratio, quick ratio and cash ratio.
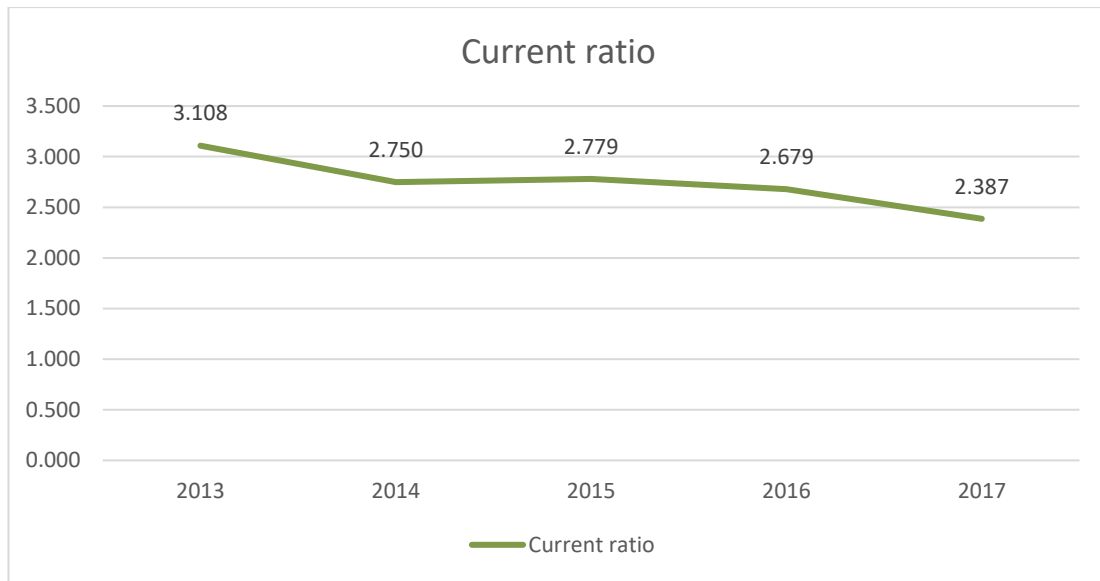
4.2.1 Current ratio

Tab. 4.5 and Chart. 4.5 shows us the data and trend of current ratio of Beiersdorf from 2013 to 2017.

Tab. 4.5: Current ratio of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Current assets	3898	3990	4188	4276	4279
Current liabilities	1254	1451	1507	1596	1793
Current ratio	**3.108**	**2.750**	**2.779**	**2.679**	**2.387**

Chart. 4.5: Trend of current ratio of Beiersdorf from 2013 to 2017

Current ratio calculates the ability of the company to meet its current liabilities with its current assets. It can shows the relationship between the current assets and current liabilities of the company. But it's not true thst higher current ratio is better for tha company. Because the higher the current ratio is, the more the current assets are. But we all know that long-term assets are more profitable than current assets. So long-term assets are the main resources of the company's profits.

Tab. 4.5 shows us the current ratio od Beiersdorf decreased almost from 2013 to 2017. From chart. 4.5 we can find the tendency more easily. From 3.108 to 2.387, the current ratio line was declined year by year. While the current assets and current liabilities were increasing from 2013 to 2017. Therefore, current liabilities growth at a higher speed than the growth of current assets. Therefore the current ratio line decined all the time.

Therefore, we can know that the current ratio was declined, so the degree of current assets was declined. So the degree of long-term assets was risen. It means that the degree of more profitable assets was risen. Then, the company will be more profitable.
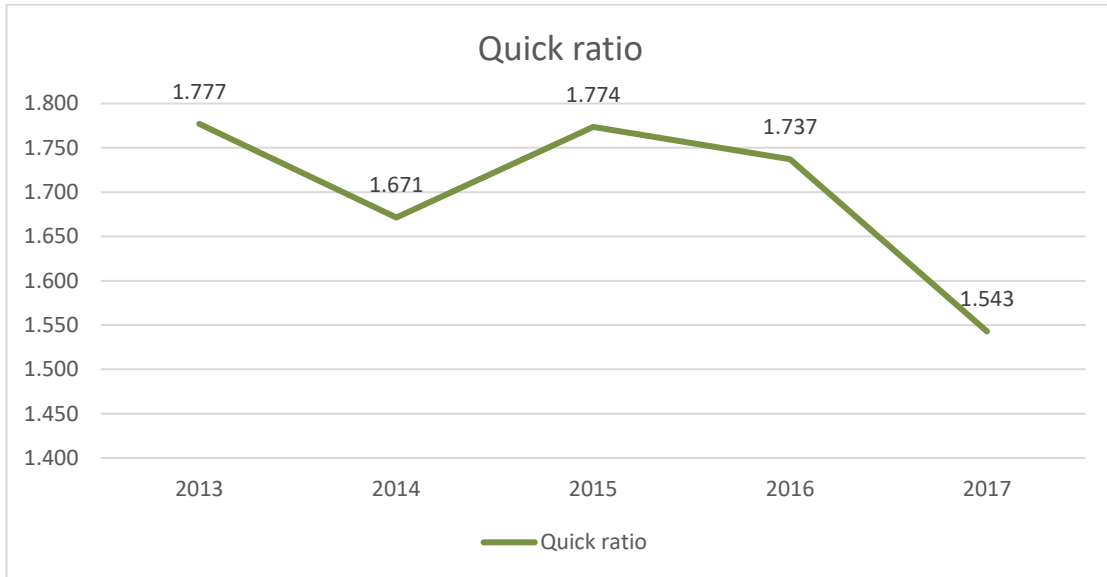
4.2.2　　Quick ratio

Tab. 4.6 and Chart. 4.6 shows us the data and trend of quick ratio of Beiersdorf from 2013 to 2017.

Tab. 4.6: Quick ratio of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Current assets	3898	3990	4188	4276	4279
Inventories	733	786	772	739	854
Current liabilities	1781	1917	1926	2036	2220
Quick ratio	**1.777**	**1.671**	**1.774**	**1.737**	**1.543**

Chart. 4.6: Trend of quick ratio of Beiersdorf from 2013 to 2017

Quick ratio calculates the similar data to current ratio. It also indicates the company's ability to meet its current liabilities with its current assets except inventories. Therefore, it's more useful than current liabilities to measures the liquidity of the company. because it removes the effect of inventories. While inventories are the less liquidity assets if they can't be sold and be paid by cash.

Tab. 4.6 shows us the quick ratio of Beiersdorf decreased at first in 2014, then increased in 2015, at last it decreased again from 2015 to 2017. Chart. 4.6 shows us the tendency line of quick ratio. We can find that quick ratio was changed around 1.671. Sometimes it's higher and sometimes it's lower. In 2014, we can find the data from the Tab. 4.6, the current assets and inventories increased a little, but the current liabilities increased a lot. So the quick ratio decreased in this year. And we can find that the quick ratio was lowest in 2017, because the inventories increased a lot in 2017, so it reduced the influence of current assets mine inventoris.

If we compare the Chart. 4.5 and Chart. 4.6, we can find that even though the current ratio is similar to quick ratio. But the trend of them are huge defferent. Therefore, the influences of inventories are huge to the liquidity of Beiersdorf.
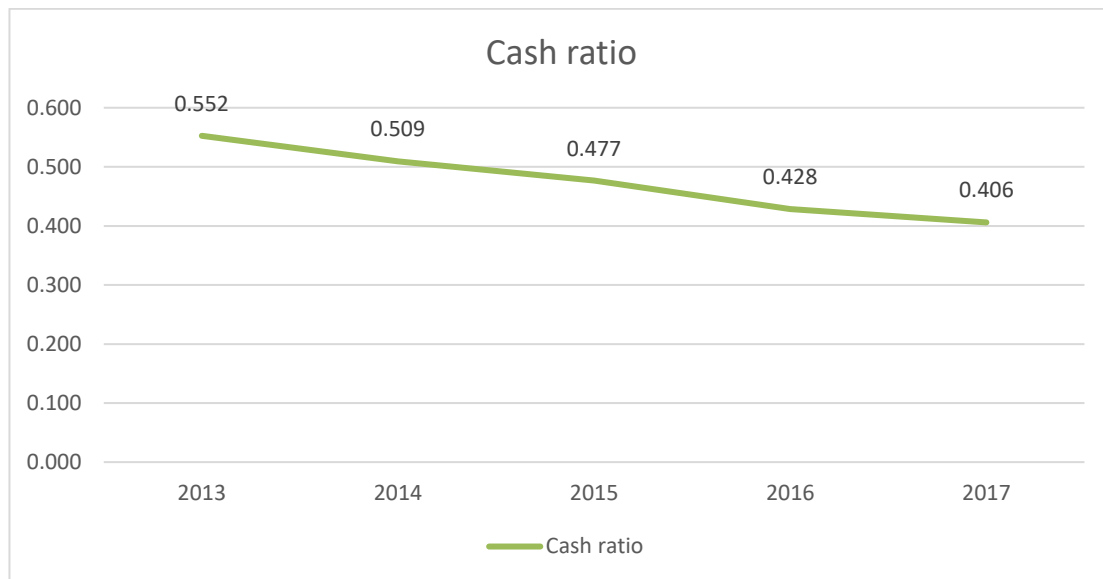
4.2.3 Cash ratio

Tab. 4.7 and Chart. 4.7 shows us the data and trend of cash ratio of Beiersdorf from 2013 to 2017.

Tab. 4.7: Cash ratio of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Cash and cash equivalent	984	976	918	872	901
Current liabilities	1781	1917	1926	2036	2220
Cash ratio	**0.552**	**0.509**	**0.477**	**0.428**	**0.406**

Chart. 4.7: Trend of cash ratio of Beiersdorf from 2013 to 2017

Cash ratio calculates the company's ability to meet its current liabilities with its cash and markrtable securities. As we all know, cash and cash equivalent are the most liquid assets in a company. Therefore, cash ratio is the most useful ratio to measures a company's liquidity.

Tab. 4.7 shows us the cash ratio of Beiersdorf was decreasing from 2013 to 2017 all the time. And it was closed to 50% during these years. While looking for chart. 4.7 we can find a almost straight negative line on the chart. We can see from the balance sheet of the company, the cash and cash equivalent were generally decreasing from 2013

to 2017. But the current liabilities were increasing during these years. And the cash ratio is calculated by cash and marketable securities divided by current liabilities. So the cash ratio decreased year by year.

And if we compare cash ratio with current ratio, we will find that the trend of them are similar. And we can find that the liquidity of Beiersdorf is decreasing gradually. But it dosen's means some bad results. Because the increasing of long-term assets, the company will make more profits by making full use of the long-term assets. It's the efficiency of assets using.

4.3   Solvency ratios of Beiersdorf

Solvency ratios measure the ability of the company to meet its long-term liabilities. There are three basic types of ratios: debt ratio, debt-to-equity ratio, and interest coverage.
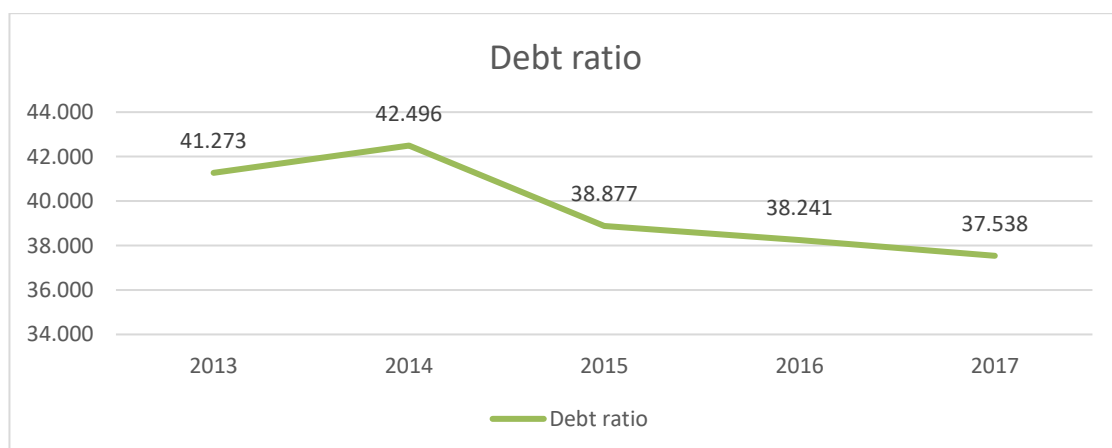
4.3.1   Debt ratio

Tab. 4.8 shows the debt ratio of Beiersdorf from 2013 to 2017. Chart. 4.8 shows us the trend of debt ratio of Beiersdorf from 2013 to 2017.

Tab. 4.8: Debt ratio of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
Total liabilities	2393	2690	2672	2896	3080
Total assets	5798	6330	6873	7573	8205
Debt ratio	**41.273**	**42.496**	**38.877**	**38.241**	**37.538**

Chart. 4.8: Trend of debt ratio of Beiersdorf from 2013 to 2017 (%)

Debt ratio calculates how much of the proportion of the company's assets are from liabilities. So it's calculated by total liabilities divided by total assets. It can not only measure the ability of the company to meet its liabilities, but also it can measure the resources of the company's assets. And different industry has different debt ratio needs. Because the bigger company needs more liabilities to support its operaing activities and financing activities.

Tab. 4.8 shows us the debt ratio of Beiersdorf increased in 2014, then decreased from 2014 to 2017. Looking for Chart. 4.8 we can find the debt ratio line went up in 2014, then went down from 2014 to 2017. And in 2014 it was the highest point over these years. And it changed up and down along a degree of 40%. Therefore, we can say that the proportion of the company's assets resources was changing every year. But the liabilities occupied a large amount in it. Because of the decreasing of debt ratio, we can conclude that the equity from shareholders was increasing. This situation indicates that the company can finance its assets very well.
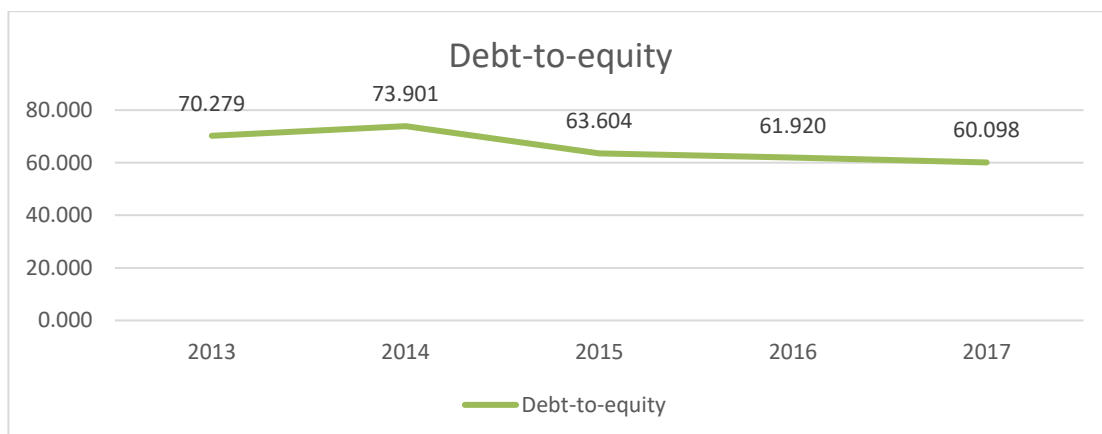
4.3.2 Debt-to-equity ratio

Tab. 4.9 shows the debt-to-equity ratio of Beiersdorf from 2013 to 2017. Chart. 4.9 shows us the trend of debt-to-equity ratio of Beiersdorf from 2013 to 2017.

Tab. 4.9: Debt-to-equity of Beiersdorf from 2013 to 2017 (%)

	2013	2014	2015	2016	2017
Total liabilities	2393	2690	2672	2896	3080
Equity	3405	3640	4201	4677	5125
Debt-to-equity	**70.279**	**73.901**	**63.604**	**61.920**	**60.098**

Chart. 4.9: Trend of debt-to-equity of Beiersdorf from 2013 to 2017 (%)

Debt-to-equity is similar to debt ratio. It also refers to the relationship of the company's total liabilities and equity. But the difference is that debt-to-equity is calculated directly by total debt divided by equity. We can easily find the proportion of the assets resources of the company. Because we all know that the

Tab. 4.9 shows us the debt-to-equity of Beiersdorf from 2013 to 2017. we can find that it increased only in 2014, and decreased in all other years. We can look for Chart. 4.9 to see the tendency of the debt-to-ratio line. It went up in 2014 and then went down until 2017. And the debt-to-ratio was always higher than 60% and lower than 75%. From the result we can find that the liabilities of Beiersdorf were always lower than equity. And the proportion was still decreasing in these years. From the Annual Report of Beiersdorf we can see that the equity was increasing year by year. In other words, it means that the company can make enough profits and transfer some of them into retained earning to reinvest as the equity of the company. Therefore, the company can do some mergers and aquisition to expand itself.
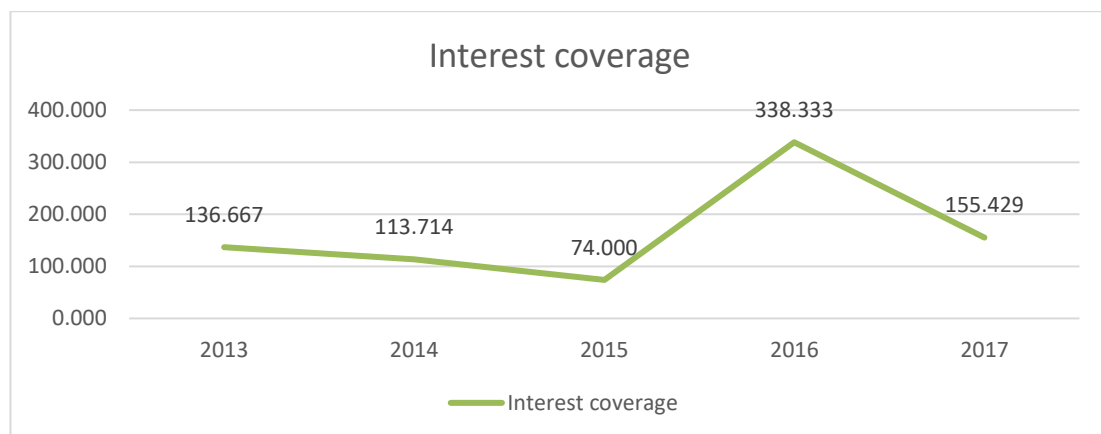
4.3.3 Interest coverage

Tab. 4.10 shows the interest coverage of Beiersdorf from 2013 to 2017. Chart. 4.10 shows us the trend of interest coverage of Beiersdorf from 2013 to 2017.

Tab. 4.10: Interest coverage of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
EBIT	820	796	962	1015	1088
Interest paid	6	7	13	3	7
Interest coverage	**136.667**	**113.714**	**74.000**	**338.333**	**155.429**

Chart. 4.10: Trend of interest coverage of Beiersdorf from 2013 to 2017

Interest coverage calculates the ability of the company to meet its interest with its EBIT. So it's calculated by EBIT divided by interest paid. Therefore, it's obvious that higher interest coverage represents better situation of the company. Because higher interest coverage indicates stronger ability to pay its interest fees.

Tab. 4.10 shows us the interest coverage of Beiersdorf from 2013 to 2017. We can find that it decreased from 2013 to 2015, and down to the lowest point. Then increased rapidly in 2016 to the highest point. Finally it decreased in 2017 for a huge amount. From Chart. 4.10 we can easily find the highest point in 2016 and the lowest point in 2015. And most of the interest coverage results are closed to 100. But in 2015, it down to 74.00. we can find the reason from the Annual Report of Beiersdorf's cash flow statement. Because the interest paid in 2015 was increased rapidly. And in 2016, the interest paid was decreased rapidly. These changes lead to the wild fluctuation of the interest coverage line.

4.4 Activity ratios of Beiersdorf

Activity ratios measure the effiency of the company to use its assets. Activity ratios has four basic types of ratios: average collection ratio, accounts receivable turnover, inventory turnover, and total assets turnover.
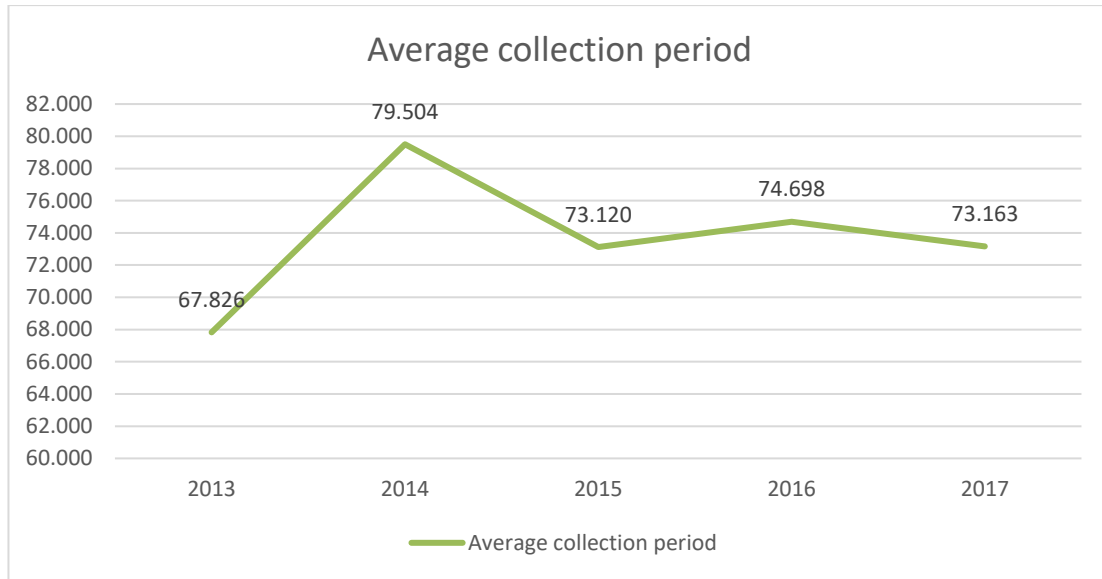
4.4.1 Average collection period (ACP)

Tab. 4.11 shows the average collection period of Beiersdorf from 2013 to 2017. Chart. 4.11 shows us the trend of average collection period of Beiersdorf from 2013 to 2017.

Tab. 4.11: Average collection period of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Accounts receivable	1157	1388	1358	1401	1434
Revenues	6141	6285	6686	6752	7056
Average collection period	**67.826**	**79.504**	**73.120**	**74.698**	**73.163**

Chart. 4.11: Trend of average collection period of Beiersdorf from 2013 to 2017

Average collection period calculates the how long it will take to get accounts receivable with cash. As we all know that not all transactions are traded with cash, but some of the trades are taken on credit. At this time, accounts receivable happened. It is also related to the liquidity of the company. Because it refers to the period of converting receivables into cash. Morever, it refers to the period of converting inventories into cash.

While looking for Tab. 4.11, we can find the average collection period of Beiersdorf from 2013 to 2017. We can see that it's between 60 and 80 days. And the highest point was in 2014. Then from 2014 to 2017, the ratio decreased generally. While looking for Chart. 4.11, we can find the trend of average collection period line. We can find that after 2014, the average collection period stayed stable along 73 days. We can ge to the Annual Report of Beiersdorf to find the reason. Because the accounts receivable grew rapidly during 2013/2014. So the average collection period increased a huge amount in this year. And it's easy to find that in 2014, the company had many sale on credit but not on cash.
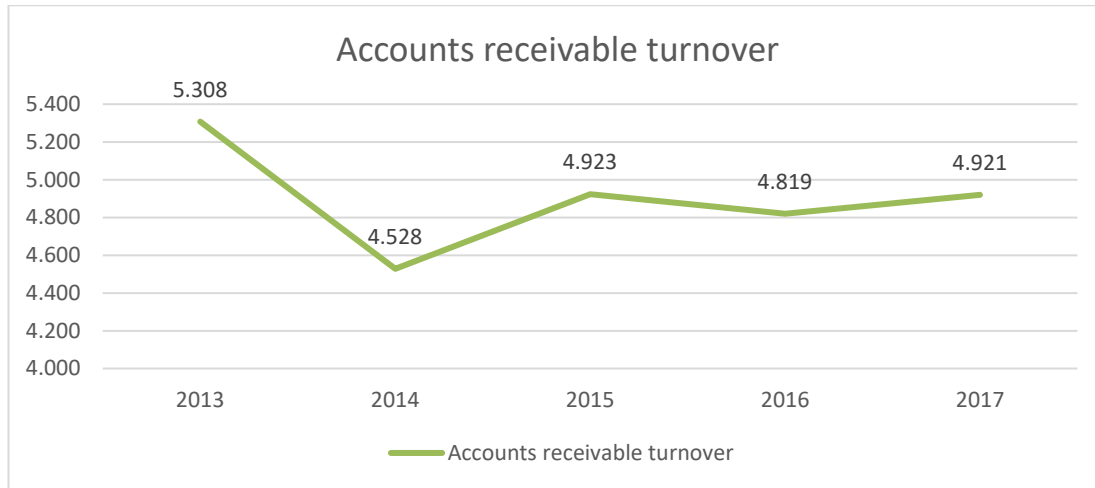
4.4.2   Accounts receivable turnover (ART)

Tab. 4.12 shows the accounts receivable turnover of Beiersdorf from 2013 to 2017. Chart. 4.12 shows us the trend of accounts receivable turnover of Beiersdorf from 2013 to 2017.

Tab. 4.12: Accounts receivable turnover of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Revenues	6141	6285	6686	6752	7056
Accounts receivable	1157	1388	1358	1401	1434
Accounts receivable turnover	**5.308**	**4.528**	**4.923**	**4.819**	**4.921**

Chart. 4.12: Trend of accounts receivable turnover of Beiersdorf from 2013 to 2017

Accounts receivable turnover calculates how many times the accounts receivable are used during one year. It is calculated by revenues divided by accounts receivable. As we all know, accounts receivable belong to current assets. So accounts receivable turnover also indicates the ability of the company to make good use of its assets.

While looking for Tab. 4.12, we can find the accounts receivable turnover of Beiersdorf during nearest five years. And it changed the trend every year. But we can find that the result was up and down along 5. In general, the accounts receivable turnover was stable over these years. By looking for Chart. 4.12, we can find thathe line was changed in a small scale. It means that the accounts receivable od the company were used almost 5 times every year. And with the changing of revenues and inventoris, the result will also changed a little.

4.4.3   Inventory turnover (IT)

Tab. 4.13 shows the inventory turnover of Beiersdorf from 2013 to 2017. Chart. 4.13 shows us the trend of inventory turnover of Beiersdorf from 2013 to 2017.

Tab. 4.13: Inventory turnover of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Costs of goods sold	2255	2671	2785	2774	2910
Average inventory	733	786	772	739	854
Inventory turnover	**3.076**	**3.398**	**3.608**	**3.754**	**3.407**

Chart. 4.13: Trend of inventory turnover of Beiersdorf from 2013 to 2017

Inventory turnover calculates the number of inventories are sold or used during a certain time period. It's calculated by cost of goods sold divided by average inventory. It shows the situation of the company's inventory. While inventory is the part of assets, so in the end, this ratio shows the information of the assets. Which is very important to a company. The higher ratio means more times the inventories are sold. So the turnover of the comoany's inventories is high.

While looking for Tab. 4.13, we can find the inventory turnover of Beiersdorf over these years. It's obvious that the inventory turnover of this company was always between 3 and 4. And the changes between these years were very small. We can see the trend from Chart. 4.13, the inventory turnover line changed gently between 3 and 4. It tell us that the company sold or used its inventories about 3 times a year from 2013 to 2017.
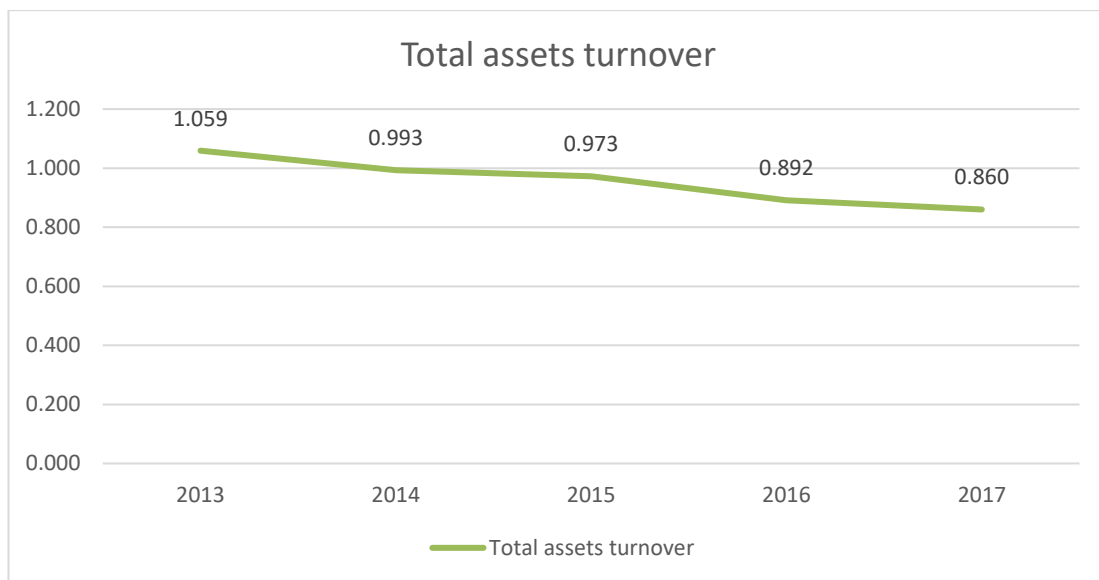
4.4.4 Total assets turnover (TAT)

Tab. 4.14 shows the total assets turnover of Beiersdorf from 2013 to 2017. Chart. 4.14 shows us the trend of total assets turnover of Beiersdorf from 2013 to 2017.

Tab. 4.14: Total assets turnover of Beiersdorf from 2013 to 2017

	2013	2014	2015	2016	2017
Revenues	6141	6285	6686	6752	7056
Total assets	5798	6330	6873	7573	8205
Total assets turnover	**1.059**	**0.993**	**0.973**	**0.892**	**0.860**

Chart. 4.14: Trend of total assets turnover of Beiersdorf from 2013 to 2017

Total assets turnover calculates the ability of the company to use its total assets to make profits. It's calculated by revenues divided by total assets. The higher of total assets turnover is, the more revenues the company has obtained. It means that the company is more profitable at this situation. And it's also a ratio to test the efficiency of the utilization of its assets.

While looking for Tab. 4.14, we can find the total assets turnover of Beiersdorf over these years. After looking all results of the ratio, we can find that total assets turnover ia the only one that decreased all the time from 2013 to 2017. We can find the tendency very easily from Chart. 4.14. we can find that the line declined from more than 1 to less than 0.9. While looking for the Annual Report od Beiersdorf, we can find that both of total assets and revenues were increasing during these years. But the assets grew at a faster speed than the growth of revenues. Therefore, the total assets turnover

decreased every. As we all know that TAT indicates the efficiency of the utilization of its assets. So we can conclude that Beiersdorf has to make some progress of its assets management.

4.5 Dopont analysis of Beiersdorf

In this chapter, we will combine DoPont analysis with financial data of Beiersdorf company. In order to anaysis the financial situation of Beiersdorf from 2013 to 2017. Then we will calculate ROE of Beiersdorf in details with DuPont analysis. As we have shown in chapter 2, ROE can be decomposed into three parts: net profit margin, total assets turnover, and financial leverage. We can see formula (2.23) in chapter 2. And net profit margin can be decomposed into three parts: tax burden, interest burden, and operating profit margin. We can also find the formula (2.25) in chapter 2. Therefore, ROE can be decomposed into five parts: tax burden, interest burden, operating profit margin, total assets turnover, and financial leverage.

Then the basic value of all components will be given at follow Tab. 4.15. And the absolute change of all components will be given in Tab. 4.16.

Tab. 4.15: The value of all components from 2013 to 2017.

	2013	2014	2015	2016	2017
Net profit margin	0.0884	0.0854	0.1004	0.1077	0.0976
Tax burden	0.6663	0.6621	0.6932	0.6990	0.6742
Interest burden	0.9939	1.0188	1.0062	1.0246	0.9393
Operating profit margin	0.1335	0.1267	0.1439	0.1503	0.1542
Total assets turnover	1.0592	0.9929	0.9728	0.8916	0.8600
Financial leverage	1.7028	1.7390	1.6360	1.6192	1.6010
Return on equity(ROE)	**0.1595**	**0.1475**	**0.1597**	**0.1554**	**0.1344**

Tab. 4.16: The value of the absolute change of all components frim 2013 to 2017.

	2013/2014	2014/2015	2015/2016	2016/2017
Net profit margin	-0.0030	0.0149	0.0073	-0.0100
Tax burden	-0.0041	0.0310	0.0059	-0.0249
Interest burden	0.0249	-0.0126	0.0184	-0.0853
Operating profit margin	-0.0069	0.0172	0.0064	0.0039
Total assets turnover	-0.0663	-0.0201	-0.0812	-0.0316
Financial leverage	0.0362	-0.1030	-0.0168	-0.0182
Return on equity(ROE)	**-0.0119**	**0.0122**	**-0.0043**	**-0.0210**

We can see from Tab. 4.15 and Tab. 4.16, the return on equity decreased from 2013 to 2014, increased from 2014 to 2015, then decreased until 2017. And in general, the ROE decreased about 2% from 2013 to 2017. Because there are so many factors in the table to affect the results of ROE, so it's difficult for us to know which one of them is the most important. So we have to use some methods to help us of our analysis.

In order to find the deep facors which influence the result of ROE. We can use influence quntification to help us. Then in this part, we will choose methods of gradual changes to analysis the the influence of each components. By using this method, we have to calculate the absolute change of each items. Which has been given in Tab. 4.16 above.

Then the following Tab. 4.17, Tab. 4.18, Tab. 4.19, Tab. 4.20 will show us the results of gradual changes method in differend time periods.

Tab. 4.17: The result of gradual changes method in 2013/2014.

	$2013(a_0)$	$2014(a_1)$	2013/2014	$\Delta X a_i$	Order
Net profit margin (a_1)	0.0884	0.0854	-0.0030	-0.0054	2
Total assets turnover (a_2)	1.0592	0.9929	-0.0663	-0.0096	1
Financial leverage (a_3)	1.7028	1.7390	0.0362	0.0031	3
Sum				-0.0119	

$$\Delta X_{a_1} = (-0.0030) \cdot 1.0592 \cdot 1.7028 = -0.0054$$

$$\Delta X_{a_2} = 0.0854 \cdot (-0.0663) \cdot 1.7028 = -0.0096$$

$$\Delta X_{a_3} = 0.0854 \cdot 0.9929 \cdot 0.0362 = 0.0031$$

Tab. 4.18: The result of gradual changes method in 2014/2015.

	$2014(a_0)$	$2015(a_1)$	2014/2015	$\Delta X a_i$	Order
Net profit margin (a_1)	0.0854	0.1004	0.0149	0.0258	1
Total assets turnover (a_2)	0.9929	0.9728	-0.0201	-0.0035	3
Financial leverage (a_3)	1.7390	1.6360	-0.1030	-0.0101	2
Sum				0.0122	

$$\Delta X_{a_1} = 0.0149 \cdot 0.9929 \cdot 1.7390 = 0.0258$$

$$\Delta X_{a_2} = 0.1004 \cdot (-0.0201) \cdot 1.7390 = -0.0035$$

$$\Delta X_{a_3} = 0.1004 \cdot 0.9728 \cdot (-0.103) = -0.0101$$

Tab. 4.19: The result of gradual changes method in 2015/2016.

	2015(a_0)	2016(a_1)	2015/2016	ΔXa_i	Order
Net profit margin (a_1)	0.1004	0.1077	0.0073	0.0116	2
Total assets turnover (a_2)	0.9728	0.8916	-0.0812	-0.0143	1
Financial leverage (a_3)	1.6360	1.6192	-0.0168	-0.0016	3
Sum				-0.0043	

$$\Delta X_{a_1} = 0.0073 \cdot 0.9728 \cdot 1.6360 = 0.0116$$

$$\Delta X_{a_2} = 0.1077 \cdot (-0.0812) \cdot 1.636 = -0.0143$$

$$\Delta X_{a_3} = 0.1077 \cdot 0.8916 \cdot (-0.1168) = -0.0016$$

Tab. 4.20: The result of gradual changes method in 2016/2017.

	2016(a_0)	2017(a_1)	2016/2017	ΔXa_i	Order
Net profit margin (a_1)	0.1077	0.0976	-0.0100	-0.0145	1
Total assets turnover (a_2)	0.8916	0.8600	-0.0316	-0.0050	2
Financial leverage (a_3)	1.6192	1.6010	-0.0182	-0.0015	3
Sum				-0.0210	

$$\Delta X_{a_1} = (-0.01) \cdot 0.8916 \cdot 1.6192 = -0.0145$$

$$\Delta X_{a_2} = 0.0976 \cdot (-0.0316) \cdot 1.6192 = -0.005$$

$$\Delta X_{a_3} = 0.0976 \cdot 0.86 \cdot (-0.0182) = -0.0015$$

In order to compare the final results easily, we will gather the finan results together in following Tab. 4.21. And the Chart. 4.15 will help us to analysis the tendency of the final results.

Tab. 4.21: The results of method of gradual changes from 2013 to 2017.

ΔXa_i	2013/2014	2014/2015	2015/2016	2016/2017
Net profit margin (a_1)	-0.0054	0.0258	0.0116	-0.0145
Total assets turnover (a_2)	-0.0096	-0.0035	-0.0143	-0.0050
Financial leverage (a_3)	0.0031	-0.0101	-0.0016	-0.0015
Sum	-0.0119	0.0122	-0.0043	-0.0210
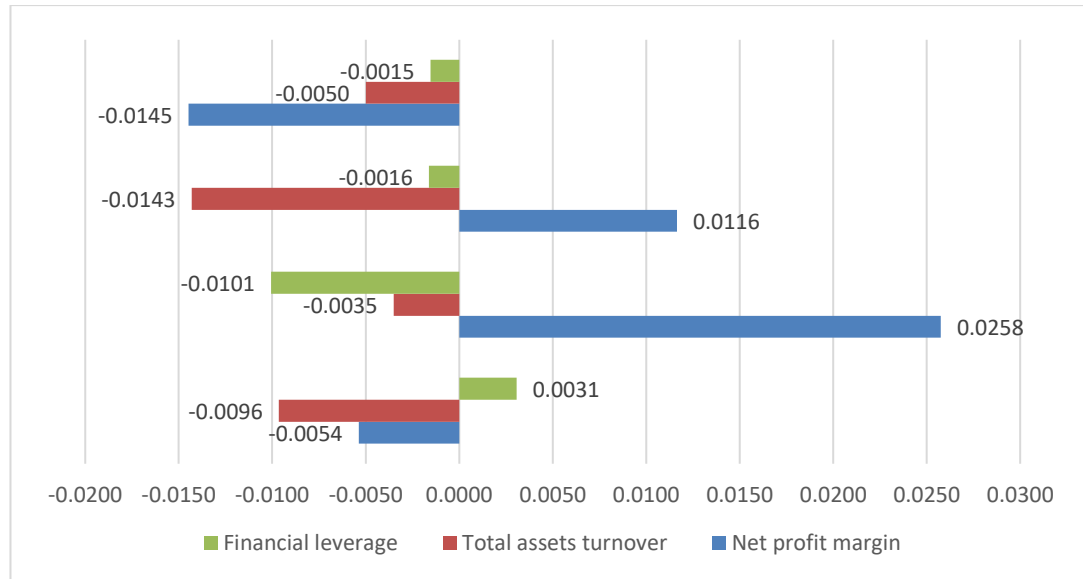
We can see from Tab. 4.17, the result of ROE of Beiersdorf from 2013 to 2014 was influenced most by total assets turnover, then was net profit margin, and the least affect was from financial leverage. And it easy to find that both of the results from net profit margin and total assets turnover were negative. Enven though they were not the most influenced parts, the sum of their influence was over than influence of financial leverage. Therefore, the finanl result of ROE was negative, which value was -0.0119. And it's easy to find from Tab. 4.16 that this result is the same as the absolute change of ROE in 2013/2014.

We can see from Tab. 4.18 that the return on equity of Beiersdorf from 2014 to 2015 was affected most by net profit margin, then was financial leverage, the least effects were from total assets turnover. And we can find that only the rusult of net profit margin was positive, which value was 0.0258. But the result of final ROE was also posotive. Therefore, the positive effect of net profit margin was too much than the negative effect from total assets turnover and financial leverage. And the final result of return on equity was 0.0122.

We can see the situation of ROE of Beiersdorf from Tab. 4.19, from 2015 to 2016, the return on equity was influenced most by total assets turnover, which value was -0.0143. Then was from net profit margin, which value was 0.0116. And the least influence was from financial leverage, which value was -0.0016. And we can see that the most influenced was total assets turnover, and it was negative. And the least

influenced was financial leverage, it was also negative. Therefore, the final value of ROE must be negative, and its vale was -0.0043.

We can find the result of Beiersdorf's ROE in 2016/2017 from Tab. 4.20. It's easy to find that net profit margin affected the ROE most, next was -0.005 from total assets turnover, finanlly was -0.0015 which was from financial leverage. And we can find that all of these results were negative. Of course, the final result of ROE would be negative. And its value was -0.21.

Then in Tab. 4.21 we gather all results from 2013 to 2017 together. We can find that only a few of them were positive. They were net profit margin in 2015/2015 and 2015/2016, and the financial leverage in 2013/2014. Then all the other results were nagative during these years. So the final ROE were always negative during these years. While looking for Chart. 4.15, we can easily find that the financial leverage always had a small effect on ROE. And the net profit margin had a huge influence on ROE in most year. And total assets turnover influenced ROE the most in 2013/2014 and 2015/2016. And it's easy to find that no one of these components can affect the ROE the most all the time. Because all of them were changed by many factors in different years.

As we have described in chapter 2, DuPot analsis includes four basic method for analysis. So except the method of gradual changes, there are three more methods: But the results of each method will be the same to the same company. Therefore, we just choose one of them to analyze.

4.6 Summary

In this chapter, we used financial ratios analysis to analyze the practical data of Beiersdorf company. And there are five main parts: profitability ratio, liquidity ratio, solvency ratio, activity ratio, and DuPont analysis.

From the profitability ratio of Beiersdorf, we can find the main trends of each ratio. From the tables and charts, we can see the spacific change from 2013 to 2017. Operating profit margin went up from 13.35% to 15.42%, net profit margin changed from 8.84% to 9.76%, return on assets decreased from 14.14% to 13.26%, return on equity decreased from 15.94% to 13.44%. So the increasing of OPM and NPM indicate that the company made more profits year by year. But the decreasing of ROA and ROE indicate that the company's ability to make full use of its assets and equity had fallen

from 2013 to 2017. In other words, it means that the assets increased as a higher speed than the increase of its profits.

From the liquidity ratio of Beiersdorf, we can find that all of the basic ratios decreased during these years. The current ratio fell from 3.1 to 2.38, the quick ratio fell from 1.7 to 1.5, and the cash ratio fell from 0.55 to 0.4. As we all know that the liquidity ratio refers to the liquidity of the company. Therefore, the decreasing of liquidity ratio indicates the decline of the liquidity of the company's assets. It also means that the current assets of the company decreased gradually over these years. Because the current assets can make less profits than long-term assets.

From the solvency ratio of Beiersdorf, we can find that the debt ratio and debt-to-equity ratio decreased in general from 2013 to 2017. This situation shows that the long-term liabilities of Beiersdorf were relatively less. But the interest coverage of the company increased rapidly from 136.66 to 155.42. We can know from chapter 2 that the higher of the interest coverage, the stronger ability the company has to pay its interest fees. Therefore, the company's ability to meet its interest is stronger than before years. From the Annual Repot we can find that it's because of the increasing of EBIT and the stable of annual interest fees.

From the activity ratio of Beiersdorf, we can find that the average collection period increased from 67.82 to 73.16, accounts receivable turnover decreased from 5.3 to 4.9, inventory turnover increased from 3.07 to 3.4, total assets turnover decreased from 1.05 to 0.86. We all knoe that activity ratio measures the assets management of the company. So the changes of average collection period and accounts receivable indicate the ability to use its accounts receivable declined during these years. And the increase of IT means the company uses or sells its inventories more efficiency. And the decrease of TAT tell us the company can't make full use of its assets to obtain revenues.

From the DuPont analysis of Beiersdorf, it's easy to find that the net profit margin was the most influenced component in most of the periods. We can see this situation from Tab. 4.21. From 2014/2015, the value of net profit margin eas 0.0258, and the final change of ROE was 0.0122. From 2016/2017, the value of net profit margin eas -0.0145, and the final change of ROE was -0.021. And we can see that most of the components ratios were nagative. It means that all of these negative ratios lead to the

negative changes of ROE. So if Beiersdorf wants to increase its return on equity, it has to try to decrease its expenses of financial activities and operating activities.

After the analysis of Beiersdorf, we can find that even though Beiersdorf has made great progress in many aspects of its operation. But it still has many aspects to improve. Because the market competition will continue to increase in some markets. Therefore, the company has to make use of its Blue Agenda to meet the challenges of the markets. The company can chase their opportunities in systematically expanding their presence in the emerging markets. And also it can expand their position in European markets. By stengthening their brands, such as NIVEA, Eucerin, La Prairie, etc, to strengh the competition of the company. And in general, the company can increase its return on assets and return on equity by improving the efficiency of using its assets. Because we can see that the ROA and ROE of Beiersdorf decreased generally during these years. The company also has to stable its liquidity by stablilizing its current assets. By this way, the company will be able to maintain its ability to meet its current liabilities. And we can find from the result of activity ratios that the accounts receivable of the company were used less and less efficiently. It was shown as the increasing of the average collection period and the decreasing of the accounts receivable turnover. Therefore, inorder to make more profits in the whole market, the company must make full use of its account receivable.

5 Conclusion

Financial analysis is the process of analyzing the financial situation of a given company. By using some financial methods to analyze some financial data, then make a conclusion. Financial methods includes common-size analysis and financial ratio analysis. Financial data are main from the balance sheet, income statement, and cash flow statement of the company's Annual Repot. After these analysis, we can know not only the basic development situation of the company, but also the situation of its competitiveness, profitability, liquidity, solvency, and activity, etc. What's more, we can also know the deep reason of why the company had this situation, then the company can take actions to change its bad situation. Therefore, financial analysis is necessary for a company or a economic organization to promote their better development.

The aim of the thesis was to analyze the financial situation of Beiersdorf from 2013 to 2017 by using these financial methods. And then we will summarize some conlusions of its development and give some recommendations to the company of its operation.

Then we have used some methods to analyze the financial situation of Beiersdorf from 2013 to 2017 in this thesis. We have some conclusion of all chapters. And in the end, we have some recommendations to Beiersdorf company of its operating.

In chapter 2, we described the three main resouces of financial data firstly. There are balance sheet, income statement, and cash flow statement. And we had given the main elements in each table. Secondly, we described two kinds of commom-size analysis. There are horizontal common-size analysis and vertical common-size analysis. And we had given the main definition and formula of each kind of analysis. Finally, we described financial ratio analysis in details. There are five kinds of ratio methods, including profitability ratios, liquidity ratios, solvency ratios, activity ratios and DuPont analysis. We gave the basic characteristics of each ratio, and each ratio had its formula to calculate. All in all, in this chapter, we just had described some theoretical knowledges which would be used in Chapter 4.

In chapter 3, we introduced some basic information of Beiersdorf company for our better realize of the company. Including the history of the development of Beiersdorf, the sructure of the company, the strategy of its operation, the most famous brands of the

company, and the competition situation of the company. Then we started the common-size analysis of Beiersdorf. By calculating the absolute changes and the relative changes of some items in financial statements, we made some conclusion of the company's financial situation. And we explained some reasons of these changes. Also we gave some suggestions of the development of the company.

In chapter 4, we focused mainly on the financial ratios of Beiersdorf from 2013 to 2017. Through the calculation of profitability ratios, we found that the ROE and ROA were both decreasing during these years, so the company faced pressure of losing profits in recent years. Through the calculation of liquidity ratios, it was easy to find that all ratios decreased generally from 2013 to 2017. This meant that the company can meet its current liabilities hard than before. Because the current assets were related to decrease during these year. But it also meant that the company had more long-term assets for its profits. Through the calculation of solvency ratios, we found that the company's long-term liabilities were relatively less. And the interest coverage increased, meant the company had more revenues to pay its interests. Through the calculation of activity ratios, we found that the company used its accounts receivablr less efficiently. And finally, we used pyramidal decomposition to decomposed the ROE of the company, we knew that net profit margin had a big effect on the final results of ROE. And we also gave some advice to Beiersdorf.

Finally, according to the analysis with these methods. We will have some brief recommendations to the company. While looking for profitability ratios of Beiersdorf, we can find that the ROE and ROA decreased from 2013 to 2017. However, we know that higher ratio represents better financial situation of the company. And we can see from the Annual Report that the huge increasing of their assets were from the investment in the Consumer Business Segment's new factory in Mexico and tesa's new headquarters near Hamburg. But the investment in this position can't be profitable in short time. Therefore, the EBIT and EAT increased slower than the increasing of assets. According to this situation, the company has to pay more attention to the utilization of its assets in new area. And we also find that all the basic ratios of liquidity ratio decreased during these years. And the increasing of current liabilities was in a high speed. It was because the annual increase in trade payables due to the operational activities of the company. This situation will decrease the liquidity of the company. So

we advise the company to stable their trade payables. Then the liquidity ratios of the company will also be stable, the ability of the company to meet its current liabilities will also be stable. This will be convinient to the company's management. And from the activity ratio of Beiersdorf, we can find the utilization of the accounts receivable decreased over these years because of the increasing of the average collection period and the decreasing of the accounts receivable turnover. Therefore, the company has to use some ways to decrease its amount of accounts receivable. In order to increase the cash profits of the company. Finally, the total assets turnover decreased either through these years. It also indicates that the company should promote the efficiency of the utilization of its assets. As we all know that asstes are the main resouces of profits.

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List of Abbreviations

A   Assets

OPM   Operating profit margin

NPM   Net profit margin

ROA   Return o assets

ROE   Return on equity

ACP   Average collection period

ART   Accounts receivable turnover

IT   Inventory turnover

TAT   Total assets turnover

EBIT   Earning before interest and taxes

EBT   Earning before taxes

EAT   Earning after taxes

Decleration of Utilization of Results from the Bachelor Thesis

Declaration of Utilization of Results from a Bachelor Thesis

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Yang Xia

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List of Annexes

Annexes

Annex 1: Balance sheet of Beiersdorf (in € million)

	2013	2014	2015	2016	2017
Assets					
Long-term assets	**1900**	**2340**	**2685**	**3297**	**3926**
Intangible assets	176	119	119	119	140
Property, plant, and equipment	785	964	1054	1046	1026
Non-current financial assets	804	1059	1318	1891	2532
Other non-current assets	2	3	3	29	23
Deferred tax assets	133	195	191	212	205
Current assets	**3898**	**3990**	**4188**	**4276**	**4279**
Inventories	733	786	772	739	854
Trade receivable	1102	1275	1258	1293	1326
Income tax receivables	55	113	100	108	108
Other current financial assets	96	108	115	143	151
Other current assets	137	170	167	163	169
Securities	791	562	858	958	770
Cash and cash equivalents	984	976	918	872	901
Total assets	**5798**	**6330**	**6873**	**7573**	**8205**
Equity					
Share capital	252	252	252	252	252
Additional paid-in capital	47	47	47	47	47
Retained earning	3209	3413	3955	4416	4969
Accumulated other income	-115	-83	-66	-59	-164
Non-controlling interests	12	11	13	21	21
Total equity	**3405**	**3640**	**4201**	**4677**	**5125**
Liabilities					
Long-term liabilities	**612**	**773**	**746**	**860**	**860**
Previous for pension	388	627	574	706	659
Other non-current provisions	82	73	81	96	121
Non-current financial liabilities	5	1	1	1	4
Other non-current liabilities	3	3	2	2	2
Deferred tax liabilities	134	69	88	55	74
Current liabilities	**1781**	**1917**	**1926**	**2036**	**2220**
Other current provisions	527	466	419	440	427
Income tax liabilities	87	130	145	146	162
Trade payables	973	1022	1152	1244	1420
Other current financial liabilities	104	135	109	108	109
Other current liabilities	90	164	101	98	102
Total liabilities	**2393**	**2690**	**2672**	**2896**	**3080**
Equity and Liabilities	**5798**	**6330**	**6873**	**7573**	**8205**

Annex 2: Income statement of Beiersdorf (in € million)

	2013	2014	2015	2016	2017
Revenues	**6141**	**6285**	**6686**	**6752**	**7056**
Cost of goods sold	-2255	-2671	-2785	-2774	-2910
Gross profit	**3886**	**3614**	**3901**	**3978**	**4146**
Marketing and selling expenses	-2605	-2300	-2430	-2407	-2471
Research and development expenses	-154	-168	-183	-188	-196
General and administrative expenses	-312	-330	-366	-364	-395
Other operating income	171	183	186	174	178
Other operating expenses	-166	-203	-146	-178	-174
Operating results(EBIT)	**820**	**796**	**962**	**1015**	**1088**
Interest income	23	32	25	30	35
Interest expense	-6	-7	-14	-4	-8
Net pension results	-12	-12	-13	-13	-12
Other financial results	-10	2	8	12	-81
Financial results	**-5**	**15**	**6**	**25**	**-66**
Profit before tax(EBT)	**815**	**811**	**968**	**1040**	**1022**
Income taxes	-272	-274	-297	-313	-333
Profit after tax(EAT)	**543**	**537**	**671**	**727**	**689**