

**University of Economics in Prague**

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**MASTER THESIS**

**Evaluation of Risk Management and Financial Performance  
of BMW Group**

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### **Declaration of Authorship**

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## **Abstract**

Effective risk and financial management possess a great challenge for the multinational companies operating globally. Despite the increasing development of diverse hedging strategies against foreign exchange risk, global firms cannot fully foresee and measure the degree of the impact of foreign currency fluctuations.

This paper aims to evaluate the exchange risk management and financial performance of the BMW Group from the year 2005 to 2016. Moreover, this paper is devoted to provide explanatory information on the impact of foreign exchange exposure on the financial performance of the company by the usage of information provided by the annual reports. The first section of the paper establishes the theoretical concepts of risk management with emphasis on exchange rate risk and financial performance analysis, which support the following study. The analysis of the industry and company's business operations worldwide, currency movement, detailed accounting examination, financial ratio, peer group, exchange rate exposure and hedging strategies are performed to examine the relation between the financial performance and foreign exchange risk management. The analysis reveals that the effective hedging strategies against the foreign exchange risk may substantially impact the company's financial performance and overall positioning in the competitive environment.

**Keywords:** Risk Management, Financial Performance, BMW Group

**JEL Classification:** G31

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## **Introduction**

The evaluation of risk management and financial performance provides better understanding of financial health of the company and general business operations development. Changes in the capital structure, as well as changes in hedging against risks, have noticeable effects on the firm's profitability and financial decision-making. For instance, most global firms use a diverse and complex capital structure to hedge against the risks of foreign exchange rate exposure. This research evaluates BMW Group, which originated in Germany. Consequently, we should consider specific characteristics of the European market.

There is an indication that the creation of currency unions, similar to Eurozone, results in significant bilateral trade increase of involved member states (Frankel and Rose, 2002). The euro currency was introduced in order to decrease exchange rate exposure and eliminate uncertainties of exchange rate changes affecting the prices of goods for European firms. Exchange rate risks arising from exchange rate changes have negative effects on business operations. The question is, however, if these effects can be estimated and measured reliably. Another question is how companies manage exchange rate exposure and how effective is their management.

The aim of the study is to evaluate the relation of foreign exchange risk management and financial performance of BMW Group over the period of 2005 - 2016.

The first part is devoted to the extensive literature overview. The first section of the literature overview aims to assess risk management practices and focuses on the overview of financial risks, such as market risks, credit risks and financing/liquidity risks. Since the study concentrates on the evaluation of exchange rate exposure and hedging strategies of BMW Group towards foreign exchange rate risk, the theoretical framework of risk management focuses on the analysis of foreign exchange risk. The findings in the first section of this paper then serve as a framework to examine BMW Group foreign exchange rate exposure hedging strategies. The author emphasizes the connection between international activities and the degree of exposure, yet, it is not always possible to easily identify the factors that account for the exposure. Unfortunately, the effects of any hedging activity undertaken by the firm will be incorporated and would affect estimates. Additionally, exchange rate risks could be divided into transaction, translation and economic risks. Firms usually either use financial or operational instruments to hedge against these exchange rate risks. Financial instruments include the use of financial derivatives, such as: Forward Contracts, Futures Contracts,

Options, Money Market Hedge. The second section of the literature overview allows to form an understanding of the core elements of the financial performance. Financial ratio analysis, detailed accounting analysis, and peer group analysis have been selected to analyze the financial performance of the company and its positioning in the competitive environment.

The second part of the thesis is devoted to the evaluation of foreign exchange risk management and financial performance of the BMW Group company. Firstly, an overview of the automotive industry and BMW Group company is done, and then its business segments and global operations are introduced. Secondly, the currency movement analysis is performed in order to better understand the selected foreign exchange rate fluctuations between the years 2005 and 2016. The daily exchange rates over the period from 2005 to 2016 have been used for the currency movements analysis. The data is retrieved from the independent financial data provider – Quandl. Thirdly, detailed accounting and financial ratio analysis of the BMW Group is performed for the period of 2005 – 2016. The financial data for both analyses have been retrieved from the BMW Group Annual Reports from 2005 to 2016 and also attached in the Appendix. The main findings from both analyses also provide an information of the relation between foreign exchange risk and financial performance of the company. Moreover, the peer group analysis has been conducted to evaluate the BMW Group positioning in the competitive environment. Based on the results derived from the analyses, the section concludes with the evaluation and discussion of BMW Group hedging strategies against the foreign exchange risk exposure.

## **Theoretical Framework**

### **Foreign Exchange Risk Management and Financial Performance**

There are growing studies that indicate a link between foreign exchange risk management and a company's performance (Ankrom, 2007). Some of the researches have concluded that companies with solid foreign currency risk management have higher financial performance (Lee, 2010). Other studies have shown that the successful risk management can be associated with sound financial performance in the form of return on assets (ROA) (Stacy and Williamson, 2010).

Thus, the use of hedging strategies results in diminishing foreign exchange exposure, consequently decreasing losses for the company. In other words, foreign exchange risk hedging strategies entail eliminating or decreasing the risk of foreign exchange exposure (Barton, Shenkir, and Walker, 2002).

A foreign exchange exposure is the sensitivity of fluctuations in the real domestic currency value of assets, liabilities, cash flow, or operating income to unexpected movements in the exchange rate (Kihara and Muturi, 2016),

Most studies have indicated that some of the hedging strategies and instruments are more preferred, such as the natural hedging strategy, forward contracts and foreign currency options hedging techniques, and specific preferential hedging strategies (Kihara and Muturi, 2016),

Thereby, global companies put great emphasis on foreign exchange risk management, since foreign exchange can substantially affect the company's financial performance. Companies operating globally are facing various foreign exchange risks associated with exchange rate movements and company's growth, cash flow, working capital, investments, and many others. The effective foreign exchange risk management is an important part of evaluating the company's performance. In order to evaluate the company's overall performance in the market - an integrated study of foreign exchange risk management and financial analysis should be implemented. Since the foreign exchange risk management is an integral part of a stable financial performance of the company.

The theoretical framework consists of two main parts – overview of risk management with deep emphasis on exchange rate risk exposure and financial analysis with greater emphasis

on financial ratios and detailed accounting analysis. Both analyses provide a broader view of the company's financial position and comparative advantage in the market.

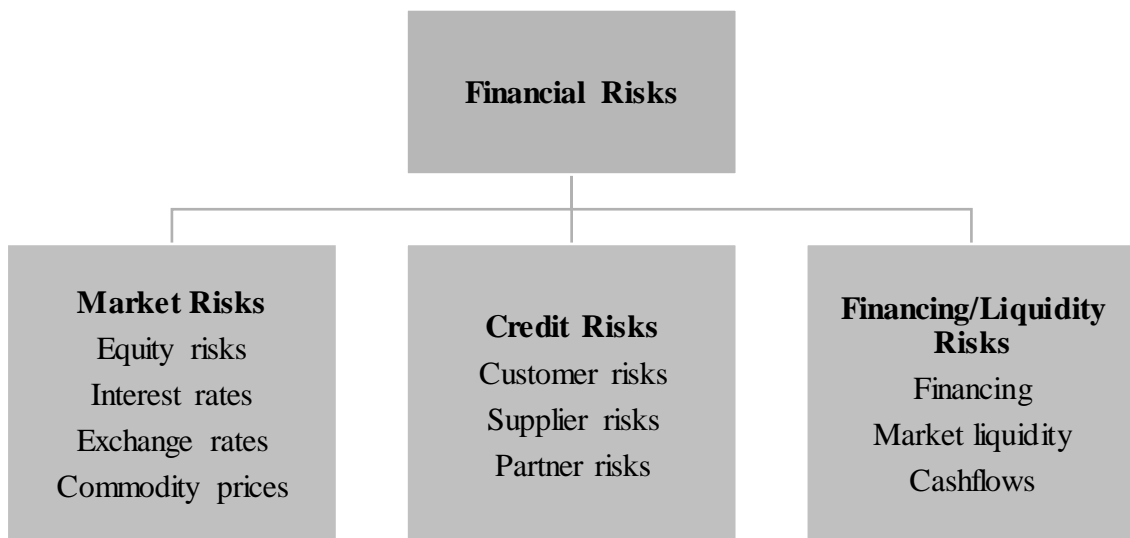
## **Risk Management**

### **Purpose and objectives of risk management**

Risk management comprises of various methods to identify, assess, and manage the risks, which a company faces in its attempt to minimize the impact of unfortunate events that would damage the company. There are different types of risks that a firm can experience, such as industry environment, local law and regulations, operational efficiency, corporate social responsibility, and financial risks (Woods and Dowd, 2008). The objective of risk management is to ensure that uncertainty is minimized and that the threat to the business operation is hedged (Antunes and Gonzalez, 2015).

Financial risk refers to the risks that relate to financial loss or gains of the company. Financial risks can be broken into different types, such as foreign exchange rate risks, interest rate risks, liquidity risks, cash flow risks, credit risks, and many others (Woods and Dowd, 2008). We can also say that these risks are interrelated with each other and sometimes even linked together. For instance, the company can experience risks of foreign exchange rate and interest rates at the same time.

So, we can categorize the financial risks into the following categories presented below in Figure 1.



*Figure 1: Categories of Financial Risk*

The first element of figure 1, market risk, refers to the risks associated with changes in the market, such as rise or fall of market commodity prices, interest rates, and fluctuations of exchange rates. Credit risks relate to the risks of the defaults of company's counterparty, such as customers, suppliers, vendors, or partners. Credit risks are considered to be more fundamental and crucial in the financial services firm, since this type of company is heavily dependent on the client's ability to repay the lending money back. Financing/liquidity risks are the risks that a company can experience in case of an inability to pay cash, to meet short-term financial obligations, or in case of inability, to fulfil the bank's requirements for financing, and many others. Consequently, management of financial risks is crucial and is a core part of the company's well-being, since business operations are heavily dependent on any deviations of these risks.

Changes in exchange rates have noticeable consequences on the firm's profitability and financial decision-making. There is a link between international activity and exposure, however it is not always possible to easily identify the factors that account for the exposure. Exchange rate exposure can be measured by the correlation between exchange rates and the company's financial performance.

Exchange rate risks could be divided into transaction, translation and economic risks. Firms usually either use financial or operational instruments to hedge against these exchange rate risks. Financial instruments include the use of financial derivatives, such as: Forward Contracts, Futures Contracts, Options, Money Market Hedge. Operational instruments include the following strategies: currency risk sharing, leading and lagging. Few more operational hedging strategies include creation of re-invoicing centers or selling to an internationally-diversified consumer markets. Since most of the firms dynamically modify their hedging strategies in response to exchange rate risk, it is challenging to determine the effects on firms' profits as a result of exchange rate movements.

### **Exchange Rate Risk**

Exchange rate risk is one of the financial risks that a global company is exposed to, since some of their business operations may be located in several countries and regions with different currencies. Exchange rate risk can be described as a potential direct loss from unhedged exposure or an indirect loss in company's cash flow, assets and liabilities, net profit, or overall market value as a result of changes in exchange rate (Papaioannou, 2006). In other words, exchange rate risk makes sure that the firm's assets or liabilities are kept in

foreign currencies, but they could also possibly impact the earnings and capital of the firm due to unexpected and undesirable movements in the exchange rate (Crouhy, Galai, and Mark, 2014).

The foreign currency exposure can be defined as a variance between domestic and foreign currencies (Papaioannou, 2006).

Unhedged exchange rate risk can bring huge operating losses, particularly adversely influence profit margins and the value of assets, and consequently stagger even the financial position of the company in the market (Papaioannou, 2006). The more volatile the exchange rate between two countries, the greater the exchange rate risk.

Thereby, in order to manage the exchange rate risk, the firm identifies a specific type of the exchange rate risk it is exposed to and creates a hedging strategy engaging available instruments to manage this risk. There are three main types of exchange rate risks that are examined in the study, such as transaction, translation and economic risks, which are described in the following part.

### **Types of Exchange Rate Risks and Their Management**

Transaction Risk (Cash Flow Risk) – risk influencing value of contractual cash flows in the future, due to future exchange rate changes (Picardo, 2014). Frequently, the time frame between contracting and payment is relatively short (Döhring, 2008).

Consequently, cash inflows and outflows in home currency terms are affected, such as receivables or payables from export or import contracts and dividends that are repatriated. Transaction Risk can be interpreted as a measure of sensitivity of the value of cash flow and value of assets in home currency and liabilities in foreign currency to unexpected changes in exchange rates.

The wider is the time period between contracting and payment, the bigger the exposure. Usually there is a short period between contracting and payment. Rarely, however, it can be up to several years, where deliveries are long time in advance, like in forward sales of planes or construction and building contracts.

Companies undertake one of these three strategies, in order to hedge against transaction risk: tactical, strategic or passive hedging. Tactical hedging's aim is to hedge currency risk related specifically to short-term receivable and payable transactions. Strategic hedging is focused on hedging currency risk related to long-term receivable and payable transactions. Passive

Hedging can be described as maintenance of the same hedging structure and execution over regular hedging periods. A passive hedging firm does not set appreciating or depreciating expectations about a specific currency. For previously described strategies, companies use financial and operational instruments that are going to be discussed further in the paper.

Translation Risk – risk caused by possible change in value of foreign items on company's balance sheet and change of cash flow and profits related to the foreign denominated assets and liabilities, due to changes in exchange rates (Picardo, 2014). The translation risk can be observed during the consolidation of a foreign subsidiary to the parent company's balance sheet (Papaioannou, 2006). Mostly, during the consolidation of the financial statements, the translation of the items can be implemented either at the end-of-the-period exchange rate or at the average exchange rate of the period.

It is important to mention that the income statements are usually translated at the average exchange rate over the period, while the balance sheets are usually translated at the current exchange rate at the time of consolidation (Papaioannou, 2006).

Translation Risk is not the priority of the management and therefore hedged infrequently. It affects the firm's subsidiaries valuation – its revenues, costs, profits, and structure of debt and international investments. When a specific firm decides to hedge a translation risk, it is done by hedging the subsidiary's balance sheet exposures that are potentially affected by an adverse exchange rate move.

Economic Risk - risk affecting the firm's present value of future operating cash flows, as a result of potential exchange rate movements. Due to its long-term nature, it has a substantial impact on the company's market value (Picardo, 2014). Comparing with other exchange rate risks, the economic risk influences future revenues, expenses and the firm's value, whether they are denominated in a foreign or domestic currency.

Economic risk is hedged similarly to transaction risk with the use of financial and operational strategies. Operational hedging is also performed by diversification of production facilities, end-product markets and financing sources, in order to achieve an offsetting effect. While financial (currency risk mitigation) strategies involve management of currency flows, risk-sharing agreements and currency swaps

## **Financial Techniques of Managing Transaction Exposure**

Financial instruments of transaction exposure management include forward and futures contracts, options, and synthetic forward contracts.

- Forward Contracts - Agreements to pay or receive a fixed amount of foreign currency at some specified date in the future. This contract allows the conversion of the uncertain future value of the home currency into a certain value in home currency that is expected to be received or paid on the specified date by the contract, independent of the changes in the exchange rate in the remaining time of the contract (Bodnar, 2017).
- Futures Contracts - Agreements equivalent to forward contracts, dealing with commodities (Bodnar, 2017). There are some other important features of futures that are different from forward agreements, besides the obvious difference in subject of trade. Futures agreements are standardized and traded at exchanges and therefore their contract sizes, maturity dates and several other features are limited (Giddy and Duguey, 1992). Consequently, futures agreements are available in only certain sizes, maturities and currencies. Therefore, it may not be possible to get an exactly offsetting position to eliminate the exposure. Unlike forward contracts, futures agreements are traded on an exchange and therefore have a liquid secondary market, making it easier to close out a contract by entering an offsetting position in case the contract timing does not match the exposure timing. Additionally, the exchange requires the trader to maintain a certain margin to ensure that no credit risk is involved.
- Options - Foreign currency options are contracts that have an initial fee paid up-front to the writer of the option by the buyer of the option. Such agreements provide the right, but not the obligation for the option buyer to trade domestic currency for foreign currency (or the other way around) in a specified quantity at a specified price over a specified time period or at the maturity. Options vary from put to call options and those have different variations: European, American or Future styles. In comparison to futures and forwards agreements, options have a nonlinear payoff profile. Hedging with options allows removing a downside risk and keeping the benefit from upside risk (Bodnar, 2017).
- Money Market Hedge – A hedging technique used to offset foreign exchange risk using the money market, the financial market instruments. Small businesses or retail investors find this technique to be extremely convenient because the size of the

transactions to be hedged usually does not reach the size of future or forward agreements, consequently making money market hedge to be more accessible in comparison to alternatives (Giddy and Dugey, 1992).

When a foreign currency receivable is anticipated to happen at specific time in the future and currency risk is expected to be hedged through the money market hedge, the investor should undertake the following steps:

An entrepreneur can perform money market hedge of the foreign currency receivable by taking a loan in a foreign currency in the amount equivalent to the present value of the receivable and then by converting that borrowed money to the domestic currency at a spot exchange rate and depositing it in domestic bank. At the date when foreign currency receivable is anticipated, the entrepreneur should repay foreign loan with that receivable, leaving him with domestic deposit and therefore hedging against exchange rate risk.

Similarly, if a foreign currency payment has to be made after some time; the entrepreneur would borrow in domestic currency, convert it to foreign currency and deposit it in a foreign bank. Then, when the foreign currency payable is due, he would make the payment using foreign currency deposited in a foreign bank.

General hedging rule can be derived to deal with cash outflows and cash inflows. For cash outflows, when there is high confidence about future exchange rates, the trader should go long futures or forwards. When the trader has high uncertainty about future exchange rates, he should purchase call options. When dealing with cash inflows, the trader with high confidence about future exchange rates should go short futures or forwards. If there is high uncertainty, he should purchase a put option.

### **Operational Techniques of Managing Transaction Exposure**

Operational Techniques to manage exchange rate exposure include risk shifting, currency risk sharing, leading and lagging and creation of re-invoicing centers.

**Risk Shifting** is the most commonly used strategy by firms. The idea is to shift risks on the importer by invoicing him exporter's home currency. When the risk of price changes, this may cause the additional costs to be covered. Mostly the costs are covered by the firm which can do it at the lowest cost. Moreover, when the risk of price changes, most probably it will also affect the final price of the product (Bodnar, 2017).

Close to 50% of Euro-area exports to countries outside of the EU are invoiced in the Euro currency. For instance, exporting company B located in Japan would invoice importing company A located in USA in JPY, rather than USD. By doing that, Company B would avoid transaction exposure all together. Importer Company A, however, bears transaction risk exposure for a transaction in foreign currency and can switch to more convenient or flexible competitor.

Consequently, there is a strong interest from the side of exporters for invoicing in their domestic currency. However, once other variables, such as market structure or long-term economic risks are also taken into account, it becomes less certain if the exporter should use domestic currency for invoicing (Kamps, 2006).

Most frequently, however, the benefit of reduced exchange risk exposure due to risk shifting overwhelms disadvantages. For instance, according to "Grassman's law" (Grassman, 1973) trade in manufactured goods between industrial countries is mostly invoiced in the exporter's currency.

The main reason is that in trade between industrial countries there is usually a similar monetary stability. Additionally, the exporter usually is able to impose his own currency, due to obvious first-mover advantage in bargaining over the invoicing currency and due to the market power he might have to ensure his clients would bear the exchange rate risk, rather than find another supplier.

Alternatively, international trade can be denominated in a vehicle currency (the currency of neither the importer nor the exporter), because it may be optimal for an exporter of homogeneous goods to align his transactions with same invoicing currency used by main competitors (Björn, 2008). Homogeneous goods' producers are frequently faced with high elasticity of demand. The exporter who chooses to invoice in home currency is exposed to the risk of a reduction in demand when his currency appreciates, if he does not adjust prices instantly. In order to avoid big changes in the demand resulting from exchange rate movements, they choose to invoice in the same currency, as the majority of their competitors. If the market share of the exporter's country is relatively small, it may be more profitable for him to invoice in the importer's currency or a vehicle currency in order to be more competitive. Exchange rates of even the most stable currencies fluctuate by the minute, it is extremely costly for the ordinary exporter adjustment prices instantly. That is why the choice of the favored invoicing currency is dependent on the elasticity of foreign demand and the

volatility of the exchange rate. International commodities are mostly traded in a single vehicle currency, in most cases the US dollar, because as a vehicle currency it is stable, liquid and has low transaction costs.

Choice of the strategy has its implications on the monetary union and exchange rates. By choosing an invoicing currency, the exporter creates a demand for it and consequently affects the exchange rate. The effect can be insignificant on the example of one specific company, however if the exporter's market is relatively small and most of the exporters choose an invoicing currency to be different than the home currency, then the effect can be more noticeable.

**Currency risk sharing** is an alternative to risk shifting strategy, where the two parties share the exchange rate gain or loss by adjusting future contract's price according to the changes in currency exchange rate (Bodnar, 2017). The contract can be written in a way to ensure that any gain or loss resulting from the change in the exchange will be split between the two parties. For instance, let us assume that a specific agreed 6-month future contract price is 100 USD per one contract. Then if the rate in 6 months will be that, the 100 USD can buy only 0.80 of the contract due to USD depreciation, as a result the seller of the contract would receive 125 USD for one contract and the buyer would pay 25 USD more than the agreed price. If the buyer and the seller enter fair currency risk sharing agreement, then they would share the gain and loss equally, resulting in the buyer being able to purchase not 0.80 of the contract for 100 USD, but 0.90 of the contract, therefore making the price paid by the buyer to be not 125 USD for one contract, but 111.1 USD. The seller's profit and buyer's loss are smaller in comparison to the situation when no risk sharing agreement is concluded. Consequently, splitting the exchange rate risk in half between two parties, but not eliminating it.

**Leading and Lagging** - the strategy aims to reduce transaction gains and losses due to different timing of foreign currency cash flows (Bodnar, 2017). For instance, when foreign currency in which an existing nominal contract is denominated and is anticipated to appreciate then, the company wants to pay off the liabilities early and take the receivables later to minimize potential losses. In a scenario when the foreign currency in which a nominal contract is denominated and is anticipated to depreciate, the company wants take the receivables early and pay off the liabilities as late as possible. However, it is important to

mention that in this case it is more difficult to require the payer to make the payment earlier, since it becomes more expensive.

**Re-invoicing Centers** - Another operational strategy involves the creation of re-invoicing centers between manufacture affiliates and distribution affiliates, for it to absorb all the transaction exposure. Manufacture and distribution affiliates are not exposed to exchange rate changes, since all transaction would be in the affiliate's local currency, as it pictured on the scheme below. Re-invoicing centers are usually placed in an offshore country, different from manufacturing and distribution location (Bodnar, 2017).

**Currency diversification** – Operational strategy to minimize the net impact of foreign exchange rate fluctuations on the firm's cash flows (Berkovitz and Zenner, 2012). However, currency diversification strategy should not be managed only to mitigate cash-flow volatility, since the long-term currency fluctuations might be offset by the price change of the product and thereby minimize the currency risk in real terms. Instead, the company should concentrate on the currency risks that could bring financial distress. Though, within the time, the foreign exchange rate becomes more volatile and harder to predict and thereby the currency diversification becomes difficult in implementation (Stephens, 2001).

## Financial Performance

### Purpose and objectives of the financial analysis

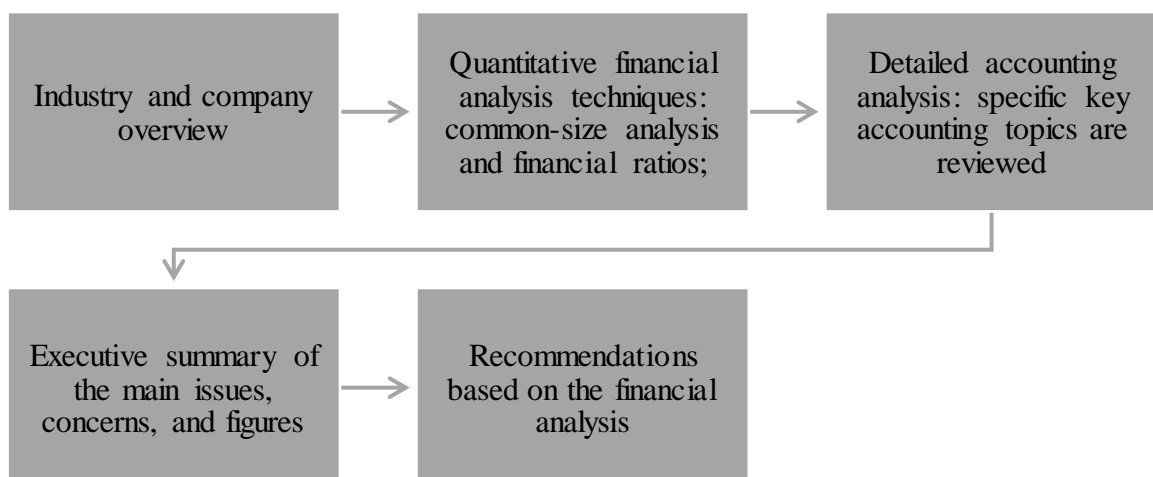
Financial analysis is a process of analyzing historical financial and non-financial data to examine the performance of the company and provide recommendations (Giroux, 2003). Financial analysis can be used by investors for investment purposes, by banks for credit or loan decisions, by business for merger and acquisitions purposes, and many others. The goal of the financial analysis is to “use financial data to evaluate the current and past performance of a firm and assess its sustainability” (Healy and Palepu, 2012). As you can see, the results of the financial analysis can play a crucial role in the decision-making process.

Major financial statements, such as the balance sheet, the income statement and the statement of cash flows are considered to be one of the main sources for investigating the financial health of the company. The quantitative financial analysis part of the thesis comprises of converting data from financial statements into financial ratios, which allows us to evaluate the trends over the time.

In this paper, the financial analysis of the company consists of the examination of industry analysis, company’s business segments, overview of global production, financial ratios, detailed accounting analysis of the released financial statements, and peer group comparison.

### Methods and techniques

Financial analysis of the company consists of the following steps:



*Figure 2 Financial Analysis Process (Source: Giroux, 2003)*

Quantitative Financial Analysis refers to the concept of converting data from the financial statements into percentages and comparing the findings with benchmark standards, common grounds, industry averages, or market averages.

Common-size analysis provides an overview of the company's financial position by illustrating "all the items from the balance sheet as percentage of total assets and from the income statements as percentage of sales or total revenue" (Giroux, 2003).

Detailed financial analysis provides supplementary information in notes and other sources regarding revenue recognition, balance sheet items, cash flows and earnings management. The purpose of the detailed financial analysis is to reveal earnings management and better explore the economic reality of the company (Giroux, 2003).

### Financial Ratios Analysis

Financial ratios analysis is considered to be one of the most useful tools in examining the financial condition and performance of the company. Financial ratio is also called an index that translates financial data into percentage by dividing one accounting number by the other (Van Horne and Wachowicz, 2008). Using financial ratio analysis, we can compare the development of significant accounts in the financial statement and state whether there are some discrepancies or irregularities. The study focuses on the examination of financial ratios related to profitability, liquidity, leverage and activity.

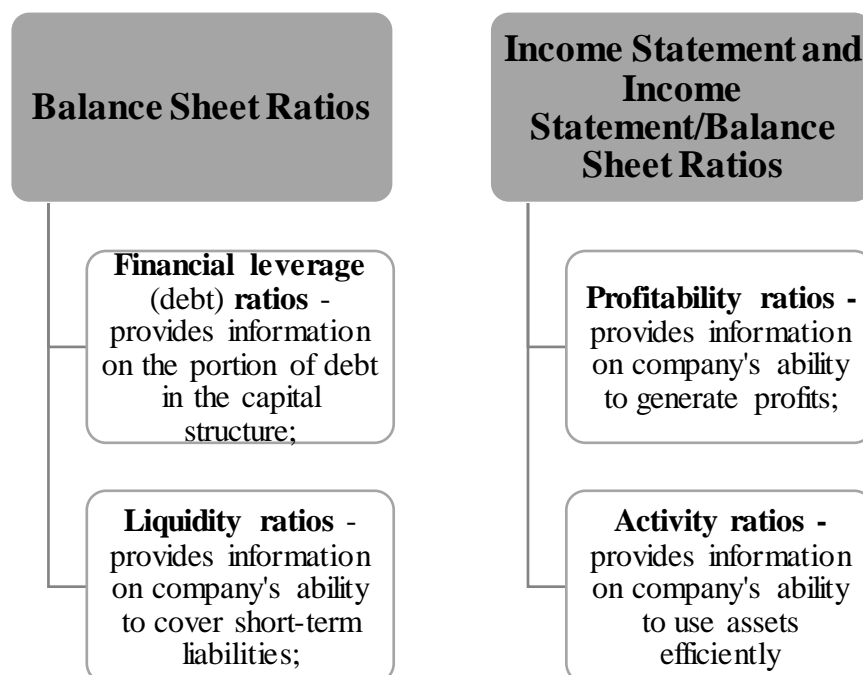


Figure 3: Types of Financial Ratios (Source: Van Horne and Wachowicz, 2008)

### ***Profitability***

Profitability is an ability of the company to generate profit from all their business activities during a specified period of time. A profit is an excess of revenue, which is left after paying all the expenses related to generation of revenue (Howards, 1953). Profitability is considered to be one of the most significant predictor of market value of the company and the likelihood of its growth, since it shows how efficiently resources are managed to stay profitable (Giroux, 2003).

The profitability of the company can also be adversely affected by a change in exchange rate. Since the global firms have business operations worldwide and thereby transact a substantial amount of profits in foreign countries, the company's profitability ratios may be affected by foreign exchange rate fluctuations (Kohlhagen, 1977). Moreover, the impact of exchange rate volatility may critically impact the company's profitability (Ninan, 2015). As a result, an adverse change in foreign exchange risk can cause a material adverse effect on the company's financial position. Thereby, the profitability ratios are considered to be one of the main indicators of the company's ability to successfully hedge against the foreign exchange risk. There are several types of profitability ratios that can be computed and analyzed, but since we do the evaluation from the shareholder's point of view, we will only examine the net profit margin, gross profit margin, return on assets (ROA), and return on equity (ROE) ratios in more detail. Below, you can see the formulas which were used for our calculations:

| Ratio                        | Formula   | Definition  |
|------------------------------|---|---|
| Gross (Profit) Margin Ratio  | $= \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}}$         | Measures how much of revenue remains after paying costs directly related to production of goods or services;  |
| Net Profit Margin Ratio      | $= \frac{\text{Net Profit After Tax}}{\text{Net sales}}$                  | Measures net income towards sales generated. Also called Return on Sales.                                     |
| Return on Assets (ROA) Ratio | $= \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$               | Measures how efficiently the resources are managed to generate profit. Also called Return on Investment (ROI) |
| Return on Equity (ROE) Ratio | $= \frac{\text{Net Profit After Tax}}{\text{Total Shareholders' Equity}}$ | Measures how much profit is made with shareholders' capital invested  |

*Table 1: Profitability Ratios (Source: Van Horne and Wachowicz, 2008)*

## ***Liquidity***

Liquidity ratios examine whether the company has enough cash and other current assets to pay their obligations when they become due (Giroux, 2003). Working capital, which is the difference between current assets and current liabilities, is considered to be one of the significant measures of liquidity. Thus, negative working capital can signal that there is shortage of cash and other current assets to repay current liabilities, such as accounts payable. Sometimes, when the company wants to raise sales in short-term, they are selling to customers on credit, but most of the time these amounts of money are quite hard to collect. Furthermore, surplus of inventory or increase in inventory can also indicate some issues with operating activities. For this reason, liquidity ratios are considered to be the most important indicator of the financial health of the company and its ability to pay short-term obligations as they come due (Van Horne and Wachowicz, 2008).

Foreign exchange risk can substantially impact the liquidity ratios as well. When the global firms operating worldwide raise capital by either borrowing debt or using equity, in order to increase the assets and consequently to generate earnings – they might be also exposed to the foreign exchange rate risk (Singh, 2017). As the firm has business operations globally, it needs to translate the foreign currency values of each item of the assets and liabilities into domestic currency. During this process of consolidation of the financial accounts, the exchange rate can fluctuate in adverse change, which eventually may reduce the value of the company's cash and other current assets to pay the obligations, or may raise the value of debt and consequently bring huge losses for the firm. Thus, we can assume that the better the liquidity ratio, the better the hedging strategy of the company to mitigate the foreign exchange risk.

In our study, to examine the present cash solvency of the BMW Group, we analyze current ratio and quick (acid test) ratio in more details. Below, you can see the formulas which were used for our calculations:

| Ratio                   | Formula   | Definition  |
|-------------------------|---|---|
| Current Ratio           | $= \frac{\text{Current Assets}}{\text{Current Liabilities}}$                      | Measures working capital;   |
| Quick (Acid Test) Ratio | $= \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$ | Measures company's ability to repay current obligations with most-liquid (quick) current assets |

*Table 2: Liquidity Ratios (Source: Van Horne and Wachowicz, 2008)*

### ***Leverage***

Leverage ratio, also called solvency ratio, is used to measure the extent to which the company is using the borrowed money (Van Horne and Wachowicz, 2008). In other words, leverage ratios provide an overview of the overall debt of the company and compare it with total assets or total equity. The lower the ratio - the better, since as debt increases, the higher the relative risk of default and the company ends with too many long-term debts (Giroux, 2003). To examine the extent to which the BMW Group is financed by debt, two leverage ratios are computed – debt-to-equity ratio and debt-to-total-assets ratio.

It is important to mention that leverage ratio, as well as liquidity ratio can also be substantially affected by the adverse change in the foreign exchange rate. Since most global firms have number of subsidiaries overseas operating in different currencies – all these expose the company to foreign exchange exposure. Moreover, quite high leverage ratios can also indicate whether the value of company's debt in foreign currencies are successfully managed by the foreign exchange risk management. Below, you can see the formulas which were used for debt-to-equity ratio and debt-to-total-assets ratio in our calculations:

| Ratio                      | Formula                                       | Definition   |
|----------------------------|---|--|
| Debt-to-Equity Ratio       | $= \frac{Total\ Debt}{Shareholders'\ Equity}$ | Measures the relationship between total debt (including current liabilities) and shareholders' equity; provides a comparison of debt to shareholders' equity |
| Debt-to-Total-Assets Ratio | $= \frac{Total\ Debt}{Total\ Assets}$         | Measures the portion of debt in total assets   |

*Table 3: Leverage Ratios (Source: Van Horne and Wachowicz, 2008)*

### ***Activity***

Activity ratios or also called turnover ratios refer to investigation and examination of the efficiency of the business operations (Giroux, 2003). Activity ratio is obtained by dividing the operating measure, such as revenue or costs of goods sold by the balance sheet measure, such as inventory, receivables, or payables (Giroux, 2003).

The substantial changes in activity ratios can also be caused by the foreign exchange rate fluctuations. If we consider that companies have a number of subsidiaries in foreign

countries with high turnover of inventory, receivables and payables in foreign currency, then during the consolidation of the financial accounts the exchange rate fluctuations can significantly affect the value of these items. Moreover, the critical activity ratios may also indicate on the company's ability to manage the foreign exchange risk.

There are three types of activity ratios, which have been selected and analyzed for the case study of the BMW Group, such as inventory turnover, receivables turnover and payables turnover. The measures aim to provide the overview of how effectively the company uses their inventory, receivables and payables in relation to sales (Van Horne and Wachowicz, 2008). Below, you can see the formulas which were used in our calculations:

| Ratio                | Formula  | Definition   |
|----------------------|--|--|
| Inventory Turnover   | $= \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$ | Measures the inventory management, particularly examines the state of liquidity of inventory and ensures that warehouses do not store excess of inventories. |
| Receivables Turnover | $= \frac{\text{Sales}}{\text{Average Accounts Receivables}}$   | Measures the efficiency in company's credit policy. The higher the ratio, the shorter the period between sale and cash collection.                           |
| Payables Turnover    | $= \frac{\text{Sales}}{\text{Average Accounts Payables}}$      | Measures the periodicity of company's payments to the suppliers. The lower the ratio, the slower the company pays the bills to the suppliers.                |

*Table 4: Activity Ratios (Source: Giroux, 2003)*

### **Detailed Accounting Analysis**

Detailed accounting analysis focuses on the examination and evaluation of complementary information on firm's financial statement provided in annual reports (Giroux, 2003). The detailed accounting analysis provides us the key figures from the balance sheet, income statement and other comprehensive income, and cash flow statement. Thus, such a deep accounting analysis gives the possibility to assess the financial statements from the assurance and validity perspectives. Since the financial ratio analysis provides us with the overview of financial statements accounts, the detailed accounting analysis allows to explain the items and accounts of the financial statements in more details.

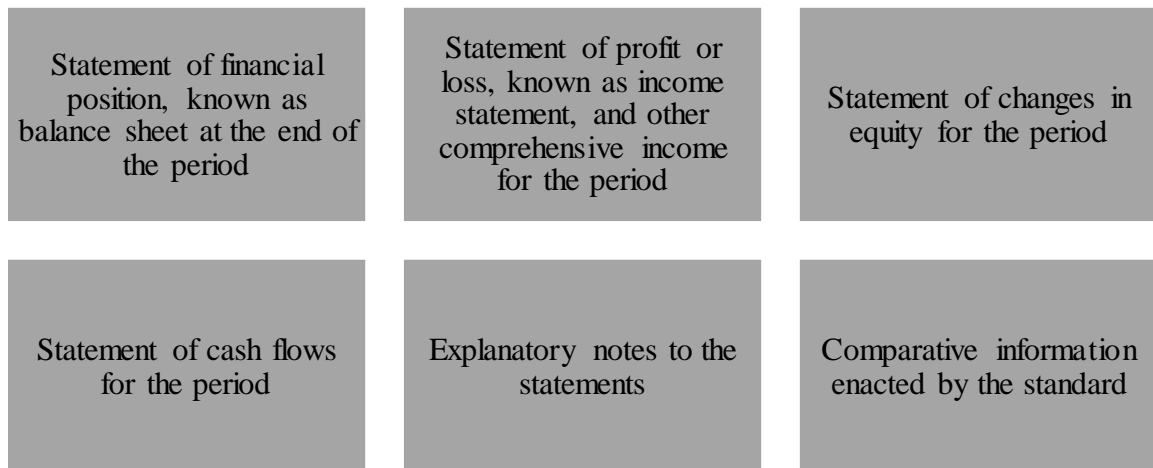
### ***Overview of Financial Accounting Policy and Annual Report***

The overview of the financial accounting in our study is based on the exploration of accounting policies of the company (Giroux, 2003). Accounting policy provides us with the essential grounds and basis of understanding on what principles the financial statements have been prepared by the management of the company. The aim of the implementation of the financial accounting overview is to define based on what rules and principles the financial statements are made and conform the main findings on the financial ratio analysis with the information given in the notes in released annual reports. For instance, when we look on the inventory level on the Balance Sheet and we are quite concerned regarding the item, we can look through the notes in the annual reports and find whether the firm uses first-in first-out (FIFO) or last-in first-out (LIFO), which can affect the total balance quite noticeably. Let us list the three types of accounting frameworks, which can be used by the companies:

- International Financial Reporting Standards (IFRS)
- United States Generally Accepted Accounting Principles (US GAAP)
- Other local Generally Accepted Accounting Principles (GAAP)

The firm's annual report consists of the Letter from Management, Management's Analysis, Financial Statements, and the Notes to these Financial Statements (Collins, 2011). Letter from Management is considered to be an introduction of the annual report, where management gives an overview of the company's performance, accomplished challenges, and plan for future growth (Brown, 2014). While Management's analysis provides the insights of the company's business operations and target segments, company's stock and market itself, summary of company's net income and expenses with comparison from the previous year, and other information related to the general review of the firm (Collins, 2011).

According to the International Accounting Standards Board (IASB)'s IAS 1 – Presentation of Financial Statement, the financial statements has to consist of:



*Figure 4: Components of Financial Statements (Source: International Financial Reporting Standards: IAS 1 - Presentation of Financial Statements)*

### ***Balance Sheet***

Balance Sheet provides an overview of company's financial position at given date by presenting the firm's assets, liabilities, and owners' equity (Van Horne and Wachowicz, 2008). Sometimes, balance sheet is also called "a snapshot of the firm's financial position at a moment in time" (Van Horne and Wachowicz, 2008). The liabilities and equity are considered as "sources of assets" since "the assets are financed by creditors and/or owners" (Giroux, 2003). This can be seen in the below accounting equation:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Owners' Equity}$$

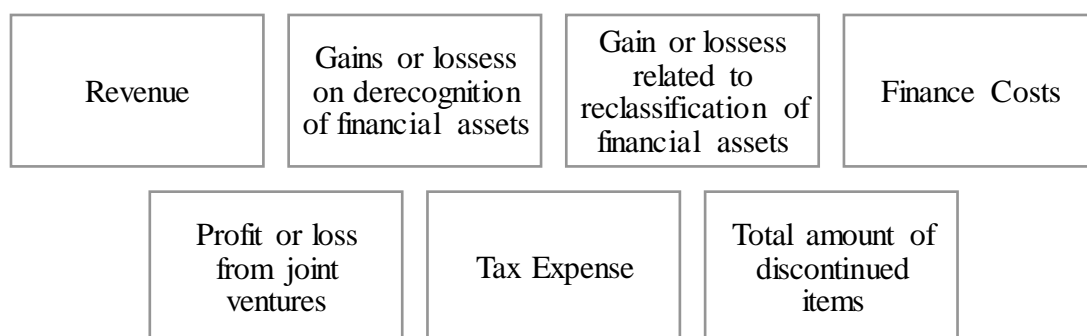
According to IASB Framework, the "asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity". However, the meaning of future economic benefits is not evident, since some of the items in the balance sheet can be overestimated, underestimated, misstated, and even not recorded (Giroux, 2003).

The statement of the financial position includes current and non-current assets and liabilities. The current assets are the cash and cash equivalents and the assets "held for the purpose of trading and expected to be realized in the entity's normal operating cycle within 12 months after the reporting period" (IAS 1.66). The remaining assets considered as non-current. The

current liabilities have the same requirements as current assets with one more addition stating that the liability of the company “for which the company does not have conditional right to extend the period beyond 12 months” is considered “current” (IAS 1.69). Stockholder’s equity represents the ownership in corporation, where you can find an information on share capital and reserves, retained earnings, other comprehensive income, and other (Giroux, 2003). The analysis of the BMW Group provides more detailed examination of some of the items of the balance sheet such as inventory, derivative financial instruments, trade payables, retained earnings, and other.

### ***Income Statement***

The income (earnings, or profit and loss) statement presents a summary of revenue and expenses of the company over a specified period, usually issued quarterly and annually (Van Horne and Wachowicz, 2008). The cost of goods sold illustrates direct costs, such as raw materials, labor, and manufacturing overhead incurred to produce the product (Van Horne and Wachowicz, 2008). Depreciation expense can be a part of the costs of goods sold or can be listed separately as interest expense, depending on the nature of the business. To evaluate the operating performance and future earnings of the company, we examine the most crucial items of the income statement, such as net income, earnings per share, and income from continuing operations (Giroux, 2003). Net income tells us how much from the earned is left after subtraction all expenses incurred (Giroux, 2003). Earnings per share is considered as one of the main indicators of the company’s profitability. The earnings per share reveals the portion According to IASB Framework, the profit or loss statement has to include at least the following items:



*Figure 5: Minimum Items of the Profit and Loss Statement (Source: IAS 1.82-82A)*

### ***Other Comprehensive Income***

Other comprehensive income is displayed after the summary of the income statement or profit and loss statement. The main purpose of the other comprehensive income is to provide complementary information on gains and losses, which have not been presented in the income statement (Giroux, 2003). Most of the time, the other comprehensive income reveals exchange rate differences due to the translation of functional currencies into presentation currency, gains and losses on recognition and measurement of the financial instruments, available-for-sale securities, and other (IAS 1). The paper focuses on the analysis of the following items of the other comprehensive income - foreign currency translation and number of financial instruments used for hedging purposes. Analysis of the recognition and measurement of the foreign currency transactions in the other comprehensive income is based on the International Accounting Standards 21 - The Effects of Changes in Foreign Exchange Rates. The examination of measurement of the financial instruments used for hedging based on the International Financial Reporting Standards 9 – Financial Instruments.

### ***Cash Flow Statement***

Cash flow statement reveals the information of how much cash is generated and utilized within the company. In comparison, while the balance sheet and the profit and loss statement depends on actual accounting to estimate the operating performance and financial position of the company, the cash flow statement shows us the capabilities of internal funds of the company to cover their business operations (Giroux, 2003). Furthermore, the cash flow statement helps to evaluate the liquidity of the company, as either deficit or excess of the cash can serve as a bad or as a good sign of the firm's performance.

According to International Financial Reporting Standards (IFRS) IAS 7 on Statement of Cash Flows, cash flows statement categorizes cash inflows and cash outflows into three categories, such as operations, investing, and financing. The cash flows from the operations activities contains the cash inflow from the customer and cash outflow to suppliers and employees (IAS 7.14). Most of the time the cash flow from operations activities is positive, since the net income is usually positive. While the cash flow from investing activities is negative, since it involves the investment that mostly uses cash (Giroux, 2003). The cash flow from financing activities refers to the activities related to the acquisition or disposal of equity or debt (Giroux, 2003). According to IAS 7.43, the investing and financing transactions that involve cash should not be present in the cash flow statement, but they should be disclosed further in the financial statements. Furthermore, the amount of cash and

cash equivalents, which cannot be used by the company should also be explained in the disclosure of the financial statements (IAS 7.48). During the analysis of the BMW Group, some items of the cash flow statements are described and examined in deeper details.

### ***Notes to the Financial Statements***

The concept of the detailed accounting analysis comes from better understanding of the notes to the financial statements that underlie the basis of the preparation of the financial statements. These notes provide the explanatory information on the significant amounts in the financial statements. Furthermore, they describe the underlying reasons of the specific recognition and measurement of the key items of the financial statements (IAS 1.112).

### **Consideration of Potential Red Flags**

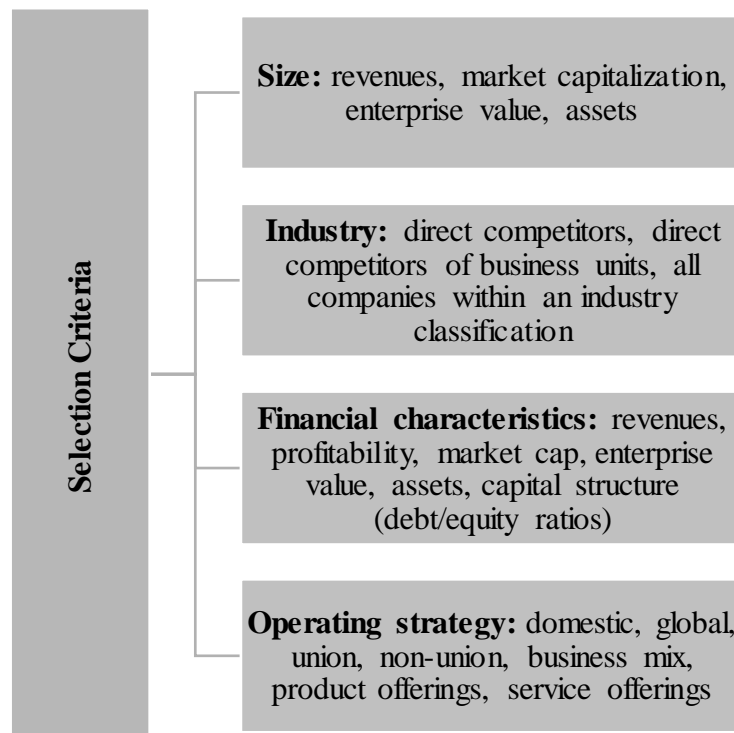
Giroux (2003) defines red flags as indicators of potential earnings management issues within the company. Mostly, red flags arise during the detailed examination of the financial statements and implementation of ratio analysis and various financial models. Nevertheless, exact step-by-step methodology of red flags identification and measurement is not yet existent.

Analysis of the financial performance may reveal various kinds of red flags, such as rising debt-to-equity ratio, rising accounts receivables, declining revenues, unsteady cash flow, and other (Buccigross, 2014).

Some of the activities are riskier and, consequently, should be analyzed more thoughtfully. Nevertheless, anomalies in indicators that could be perceived as red flags may not always be indicators of poor financial performance. Major events, such as a purchase of a subsidiary or sale of a division may have a significant impact on the performance and mistakenly be recognized as so called “red flags”.

## Peer Group Analysis

A peer group analysis provides a deeper insight into the company's financial and operating performance in comparison to peer group companies of similar size and industry (Lupo, 2013). A peer group can be defined as a set of individual institutions that are grouped on the grounds of the relevant criteria and characteristics, which are displayed in the following Figure 6.



*Figure 6: Peer Group Selection Criteria (Source: Lupo, 2013)*

Figure 6 provides a general set of selection criteria for constructing the peer group, but depending on the context of the analysis, supplementary criteria should be added. Moreover, during assembling the peer group we should also consider whether our peer group represents a subgroup of the total population or a stand-alone group with all institutions (International Monetary Fund, 2006).

Indeed, peer grouping is considered to be one of the most challenging parts in the peer group analysis since this process facilitates a framework of a comparable set (Goedhart, Koller, and Wessels, 2005). This framework of comparable set provides a guidance for further comparison analysis. The comparison analysis mostly consists of the evaluation of financial ratios and other indicators of the financial and operational performance of the company.

## **Methodology**

This paper aims to evaluate risk management with deeper focus on exchange rate risk exposure and financial performance of the BMW Group. The methodology is based on the extensive literature overview and examination of the released annual reports of the BMW Group over the period of 2005 – 2016. The first part of the thesis provides an overview of the key concepts, stresses out main challenges related to exchange rate risk exposure evaluation and financial performance measurement, and establishes a theoretical framework that supports the practical part of the research.

Literature overview of the risk management determines the basis and characteristics of management and measurement of the exchange rate risk exposure. Literature overview of the financial analysis provides a framework to examine the financial performance of the company of our study. Consideration of potential red flags highlights the demand for performing financial analysis of the BMW Group to confirm or reject revealed concerns. Next, the peer group analysis framework is presented to obtain deeper insights of the BMW Group positioning within the competitive environment. At this stage, basic understanding of the issue is achieved. Insights on the industry patterns, organizational structure, departments and functions significantly assist in further research.

To confirm these statements, the thesis reviews the automotive industry in which the BMW Group operates. The analysis of the BMW Group is divided into different sections in order to achieve a compressive overview of the foreign exchange risk management and financial performance of the company. The research design allows to evaluate the financial performance of the company by examining the management of exchange rate risk exposure and conducting the financial ratio and detailed accounting analysis.

Based on the knowledge derived from the theoretical framework, the author evaluates the financial performance and exchange rate risk management of the BMW Group. The evaluation is based on the financial ratio and historical detailed accounting analysis over the period of 2005 – 2016.

The first part of the BMW Group analysis provides general information on the automotive industry business segments, worldwide operations, regional sales of volume, and revenues during 2005 – 2016. Then the analysis of the currency movement of the selected foreign currencies is presented, in order to shape better understanding of the foreign currency fluctuations over the specified period of 2005 – 2016.

The second part is focused on the examination of detailed accounting analysis over the period of 2005 – 2016. The detailed accounting analysis reveals the most significant items of the financial statements, which should be deeper investigated in the financial ratio analysis.

The third part identifies the key financial ratios, which can accurately quantify the financial performance of the company. These indicators are then linked with a descriptive analysis to provide in-depth evaluation of the BMW Group's foreign exchange risk management performance.

The fourth part of the BMW Group presents a peer group analysis focusing on the evaluation of profitability, liquidity, solvency, and hedging strategies against the foreign exchange risk exposure. The analysis aims to evaluate the BMW Group's positioning in the competitive environment. All the financial data has been obtained from released annual reports of the selected companies over the period of 2014 – 2016.

Detailed accounting analysis, financial ratio analysis and peer group analysis determines the company's financial and operating performance and its dependence on the foreign exchange risk exposure. Based on the results derived from the analyses, the fifth part describes and discusses the hedging strategies of the BMW Group used to manage the foreign exchange risk exposure in 2016.

The data which are being used for the study of the BMW Group are derived from the annual reports of the BMW Group and can be found attached in the Appendix.

## **BMW Group**

This section provides an overview of the automotive industry and company profile, main findings of the financial analysis and exchange rate risk evaluation of the BMW Group. The first part of this section is devoted to the description of the industry and business segments of the BMW Group. The second part is focused on the evaluation of the accounting policy of the BMW Group. The third part reveals the main findings regarding the foreign exchange risk exposure of the BMW Group during the period of 2005 – 2016 and the overview of the hedging strategies towards foreign currency. The fourth part of the section provides the main findings of the financial ratio and historical detailed accounting analysis over the period of 2005 – 2016.

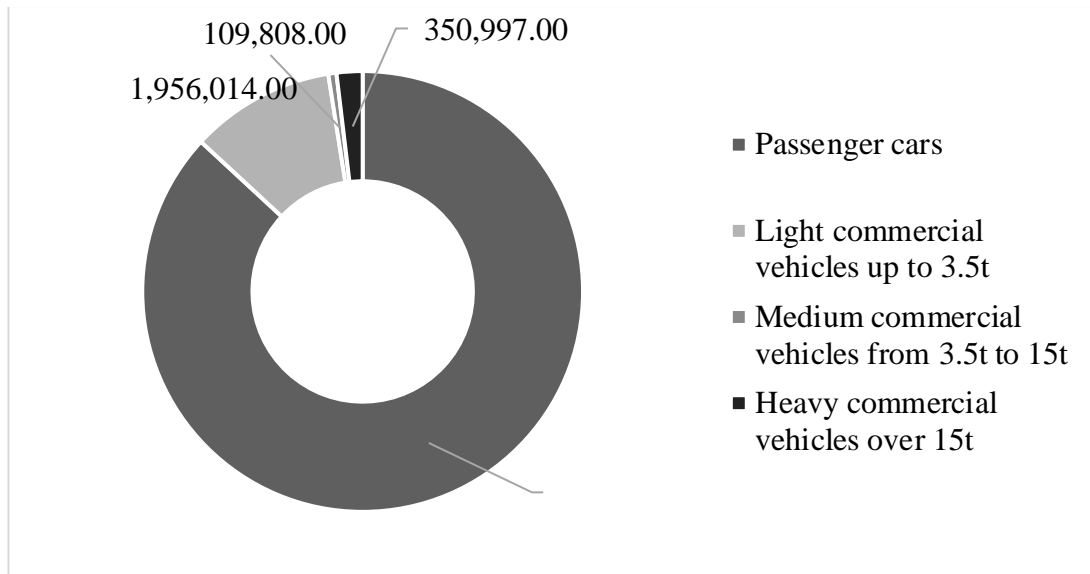
### **Industry Overview**

The automotive industry is one of the leading industries worldwide comprising mostly of passenger automobiles and light truck manufacturers. Automobile manufacturers largely sell their vehicles on the global market through broad dealership networks. Recently, these companies started to invest in the development of production plants and assembling facilities in multiple geographic regions.

The largest companies in the automotive industry ranked by Forbes Global 2000 are Volkswagen Group, Daimler, General Motors, Ford Motor, and Toyota Motor. These companies are one of the main competitors of the BMW Group on the global market.

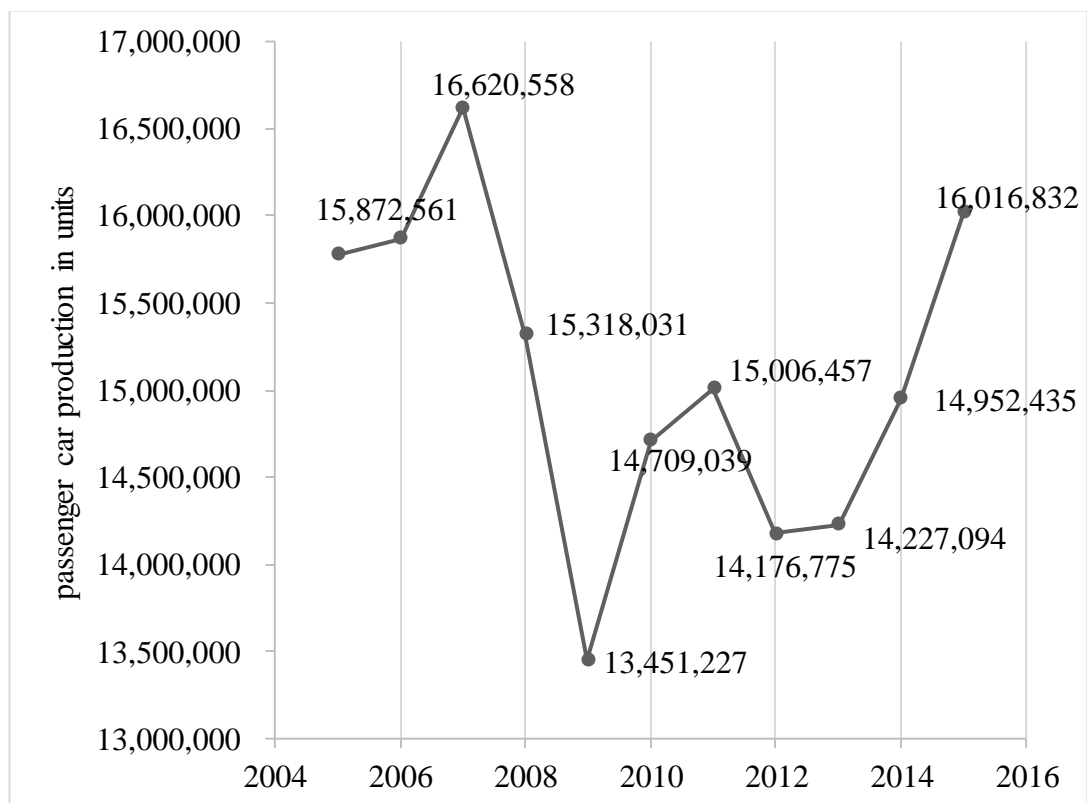
It is worth mentioning that companies in the automobile industry substantially invest in promoting safe and sustainable mobility and developing the research and development sector. Since BMW Group originated in Germany, specific characteristics of the European market are essential for the analysis. According to the statistics of European Automobile Manufacturers Association, the turnover generated by automobile industry comprises 6.5% of European Union GDP. Moreover, automotive industry in the European union is considered as a strategic sector where approximately 18.4 million of vehicles are produced annually. Thus, automobile companies originated in Europe account for millions of jobs, billions of euros in investment and constitute a substantial portion of the European Union trade surplus (European Automobile Manufacturers Association, 2017).

EU motor vehicle production of 2015 can be observed in the following Figure 7.



*Figure 7: EU Motor Vehicle Production for 2015 (Source: European Automobile Manufacturers Association, 2015)*

From Figure 7 we can observe that the amount of passenger cars' production is much larger than light/medium/heavy commercial vehicles. Figure 8 below provides an overview of the development of passenger cars' production over the period of 2005 – 2015.



*Figure 8: Development of Passenger Cars Production in EU during 2005 - 2015 (Source: European Automobile Manufacturers Association, 2015)*

From Figure 8 we can observe that during the financial crisis of 2007 – 2009 there is a sharp decrease in the production of passenger cars in the European market. Indeed, the financial crisis of 2007 – 2009 substantially affected the profitability of almost all companies in the global market. The impact of the financial crisis of 2007 – 2009 on the foreign exchange risk management and financial performance of the BMW Group is analyzed and discussed in further parts.

During 2009 – 2012 there are cutting fluctuations of rise and fall, eventually in 2013 the production of passenger cars has started to reasonably increase. The main automobile companies in the European market based on volume of production are Volkswagen Group, Daimler Group, BMW Group, Groupe Renault, Groupe PSA, and Fiat Chrysler Automobiles (Statista, 2016).

Recently, in order to encourage more foreign investment in the automotive sector and promote globalization of technical harmonization, more Asian automobile companies entered the European market. This enhances the competition in the market and challenges the automobile companies to perform better.

## Company Profile: Organizational Structure and Business Segments

The BMW Group is considered to be one of the world's leading premium car and motorcycle manufacturing and financial and mobility services providing company.

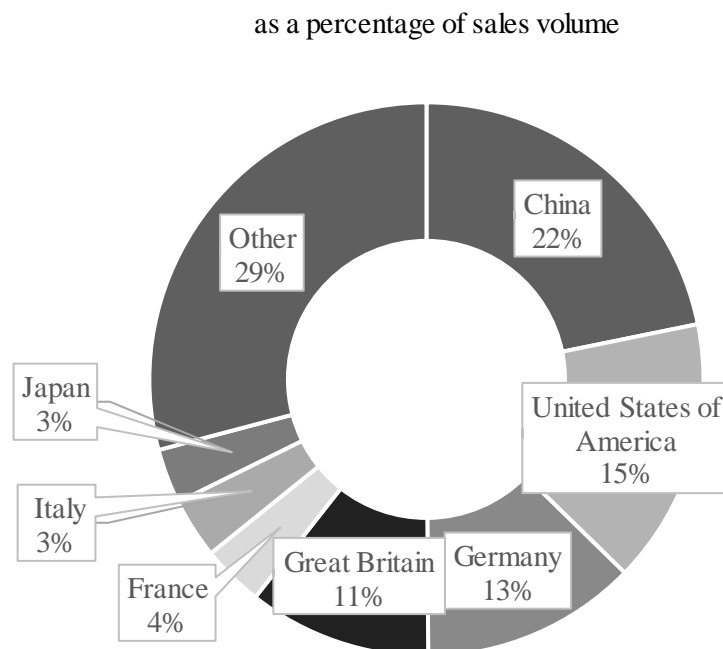
The BMW Group is one of the leading car and motorcycle manufacturing companies in the automotive industry, recording a steady growth of sales during the last years. BMW Group focuses on three main business segments – automotive, motorcycles and financial services segments. Financial services provide the leasing and loans' options for the customers, which are not able to pay the full amount at once. The automotive segment of the company manufactures premium car brands, such as BMW, MINI and Rolls-Royce, which constitute the main portion of the revenue.

As a global company, the BMW Group headquarters in Munich diversifies into international operations and covers more than 140 countries worldwide (Annual Report, 2016). The BMW Group holds 43 sales subsidiaries and financial services locations worldwide, 31 production and assembly plants, and 13 research and development costs (Annual Report, 2016). The following Figure 9 shows BMW Group locations worldwide on the World map for 2016.



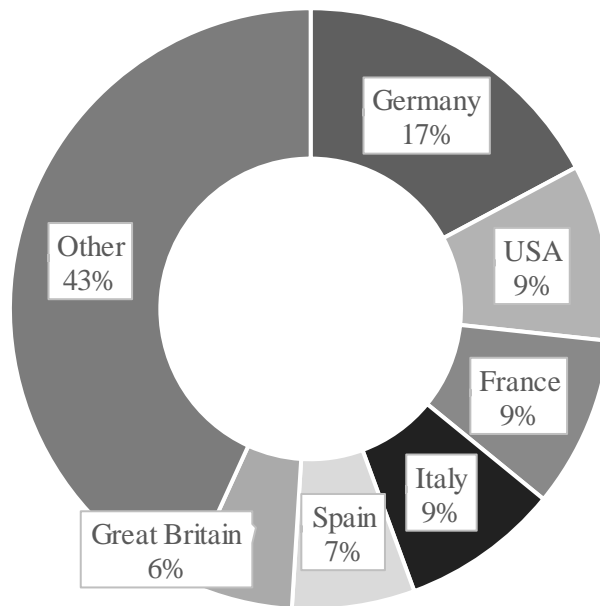
Figure 9: BMW Group Locations Worldwide (Source: Annual Report, 2016)

The company operates 19 BMW Group manufacturing plants, five joint ventures' plants in the United States of America (USA), China, and Germany, five partner plants in India, Indonesia, Egypt, Russia, and Malaysia, and two contract production plants in the Netherlands and Austria (Annual Report, 2016). China is considered to be the fastest-growing market, accounting for 21.8% of the BMW Group's automobile global sales volume in 2016, while the USA constitutes only 15.5%, Germany 12.6%, and the United Kingdom (UK) 10.7%. In comparison, the global motorcycle sales volume is mostly constituted by 17.2% in Germany, 9.5% in the USA, and 9.2% in France. Sales outside of Germany are managed primarily by subsidiaries and by independent import business entities in number of markets (Annual Report, 2016). The following Figure 10 provides an overview of the automobile' and monocycle's sales volume worldwide.



*Figure 10: Sales Volume in Automotive Segment (Source: BMW Group Annual Report, 2016)*

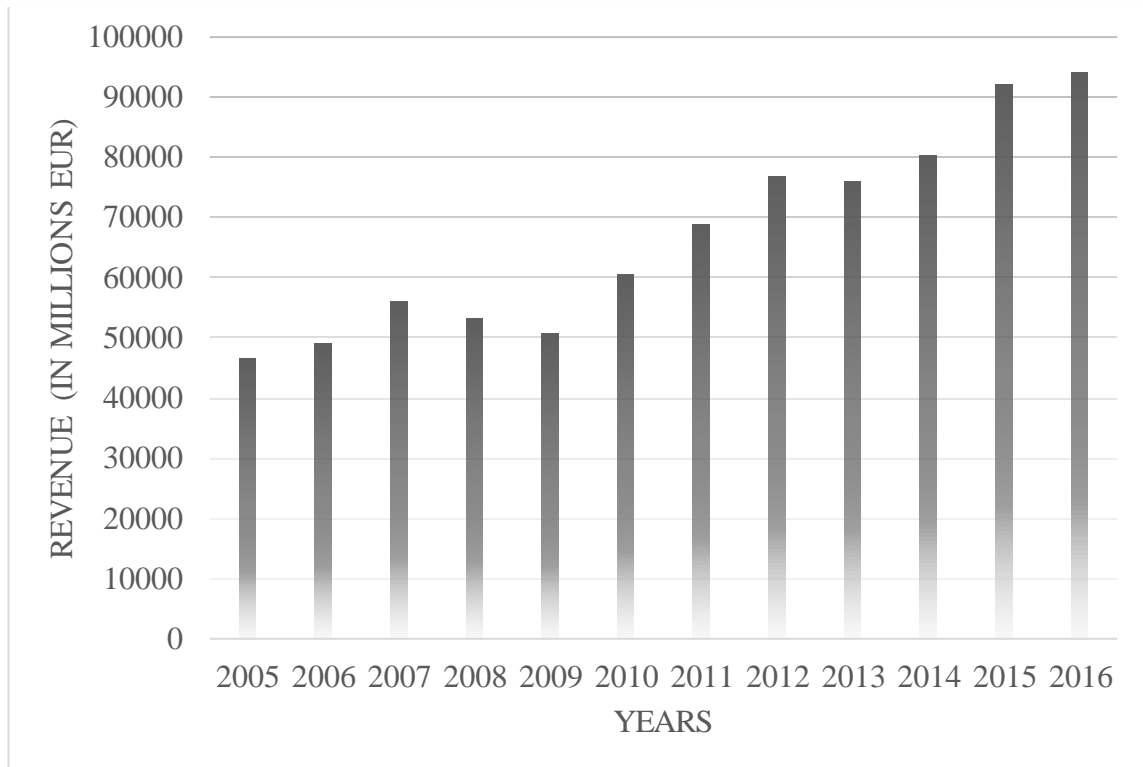
as a percentage of sales volume



*Figure 11: Sales Volume in Motorcycle Segment (BMW Group Annual Report, 2016)*

From Figure 10 we can see that outside of Europe, the greatest portions of BMW Group's sales volume are contributed from China, United States of America (USA), Great Britain, and Japan. In comparison, the sales volume in motorcycle segment discloses that the most revenue comes from Europe, as presented in Figure 11.

Recently, the company celebrated six consecutive years of recording high sales and maintained a leading position in the automotive market. The following Figure 12 provides an overview of the revenue of BMW Group over the period of 2005 – 2016. From the graph we can see that since 2010 the sales of the company are raising, with the exception of 2013, when the BMW Group experienced a slight decrease in revenue. Moreover, we can observe that during 2007 – 2009 the revenues of the company have decreased, which was a result of the global financial crisis.



*Figure 12: Revenue of BMW Group during 2005 - 2016 (Source: BMW Group Annual Reports, 2005 - 2016)*

It is important to mention that in 2016 the BMW Group recorded a new high level of revenue accounted for 94,163 million of EUR (Annual Report, 2016). Moreover, the Moody's rating agency has expanded BMW Group's long-term rating to A1, assuring the company's sound operational and financial performance (Annual Report, 2016).

## **Overview of Global Production**

As a global leading company in the automotive industry, the BMW Group have sources of revenues in more than 140 countries. Exchange rate movements thereby may have a substantial impact on the company's financial position. According to the chart of sales volume in the automotive segment displayed in the Company Profile section, we can observe that besides Europe, the greatest portion of sales takes place in China (21,8% from total sales), United States of America (15.5% from total sales), Great Britain (10.7% from total sales), and Japan (3.2% from total sales). Each of the mentioned countries have their own currency.

Let's have a detailed look at the production plants in these countries. In 2004, the BMW Group and their partner Brilliance China Automotive Holdings Limited opened a joint venture plant called BMW Brilliance Automotive in Shenyang, which exclusively manufactures products for the Chinese market (BMW Group Press Release, 2004).

The Spartanburg plant in the United States of America, established in 1992, is considered to be the largest BMW Group's production network, manufacturing over three million vehicles for worldwide customers (BMW Group Annual Report, 2016).

The engine plant in Hams Hall in the Great Britain, built in 2001, produces specific parts for vehicles, such as three and four-cylinder petrol engines for BMW and MINI (BMW Group Annual Report, 2016).

There is no assembling engine plant in Japan, but the facility there is considered as one of the most progressive research and development networks outside of Europe.

Recently, BMW Group also started to develop and set up new engine production plants in Brazil, India, and Russia.

Since this study focuses on the countries that substantially contribute to the revenue of the company, excluding Europe, countries, such as China, United States of America, Great Britain, and Japan have been selected.

Thus, the following sections focused on the examination of the exchange rate risk management implemented by BMW Group refer to currencies, such as Chinese Yuan Renminbi (CNY), the US dollar (USD), the British Pound (GBP), and the Japanese Yen (JPY).

## Currency Movement

This part presents the movement of exchange rates during the period of 2005 – 2016. Since the study focuses on the examination of foreign currency related to countries, such as China, United States of America, Great Britain, and Japan, which largely contribute to the BMW Group's revenue, the following exchange rates, such as EUR/USD, EUR/CNY, EUR/JPY, and EUR/GBP have been selected. The data on the daily exchange rate over the period of 2005 - 2016 have been retrieved from the independent financial data provider – Quandl.

Financial crisis, highly competitive environment and adverse exchange rate factors had a huge negative impact on BMW's financial performance in 2008-2009 and resulted in a steep sales volume decline (Annual Report, 2009). The following Figure 13 provides an overview of development of key automobile sales volume in China, United States of America, Great Britain, and Japan. Please note that the countries, such as Germany, France, Spain, and Italy are omitted, since this paper observes the portion of sales volume particularly from China, United States of America, Great Britain, and Japan. From the graph below we can see that during 2008 – 2009 the sales in Japan went down and the Japanese yen (JPY) strengthened sharply against the euro during 2008. If we look at the development of sales volume of the United States of America we can also observe that the sales have decreased, as a result of the financial crisis. In comparison, China has shown extreme growth over the whole period, since 2008.

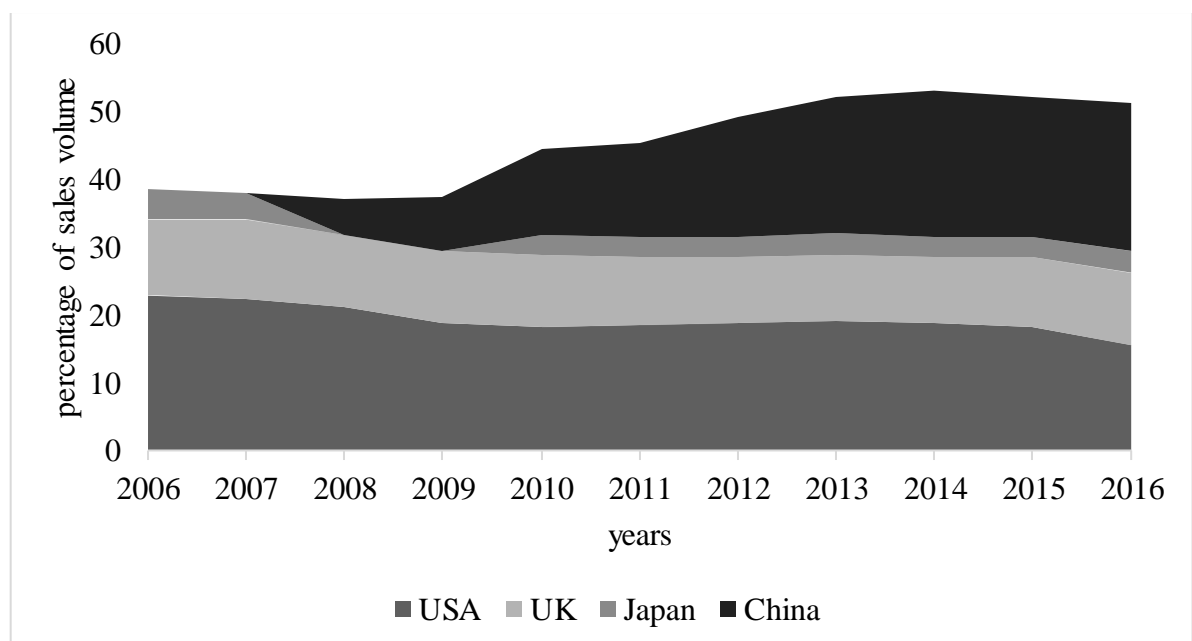


Figure 13: Key Automobile Sales Volume (Source: BMW Group Annual Report 2006 - 2016)

Since key motorcycle segment sales volume mostly consist of countries from Europe and the United States of America and do not provide information on China and Japan, it indicates that the sales of motorcycles in these countries are not substantial. For this reason, the automobile segment was selected for the study. It is a much larger segment than the motorcycle segment and provides more information on sales proportion from China and Japan.

The euro zone economies have been heavily affected by the crisis in 2009 and experienced on average a 4% drop in economic output. Export-based economies have been affected even more. For instance, Germany experienced a drop of 4.9% in GDP in 2009.

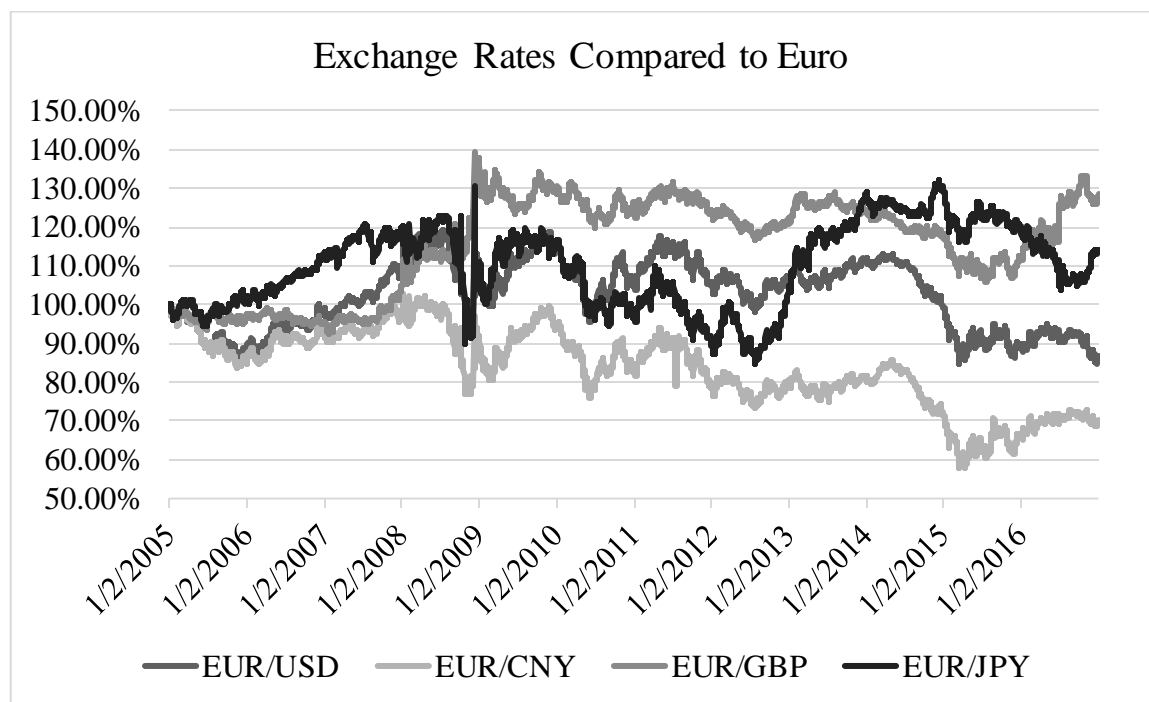


Figure 14: Currency Movement 2005 - 2016 (Source: Quandl)

As it can be seen from Figure 14, the exchange rate of Euro with other currencies fluctuated dramatically in the period from 2008 to 2009. For instance, there was about 20% Euro depreciation, followed by a sudden appreciation spike that continued with a sudden drop and then gradual and weak appreciation. Fortunately, the German economy was heavily assisted by state funded economic stimulus initiatives. Moreover, scrappage bonus scheme has assisted the private spending and has therefore increased the level of demand for automotive industry products (Annual Report, 2009).

The economic crisis resulted in the automotive market shrinking worldwide by 5.7%. The Chinese Automotive market, however, has risen from 8.6 million to 12.6 million units.

Furthermore, the Chinese automotive market profited from the major decrease in local registration tax for small passenger vehicles.

EUR/JPY set has experienced the greatest volatility over the course of the economic crisis. Importantly, the Japanese economy, similarly to Germany, heavily depends on exports. Consequently, there was a dramatic drop in output in 2009, followed by a stabilization period due to effective state economic stimulus programs (Annual Report, 2009). During the winter months of 2008/09, JPY appreciated sharply against the Euro to the level of 115 JPY for 1 EUR. Nevertheless, by the end of the year it had depreciated back to the level of 133 JPY for 1 EUR.

At the worst point of the economic crisis, in the beginning of 2009, the US dollar has greatly appreciated against euro. Yet, due to the zero-interest-rate policy implemented by the US Reserve Bank, the value of the US dollar has depreciated to the level of 1.5 USD for 1 EUR by the year 2017. The British pound depreciated against other currencies during the crisis to a large extent, including euro, which has lost in value itself during that period.

## **Detailed Accounting Analysis**

The purpose of reviewing the detailed accounting performance of the BMW Group over the years of 2005 - 2016 is to examine the firm's historical performance and provide the explanatory information on substantial findings from financial ratio analysis.

### ***Overview of Financial Accounting Policy and Annual Report***

The annual report of the BMW Group consists of general information of the BMW Group, management's analysis of the key financial and non-financial figures, review of operations, balance sheet, income statement and statement of comprehensive income, cash flow statement, statement of changed in equity, and notes to the financial statements. The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS). The annual report of the BMW Group also provides the detailed balance sheet and income statement for the automotive, motorcycles, financial services, and other entities segments. For better understanding of the company's financial performance, the industry benchmarks have been included. The data on the industry benchmarks have been collected from official specialized websites.

### ***Balance Sheet Analysis***

As a global leading company in the automotive industry, the BMW Group has substantially expanded their business activities overseas. Currently, the BMW Group has 31 production plants in 14 countries and sales points in more than 140 countries. In order to evaluate how the company has managed to operate worldwide, let us examine essential items of the BMW Group's balance sheet. This part of the analytical balance sheet explains and illustrates the overview of the assets, liabilities, and equity development over the period of 2005 – 2016. The original balance sheets of the BMW Group are attached in Appendix.

The following Table 5 indicates the development of the most substantial items of the balance sheet over the period of 2005 – 2011. The currency movement and exchange rate exposure analysis concluded that the BMW Group's financial performance is affected by the change in exchange rate, while the financial ratio analysis revealed the significant changes in financial indicators. From Table 5 we can see that the financial assets in 2008 have notably increased, reaching 1,808 million of EUR, compared to 642 million EUR in 2005. Financial assets include derivative instruments, marketable securities, investment funds, loans to third parties, credit card receivables, and other (Annual Report, 2008). One of the reasons of increased financial assets in 2008 was the higher fair value of derivative financial

instruments. We can see that as a result of the financial crisis – trade receivables, inventories, trade payables, and partially financial assets decreased.

| (in million EUR)          | 2005         | 2006          | 2007          | 2008           | 2009           | 2010           | 2011           |
|---------------------------|--------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Cash and cash equivalents | 1621         | ↓ 1,336       | ↑ 2,393       | ↑ 7,454        | ↑ 7,767        | ↓ 7,432        | ↑ 7,776        |
| Trade receivables         | 2135         | ↑ 2,258       | ↑ 2,672       | ↓ 2,305        | ↓ 1,857        | ↑ 2,329        | ↑ 3,286        |
| Financial assets          | 3296         | ↑ 3,950       | ↑ 4,795       | ↑ 5,114        | ↓ 4,734        | ↑ 5,129        | ↑ 5,453        |
| Inventories               | 6,527        | ↑ 6,794       | ↑ 7,349       | ↓ 7,290        | ↓ 6,555        | ↑ 7,766        | ↑ 9,638        |
| <b>Total assets</b>       | <b>74566</b> | <b>79,057</b> | <b>88,997</b> | <b>101,086</b> | <b>101,953</b> | <b>108,867</b> | <b>123,429</b> |
| Financial liabilities     | 16830        | ↑ 18,800      | ↑ 21,428      | ↑ 30,497       | ↑ 34,391       | ↓ 26,520       | ↑ 37,597       |
| Trade payable             | 3544         | ↑ 3,737       | ↓ 3,551       | ↓ 2,562        | ↑ 3,122        | ↑ 4,351        | ↑ 5,340        |
| <b>Total liabilities</b>  | <b>57593</b> | <b>59,927</b> | <b>67,253</b> | <b>80,813</b>  | <b>82,038</b>  | <b>85,767</b>  | <b>96,326</b>  |
| Capital reserves          | 1971         | ↑ 1,911       | 1,911         | 1,911          | ↑ 1,921        | ↑ 1,939        | ↑ 1,955        |
| Revenue reserves          | 16351        | ↑ 18,121      | ↑ 20,789      | ↓ 20,419       | ↑ 20,426       | ↑ 23,447       | ↑ 26,102       |
| <b>Total Equity</b>       | <b>16973</b> | <b>19,130</b> | <b>21,744</b> | <b>20,273</b>  | <b>19,915</b>  | <b>23,100</b>  | <b>27,103</b>  |

Table 5: Balance Sheet Accounts 2005 - 2011 (Source: BMW Group Annual Reports 2005 - 2011)

The following Table 6 provides an overview of development of the most substantial items of the balance sheet over the period of 2012 – 2016. During 2015 – 2016, we can see a substantial increase in the financial assets by reaching 8,843 million EUR in 2015 and 9,770 million EUR in 2016. This was mainly caused by the company's investment in derivative instruments and marketable securities. The level of inventories and trade receivables are slightly increasing, as company's business operations and activities are expanding. The upward trend of trade payables relates to higher production volumes (Annual Report, 2016).

| (in million EUR)          | 2012          | 2013           | 2014           | 2015           | 2016           |
|---------------------------|---------------|----------------|----------------|----------------|----------------|
| Cash and cash equivalents | 8370          | ↑ 7,664        | ↑ 7,688        | ↓ 6,122        | ↑ 7,880        |
| Trade receivables         | 2543          | 2,449          | 2,153          | 2,751          | 2,825          |
| Financial assets          | 6760          | ↑ 8,152        | ↓ 7,408        | ↑ 8,843        | ↑ 9,770        |
| Inventories               | 9,725         | ↑ 9,585        | ↑ 11,089       | ↑ 11,344       | ↑ 11,841       |
| <b>Total assets</b>       | <b>131835</b> | <b>138,368</b> | <b>154,803</b> | <b>172,174</b> | <b>188,535</b> |
| Financial liabilities     | 39095         | ↓ 30,854       | ↑ 43,167       | ↑ 49,523       | ↓ 42,326       |
| Trade payable             | 6433          | ↑ 7,475        | ↑ 7,709        | ↑ 7,773        | ↑ 8,512        |
| <b>Total liabilities</b>  | <b>101433</b> | <b>102,725</b> | <b>117,366</b> | <b>129,410</b> | <b>141,172</b> |
| Capital reserves          | 1973          | 1,990          | 2,005          | 2,027          | 2,047          |
| Revenue reserves          | 28340         | ↑ 33,167       | ↑ 35,621       | ↑ 41,027       | ↑ 44,445       |
| <b>Total Equity</b>       | <b>30402</b>  | <b>35,643</b>  | <b>37,437</b>  | <b>42,764</b>  | <b>47,363</b>  |

Table 6: Balance Sheet Accounts 2012 - 2016 (Source: BMW Group Annual Reports 2012 - 2016)

### ***Income Statement***

The balance sheet provided us with an overview of the historical development of the company's assets, liabilities and equities. It showed that the BMW Group noticeably invested in derivative financial instruments to hedge against the financial risks, particularly with foreign exchange risk exposure.

Now let us examine the income statement of the BMW Group, in order to examine the financial performance of the company before and after the financial crisis of 2008 – 2009. From Table 7 we can see that over the period of 2008 – 2009 the revenue has decreased, while the cost of sales and other operating expenses increased substantially by reaching the lowest figure of net income of 330 million in 2008 and 413 million in 2009. In 2009, the BMW Group has also decided to reduce the research and development costs and reclassify them to cost of sales. The earnings per share have also decreased dramatically, by almost 89.7% in 2008. In order to overcome the crisis, the company initiated a scrappage bonus scheme to generate demand for the cars and raise the sales. As we can see, since 2010 the BMW Group has increased the net income to 4907 million EUR.

| (in million EUR)                   | 2005         | 2006         | 2007         | 2008        | 2009        | 2010         | 2011         |
|------------------------------------|--------------|--------------|--------------|-------------|-------------|--------------|--------------|
| Revenue                            | 46656        | 48999        | 56018        | 53197       | 50681       | 60477        | 68821        |
| Cost of sales                      | -            | -37660       | -            | -           | -           | -            | -            |
|                                    | 35992        |              | 43832        | 44323       | 45356       | 49562        | 54276        |
| Gross profit                       | <b>10664</b> | <b>11339</b> | <b>12186</b> | <b>8874</b> | <b>5325</b> | <b>10915</b> | <b>14545</b> |
| Research and development costs     | -2464        | -2544        | -2920        | -2825       | -           | -            | -            |
| Other operating expenses           | -524         | -517         | -530         | -1187       | -804        | -1058        | -1132        |
| Profit before tax                  | <b>3287</b>  | <b>4124</b>  | <b>3873</b>  | <b>351</b>  | <b>413</b>  | <b>4836</b>  | <b>7383</b>  |
| Net income                         | <b>2239</b>  | <b>2874</b>  | <b>3134</b>  | <b>330</b>  | <b>210</b>  | <b>3234</b>  | <b>4907</b>  |
| Earnings per share of common stock | <b>3.33</b>  | <b>4.38</b>  | <b>4.78</b>  | <b>0.49</b> | <b>0.31</b> | <b>4.91</b>  | <b>7.45</b>  |

*Table 7: Income Statement Key Figures 2005 - 2011 (Source: BMW Group Annual Reports 2005 - 2011)*

Now let us examine the financial performance of the BMW Group on the income statement, over the period of 2012 – 2016. From the following Table 8 we can observe a positive trend of gross profit, as well as profit before tax and earnings per share.

Since research and development costs have been reclassified into costs of sales, the costs of sales over the period of 2012 – 2016 have substantially increased. However, in general, the income statement over the period of 2012 – 2016 shows that the company almost completely recovered from the financial crisis of 2008 – 2009.

| (in million EUR)                   | 2012         | 2013         | 2014         | 2015         | 2016         |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Revenue                            | 76848        | 76059        | 80401        | 92175        | 94163        |
| Cost of sales                      | -61354       | -60785       | -63396       | -74043       | -75442       |
| Gross profit                       | <b>15494</b> | <b>15274</b> | <b>17005</b> | <b>18132</b> | <b>18721</b> |
| Other operating expenses           | -1016        | -874         | -872         | -820         | -847         |
| Profit before tax                  | <b>7819</b>  | <b>7913</b>  | <b>8707</b>  | <b>9224</b>  | <b>9665</b>  |
| Net income                         | 5111         | 5340         | 5817         | 6396         | 6910         |
| Earnings per share of common stock | <b>7.77</b>  | <b>8.1</b>   | <b>8.83</b>  | <b>9.7</b>   | <b>10.45</b> |

*Table 8: Income Statement Key Figures 2012 - 2016 (Source: BMW Group Annual Reports 2012 - 2016)*

### ***Cash Flow Statement***

Cash flow statement provides an overview of cash inflow and cash outflow of the company during a certain period of time (Van Horne and Wachowicz, 2008). Furthermore, while balance sheet presents the assets, liabilities and equities of the company and income statement presents revenues and expenses of the firm, cash flow statement can report on the company's liquidity and its ability to cover the short-term liabilities.

According to the definition of the BMW Group Annual Report 2016, cash and cash equivalents comprise of "cash in hand, cheques, and cash at bank, to the extent that they are available within three months from the balance sheet date".

Let us examine the historical development of the cash inflow and cash outflow of the BMW Group over the period of 2005 – 2016. From Table 9, we can see that during 2006 – 2008 there is a significant amount of cash outflow from investing activities.

According to the Annual Report of 2008, cash inflow from operating activities was supposed to cover the cash outflow for investing activities, but it did not, due to high capital expenditure on leased products and receivables from sales financing. Furthermore, during 2007-2008, the exchange rate fluctuations negatively affected the cash and cash equivalents of the company.

The other substantial drop in the cash flow statement can be observed in the cash flow from operating activities in 2015, in Table 10. According to the Annual Report of 2015, a decrease in cash inflow from operating activities relates to the offset of increase in receivables from sales financing and decrease in inventories. However, in general we can see that the BMW

Group has a positive balance of cash inflow from operating activities, meaning that it can cover the short-term debts.

| (in million EUR)  | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       |
|---|------------|------------|------------|------------|------------|------------|
| Cash flow from operating activities   | 10691      | 9980       | 11794      | 10872      | 10271      | 13651      |
| Cash flow from investing activities   | -<br>11963 | -<br>13670 | -<br>17248 | -<br>18652 | -<br>11328 | -<br>14522 |
| Cash flow from financing activities   | 699        | 3323       | 6557       | 12904      | 1352       | 510        |
| Effects of exchange rate and changes in composition of Group on cash and cash equivalents | 66         | 82         | -46        | -63        | 18         | 26         |
| Change in cash and cash equivalents   | -507       | -285       | 1057       | 5061       | 313        | -335       |
| Cash and cash equivalents as at 1 January   | 2128       | 1621       | 1336       | 2393       | 7454       | 7767       |
| Cash and cash equivalents on December 31  | 1621       | 1336       | 2393       | 7454       | 7767       | 7432       |

*Table 9: Cash Flow Statement Key Figures 2005 - 2010 (Source: BMW Group Annual Reports 2005 - 2010)*

| (in million EUR)  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  |
|---|-------|-------|-------|-------|-------|-------|
| Cash flow from operating activities   | 5713  | 5076  | 3614  | 2912  | 960   | 3173  |
| Cash flow from investing activities   | -5499 | -5433 | -6981 | -6116 | -7603 | -5863 |
| Cash flow from financing activities   | 87    | 952   | 2703  | 3133  | 5004  | 4393  |
| Effects of exchange rate and changes in composition of Group on cash and cash equivalents | 43    | -1    | -42   | 88    | 73    | 55    |
| Change in cash and cash equivalents   | 344   | 594   | -706  | 17    | -1566 | 1758  |
| Cash and cash equivalents as at 1 January   | 7432  | 7776  | 8370  | 7664  | 7688  | 6122  |
| Cash and cash equivalents on December 31  | 7776  | 8370  | 7664  | 7681  | 6122  | 7880  |

*Table 10: Cash Flow Statement Key Figures 2011 - 2016 (Source: BMW Group Annual Reports 2011 - 2016)*

## Financial Ratio Analysis of BMW Group

In this section, financial ratios are computed and analyzed in order to measure the financial performance of the BMW Group over the period of 2005 – 2016. The analysis is focused on examination of profitability, liquidity, leverage, and activity ratios. The financial data have been collected from the quarterly and annual reports of the BMW Group. The data which have been used for the analysis are attached in Appendix.

### Profitability

Profitability ratios, such as gross profit margins, net profit margins, return on assets (ROA), and return on equity (ROE) for the period of 2005 – 2016 on behalf of the BMW Group are calculated and displayed in Tables 11 and 12.

| (in millions of EUR)   | 2005  | 2006  | 2007  | 2008   | 2009   | 2010   |
|------------------------|-------|-------|-------|--------|--------|--------|
| Revenue                | 46656 | 48999 | 56018 | 53197  | 50681  | 60477  |
| Gross Profit           | 10664 | 11339 | 12186 | 8874   | 5325   | 10915  |
| Net Profit After Tax   | 2239  | 2874  | 3134  | 330    | 210    | 3234   |
| Total Assets           | 74566 | 79057 | 88997 | 101086 | 101953 | 108867 |
| Shareholders' Equity   | 16973 | 19130 | 21744 | 20273  | 19915  | 23100  |
| Gross (Profit) Margin  | 22.9% | 23.1% | 21.8% | 16.7%  | 10.5%  | 18.0%  |
| Net Profit Margin      | 4.8%  | 5.9%  | 5.6%  | 0.6%   | 0.4%   | 5.3%   |
| Return on Assets (ROA) | 3.0%  | 3.6%  | 3.5%  | 0.3%   | 0.2%   | 3.0%   |
| Return on Equity (ROE) | 13.2% | 15.0% | 14.4% | 1.6%   | 1.1%   | 14.0%  |

Table 11: Profitability Ratios 2005 - 2010 (Source: BMW Group Annual Reports 2005 - 2010)

| (in millions of EUR)   | 2011   | 2012   | 2013   | 2014   | 2015   | 2016   |
|------------------------|--------|--------|--------|--------|--------|--------|
| Revenue                | 68821  | 76848  | 76059  | 80401  | 92175  | 94163  |
| Gross Profit           | 14545  | 15494  | 15274  | 17005  | 18132  | 18721  |
| Net Profit After Tax   | 4907   | 5122   | 5340   | 5817   | 6396   | 6910   |
| Total Assets           | 123429 | 131850 | 138368 | 154803 | 172174 | 188535 |
| Shareholders' Equity   | 27103  | 30402  | 35643  | 37437  | 42764  | 47363  |
| Gross (Profit) Margin  | 21.1%  | 20.2%  | 20.1%  | 21.2%  | 19.7%  | 19.9%  |
| Net Profit Margin      | 7.1%   | 6.7%   | 7.0%   | 7.2%   | 6.9%   | 7.3%   |
| Return on Assets (ROA) | 4.0%   | 3.9%   | 3.9%   | 3.8%   | 3.7%   | 3.7%   |
| Return on Equity (ROE) | 18.1%  | 16.8%  | 15.0%  | 15.5%  | 15.0%  | 14.6%  |

Table 12: Profitability Ratios 2011 - 2016 (Source: BMW Group Annual Reports 2011 - 2016)

Looking at Table 11 during the period of 2008 – 2009, we can observe that the BMW Group experienced the lowest figures in gross profit margin, net profit margin, return on assets, and return on equity. As mentioned in the analysis of currency movement, the financial crisis has significantly affected the BMW Group's financial performance. Besides the exchange rate risk exposure during 2008 – 2009, the BMW Group experienced a substantial drop in the gross profit, which could be caused by the increase of the cost of sales. According to the BMW Group Annual Report 2008, the increase in cost of sales has been caused by the additional risk provisions for residual value risks, bad debt provisions, unfavorable exchange rates and higher raw material prices, which adversely affected the profits of the company. Moreover, comparing the leverage ratios during the period of 2008 – 2009, presented in Table 17, we can observe that both ratios are substantially high. For instance, the debt-to-total assets ratio indicates 80% in 2008 and 2009, declaring debt as 80% of the total assets. The reasons for that are increased liabilities to banks, asset-backed financing obligations, deposit liabilities, and financial liabilities in conjunction with refinancing of the BMW Group's financial services business (Annual Report, 2008). At the same time, the assets have also been increased due to higher level of receivables from sales financing, liquid funds, cash and cash equivalents, and other assets, while the level of inventories and leased products have been dropped over the time period of 2008 – 2009. However, the equity has decreased as a result of the dividends payments and actual losses on pension obligations, due to lower interest rates and changed assumption on future inflation rate (Annual Report, 2009). Moreover, from Table 11 we can observe the lowest return on assets (ROA) and return on equity (ROE) figures, meaning that the assets have not been efficiently utilized to generate profit. That can be a result of the financial crisis and consequently decrease of profits, increase of cost of sales and increase of total assets. However, low ROE can be additionally explained by the fact that shareholders' equity accounts for only 20% of the financing capital of the company.

As a global firm, having business operations and generating revenues outside the Euro currency, the currency risk is substantial to the BMW Group's profitability. The following Table 13 provides an overview of potential negative impacts of foreign exchange rate on the BMW Group for the period of 2007 – 2010. The period of 2007 – 2010 has been selected to observe the development of negative impact of foreign exchange rate on the BMW Group's profitability before, during and after the financial crisis. Thus, we can see from Table 13 that the BMW Group had greater negative impact of unfavorable changes in foreign exchange

rate during 2008 – 2009 for US Dollar, Chinese Renminbi, British Pound, and Japanese Yen. Our profitability financial ratio analysis indicates that the BMW Group had an extremely difficult time during the financial crisis of 2008 – 2009. Moreover, the analysis of the BMW Group's foreign exchange rate exposure during 2008 – 2009 has shown that substantial amount of cash flow has been negatively affected by the changes in the exchange rate, which consequently adversely affected the company's profitability.

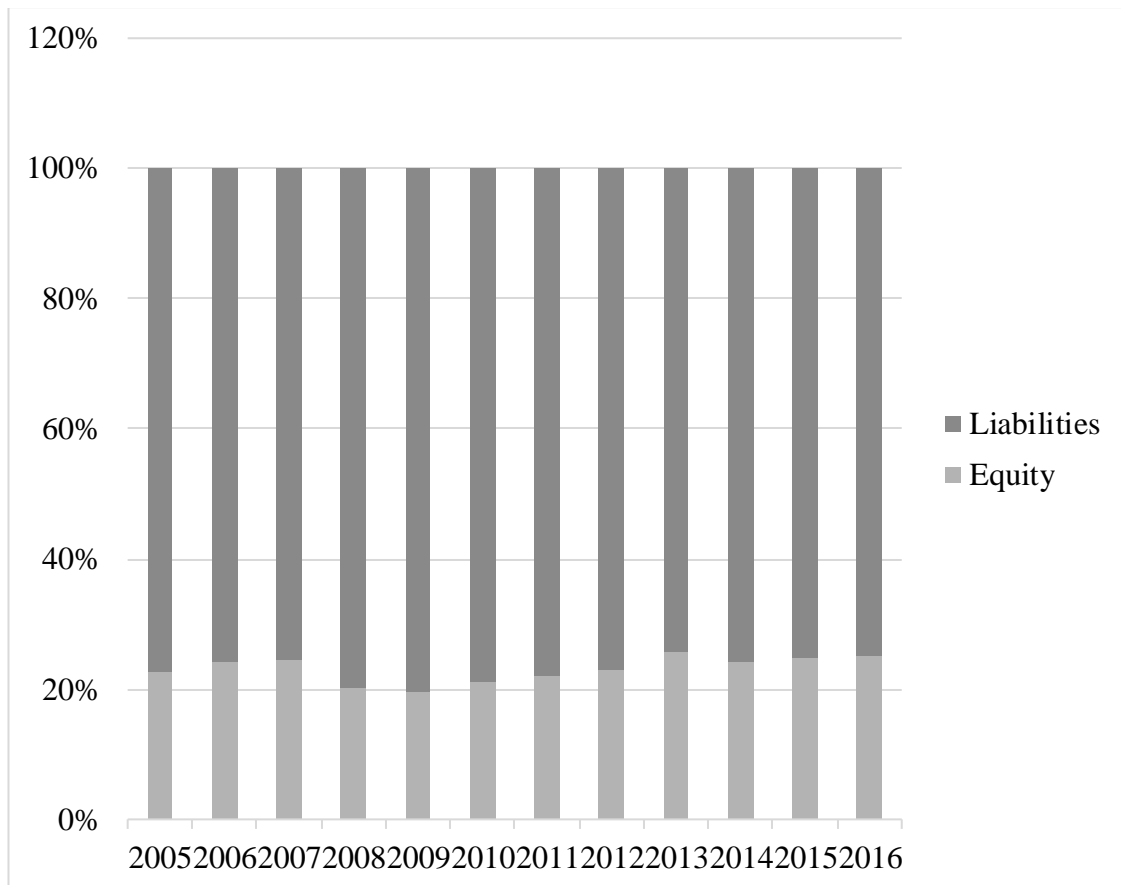
| (in millions of EUR)  | 31.12.2007 | 31.12.2008 | 31.12.2009 | 31.12.2010 |
|-----------------------|------------|------------|------------|------------|
| Euro/US Dollar        | 33         | 39         | 174        | 103        |
| Euro/Chinese Renminbi | -          | 29         | 201        | 265        |
| Euro/British Pound    | 14         | 56         | 188        | 184        |
| Euro/Japanese Yen     | 56         | 54         | 17         | 30         |

*Table 13: Currency Risk of BMW Group 2007 - 2010 (BMW Group Annual Reports 2007 - 2010)*

However, as we can see, since 2010, the company's financial profitability indicators started to recover, while the amounts from negative impact of unfavorable changes in exchange rates started to decrease.

As we can observe in Table 12, the following fluctuations in 2015, such as the net profit margin, slightly decreased to 6.9%, but then increased in 2016, reaching 7.3%. A decrease in gross profit margin over the period of 2015 - 2016 was caused by investing in electric and self-driving car technologies and raising personnel expenses by hiring more engineering staff (Fortune, 2016). If we look at the total assets over the last years, we can observe a constant increase. According to the BMW Group Annual Report 2015 – 2016, an increase in the total assets was caused by the changes in the exchange rate of the US dollar, British pound, and Chinese renminbi against the Euro, significant increase in receivables from sales financing, and sound increase of leased products' volume. Moreover, shareholders' equity also increased, as a result of net profit attributable to shareholders and fair value gains on derivative financial instruments. However, the liabilities have risen due to higher level of pension provisions, financial liabilities, trade payables, and other provisions related to the amounts for vehicle improvements. Since the BMW Group confirmed that the decrease in gross profit margin has been caused by the increased new technology development costs, it is probable that this was the reason for lower ROA. The other reason can be related to disproportional increase of total assets and net profit after tax. Similarly, ROE had quite a negative trend of ratio development, which can also be explained by huge investments in

research and development. The following Figure 15 provides an illustration of the development of equity and liability to total assets over the period of 2005 – 2016. Looking at Figure 15, we can observe that the BMW Group have strived to lower the financing by debt, and thereby mitigating the financial risk.



*Figure 15: Equity and Liability to Total Assets Development during 2005 - 2016 (Source: BMW Group Annual Reports 2005 - 2016)*

Overall, the profitability ratios show that the BMW Group managed to recover from the financial crisis of 2008 – 2009. Since 2010, the company strives to decrease the portion of debt by increasing the shareholders' equity. Moreover, according to the BMW Group Annual Report 2016, the company confirms that the foreign exchange risk level attached to currency risks is medium and ensure that the significant opportunities may appear in case the foreign currency developments are favorable for the firm.

### ***Liquidity***

Liquidity ratios, such as current ratio and quick (acid test) ratio for the period of 2005 – 2016 for the BMW Group are calculated and displayed in Tables 14 and 15.

| (in millions of EUR)    | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Current Assets          | 27010 | 28543 | 32378 | 38670 | 39944 | 43151 |
| Inventories             | 6527  | 6794  | 7349  | 7290  | 6555  | 7766  |
| Current Liabilities     | 28084 | 28555 | 33784 | 39287 | 36919 | 40134 |
| Current Ratio           | 96%   | 100%  | 96%   | 98%   | 108%  | 108%  |
| Quick (Acid Test) Ratio | 73%   | 76%   | 74%   | 80%   | 90%   | 88%   |

*Table 14: Liquidity Ratios 2005 - 2010 (Source: BMW Group Annual Reports 2005 - 2010)*

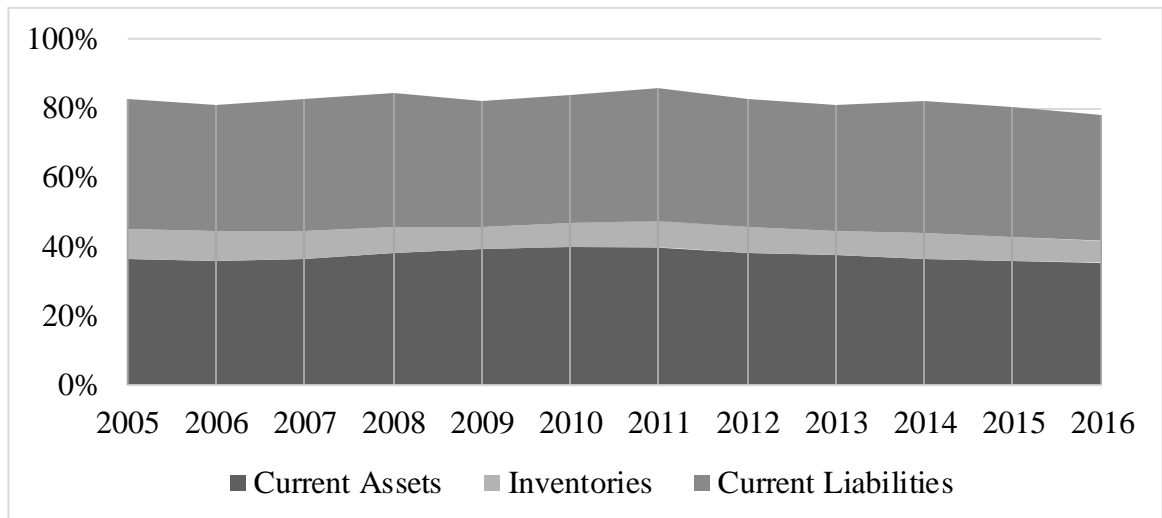
| (in millions of EUR)    | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Current Assets          | 49004 | 50514 | 52174 | 56844 | 61831 | 66864 |
| Inventories             | 9638  | 9725  | 9585  | 11089 | 11344 | 11841 |
| Current Liabilities     | 47213 | 48431 | 50043 | 59078 | 65591 | 67989 |
| Current Ratio           | 104%  | 104%  | 104%  | 96%   | 94%   | 98%   |
| Quick (Acid Test) Ratio | 83%   | 84%   | 85%   | 77%   | 77%   | 81%   |

*Table 15: Liquidity Ratios 2011 - 2016 (Source: BMW Group Annual Reports 2011 - 2016)*

One of the main purposes of the liquidity ratio analysis is to examine where the company has enough cash and other current assets in order to pay their obligations when they become due (Giroux, 2003). During our profitability ratio analysis, we have detected that the capital of the company is mostly financed by debt. The current ratio during 2010-2013 was higher than 100%, meaning that the level of current assets was larger than current liabilities. Since 2014, we can observe that the ratio is decreasing and is quite lower than the benchmark of 111% for the automotive industry (CSI Market, 2017). This can imply that indeed the company may have problems with paying their current liabilities on time. Similarly, the quick (acid test) ratio presents quite the same results, implying that since 2014 the company records higher current liabilities than the amount of total cash, temporary marketable securities, and accounts receivable.

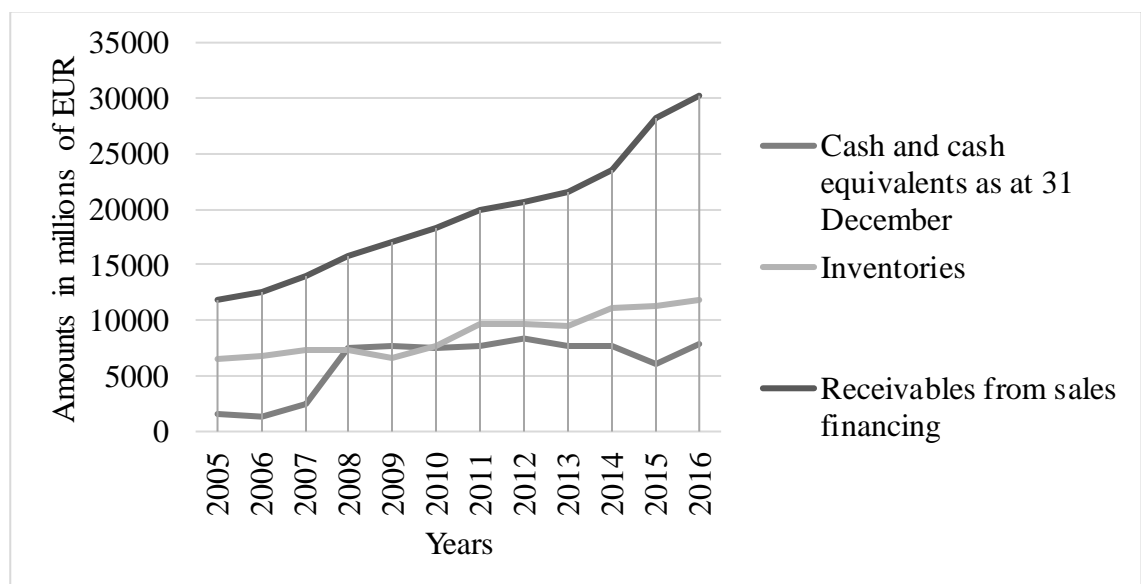
The following Figure 16 provides an overview of the changes of main sources of liquidity, such as current assets, current liabilities, and inventories over the period of 2005 – 2016.

From Figure 16, we can observe that development over the period of 2005 – 2016 is quite stable.



*Figure 16: Development of current assets, current liabilities, and inventories during 2005 - 2016 (Source: BMW Group Annual Report 2005 - 2016)*

In order to examine the sources of liquidity in more details, we should investigate the items of these sources. According to the BMW Group Annual Report from 2005 – 2016, the greatest portion of the current assets refers to receivables from sales financing, inventories, and cash and cash equivalents. The following Figure 17 presents an overview of the development of these three items from the balance sheet during the period of 2005 – 2016.



*Figure 17: Development of cash and cash equivalents, inventories and receivables from sales financing over period of 2005 - 2016 (Source: BMW Group Annual Reports 2005 - 2016)*

From Figure 17, we can observe that since 2008 the receivables from sales financing are extremely rising, while the level of inventories and cash and cash equivalents have more moderate tendency to increase. Receivables from sales financing include the receivables from retailer, dealer and lease financing. Since the BMW Group has sales networks in more than 140 countries worldwide, receivables from the sales financing are subject to foreign exchange exposure.

The following Table 16 provides an overview of the exchange rate impact on the allowances on receivables from sales financing:

| (in millions of EUR) | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|----------------------|------|------|------|------|------|------|
| Exchange rate impact | -8   | -20  | -21  | 25   | 86   | -18  |
|                      |      |      |      |      |      |      |
| (in millions of EUR) | 2012 | 2013 | 2014 | 2015 | 2016 |      |
| Exchange rate impact | -14  | -80  | 46   | 24   | 25   |      |

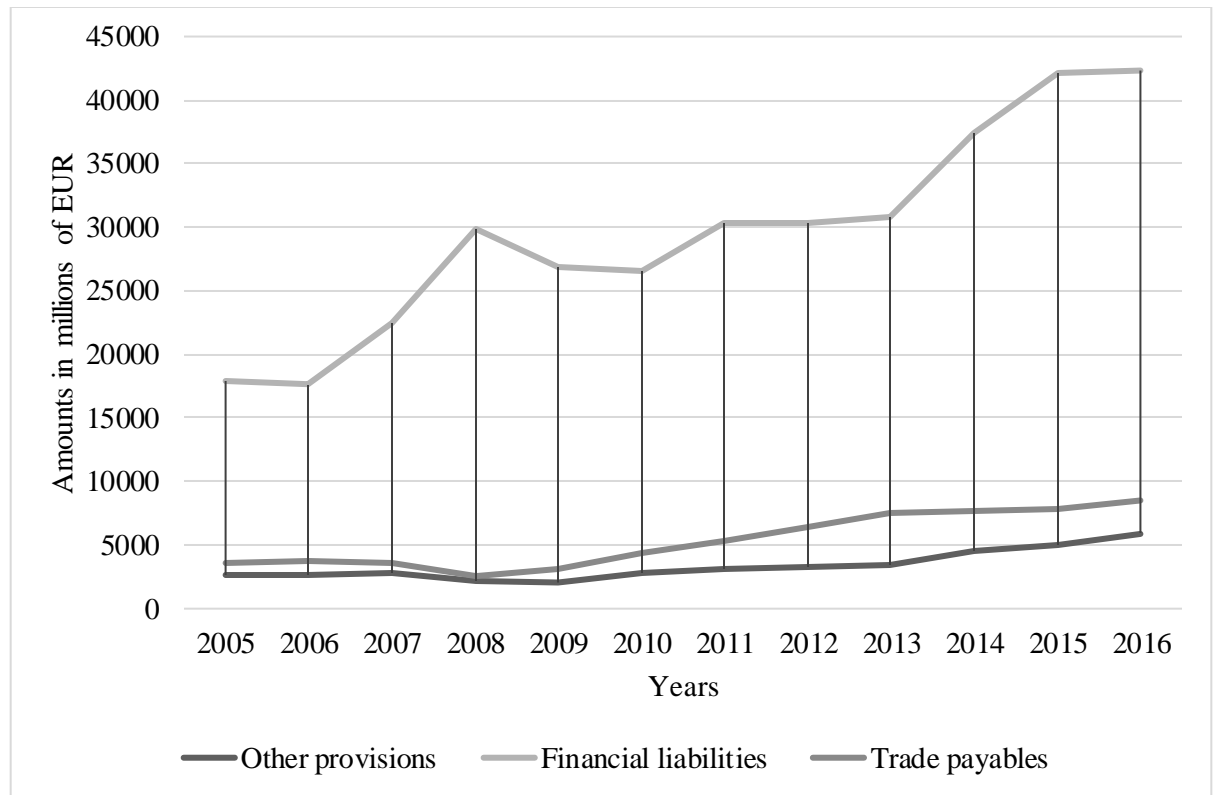
*Table 16: Development of Exchange Rate Impact on Allowances on Receivables from Sales Financing (Source: BMW Group Annual Report 2005 - 2016)*

Table 16 shows that for several years the BMW Group has experienced adverse effect of the exchange rate impact on allowances on receivables from sales financing. Thereby, we can assume that foreign exchange risk can also substantially affect the value of receivables from sales financing, consequently the value of current assets and eventually the financial performance of the company.

Now let us examine other sources of liquidity related to the current liabilities side of the balance sheet. The current liabilities of the BMW Group mostly consist of financial liabilities, which include all liabilities relating to financing activities, trade payables, and other provisions (BMW Group Annual Reports, 2005 - 2016). Other provisions refer to the liabilities concerning obligations for personnel-related expenses, warranties, selling activities, and risks relating to commodity and currency contracts.

The following Figure 18 shows us the trend of development of financial liabilities, trade payables and other provisions. We can observe the amount of financial liabilities have largely increased, compared to trade payables and other provisions. The main components of the financial liabilities are: bonds, liabilities from customer deposits (banking), asset backed financing transactions, liabilities to banks, commercial papers, derivative instruments, and other (BMW Group Annual Reports, 2005 - 2016). It is worth mentioning that since 2007, the BMW Group receives the best ratings by Standard & Poor's and

Moody's rating agencies in the European automotive industry, ensuring the company's strong financial condition and excellent creditworthiness (BMW Group Annual Reports, 2007 - 2016).



*Figure 18: Development of financial liabilities, trade payables, and other provisions over period of 2005 - 2016 (Source: BMW Group Annual Reports 2005 - 2016)*

The liquidity ratios of the BMW Group provide a more detailed outlook of the company's assets and liabilities side of the balance sheet. Moreover, since the profitability and leverage ratios have indicated that over the whole period of 2005 – 2016 the company had quite a substantial amount of debt financing, which in turn can lead to liquidity risk – the liquidity ratios have shown that the company indeed may have difficulties with payments of short-term obligations. At the same time, we should omit the foreign exchange risk, which can also affect the liquidity of the company that operates globally. The allowances on receivables from sales financing, which constitute a big portion of the assets, have been adversely affected by the foreign exchange rate in several years. Though the financial liabilities of the company have been rated as creditworthy, which ensures that the company's financial condition is stable. Thus, when we analyze the liquidity of the company, we should take into

account several factors, such as liquidity ratios, the development of sources of the liquidity, the foreign exchange risk, and many others.

### ***Leverage***

Leverage ratios are used to examine the extent to which the company is using borrowed money (Van Horne and Wachowicz, 2008). Leverage ratios, such as debt-to-equity ratio and debt-to-total-assets ratio for the period of 2005 – 2016 for the BMW Group are calculated and displayed in Tables 17 and 18.

| (in millions of EUR)       | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Assets               | 74566       | 79057       | 88997       | 101086      | 101953      | 108867      |
| Total Liabilities          | 57593       | 59927       | 67253       | 80813       | 82038       | 85767       |
| Shareholders' Equity       | 16973       | 19130       | 21744       | 20273       | 19915       | 23100       |
| Debt-to-Equity Ratio       | 339%        | 313%        | 309%        | 399%        | 412%        | 371%        |
| Debt-to-Total-Assets Ratio | 77%         | 76%         | 76%         | 80%         | 80%         | 79%         |

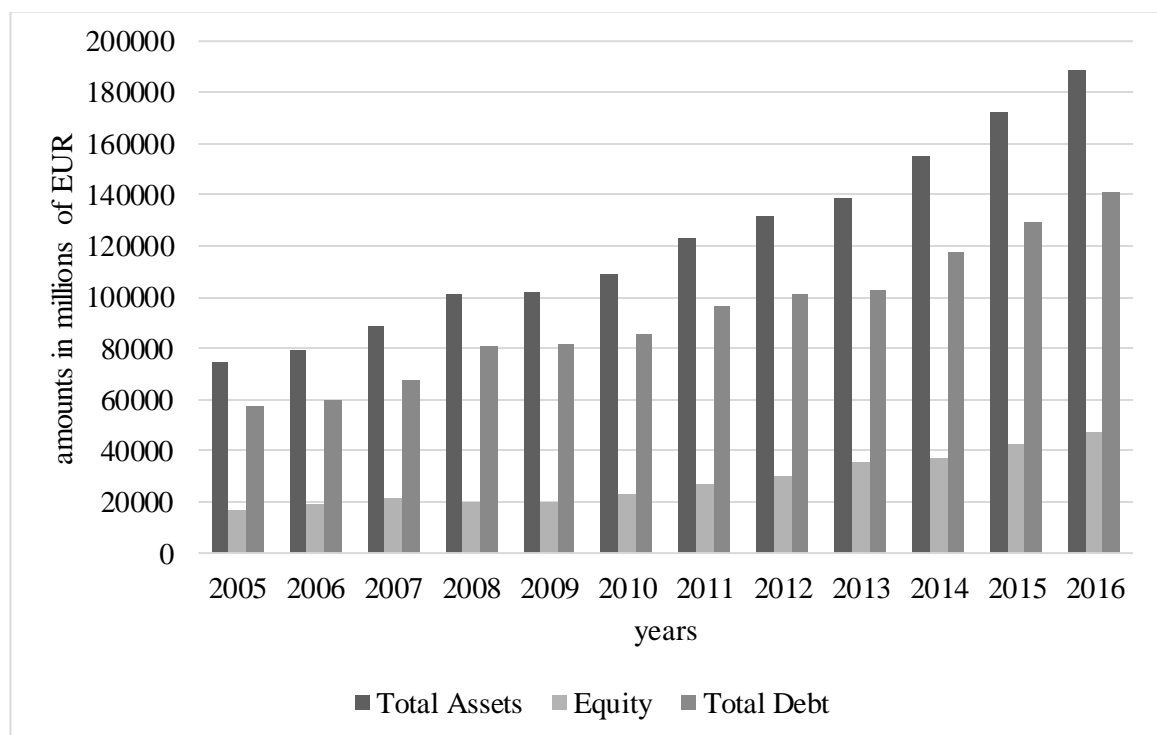
*Table 17: Leverage Ratios 2005 - 2010 (Source: BMW Group Annual Reports 2005 - 2010)*

| (in millions of EUR)       | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>2016</b> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Total Assets               | 123429      | 131835      | 138368      | 154803      | 172174      | 188535      |
| Total Liabilities          | 96326       | 101433      | 102725      | 117366      | 129410      | 141172      |
| Shareholders' Equity       | 27103       | 30402       | 35643       | 37437       | 42764       | 47363       |
| Debt-to-Equity Ratio       | 355%        | 334%        | 288%        | 314%        | 303%        | 298%        |
| Debt-to-Total-Assets Ratio | 78%         | 77%         | 74%         | 76%         | 75%         | 75%         |

*Table 18: Leverage Ratios 2011 - 2016 (Source: BMW Group Annual Reports 2011 - 2016)*

The BMW Group has quite high debt-to-total-assets ratio over the 2010 – 2016 period, which can indicate that the company has considerable amount of debt financing. As it has been mentioned in the profitability ratio analysis, in 2009 the debt-to-equity ratio reached the highest percentage of 412%, as a result of the financial crisis and consequently sales downturn in market, but in 2010 we can observe that the company has managed to decrease the portion of debt. During 2015 – 2016, they have had a stable debt-to-total-assets ratio of 75%, indicating that 75 % of the BMW Group’s assets are financed with diverse types of debts and the remaining 25% of the capital financing comes from shareholders’ equity. We can see that the company has quite high leverage, which means that there is a relative risk of ending with too much of borrowed loans. The BMW Group’s debt-to-total-assets ratio was quite steady during the 2011 – 2016 period and companies in the automotive industry are considered to be highly capital-intensive businesses, high leverage ratio indicates higher financial risk.

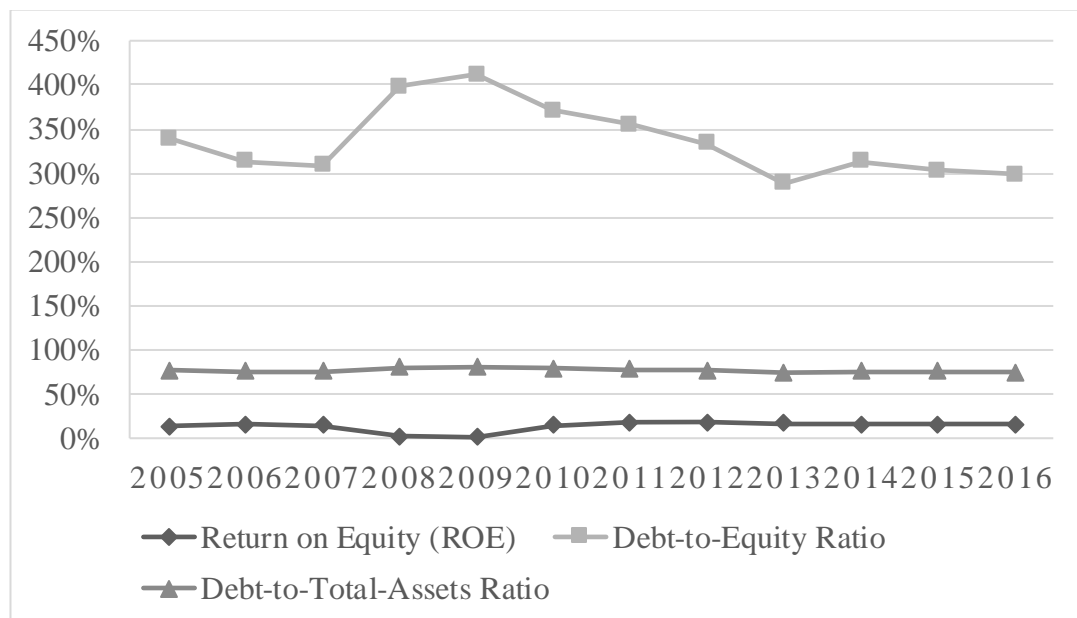
Since the BMW Group has quite substantial part of debt, let us examine and analyze the changes in the value of assets, equity and debt capital over the period of 2005 – 2016.



*Figure 19: Assets, Equity, and Total Debt of BMW Group during 2005 - 2016 (Source: BMW Group Annual Report, 2005 - 2016)*

In Figure 19 we can observe an upward trend of the assets, equity and total debt over the period of 2009 – 2016. From 2005 to 2008, we can also see the growth of assets, liabilities, and equity, then during 2008 – 2009 the assets and equity started stagnating, which means that most probably, the debt-to-equity ratio was mostly raised by the slight increase in total debt. It is worth mentioning that since 2005 the debt capital has been much higher than equity, meaning that the BMW Group mostly finances the capital structure by debt for at least 12 years.

The following Figure 20 provides additional information on capital structure changes, described by debt-to-equity ratio and debt-to-total-assets ratio, while changes in profitability of equity capital are described by the return on equity ratio (ROE).



*Figure 20: Debt-to-Equity, Debt-to-Total-Assets, and Return on Equity ratios of the BMW Group during 2005 - 2016 (Source: BMW Group Annual Reports 2005 - 2016)*

During 2008–2009, values of debt-to-equity ratio have significantly increased to 399–412%, indicating that the capital structure was highly geared with substantial financial risk. However, since we can see a slight increase of return on equity (ROE) ratio from 2008 to 2009, we can assume that the BMW Group uses debt capital to have the positive effect of the financial leverage. After the financial crisis, we can observe that debt-to-equity ratio started to decline, until 2013, meaning that the BMW Group decided to use more equity capital than the debt, in order to make the capital structure more sound and stable.

Leverage ratios are also considered a subject to the foreign exchange risk during consolidation of financial accounts from subsidiaries to the parent company. The higher the leverage ratios of the company, the more the company is exposed to the foreign exchange risk.

### **Activity**

Activity ratios are used to examine the company's ability to convert the assets into cash or sales (Giroux, 2003). In other words, the activity ratios measure the company's efficiency in terms of resources. Activity ratios, such as inventory turnover, receivables turnover and payables turnover ratios for the period of 2005 – 2016 for the BMW Group are calculated and displayed in Tables 19 and 20.

| (in millions of EUR)  | 2005  | 2006  | 2007  | 2008  | 2009   | 2010   |
|-----------------------|-------|-------|-------|-------|--------|--------|
| Costs of Goods Sold   | 35992 | 37660 | 43832 | 44323 | 45356  | 49562  |
| *Inventory            | 6527  | 6794  | 7349  | 7912  | 6680.5 | 7477.5 |
| Sales                 | 46656 | 48999 | 56018 | 53197 | 50681  | 60477  |
| *Accounts Receivables | 2135  | 2258  | 2672  | 2454  | 2103   | 2306   |
| *Accounts Payables    | 3544  | 3737  | 3551  | 3684  | 3234   | 4118   |
| Inventory Turnover    | 5.51  | 5.54  | 5.96  | 5.60  | 6.79   | 6.63   |
| Receivables Turnover  | 21.85 | 21.70 | 20.96 | 21.68 | 24.10  | 26.23  |
| Payables Turnover     | 13.16 | 13.11 | 15.78 | 14.44 | 15.67  | 14.69  |
| *in average           |       |       |       |       |        |        |

*Table 19: Activity Ratios 2005 - 2010 (Source: BMW Group Annual Reports 2005 - 2010)*

| (in millions of EUR)  | 2011   | 2012   | 2013  | 2014    | 2015  | 2016  |
|-----------------------|--------|--------|-------|---------|-------|-------|
| Costs of Goods Sold   | 54276  | 61354  | 60784 | 63396   | 74043 | 75442 |
| *Inventory            | 9299   | 10313  | 10071 | 11482.5 | 12079 | 12493 |
| Sales                 | 68821  | 76848  | 76059 | 80401   | 92175 | 94163 |
| *Accounts Receivables | 2956.5 | 2508.5 | 2623  | 2274.5  | 2754  | 2901  |
| *Accounts Payables    | 5194.5 | 6308   | 7167  | 7749    | 8083  | 8414  |
| Inventory Turnover    | 5.84   | 5.95   | 6.04  | 5.52    | 6.13  | 6.04  |
| Receivables Turnover  | 23.28  | 30.64  | 29.00 | 35.35   | 33.47 | 32.46 |
| Payables Turnover     | 13.25  | 12.18  | 10.61 | 10.38   | 11.40 | 11.19 |
| *in average           |        |        |       |         |       |       |

*Table 20: Activity Ratios 2011 - 2016 (Source: BMW Group Annual Reports 2011 - 2016)*

Activity ratios provides us the information on the company's effective management of inventories, receivables, and payables (Van Horne and Wachowicz, 2008).

The BMW Group's turnover ratios over the period of 2005 – 2016 does not show substantial deviations. Even during the financial crisis of 2008 – 2009, the inventory turnover ratios remain relatively stable, even though cost of goods sold has been increased by the unfavorable exchange rate fluctuations and consequently higher raw materials prices (Annual Report, 2008). The industry inventory turnover benchmark is 4.8, provided by Business Development Bank of Canada, the BMW Group has higher figures, meaning that the inventory levels are relatively in balance. Furthermore, the car manufacturing companies mostly have much lower inventory turnover ratio than regular grocery chains or retails stores (Kennon, 2017).

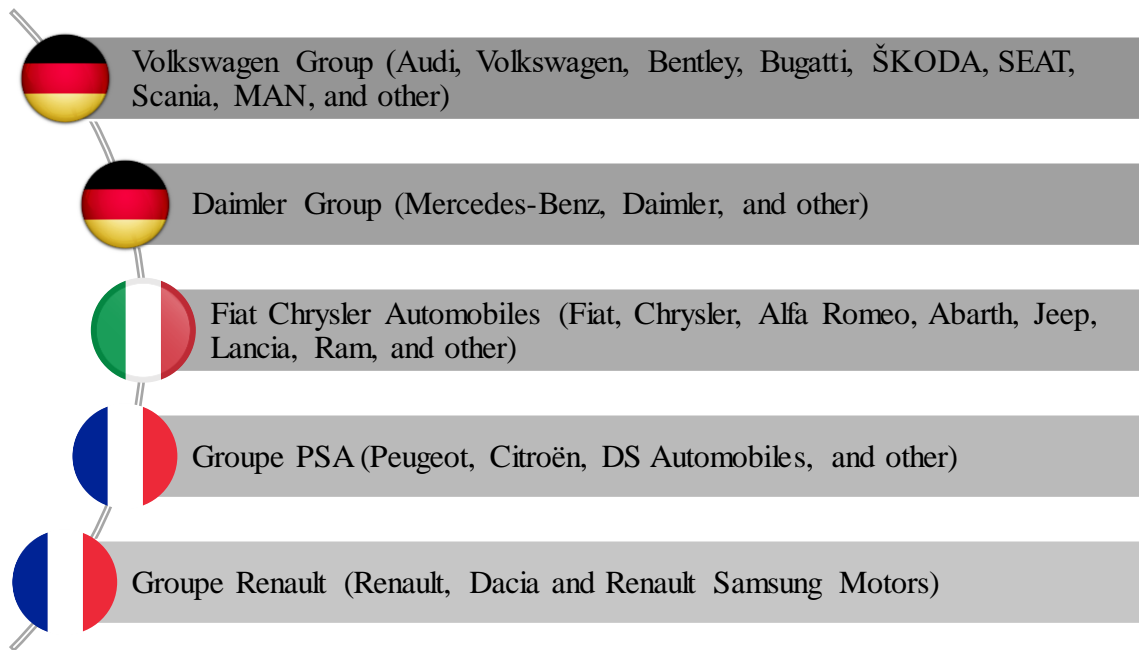
Over the period of 2005 – 2016, the BMW Group's receivables turnover ratios have mostly increased and have reached 32.46 in 2016. Compared to the industry benchmark of 2.13, provided by financial media company CSIMarket, the BMW Group quite effectively manages the receivables and its collections.

Looking at the period of 2008 – 2010, we can observe the highest payables turnover ratio of 14.44 and 15.67, meaning that either the BMW Group could not repay payables at the same speed as before, or the suppliers started to demand payments on earlier dates. In both cases, such change in payables turnover ratio could be caused by the financial crisis.

As it has been mentioned in the liquidity ratio analysis, the receivables and payables can be largely exposed to the foreign exchange risk, since the subsidiaries and global sales network have to exchange foreign currency to the domestic currency of the parent company. The foreign exchange risk arises when the exchange rate adversely fluctuates before the payment is done.

## Peer Group Analysis

The automotive industry is one of the most leading, developing and innovative industries worldwide. As it was mentioned in the industry overview part, the automotive industry has quite a competitive environment, where the revenue can be considered as one of the key performance indicators of the company. For the peer group analysis, the following five European manufacturing companies of similar size and industry have been selected:



*Figure 21: Peer Group Selected Countries (Source: BMW Blog, 2015)*

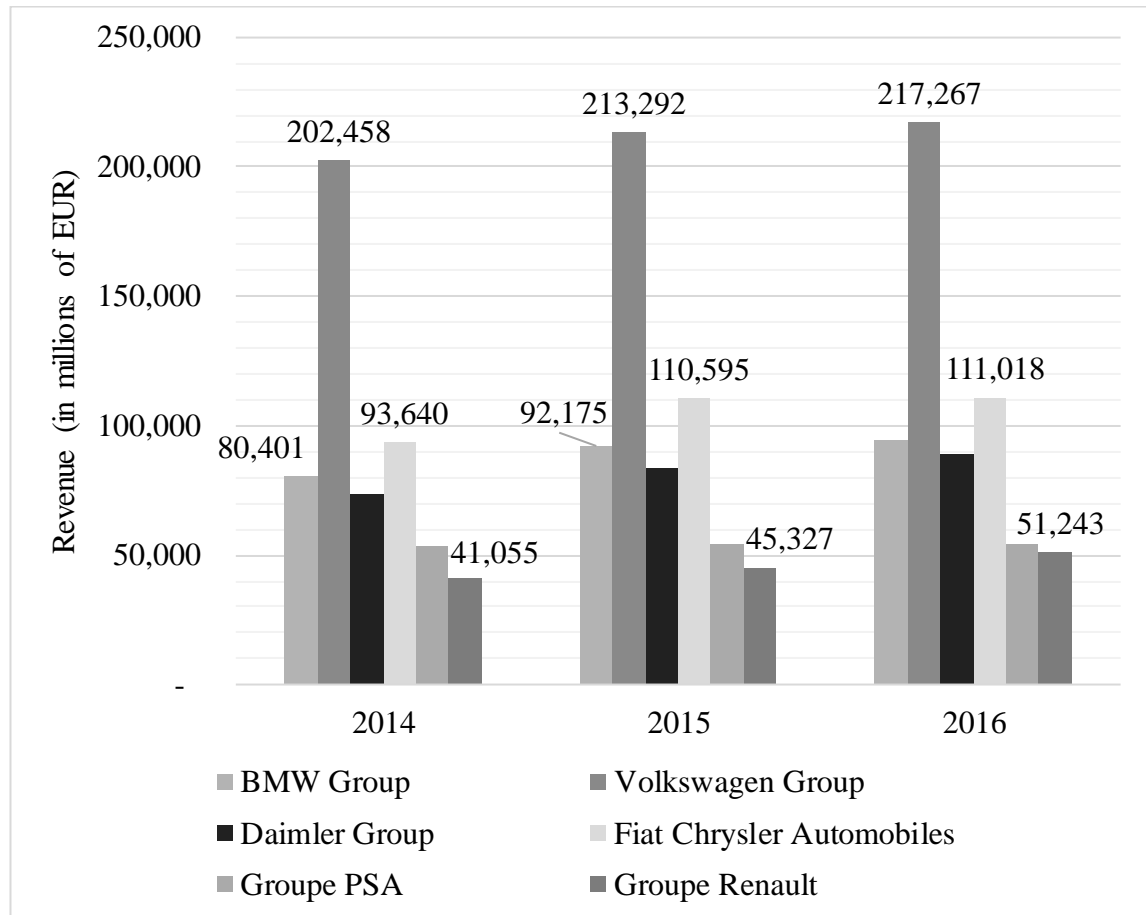
Figure 21 provides an overview of each selected company's well-known brands and country of origin.

The peer group consists of the five European automobile companies operating globally. In order to assemble the peer group, we should take into account the company size. Companies, such as Fiat Chrysler Automobiles, Groupe PSA, Groupe Renault, and Daimler have comparably similar size of revenue, while Volkswagen is considered to be a larger company with a more diverse product portfolio and higher sales volume. However, Volkswagen has been added to the peer group, since it is considered to be one of the major competitors of the BMW Group (BMW Group Blog Release, 2015).

It is important to note that all the companies are based in the European Union and have common reporting currency of Euro. Moreover, all companies prepare their consolidated

financial statements in compliance with the International Financial Reporting Standards (IFRS), as adopted by the European Union.

Let us examine the development of revenue of the selected companies over the period of 2014 – 2016, in the following Figure 22.



*Figure 22: Peer Group: Revenue during 2014 - 2016 (Source: Annual Reports of selected companies, 2014 - 2016)*

From Figure 22 we can observe an increase of sales recorded by BMW Group, Volkswagen Group, Daimler Group, Fiat Chrysler Automobiles, and Groupe Renault, while Groupe PSA experienced a slight decrease by 1.2% in 2016, in comparison to 2015. According to the Groupe PSA Annual Report, a decline in revenue has been caused by the adverse changes in exchange rate (-3.8%) and by decrease in sales to partners (-1.5%).

Moreover, Figure 22 displays that during 2014 – 2016 the Volkswagen Group has recorded the highest sales volume, the Fiat Chrysler Automobiles has shown the second-best records, while the BMW Group is the third company showing a stable growth of revenue.

### ***Profitability***

Profitability is considered to be one of the most important indicators of the company's financial and operating performance. For this reason, the profitability ratios, such as return on equity (ROE) and gross profit margin ratios have been selected for the BMW Group and the peer group and can be observed in the following Table 21. The examined period covers the last three years, from 2014 to 2016.

|                           | <b>Gross Profit Margin Ratio</b> |             |             | <b>Return on Equity (ROE)</b> |             |             |
|---------------------------|----------------------------------|-------------|-------------|-------------------------------|-------------|-------------|
|                           | <b>2014</b>                      | <b>2015</b> | <b>2016</b> | <b>2014</b>                   | <b>2015</b> | <b>2016</b> |
| BMW Group                 | 0.21                             | 0.20        | 0.20        | 0.16                          | 0.15        | 0.15        |
| Volkswagen Group          | 0.18                             | 0.16        | 0.19        | 0.12                          | -0.02       | 0.06        |
| Daimler Group             | 0.38                             | 0.38        | 0.36        | 0.16                          | 0.16        | 0.15        |
| Fiat Chrysler Automobiles | 0.13                             | 0.12        | 0.14        | 0.03                          | 0.01        | 0.09        |
| Groupe PSA                | 0.16                             | 0.19        | 0.19        | -0.08                         | 0.05        | 0.12        |
| Groupe Renault            | 0.19                             | 0.20        | 0.21        | 0.08                          | 0.10        | 0.11        |

*Table 21: Profitability Ratio for Peer Group Analysis (Source: Annual Reports of Selected Companies 2014-2016)*

If we examine the gross profit margin, we can see that the Daimler Group and the BMW Group have the highest gross profit margin over the period of 2014 – 2016. It can be explained by the fact that both are considered to be leading premium car manufacturing companies, while Fiat, Groupe PSA, and Groupe Renault specialize more in the production of affordable automobiles. Volkswagen, with the highest sales volume, has lower gross profit margin than the BMW Group, which is caused by large interest expenses attributable to the financial services of the company and by impairment losses on intangible assets, property, plant, and equipment and lease assets. The emission scandal of 2015 still substantially affects the company's costs, reputation, financial and operational performance (Rauwald, 2017). Moreover, if we look at return on equity (ROE) of the Volkswagen Group in 2015, we can see the negative ratio as a result of negative net income and that the company has much larger liabilities and other operating expenses than the revenue.

Again, the BMW Group and the Daimler Group have the highest return on equity ratio in comparison to the peer group, meaning that the companies are more efficient in using the equity to generate profits and consequently provide higher returns to shareholders. Besides Volkswagen Group, Fiat Chrysler Automobiles also shows the lowest return on equity, as a

result of low revenue growth. Groupe PSA experienced the lowest return on equity over the period of 2014 – 2016. Moreover, the company had a negative return on equity, which was caused by negative impact of exchange rate fluctuations, mainly due to Argentinian peso and the Russian ruble on the revenue recognition, by impairment losses on Latin America and Russia CGU assets and restructuring costs. In comparison, even though Groupe Renault does not have the highest profitability ratio in the peer group, the profitability ratio analysis of the company shows a stable growth of gross profit margin and return on equity.

To sum up, the profitability ratio analysis reveals that the BMW Group and the Daimler Group record the highest gross profit margin and return on equity ratios. While the Volkswagen Group still struggles with the result of the emission scandal of 2015 and Groupe PSA has been adversely affected by the foreign currency fluctuations in 2014.

### ***Liquidity and Solvency***

Liquidity ratio of the BMW Group and the peer group for the period of 2014 – 2016 is displayed in the following Table 22.

|                           | <b>Current Ratio</b> |             |             | <b>Quick (Acid Test) Ratio</b> |             |             |
|---------------------------|----------------------|-------------|-------------|--------------------------------|-------------|-------------|
|                           | <b>2014</b>          | <b>2015</b> | <b>2016</b> | <b>2014</b>                    | <b>2015</b> | <b>2016</b> |
| BMW Group                 | 0.96                 | 0.94        | 0.98        | 0.77                           | 0.77        | 0.81        |
| Volkswagen Group          | 1                    | 0.98        | 0.88        | 0.92                           | 0.74        | 0.66        |
| Daimler Group             | 1.15                 | 1.19        | 1.21        | 0.84                           | 0.88        | 0.91        |
| Fiat Chrysler Automobiles | 0.92                 | 0.93        | 0.80        | 0.67                           | 0.70        | 0.56        |
| Groupe PSA                | 0.71                 | 0.85        | 1.04        | 0.58                           | 0.67        | 0.83        |
| Groupe Renault            | 1.05                 | 1.01        | 1           | 0.97                           | 0.93        | 0.90        |

*Table 22: Liquidity Ratio for Peer Group Analysis (Source: Annual Reports of Selected Companies 2014-2016)*

For the liquidity ratio analysis, current and quick (acid test) ratios have been selected. Current ratio provides us the information on the proportion of current assets to current liabilities, meaning that the lower the ratio, the more probable it is that the company would have some problems to cover their obligations when they become due (Giroux, 2003). The quick (acid test) ratio shows us the company's ability to repay current obligations with most-liquid (quick) current assets (Van Horne and Wachowicz, 2008).

From Table 22's current ratio section, we can observe that the Daimler Group and Groupe Renault have the current ratio higher than 1. Even though the current ratios of Daimler Group and Groupe Renault are less than the average benchmark of current ratio of 1.23 in the automotive industry, they are still higher than 1, implying that the level of current liabilities is lower than the current assets. In comparison, BMW Group, Volkswagen Group, Fiat Chrysler Automobiles, and Groupe PSA (with exception for 2016) have less current assets, indicating that these companies are at risk of not being able to cover the obligations when they become due.

The results of the quick (acid test) ratio analysis for the BMW Group and selected peer group can be observed in Table 22. The results have shown that none of the selected companies indicate quick (acid test) ratio higher than 0.97, which means that the current assets are largely dependent on the level of inventories. However, if we compare these results with the industry benchmark of 0.27, we see that all selected companies have much higher results.

Compared to the peer group, the largest stable quick (acid test) ratio is recorded by Groupe Renault. While the lowest results are shown for the Fiat Chrysler Automobiles, meaning that the company is over-leveraged and is not able to fully cover their current obligations. The BMW Group and the Daimler Group are in the middle of the list.

The leverage, or also solvency of the BMW Group and the peer group for the period of 2014 – 2016 is presented in the following Table 23. For the peer group, leverage ratio analysis, debt-to-equity and debt-to-total assets ratios have been selected.

|                           | Debt-to-Equity Ratio |      |      | Debt-to-Total-Assets Ratio |      |      |
|---------------------------|----------------------|------|------|----------------------------|------|------|
|                           | 2014                 | 2015 | 2016 | 2014                       | 2015 | 2016 |
| BMW Group                 | 3.14                 | 3.03 | 2.98 | 0.76                       | 0.75 | 0.75 |
| Volkswagen Group          | 2.89                 | 3.33 | 3.41 | 0.74                       | 0.77 | 0.77 |
| Daimler Group             | 3.25                 | 2.98 | 3.11 | 0.76                       | 0.75 | 0.76 |
| Fiat Chrysler Automobiles | 6.32                 | 5.23 | 4.39 | 0.86                       | 0.84 | 0.81 |
| Groupe PSA                | 4.88                 | 3.02 | 2.09 | 0.83                       | 0.75 | 0.68 |
| Groupe Renault            | 2.28                 | 2.18 | 2.30 | 0.69                       | 0.69 | 0.70 |

*Table 23: Leverage Ratio for Peer Group Analysis (Source: Annual Reports of Selected Companies 2014-2016)*

As it was mentioned in the industry overview part, the automotive industry is highly capital-intensive and most companies substantially finance the capital by raising debt (Kallstrom, 2015). Thereby, leverage ratios are usually high in the automotive industry. Table 23 shows that Groupe Renault shows better results in comparison to the peer group, revealing the most stable debt-to-total assets ratio and implying that only 31-30% of the assets are financed by the shareholders' equity. While Fiat Chrysler Automobile's leverage ratio analysis indicates the highest debt-to-equity and debt-to-total-assets ratio in comparison to the peer group, meaning that this company is more at risk of not being able to cover their debt obligations. The BMW Group's leverage ratios shows a decrease in portion of debt to equity and quite a stable figure of debt-to-total assets, in comparison to Daimler Group. The Daimler Group, in opposite to the BMW Group, experienced an increase of debt financing.

In general, liquidity and solvency ratio reveal that among the peer group, Groupe Renault had better financial and operational performance. While the BMW Group and Daimler are mostly in the middle of the range. However, this can be explained by the difference in business targets, since the BMW Group and Daimler are considered to be the leading

premium manufacturers, while Groupe Renault specifies on production of more affordable vehicles.

### ***Hedging Strategies***

Since the BMW Group and others from the peer group are global companies with business operations worldwide, they are exposed to foreign exchange risk exposure. The profitability and liquidity and solvency ratio analyses have provided an overview of the companies that perform better financially, while the others are at risk of not being able to cover the short-term obligations. Moreover, during the profitability ratio analysis, one of the companies has recorded a negative return on equity, as a result of adverse change in foreign exchange rate impact on the revenue. Thereby, the hedging strategy against the foreign exchange risk exposure can additionally be a part of the peer group evaluation. The hedging strategies implemented by the BMW Group and others from the peer group in 2016 are presented below, in Table 24.

| Hedging Strategy          |  |
|---------------------------|--|
| BMW Group                 | Natural hedging, currency forwards, and currency options                               |
| Volkswagen Group          | Currency forwards, currency options, currency swaps and cross-currency swaps           |
| Daimler Group             | Natural hedging, currency forwards and currency options, cross currency interest swaps |
| Fiat Chrysler Automobiles | Currency forwards, and cross-currency interest rate and currency swaps                 |
| Groupe PSA                | Currency forwards and currency options   |
| Groupe Renault            | Natural hedging, currency swaps and currency forwards                                  |

*Table 24: Hedging Strategies for Peer Group Analysis (Source: Annual Reports of Selected Companies, 2016)*

From the Table 24, we can see that all companies in the peer group use currency forwards contracts to hedge against the foreign exchange risk exposure. The currency forward contract is one of the most common hedging tools used by the multinational companies to manage transaction exposure. The forward contract is a binding agreement to exchange a fixed amount of foreign currency at certain date in a future (Bodnar, 2017). This type of derivative

instrument is used for conversion of uncertain future value of the home currency into a certain value in home currency, which is expected to be received or paid on a specified date by the contract, independent of the changes in the exchange rate in the remaining time of the contract (Bodnar, 2017). Comparing with futures contracts, the forwards are non-standardized contracts, meaning that the terms of the contract are negotiated between the parties (Farlex Financial Dictionary, 2012).

The other most common hedging strategy among the peer group is natural hedging, which is considered to be a non-derivative instrument. The natural hedge is the hedging tool that mitigates the foreign exchange risk exposure by matching revenues and expenses (Döhring, 2008). The detailed explanation of the natural hedge is described and discussed in the further section of Exchange Rate Exposure and Hedging Strategies of BMW Group.

The last most common hedging tools used for managing the transaction exposure which displayed in the Table 24 are currency options and cross-currency swaps. Comparing with forward and futures, the options do not oblige, but provide a right or choice to exchange certain amount of foreign currency at certain price either on or before the specified date (Döhring, 2008). The cross-currency swap is one more financial instrument used to hedge against the foreign exchange risk exposure by exchanging a cash flow in one currency for another (Döhring, 2008).

Comparing the peer group and their hedging strategies for 2016, we can observe that the BMW Group and the Daimler Group have more similar hedging strategies, such as natural hedging, currency forwards and currency options. It is important to mention that both companies are considered to be the main competitors in the automotive market, since both focus on producing premium luxury cars and both originated in Germany. Their profitability ratio analysis also shows that they have quite a similar gross profit margin and return on equity. While the liquidity ratio analysis revealed that Daimler had a higher current ratio and quick (acid) test ratio, meaning that the company is abler to cover their obligations when they become due. Moreover, according to our peer group analysis, Groupe Renault - as a manufacturer of more affordable vehicles, have shown quite positive profitability, liquidity, and solvency ratios. If we compare the Groupe Renault's hedging strategies, we can see that they are also quite similar to hedging tools of the BMW Group and the Daimler Group. While the Volkswagen Group, Fiat Chrysler Automobiles, and Groupe PSA share quite the same hedging strategies.

## Exchange Rate Exposure and Hedging Strategies

As a global firm having business operations worldwide in various currencies and generating substantial profit outside the Euro area, the BMW Group is extremely exposed to foreign exchange rate risk. In order to reduce the exposure to foreign exchange risk, the company uses the variety of hedging strategies.

Since the BMW Group has numerous sales networks and production plants globally, the company is exposed to three types of foreign exchange risk exposure – transaction exposure, translation exposure and economic or operating exposure. Economic or operating exposure risk can affect the profitability of BMW Group, as this exposure relates to the unexpected exchange rate movements, which is almost impossible to predict. The company is also a subject to the transaction exposure risk since it has a worldwide sales network and therefore receives payments in foreign currency. Furthermore, BMW has several subsidiaries in the United States of America (USA), Asia, and Russia and thus the translation exposure risk during the consolidation of the financial statements can arise.

Thereby, let us examine the principal exposures of the Euro/Chinese Renminbi, Euro/US Dollar, Euro/British Pound, and Euro/Japanese Yen, which the BMW Group has experienced during the last two years of 2015 – 2016. From Table 25 we can observe that in 2016 the amounts of Euro/US Dollar and Euro/British Pound exposure have decreased, while the amounts of Euro/Chinese Renminbi and Euro/Japanese Yen have increased. This could be caused by several reasons, such as changes in sales volume and production in the regions, exchange rate fluctuations and many others.

| (in millions of EUR)  | 31.12.2015 | 31.12.2016 |
|-----------------------|------------|------------|
| Euro/Chinese Renminbi | 9973       | 10467      |
| Euro/US Dollar        | 4770       | 3319       |
| Euro/British Pound    | 5396       | 4785       |
| Euro/Japanese Yen     | 1162       | 1510       |

*Table 25: Foreign Currency Exposure for 2015 - 2016 (Source: BMW Group Annual Report, 2015-2016)*

When the foreign exchange exposures are forecasted and determined, these exposures are compared to all hedges that the company holds. The net cash flow surplus reflects an uncovered risk position (Annual Report, 2016). From Table 25 we can see that the BMW Group has a substantial amount of foreign currency exposures, since a significant portion of

the company's revenues are earned outside of the Euro currency region. In order to hedge against the foreign exchange rate fluctuations, the BMW Group uses non-derivative in the form of natural hedge and derivative financial instruments in the form of currency forward and options contract (Annual Report, 2016).

The principal hedging strategy of the BMW Group is "natural hedging", which is implemented "when the values of non-derivative financial instruments have matching maturities and amounts (netting)" (Annual Report, 2016). The BMW Group strives to fully utilize the "natural hedging" potential, since the company seeks to keep revenues and corresponding expenditures in the same local currency in order to reduce the exchange rate exposures. Natural hedge can be implemented through positioning of factories in regions where sales take place, or by paying expenditures predominantly in local currencies. Mostly natural hedging is used in major sales regions with production plants and large purchasing volumes, such as the United States of America, China and others. Moreover, the suppliers are selected in a way that the natural hedging potential is taken full advantage of in the North American Free Trade Agreement (NAFTA) region and China (Annual Report, 2016).

Nevertheless, natural hedging does not fully eliminate the exchange rate exposure. Consequently, the BMW Group utilizes formal financial hedges by establishing regional treasury-centers in USA, UK and Singapore (Gupta, 2015). Importantly, overseas regional treasury centers review their exchange rate exposure and then make weekly reports on it to the group treasurer, located in Munich. The group treasurer consolidates up-to-date information on exchange rate exposure and then issues a set of recommendations and corrective actions to mitigate foreign exchange risks.

Moreover, when the natural hedging is fully used, the derivative financial instruments are employed to mitigate the remaining risk after netting. The derivative financial instruments of the BMW Group against foreign exchange exposure mostly consist of forward currency contracts. These forward currency contracts aim to hedge forecast sales or existing transactions/items denominated in foreign currency over the following 44 months.

For instance, according to the BMW Group Annual Report 2016, in order to reduce the foreign exchange rate exposure, a substantial portion of plan assets in foreign currency are either invested in the same currency as the underlying plan, or hedged by currency derivatives.

Norbert Reithofer, the Chairman of BMW, admitted that changes in exchange rate have a great impact on the revenues (Annual Report, 2007). He stated: “earnings were held down more than expected due to the ongoing weakness of the U.S. dollar and Japanese yen and higher raw material costs for items such as steel, rubber and petroleum”. The BMW Group has one of their biggest production networks located in the United States of America. This production facility produces their vehicles to worldwide customers. Moreover, the United States market constitutes the greatest portion of the BMW Group’s sales volume. When the US Dollar depreciated against Euro in the course of 2007, it caused an adverse impact on the share prices of European exporting companies. In response, to reduce the effect of the foreign exchange rate fluctuations, the BMW Group asserted that they would increase the purchasing volume and production units in the US Dollar area and thereby reduce the risk by strengthening the natural hedging activity (Annual Report, 2007). Japanese Yen also remained weak against the Euro in 2007. However, since the BMW Group has only research and development networks and most vehicles are sold through retailers and dealers, only derivative financial instruments, such as option and forward currency contracts have been used for hedging.

## Conclusion

Effective risk and financial management is vital to the success of any business entity. Due to effective risk management and financial performance, a firm becomes prosperous and attractive for potential investors. Development and application of effective hedging strategies against foreign exchange rate exposure, as well as efficient use of resources to generate profits can substantially impact the company's performance.

The aim of the study was to evaluate the relation of foreign exchange risk management and financial performance of the BMW Group over the period of 2005 - 2016.

This paper developed an analysis of one of the leading companies in the automotive industry – BMW Group. As a global firm, the BMW Group operates and sells their goods and services worldwide and thereby is exposed to the foreign exchange rate risk exposure. Extensive literature overview, analysis of foreign exchange risk management and financial performance have served as fundamental pillars of the research.

To analyze the foreign exchange risk management and financial performance of the BMW Group, the theoretical framework of both analyses has been developed. The extensive literature overview assisted the following analytical procedures. The analytical procedures have been split into several parts.

First part of the analysis focused on industry overview and general introduction of the BMW Group. It was composed of a review of the company's business segments, worldwide operations, regional sales volume, and revenues over the period of 2005 - 2016. The part was followed with the illustration of currency movement of exchange rates EUR/USD, EUR/CNY, EUR/JPY and EUR/GBP, which have been selected based on the largest proportion of the United States of America, China, United Kingdom, and Japan into the company's sales volume.

The second part presented a detailed accounting analysis of the BMW Group during 2005 – 2016 and emphasized the most significant items of the financial statements and their development over the specified period. While the third part focused on the study of key financial ratios, such as profitability, liquidity, leverage, and activity ratios. The analysis revealed that to some extent the notional change in the financial ratios have been affected by the adverse change in foreign exchange rate.

The fourth part conducted a peer group analysis to examine the BMW Group's positioning in the competitive environment by evaluating profitability, liquidity, solvency, and hedging strategies.

Based on the main findings from the detailed accounting analysis, financial ratio analysis, and peer group analysis, the BMW's hedging strategies against the foreign exchange risk exposure were presented and discussed.

The research method consisted of an analysis of the financial statements and notes about the financial statements based on released annual reports of the BMW Group over the period of 2005 – 2016.

The main findings of the analysis have shown that the BMW Group has experienced a downturn in sales and revenue during the financial crisis of 2008 – 2009. The currency movements of the exchange rate over the period of 2005 – 2016 has shown that financial crisis substantially affected the company's financial performance. The financial ratio analysis supported the main findings by indicating low net profit margin, ROA and ROE, and high debt-to-equity ratio, as well as debt-to-total-assets ratio during the financial crisis. While the historical detailed accounting analysis provided the overview of the development of the financial statements' items and provided explanatory notes to the financial ratio analysis. Moreover, the financial ratio analysis has revealed that during 2008 – 2009, the company's profitability, liquidity, leverage, and activity ratios could have been adversely affected by the unfavorable changes in foreign exchange rate.

The peer group analysis revealed that comparing with peers, such as the Volkswagen Group, Fiat Chrysler Automobiles, Groupe Renault, Groupe PSA, and Daimler Group, the BMW Group shows stable, sound and competitive growth in the market.

The application of this research is limited due to lack of the company's disclosures on the detailed gains and losses from the hedging strategies.

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## Appendix

### Appendix A: Income Statement

#### I. BMW Group Income Statements 2005 – 2010

| <b>BMW Group Income Statements 2005 – 2016 (in millions of EUR)</b> | <b>2005</b>  | <b>2006</b>  | <b>2007</b>  | <b>2008</b> | <b>2009</b> | <b>2010</b>  |
|---|--------------|--------------|--------------|-------------|-------------|--------------|
| Revenue   | 46656        | 48999        | 56018        | 53197       | 50681       | 60477        |
| Cost of Sales   | -35992       | -37660       | -43832       | -44323      | -45356      | -49562       |
| <b>Gross Profit</b>   | <b>10664</b> | <b>11339</b> | <b>12186</b> | <b>8874</b> | <b>5325</b> | <b>10915</b> |
| Selling and administrative expenses                                 | -4762        | -4972        | -5254        | -5369       | -5040       | -5529        |
| Research and development costs                                      | -2464        | -2544        | -2920        | -2825       |             |              |
| Other operating income and expenses                                 | 355          | 227          | 200          | 241         | 4           | -292         |
| <b>Profit/loss before financial result</b>                          | <b>3793</b>  | <b>4050</b>  | <b>4212</b>  | <b>921</b>  | <b>289</b>  | <b>5094</b>  |
| Financial result  | -506         | 74           | -339         | -570        | 124         | -258         |
| <b>Profit/loss before tax</b>                                       | <b>3287</b>  | <b>4124</b>  | <b>3873</b>  | <b>351</b>  | <b>413</b>  | <b>4836</b>  |
| Income taxes  | -1048        | -1250        | -739         | -21         | -203        | -1602        |
| <b>Net profit/loss</b>  | <b>2239</b>  | <b>2874</b>  | <b>3134</b>  | <b>330</b>  | <b>210</b>  | <b>3234</b>  |
| Attributable to minority interest                                   |              | 6            | 8            | 6           | 6           | 16           |
| Attributable to shareholders of BMW AG                              | 2239         | 2868         | 3126         | 324         | 204         | 3218         |
| Basic earnings per share of common stock                            | 3.33         | 4.38         | 4.78         | 0.49        | 0.31        | 4.91         |
| Basic earnings per share of preferred stock                         | 3.35         | 4.4          | 4.8          | 0.51        | 0.33        | 4.93         |

## II. BMW Group Income Statements 2010 – 2016

| <b>BMW Group Income Statements 2005 – 2016 (in millions of EUR)</b> | <b>2011</b>  | <b>2012</b>  | <b>2013</b>  | <b>2014</b>  | <b>2015</b>  | <b>2016</b>  |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| Revenue   | 68821        | 76848        | 76059        | 80401        | 92175        | 94163        |
| Cost of Sales   | -54276       | -61354       | -60785       | -63396       | -74043       | -75442       |
| <b>Gross Profit</b>   | <b>14545</b> | <b>15494</b> | <b>15274</b> | <b>17005</b> | <b>18132</b> | <b>18721</b> |
| Selling and administrative expenses                                 | -6177        | -7007        | -7255        | -7892        | -8633        | -9158        |
| Research and development costs                                      |              |              |              |              |              |              |
| Other operating income and expenses                                 | -350         | -187         | -33          | 5            | 94           | -177         |
| <b>Profit/loss before financial result</b>                          | <b>8018</b>  | <b>8300</b>  | <b>7986</b>  | <b>9118</b>  | <b>9593</b>  | <b>9386</b>  |
| Financial result  | -635         | -481         | -73          | -411         | -369         | 279          |
| <b>Profit/loss before tax</b>                                       | <b>7383</b>  | <b>7819</b>  | <b>7913</b>  | <b>8707</b>  | <b>9224</b>  | <b>9665</b>  |
| Income taxes  | -2476        | -2697        | -2573        | -2890        | -2828        | -2755        |
| <b>Net profit/loss</b>  | <b>4907</b>  | <b>5122</b>  | <b>5340</b>  | <b>5817</b>  | <b>6396</b>  | <b>6910</b>  |
| Attributable to minority interest                                   | 26           | 26           | 26           | 19           | 27           | 47           |
| Attributable to shareholders of BMW AG                              | 4881         | 5096         | 5314         | 5798         | 6369         | 6863         |
| Basic earnings per share of common stock                            | 7.45         | 7.77         | 8.1          | 8.83         | 9.7          | 10.45        |
| Basic earnings per share of preferred stock                         | 7.47         | 7.79         | 8.12         | 8.85         | 9.72         | 10.47        |

## Appendix B: Balance Sheet

### I. BMW Group Balance Sheets 2005 – 2010

| (in millions of EUR)                              | 2005         | 2006         | 2007         | 2008          | 2009          | 2010          |
|---|--------------|--------------|--------------|---------------|---------------|---------------|
| Intangible assets                                 | 4593         | 5312         | 5670         | 5641          | 5379          | 5031          |
| Property, plant, and equipment                    | 11087        | 11285        | 11108        | 11292         | 11385         | 11427         |
| Leased products                                   | 11375        | 13642        | 17013        | 19524         | 17973         | 17791         |
| Investments accounted for using the equity method | 94           | 60           | 63           | 111           | 137           | 212           |
| Other investments                                 | 1178         | 401          | 209          | 322           | 232           | 177           |
| Receivables from sales financing                  | 17202        | 17865        | 20248        | 22192         | 23478         | 27126         |
| Financial assets                                  | 642          | 816          | 1173         | 1808          | 1519          | 1867          |
| Deferred tax                                      | 772          | 755          | 720          | 866           | 1266          | 1393          |
| Other assets                                      | 613          | 378          | 415          | 660           | 640           | 692           |
| <b>Non-current assets</b>                         | <b>47556</b> | <b>50514</b> | <b>56619</b> | <b>62416</b>  | <b>62009</b>  | <b>65716</b>  |
| Inventories                                       | 6527         | 6794         | 7349         | 7290          | 6555          | 7766          |
| Trade receivables                                 | 2135         | 2258         | 2672         | 2305          | 1857          | 2329          |
| Receivables from sales financing                  | 11851        | 12503        | 13996        | 15871         | 17116         | 18239         |
| Financial assets                                  | 2654         | 3134         | 3622         | 3306          | 3215          | 3262          |
| Current tax                                       | 267          | 246          | 237          | 602           | 950           | 1166          |
| Other assets                                      | 1955         | 2272         | 2109         | 1842          | 2484          | 2957          |
| Cash and cash equivalents                         | 1621         | 1336         | 2393         | 7454          | 7767          | 7432          |
| <b>Current assets</b>                             | <b>27010</b> | <b>28543</b> | <b>32378</b> | <b>38670</b>  | <b>39944</b>  | <b>43151</b>  |
| <b>Total Assets</b>                               | <b>74566</b> | <b>79057</b> | <b>88997</b> | <b>101086</b> | <b>101953</b> | <b>108867</b> |
| Subscribed capital                                | 674          | 654          | 654          | 654           | 655           | 655           |
| Capital reserves                                  | 1971         | 1911         | 1911         | 1911          | 1921          | 1939          |
| Revenue reserves                                  | 16351        | 18121        | 20789        | 20419         | 20426         | 23447         |
| Accumulated other equity                          | -1517        | -1560        | -1621        | -2709         | -3100         | -2967         |
| Equity attributable to shareholders of BMW AG     | 17479        | 19126        | 21733        | 20275         | 19902         | 23074         |
| Treasury shares                                   | -506         |              |              | -10           |               |               |
| Minority interest                                 |              | 4            | 11           | 8             | 13            | 26            |
| <b>Equity</b>                                     | <b>16973</b> | <b>19130</b> | <b>21744</b> | <b>20273</b>  | <b>19915</b>  | <b>23100</b>  |
| Pension provisions                                | 5255         | 5017         | 4627         | 3314          | 2972          | 1563          |
| Other provisions                                  | 3243         | 2865         | 2676         | 2757          | 2706          | 2721          |
| Deferred tax                                      | 2522         | 2758         | 2714         | 2757          | 2769          | 2933          |
| Financial liabilities                             | 16830        | 18800        | 21428        | 30497         | 34391         | 35833         |
| Other liabilities                                 | 1659         | 1932         | 2024         | 2201          | 2281          | 2583          |
| <b>Non-current provisions and liabilities</b>     | <b>29509</b> | <b>31372</b> | <b>33469</b> | <b>41526</b>  | <b>45119</b>  | <b>45633</b>  |
| Other provisions                                  | 2663         | 2671         | 2826         | 2125          | 2058          | 2826          |
| Current tax                                       | 462          | 567          | 808          | 633           | 836           | 1198          |
| Financial liabilities                             | 17838        | 17656        | 22493        | 29887         | 26934         | 26520         |
| Trade payables                                    | 3544         | 3737         | 3551         | 2562          | 3122          | 4351          |
| Other liabilities                                 | 3577         | 3924         | 4106         | 4080          | 3969          | 5239          |
| <b>Current provisions and liabilities</b>         | <b>28084</b> | <b>28555</b> | <b>33784</b> | <b>39287</b>  | <b>36919</b>  | <b>40134</b>  |
| <b>Total equity and liabilities</b>               | <b>74566</b> | <b>79057</b> | <b>88997</b> | <b>101086</b> | <b>101953</b> | <b>108867</b> |

## II. BMW Group Balance Sheets 2010 – 2016

| (in millions of EUR)                              | 2011          | 2012          | 2013          | 2014          | 2015          | 2016          |
|---|---------------|---------------|---------------|---------------|---------------|---------------|
| Intangible assets                                 | 5238          | 5207          | 6179          | 6499          | 7372          | 8157          |
| Property, plant, and equipment                    | 11685         | 13341         | 15113         | 17182         | 17759         | 17960         |
| Leased products                                   | 23112         | 24468         | 25914         | 30165         | 34965         | 37789         |
| Investments accounted for using the equity method | 302           | 514           | 652           | 1088          | 2233          | 2546          |
| Other investments                                 | 561           | 548           | 553           | 408           | 428           | 560           |
| Receivables from sales financing                  | 29331         | 32309         | 32616         | 37438         | 41865         | 48032         |
| Financial assets                                  | 1702          | 2148          | 2593          | 2024          | 2208          | 2705          |
| Deferred tax                                      | 1926          | 2001          | 1620          | 2061          | 1945          | 2327          |
| Other assets                                      | 568           | 800           | 954           | 1094          | 1568          | 1595          |
| <b>Non-current assets</b>                         | <b>74425</b>  | <b>81336</b>  | <b>86194</b>  | <b>97959</b>  | <b>110343</b> | <b>121671</b> |
| Inventories                                       | 9638          | 9725          | 9585          | 11089         | 11071         | 11841         |
| Trade receivables                                 | 3286          | 2543          | 2449          | 2153          | 2751          | 2825          |
| Receivables from sales financing                  | 20014         | 20605         | 21501         | 23586         | 28178         | 30228         |
| Financial assets                                  | 3751          | 4612          | 5559          | 5384          | 6635          | 7065          |
| Current tax                                       | 1194          | 966           | 1151          | 1906          | 2381          | 1938          |
| Other assets                                      | 3345          | 3648          | 4265          | 5038          | 4693          | 5087          |
| Cash and cash equivalents                         | 7776          | 8370          | 7664          | 7688          | 6122          | 7880          |
| Assets held for sale                              |               | 45            |               |               |               |               |
| <b>Current assets</b>                             | <b>49004</b>  | <b>50514</b>  | <b>52174</b>  | <b>56844</b>  | <b>61831</b>  | <b>66864</b>  |
| <b>Total Assets</b>                               | <b>123429</b> | <b>131850</b> | <b>138368</b> | <b>154803</b> | <b>172174</b> | <b>188535</b> |
| Subscribed capital                                | 655           | 656           | 656           | 656           | 657           | 657           |
| Capital reserves                                  | 1955          | 1973          | 1990          | 2005          | 2027          | 2047          |
| Revenue reserves                                  | 26102         | 28340         | 33167         | 35621         | 41027         | 44445         |
| Accumulated other equity                          | -1674         | -674          | -358          | -1062         | -1181         | -41           |
| Equity attributable to shareholders of BMW AG     | 27038         | 30295         | 35455         | 37220         | 42530         | 47108         |
| Minority interest                                 | 65            | 107           | 188           | 217           | 234           | 255           |
| <b>Equity</b>                                     | <b>27103</b>  | <b>30402</b>  | <b>35643</b>  | <b>37437</b>  | <b>42764</b>  | <b>47363</b>  |
| Pension provisions                                | 2183          | 3965          | 2303          | 4604          | 3000          | 4587          |
| Other provisions                                  | 3149          | 3513          | 3772          | 4268          | 4621          | 5039          |
| Deferred tax                                      | 3273          | 3040          | 3554          | 1974          | 2116          | 2795          |
| Financial liabilities                             | 37597         | 39095         | 39450         | 43167         | 49523         | 55405         |
| Other liabilities                                 | 2911          | 3404          | 3603          | 4275          | 4559          | 5357          |
| <b>Non-current provisions and liabilities</b>     | <b>49113</b>  | <b>53017</b>  | <b>52682</b>  | <b>58288</b>  | <b>63819</b>  | <b>73183</b>  |
| Other provisions                                  | 3104          | 3282          | 3411          | 4522          | 5009          | 5879          |
| Current tax                                       | 1363          | 1482          | 1237          | 1590          | 1441          | 1074          |
| Financial liabilities                             | 30380         | 30412         | 30854         | 37482         | 42160         | 42326         |
| Trade payables                                    | 5340          | 6433          | 7475          | 7709          | 7773          | 8512          |
| Other liabilities                                 | 7026          | 6792          | 7066          | 7775          | 9208          | 10198         |
| <b>Current provisions and liabilities</b>         | <b>47213</b>  | <b>48431</b>  | <b>50043</b>  | <b>59078</b>  | <b>65591</b>  | <b>67989</b>  |
| <b>Total equity and liabilities</b>               | <b>123429</b> | <b>131850</b> | <b>138368</b> | <b>154803</b> | <b>172174</b> | <b>188535</b> |

## Appendix C: Cash Flow Statement

### I. BMW Group Cash Flow Statement 2005 – 2006

| <b>(in millions of EUR)</b>  | <b>2005</b>   | <b>2006</b>   |
|--|---------------|---------------|
| Net profit   | 2239          | 2874          |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |               |               |
| Depreciation of leased products  | 3441          | 3808          |
| Depreciation and amortization of other tangible, intangible and investment assets    | 3025          | 3340          |
| Change in provisions   | 764           | 137           |
| Change in deferred taxes   | 236           | 242           |
| Other non-cash income and expense items  | 176           | -329          |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  | -99           | -68           |
| Result from equity accounted investments   | -14           | 25            |
| Changes in current assets and liabilities  | 923           | -49           |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>10691</b>  | <b>9980</b>   |
| Investment in intangible assets and property, plant and equipment                    | -3875         | -4313         |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 42            | 39            |
| Expenditure for investments  | -74           | -29           |
| Proceeds from the disposal of investments  | 13            | 110           |
| Proceeds from sale of Land Rover   | 1000          |               |
| Investment in leased products  | -9461         | -10754        |
| Disposals of leased products   | 3197          | 3719          |
| Additions to receivables from sales financing  | -45365        | -50313        |
| Payments received on receivables from sales financing                                | 42634         | 47848         |
| Investments in marketable securities and investment funds                            | -455          | -2654         |
| Proceeds from the sale of marketable securities and investment funds                 | 381           | 2677          |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-11963</b> | <b>-13670</b> |
| Repurchase of treasury shares  | -506          | -253          |
| Payment of dividend for the previous year  | -419          | -419          |
| Proceeds from the issue of bonds   | 5819          | 6876          |
| Repayment of bonds   | -3432         | -4491         |
| Change in current other financial liabilities  | -214          | 1027          |
| Change in commercial paper   | -549          | 583           |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>699</b>    | <b>3323</b>   |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>66</b>     | <b>82</b>     |
| <b>Change in cash and cash equivalents</b>   | <b>-507</b>   | <b>-285</b>   |
| Cash and cash equivalents as at 1 January  | 2128          | 1621          |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>1621</b>   | <b>1336</b>   |

## II. BMW Group Cash Flow Statement 2007 – 2008

| <b>(in millions of EUR)</b>  | <b>2007</b>   | <b>2008</b>   |
|--|---------------|---------------|
| Net profit   | 3134          | 330           |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |               |               |
| Current tax  | 1002          | 75            |
| Other interest and similar income / expenses   | 4698          | -169          |
| Depreciation and amortization of other tangible, intangible and investment assets    | 3689          | 6763          |
| Change in provisions   | 221           | 3676          |
| Change in leased products  | -256          | -332          |
| Change in deferred taxes   | 111           | -51           |
| Other non-cash income and expense items  | -181          | 424           |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  |               | -21           |
| Result from equity accounted investments   | -11           | -26           |
| Change in current assets and current liabilities                                     | 204           | 411           |
| Change in other operating assets and liabilities                                     | -817          |               |
| Income taxes paid  |               | -448          |
| Interest received  |               | 240           |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>11794</b>  | <b>10872</b>  |
| Investment in intangible assets and property, plant and equipment                    | -4267         | -4204         |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 272           | 177           |
| Expenditure for investments  | -44           | -142          |
| Proceeds from the disposal of investments  | 16            | 2             |
| Investment in leased products  | -13261        | -15164        |
| Disposals of leased products   | 4917          | 5840          |
| Additions to receivables from sales financing  | -54573        | -61630        |
| Payments received on receivables from sales financing                                | 49813         | 56562         |
| Investments in marketable securities and investment funds                            | -2698         | -5392         |
| Proceeds from the sale of marketable securities and investment funds                 | 2577          | 5299          |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-17248</b> | <b>-18652</b> |
| Repurchase of treasury shares  |               | -10           |
| Payment of dividend for the previous year  | -458          | -694          |
| Interest paid  |               | -312          |
| Proceeds from the issue of bonds   | 6038          | 9959          |
| Repayment of bonds   | -4152         | -5080         |
| Change in current other financial liabilities  | 3603          | 9050          |
| Change in commercial paper   | 1526          | -9            |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>6557</b>   | <b>12904</b>  |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>-46</b>    | <b>-63</b>    |
| <b>Change in cash and cash equivalents</b>   | <b>1057</b>   | <b>5061</b>   |
| Cash and cash equivalents as at 1 January  | 1336          | 2393          |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>2393</b>   | <b>7454</b>   |

### III. BMW Group Cash Flow Statement 2009 – 2010

| <b>(in millions of EUR)</b>  | <b>2009</b>   | <b>2010</b>   |
|--|---------------|---------------|
| Net profit   | 210           | 3234          |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |               |               |
| Current tax  | 338           | 1430          |
| Other interest and similar income / expenses   | -113          | 42            |
| Depreciation and amortization of other tangible, intangible and investment assets    | 5476          | 5381          |
| Change in provisions   | 3603          | 3861          |
| Change in leased products  | 1             | 911           |
| Change in deferred taxes   | -95           | 340           |
| Other non-cash income and expense items  | 17            | -454          |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  | -35           | 5             |
| Result from equity accounted investments   | -36           | -98           |
| Change in working capital  | 1802          | -403          |
| Change in other operating assets and liabilities                                     | -894          | 572           |
| Income taxes paid  | -349          | -1318         |
| Interest received  | 346           | 148           |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>10271</b>  | <b>13651</b>  |
| Investment in intangible assets and property, plant and equipment                    | -3471         | -3263         |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 169           | 55            |
| Expenditure for investments  | -53           | -80           |
| Proceeds from the disposal of investments  | 15            | 23            |
| Investment in leased products  | -10433        | -11898        |
| Disposals of leased products   | 6515          | 7422          |
| Additions to receivables from sales financing  | -49629        | -61120        |
| Payments received on receivables from sales financing                                | 47847         | 56264         |
| Investments in marketable securities and investment funds                            | -2908         | -2723         |
| Proceeds from the sale of marketable securities and investment funds                 | 620           | 798           |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-11328</b> | <b>-14522</b> |
| Payments into equity   | 6             | 18            |
| Payment of dividend for the previous year  | 7             | -197          |
| Intragroup financing and equity transactions   | -197          | -223          |
| Interest paid  | -224          | 4578          |
| Proceeds from the issue of bonds   | 9762          | -3406         |
| Repayment of bonds   | -6440         |               |
| Change in current other financial liabilities  | -1307         | -292          |
| Change in commercial paper   | -255          | 32            |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>1352</b>   | <b>510</b>    |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>18</b>     | <b>26</b>     |
| <b>Change in cash and cash equivalents</b>   | <b>313</b>    | <b>-335</b>   |
| Cash and cash equivalents as at 1 January  | 7454          | 7767          |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>7767</b>   | <b>7432</b>   |

#### IV. BMW Group Cash Flow Statement 2011 – 2012

| (in millions of EUR)   | 2011         | 2012         |
|--|--------------|--------------|
| Net profit   | 4907         | 5122         |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |              |              |
| Current tax  | 2868         | 2908         |
| Other interest and similar income / expenses   | 1            | -4           |
| Depreciation of leased products  |              |              |
| Depreciation and amortization of other tangible, intangible and investment assets    | 3654         | 3716         |
| Change in provisions   | 779          | 446          |
| Change in leased products  | -379         | -1421        |
| Change in receivables from sales financing   | -2837        | -3988        |
| Change in deferred taxes   | -338         | -211         |
| Other non-cash income and expense items  | 148          | 407          |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  |              | -16          |
| Result from equity accounted investments   | -162         | -271         |
| Changes in working capital   | -1615        | 1835         |
| Change in other operating assets and liabilities                                     | 1175         | -1084        |
| Income taxes paid  | -2701        | -2462        |
| Interest received  | 213          | 179          |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>5713</b>  | <b>5076</b>  |
| Investment in intangible assets and property, plant and equipment                    | -3679        | -5236        |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 53           | 42           |
| Expenditure for investments  | -543         | -171         |
| Proceeds from the disposal of investments  | -595         |              |
| Investments in marketable securities and investment funds                            | 21           | 107          |
| Proceeds from the sale of marketable securities and investment funds                 | -756         | -175         |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-5499</b> | <b>-5433</b> |
| Payments into equity   | 16           | 19           |
| Payment of dividend for the previous year  | -852         | -1516        |
| Intragroup financing and equity transactions   | -82          |              |
| Interest paid  | 5899         | -102         |
| Proceeds from the issue of bonds   |              | 7977         |
| Repayment of bonds   | -5333        | -6727        |
| Change in current other financial liabilities  | 191          | 2159         |
| Change in commercial paper   | 248          | -858         |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>87</b>    | <b>952</b>   |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>-13</b>   | <b>-14</b>   |
| Effect of changes in composition of Group on cash and cash equivalents               | 56           | 13           |
| <b>Change in cash and cash equivalents</b>   | <b>344</b>   | <b>594</b>   |
| Cash and cash equivalents as at 1 January  | 7432         | 7776         |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>7776</b>  | <b>8370</b>  |

V. BMW Group Cash Flow Statement 2013 – 2014

| (in millions of EUR)   | 2013         | 2014         |
|--|--------------|--------------|
| Net profit   | 5340         | 5817         |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |              |              |
| Current tax  | 2435         | 2774         |
| Other interest and similar income / expenses   | 126          | 127          |
| Depreciation and amortization of other tangible, intangible and investment assets    | 3830         | 4323         |
| Change in provisions   | 479          | 1103         |
| Change in leased products  | -2048        | -2720        |
| Change in receivables from sales financing   | -4501        | -3898        |
| Change in deferred taxes   | 138          | 110          |
| Other non-cash income and expense items  | -551         | 331          |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  | -22          | -63          |
| Result from equity accounted investments   | -398         | -655         |
| Changes in working capital   | 983          | -551         |
| Change in other operating assets and liabilities                                     | 453          | 323          |
| Income taxes paid  | -2787        | -4252        |
| Interest received  | 137          | 137          |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>3614</b>  | <b>2912</b>  |
| Investment in intangible assets and property, plant and equipment                    | -6669        | -6099        |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 22           | 36           |
| Expenditure for investments  | -90          | -99          |
| Proceeds from the disposal of investments  | 137          | 190          |
| Investments in marketable securities and investment funds                            | -3631        | -4216        |
| Proceeds from the sale of marketable securities and investment funds                 | 3250         | 4072         |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-6981</b> | <b>-6116</b> |
| Payments into equity   | 17           | 15           |
| Payment of dividend for the previous year  | -1653        | -1715        |
| Interest paid  | -122         | -133         |
| Proceeds from the issue of bonds   | 8982         | 10892        |
| Repayment of bonds   | -7242        | -7249        |
| Proceeds from new non-current other financial liabilities                            | 6626         | 5900         |
| Repayment of non-current other financial liabilities                                 | -4996        | -5697        |
| Change in current other financial liabilities  | -721         | 2132         |
| Change in commercial paper   | 1812         | -1012        |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>2703</b>  | <b>3133</b>  |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>-89</b>   | <b>86</b>    |
| Effect of changes in composition of Group on cash and cash equivalents               | 47           | 2            |
| <b>Change in cash and cash equivalents</b>   | <b>-706</b>  | <b>17</b>    |
| Cash and cash equivalents as at 1 January  | 8370         | 7671         |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>7664</b>  | <b>7688</b>  |

# VI. BMW Group Cash Flow Statement 2015 – 2016

| (in millions of EUR)   | 2015         | 2016         |
|--|--------------|--------------|
| Net profit   | 6396         | 6910         |
| Reconciliation between net profit and cash inflow/ outflow from operating activities |              |              |
| Current tax  | 2751         | 2670         |
| Other interest and similar income / expenses   | 239          | 131          |
| Depreciation and amortization of other tangible, intangible and investment assets    | 4686         | 4998         |
| Change in provisions   | 296          | 883          |
| Change in leased products  | -3299        | -2526        |
| Change in receivables from sales financing   | -6637        | -8368        |
| Change in deferred taxes   | 77           | 85           |
| Other non-cash income and expense items  | 47           | -15          |
| Gain / loss on disposal of tangible and intangible assets and marketable securities  | -144         | -4           |
| Result from equity accounted investments   | -518         | -441         |
| Changes in working capital   | -293         | -104         |
| Change in other operating assets and liabilities                                     | 550          | 1229         |
| Income taxes paid  | -3323        | -2417        |
| Interest received  | 132          | 142          |
| <b>Cash inflow/outflow from operating activities</b>                                 | <b>960</b>   | <b>3173</b>  |
| Investment in intangible assets and property, plant and equipment                    | -5889        | -5823        |
| Proceeds from the disposal of intangible assets and property, plant and equipment    | 38           | 10           |
| Expenditure for investments  | -746         | -338         |
| Proceeds from the disposal of investments  | 215          | 140          |
| Investments in marketable securities and investment funds                            | -6880        | -3592        |
| Proceeds from the sale of marketable securities and investment funds                 | 5659         | 3740         |
| <b>Cash inflow/outflow from investing activities</b>                                 | <b>-7603</b> | <b>-5863</b> |
| Payments into equity   | 23           | 20           |
| Payment of dividend for the previous year  | -1917        | -2121        |
| Interest paid  | -264         | -118         |
| Proceeds from the issue of bonds   | 13007        | 13974        |
| Repayment of bonds   | -8908        | -10374       |
| Proceeds from new non-current other financial liabilities                            | 9715         | 8952         |
| Repayment of non-current other financial liabilities                                 | -8802        | -8443        |
| Change in current other financial liabilities  | 2648         | 4135         |
| Change in commercial paper   | -498         | -1632        |
| <b>Cash inflow/outflow from financing activities</b>                                 | <b>5004</b>  | <b>4393</b>  |
| <b>Effect of exchange rate on cash and cash equivalents</b>                          | <b>73</b>    | <b>17</b>    |
| Effect of changes in composition of Group on cash and cash equivalents               |              | 38           |
| <b>Change in cash and cash equivalents</b>   | <b>-1566</b> | <b>1758</b>  |
| Cash and cash equivalents as at 1 January  | 7688         | 6122         |
| <b>Cash and cash equivalents as at 31 December</b>                                   | <b>6122</b>  | <b>7880</b>  |