Copenhagen Business School
HANDELSHØJSKOLEN

A Fundamental Valuation of the BMW Group

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Resumé

This thesis conducts an in-depth analysis of the BMW Group in order to determine the fair value of the Group's share price and to conclude whether it is over- or undervalued. The BMW Group is one of the largest automotive manufacturers that focus on the premium segment, producing both automobiles and motorcycles. The Group is headquartered in Munich, Germany and its business operations are divided into three segments: Automotive, Motorcycle and Financial Services, where the Automotive segment provide by far the largest source of revenue.

The BMW Group is analyzed by conducting a strategic and financial analysis, where several models are applied and financial drivers thoroughly analyzed from a historical perspective. The findings from these analyses act as a foundation for forecasting the future performance of the Group. The share value is estimated by utilizing the discounted cash flow (DCF) valuation model on the forecasted figures. A multiple valuation model (EV/EBITDA) is also conducted in order to triangulate the value derived from the DCF valuation with a relative valuation based on market multiples.

Empirically, the thesis relies on both primary and secondary data such as interviews with equity analysts, annual reports, academic books and articles, research papers, news articles from approved websites and data from the Bloomberg terminal database and Thomson ONE Banker.

The automotive industry was severely hit by the financial crisis in 2008-2009, which affected global vehicle sales negatively and even led to the bailout of automotive manufacturers, General Motors and Chrysler, amongst others. However, despite the downturn in the industry, the BMW Group has performed relatively well. The Group has also been able to capitalize during the global recovery after the financial crisis, fuelled by increasing sales in Asia/Oceania and especially in China. Increasing worldwide vehicle sales in addition to the BMW Group's solid brand name, product portfolio and financial position, places the company in a good position to capitalize on future growth in the automotive industry, which is also reflected in the fundamental valuation of the Group.

The fundamental valuation (DCF approach) based on the forecasts for the Group proposes a share price of €126,87, which suggests that the market share price of the BMW Group is undervalued as of January 1st 2012.

Table of Contents

1. Introduction

Bayerische Motoren Werke AG (BMW Group) is a German automotive manufacturer and regarded as one of the world's leading car manufacturers in the premium and luxury passenger car segments. The Group is ranked as the World's 14th largest automotive manufacturer based on number of vehicle sold during 2011 (Bloomberg A 2012). The BMW Group comprises the three auto brands BMW, MINI and Rolls Royce, in addition to the motorcycle brands BMW Motorrad and Husqvarna, and also provides an extensive range of financial services through its financial services division.

The automotive industry is a relatively competitive and complex industry with many different manufacturers where some are specialized within certain segments, and others offer a much wider variety of different brands and car models. The industry consists of both mature markets, as in North America and most of Europe, and emerging markets, mainly in Asia, which are getting increasingly more important for the industry. The automotive industry was chosen as a topic for this thesis due to these interesting characteristics of the industry. Additionally, it seemed an interesting assignment to analyze and look into the future prospects of the automotive industry, where many auto manufacturers

struggled to survive the global financial crises, and with many governments currently putting additional pressure on car manufacturers by developing regulations on CO2 emissions. The BMW Group was chosen as the company to study as they fulfilled our requirements of having an interesting product portfolio with a focus on the premium and luxury passenger car segments and not having too many differentiated brands, in addition to having publicly available financial statements for at least five years back, and being one of Europe's largest and most important car manufacturers.

The global automotive industry experienced a severe setback during the financial crisis in late 2008-2009, and has still not recovered fully in the mature markets. However, booming car sales in the emerging markets in Asia and South America has helped offset relatively weak sales in other regions, and has further led to significant growth in global car sales over the last two years in terms of number of vehicles sold, with a global growth rate of 13.9 percent and 4.4 percent in 2010 and 2011, respectively (see Appendix A.7.). The BMW Group has similarly experienced a relatively large revenue growth over the last two years, much due to increased sales in the Asia/Oceania region, where the Group has more than doubled the number of BMW vehicles sold over the last two years to a staggering 375,500 units in 2011 (see Appendix A.7). The Group has also experienced a very positive development of their return on invested capital (ROIC) over the last few years following the financial crisis, and reached a ROIC of more than 25 percent in 2011, up from 14.5 percent in 2010, and a slightly negative ROIC during the financial crisis in 2009 (See figure 1.15)

This thesis is written in the 2nd and 3rd quarters of 2012 with the purpose of applying recognized theoretical frameworks and models for analysis and valuation of the BMW Group, and estimating the fair value of BMW stock as of January 1st 2012.

1.1 Problem Statement

The main objective of this thesis is to estimate the fair value of the BMW stock as of January 1st 2012 based on a thorough financial and strategic analysis of the BMW Group and established expectations for the future. The problem statement is to be covered by the following main research question, in addition to five sub-questions that needs to be answered in order to be able to address the main research question.

1.1.1 Main Research Question:

"What is the fair value of BMW common stock on a stand-alone basis as of January 1st 2012 based on a fundamental valuation analysis, and does the market under- or overvalue the stock?"

1.1.2. Sub Questions:

The five defined sub-questions related to the main research question are listed below. These sub-questions will be addressed in different sections of the thesis and will provide a basis for answering the main research question, which mainly will be addressed in the valuation section and in the conclusion.

1. Which external macro- and microeconomic factors affects BMWs area of business, and what are the major risks concerning BMWs future performance?

2. What are the internal strengths and weaknesses of the BMW Group?

3. How does BMW perform financially in comparison to their main competitors?

4. What are the general future expectations for the automotive industry, and how is BMW expected to perform financially in the future?

5. Which valuation approaches are most suitable to apply to establish a fair value of the BMW Group, and how sensitive are the valuation methods to changes in key assumptions?

1.2 Methodology

1.2.1 Research Approach

This thesis is a case study of the BMW Group. A case study is according to Robson (2002, p.178) *"a strategy for doing research which involves an empirical investigation of a particular phenomenon within its real life context using multiple sources of evidence"*. The case study has its strengths in providing in-depth knowledge and understanding of a particular event or entity being studied, as opposed to e.g. a survey study that has a more limited ability to provide such in-depth knowledge. As such, the case study approach fits the objective of this thesis, which is to gain in-depth knowledge of the BMW Group, its area

of business and future prospects in order to be able to answer the research question in the best way possible.

Yin (2003) distinguishes between four types of case study within two discrete dimensions, namely single case vs. multiple case, and holistic case vs. embedded case. Most sections of this thesis are structured as a single holistic case study, which means that the BMW Group is studied as a single case, and that the Group is regarded as a single entity. However, some sections of the thesis where it is beneficial to separately study sub-units within the BMW Group are structured as an embedded single case study, meaning that the BMW Group is studied as a single case, but the Group itself is divided into sub-units that are studied separately, for instance the industrial and financial services divisions. Moreover, the financial analysis section is structured as a multiple holistic case study, where the BMW Group is studied as a single entity and other entities (peers) are also studied and compared with the BMW Group.

Furthermore, this thesis has mainly an exploratory research purpose, which according to Robson (2002, p59) is a valuable means of finding out *"what is happening; to seek new insights; to ask questions and to assess phenomena in a new light".* An exploratory research purpose is as such applied to seek knowledge and insights of the BMW Group, its business and future prospects. Such insights are gained through a search of publicly available information such as annual reports, official company websites, approved news websites, the Bloomberg terminal database, in addition to conducting interviews with industry analysts. However, certain sections of the thesis also have a descriptive research purpose, which according to Robson (2002, p59) is "to portray an accurate profile of persons, events or situations". The descriptive research purpose is in some sections applied in order to provide a better understanding of the research topic, the entity being researched (the BMW Group), and certain theoretical frameworks that are utilized, and for the most part serves as a forerunner to the exploratory research.

1.2.2 Data Collection

The empirical part of this master thesis draws from both primary and secondary sources in order to acquire in-depth knowledge of the BMW Group and the business that they operate in. Interviews with two equity analysts focusing on the automotive industry, Tim Schuldt of Equinet Bank AG and Daniel Schwartz of Commerzbank are the only primary source applied in the master thesis. The interview was conducted as a semi-structured interview over the phone, where open-ended questions related to the

BMW Group and the automotive industry were asked. The interview was not recorded; however notes were continuously taken during the interview, which were gathered and processed after the interview.

Secondary sources include annual reports, academic books and articles, research papers, approved news websites, and data from the Thomson ONE Banker and Bloomberg terminal databases.

1.2.3 Validity and Reliability

Financial statements that are used for this thesis are gathered from the manufacturers' annual reports that follow the international financial reporting standard (IFRS). The financial statements are assumed to be reliable given the general laws and regulations that BMW and other car manufacturers are forced to follow.

Information gathered from primary sources in this case is regarded as valid and reliable sources. Analysts that are interviewed are employees of institutions that work to provide investors with independent and reliable information and are as such considered as reliable sources, although there is always some risk of an analyst being somewhat biased by his own views or opinions.

The use of secondary sources has been a selective process in order to avoid unreliable information, as not all secondary sources should be considered reliable. This is especially true for online articles and websites, where practically anyone can write anything and the original source is not always clear. As such, the online articles that are used are strictly selected from approved news websites with a named author in order to mitigate the possibility of using a biased or unreliable source. The other secondary sources that are used, annual reports, academic books, academic articles, research papers, the Thomson ONE Banker database and the Bloomberg terminal, are all considered as highly valid and reliable sources. Furthermore, although companies may be somewhat biased towards their own brands and products and tend to focus on the positive aspects of their own business in their annual reports, most of the information that are used from these sources are of quantitative nature and is considered reliable given the strict control of shareholders and other stakeholders monitoring any information provided by the companies.

Applied theoretical models that are used in this thesis includes models for strategic analysis, hereby Porters five forces, the PESTEL framework and the SWOT analysis, and models for valuation, hereby the discounted cash flow (DCF) approach and the capital asset pricing model (CAPM), in addition to market

based multiples. All of the above-mentioned theoretical models are fairly standardized and commonly used in practice for valuation and case studies. As such, the applied models are considered highly valid and reliable in theory, although in practice they may not be more valid or reliable than the inputs that are used. This is especially true for the DCF model which is highly dependent on the inputs and assumptions that are used, and can be very sensitive to changes in these inputs. As such, a sensitivity analysis on changes in key assumptions is conducted in order to check the impact changes in these inputs have on the result of the DCF valuation. Furthermore, several checks are implemented in order to ensure the validity of the DCF model, e.g. that forecasted return on invested capital (ROIC) and financial leverage is consistent with historical rates, industry economics and expectations based on the strategic and financial analysis. However, although several checks are implemented to ensure the validity and reliability of the DCF model, a DCF valuation will always be somewhat biased by the analyst's assumptions and expectations for the future.

1.2.4 Delimitation

A company valuation is usually highly dependent upon the company's performance as well as the underlying general economic environment and financial markets. As such, it has been necessary to set a cut-off date for when new information is no longer considered in order to avoid having to constantly change the underlying assumptions and arguments for the valuation of the BMW Group. The cut-off date has been set to December 31st 2011, meaning that any financial information published after December 31st 2011 is not regarded. The cut-off date also means that the valuation of the BMW Group will be as of January 1st 2012, and all assumptions regarding inputs for the valuation models will also be as of this date.

The valuation is limited to publicly available information from annual reports, company websites and other secondary sources, in addition to interviews with industry analysts. Some assumptions and limitations have been necessary due to lack of more detailed information available to external parties, and due to the BMW Group's lack of willingness to provide such detailed information. These assumptions and limitations are described in detail in the specific sections where they have been made.

Furthermore, the BMW Group is present in most countries in the world and offers around a dozen different car models under the BMW brand that each can be configured according to many different specifications. The Group offers additional car models through its MINI and Rolls Royce brands, as well as

motorcycles through its BMW Motorrad and Husqvarna brands, and a wide range of financial services through its financial services division. Given the number of different markets the BMW Group operates in and the extensive range and complexity of products and services offered by the Group, it has been necessary to limit the scope of markets, products and operating segments analyzed in this thesis.

The different markets that are analyzed in the strategic analysis and in the forecasting and budgeting sections and have been segmented into Germany, Rest of Europe, North America, Asia/Oceania and Rest of the World (other markets).

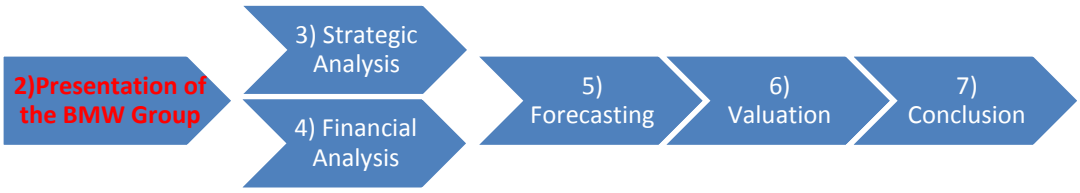
Products and services are not analyzed on an individual level due to the above-mentioned complexity and extensive range of products and services provided by the Group. BMWs business is instead segmented into an industrial segment, including the automobile and motorcycle businesses, and a financial services segment, including financial services and other entities. However, the thesis does only focus on automobiles within the industrial segment for several reasons. Firstly, the industrial business accounted for approximately 78.7 percent of the Group's total revenue in 2011 and is as such by far the biggest segment. Secondly, financial services firms are valued differently in comparison to industrial firms as suggested by both Koller et al. (2010) and Damodaran (2002). This was also mentioned by Tim Schuldt**,** Equity analyst at Equinet AG, who suggested that if a fundamental valuation is performed on an automotive manufacturer, it is important to separate the financial statements between the industrial business and the financial services part of the Group (see appendix A.1 for interview). A common practice among analysts to this problem is according to Tim Schuldt to use the fundamental value of the industrial business together with the book value of equity of the financial services business. Additionally, sufficient detailed information needed for valuing the financial services business is not provided by the Group. The fundamental valuation and profitability analysis in this thesis are therefore only performed on the industrial business of the BMW Group and its peers, and the fundamental valuation of the industrial business of BMW will be used together with the book value of equity of the financial services business to derive total equity value for the Group, as suggested by Tim Schuldt.

1.2.5 Structure of the Thesis

The thesis is structured into seven main sections. The overall structure of the thesis is illustrated with a figure at the beginning of all main sections from section two on. The first section includes the introduction, problem statement and methodology, and aims to provide the reader with an

understanding of the purpose and methodology for this thesis. The second section of the thesis provides a brief presentation of the BMW Group, its business units, strategy, and also introduces the BMW Group's closest competitors in the industry, which will serve as a peer group for analyses purposes throughout the thesis. The third section conducts strategic analyses of the BMW Group, the automotive industry, and external factors that may affect BMWs area of business. The fourth section attempts to separate BMWs operating activities from financial activities in order to provide the necessary inputs needed for the forecasting of financial statements and valuation. This section also contains a thorough financial analysis of the BMW Group, and benchmarks their performance with that of the peer group. The fifth section provides forecasted financial statements of the BMW Group based upon the preceding strategic and financial analyses, and future expectations for the BMW Group and the automotive industry in general. The sixth section provides valuation estimates of the BMW Group by applying both a present value approach based on the forecasted statements in section five (the discounted cash flow approach), and by conducting a relative valuation approach (EV/EBITDA multiple approach) based on peer group multiples. The results of the valuation and other main findings of the thesis are summed up and concluded on in the seventh and last section.

2. Presentation of the BMW Group



This section aims to make the reader familiar with the BMW Group by briefly introducing the group, its history, their organizational structure, the historical share performance and current strategy.

2.1 Company Facts

BMW GROUP 2011-2012
Number of employees: 100,306 (as of 31st December 2011)
Headquarter: Munich, Germany

Number of plants: 25 production and assembly plants at different locations in Europe, North America, China and South Africa

Chief executive officer: Norbert Reithofer

Chairman of Supervisory Board: Joachim Milberg

Number of vehicles sold in 2011: 1 782 554 vehicles (Automobiles and Motorcycles)

Share of passenger car and light commercial vehicle market worldwide 2011: 2.22%

2.2 History and Overview of BMW Group

The BMW group is a German automobile and motorcycle manufacturer focusing on producing vehicles for the premium segment. The Group is one of Germany's largest industrial companies and is primarily listed on the Frankfurt Stock Exchange.

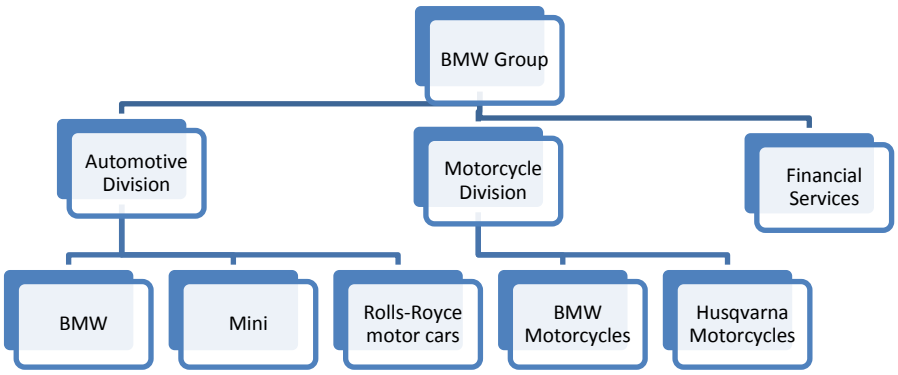
The foundation of BMW can be traced back to 1916 with the establishment of Bayerische Flugzeug-Werke AG (BFW), an aircraft manufacturer. Elsewhere, the BMW Group came into being in 1917, following the restructuring of RAPP motorenwerke, another aircraft manufacturing firm (BMW Group 2012). The group was converted into BMW AG (public limited company) in 1918. At the end of World War 1, BMW was forced to give up on aircraft engine production as the Allies banned Germany from producing aircrafts and aircraft engines. Consequently, BMW turned to engine production and manufacturing of railways brakes. However, in 1922, BMW was bought by the owners of BFW, whom subsequently chose to transfer BMW's engine construction operations and the company brand name to BFW. The date of BFW's founding in 1916 is therefore referred to as the birth date of BMW (BMW Group 2012). The Group shifted to motorcycle production in 1923 followed by automobile production in 1928, which today is the core activity of the group.

Today, the group consists of the three premium passenger car brands, BMW, MINI and Rolls-Royce. The group also produces motorcycles through its BMW and Husqvarna brands, in addition to providing a wide range of financial services through its financial services segment.

2.3 Organizational Structure

The BMW Group is divided into three business segments, the automotive segment, the motorcycle segment and the financial services segment. A more detailed outline of the organizational structure is illustrated in figure 1.1.

Figure 1.1 – Organizational structure of the BMW Group



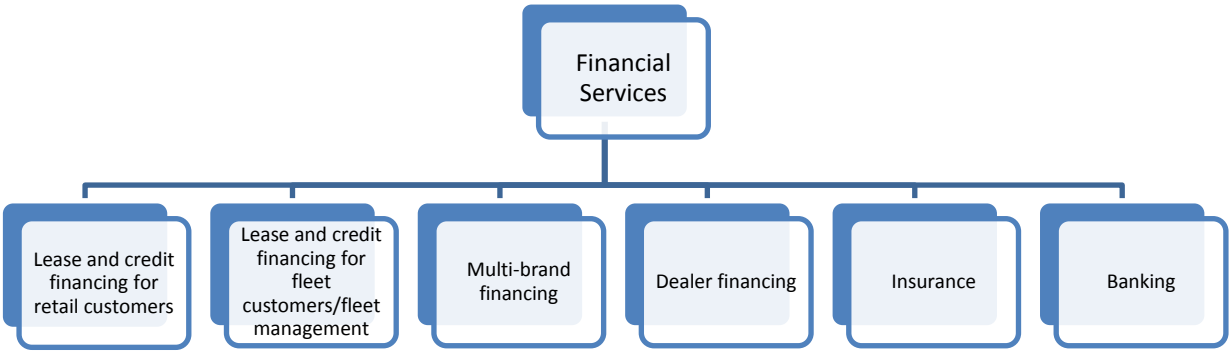
(Source: Own creation using the annual report from 2011)

The automotive division of the BMW Group consists of a total of three brands, BMW, Mini and Rolls-Royce. The automotive division accounted for 76.9% of the Groups total revenue in 2011.

The motorcycle division of the BMW Group includes two brands: BMW and the Husqvarna brand. The group has a strong presence in the over 500 cc market and was during 2011 able to expand its world market share to more than 12% within this particular segment (Read 2012). However, the motorcycle division only accounted for 1.74 % of total revenue generated in 2011.

The financial services segment offers individual solutions for the mobility requirements of private and business customers and serves as a reliable partner to the sales organization in more than 50 countries around the world (BMW Group 2012). The segment comprises six lines of business that are illustrated in figure 1.2.

Figure 1.2 – Structure of the Financial Services Division



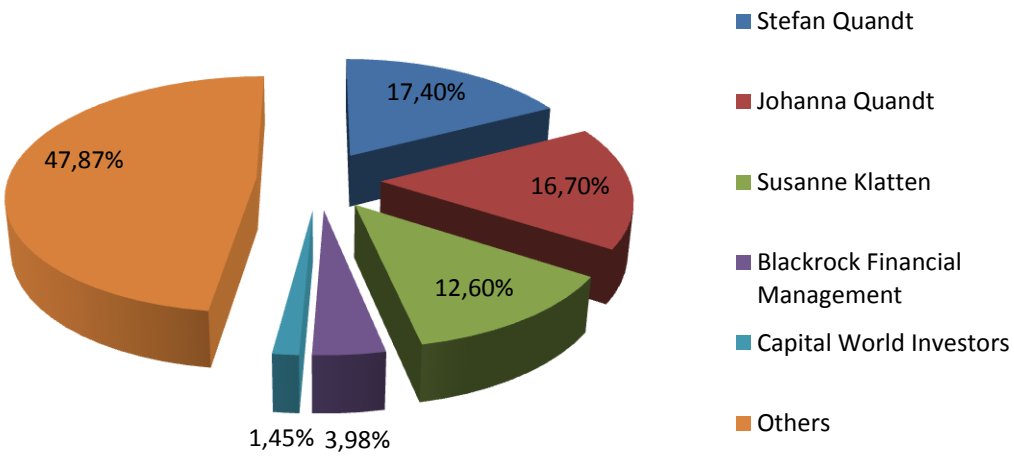
(Source: Own creation using the annual report from 2011)

The leasing business of the Group's own brands to retail customers represents the largest line of business within the financial services segment. The multi-brand business is operated under the brand name *"Alphera"* and involves the financing of both the groups and vehicles of other manufacturer (BMW Group 2012). The fleet business is operated under the brand name *"Alphabet"* and covers the financing of corporate car fleets and the provision of a range of services including fleet management (BMW Group 2012). The Financial Services division further offers inventories, real estate and equipment financing products for dealers as well as providing selected insurance and banking services.

2.4 Ownership Structure

The ownership structure of BMW as of 26th June 2012 is illustrated in figure 1.3.

Figure 1.3 – The ownership structure of the BMW Group



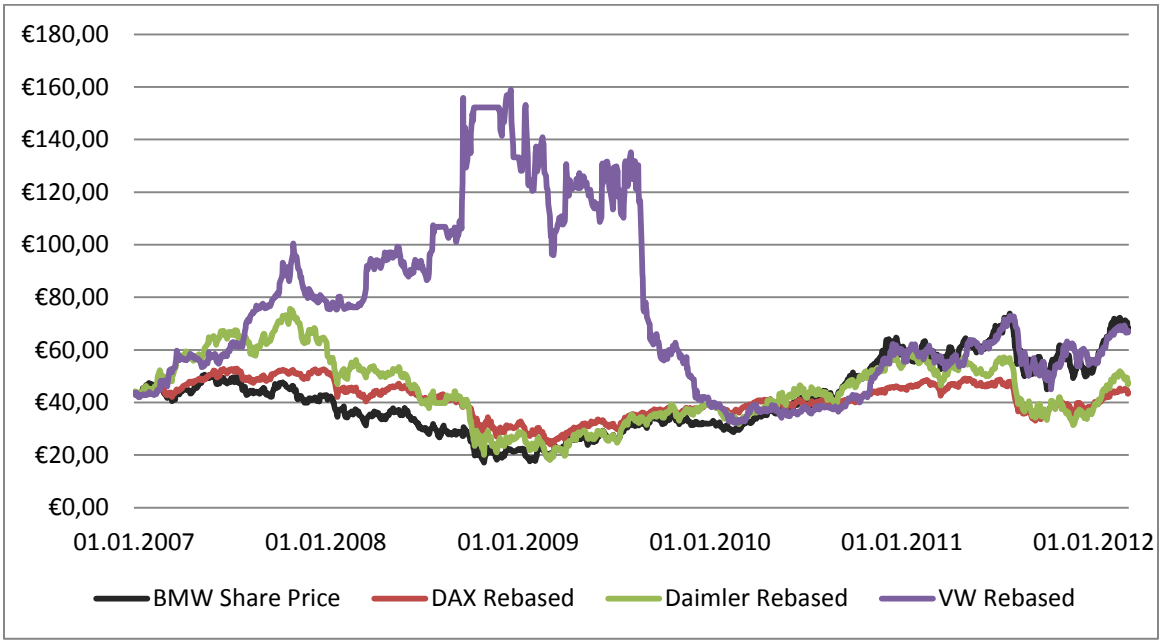
(Source: own creation using data from Bloomberg terminal)

The ownership structure of BMW is relatively concentrated, with the three largest investors accounting for approximately 46.7% of the shares. Additionally, the three largest shareholders are relatives, where Johanna Quandt is the mother of Stefan Quandt and Susanne Klatten, who both are siblings. The remaining shares of 53.3% are publicly traded according to the BMW Group B (2012) and are owned by minority shareholders.

2.5 Share Performance

This section looks briefly at BMWs stock performance over the last 5 year period, from January 2007 to early 2012, and compares the stock performance with that of Daimler AG, Volkswagen Group and the German DAX Index, which consists of 30 major German companies trading on the Frankfurt Stock Exchange. Both the Volkswagen Group and Daimler are other two German automotive manufacturers listed on the Frankfurt Stock Exchange and considered as competitors to the BMW Group. The DAX index and the share price of the Volkswagen Group and Daimler in figure 1.4 has been rebased to the BMW share price as of January 1st 2007 to make it easier to compare the four variables.

Figure 1.4 – Share performance of BMW compared to DAX



(Source: own creation using data from Yahoo finance)

As seen from figure 1.4, the BMW share was from early 2007 to early 2010 outperformed by both its German competitors and the DAX index. The automotive industry was slowly hit by the financial crisis

that started in late 2007, and at its lowest, BMW stock was down to €17.08 in late 2008. The Volkswagen share experienced a significant share peak that started on 26th of October 2008 (not illustrated in figure 1.4 for practical reasons), where the share rose to €945 from €210.85 within a couple of days due to Porsche's announcement of having increased their indirect control to 74.1 percent (42.6 percent in shares and 31.5 percent in options). However, a couple of weeks later the stock was trading at similar levels to before the initial announcement, as Porsche announced that they would cancel some options.

The story has been different since early 2010, where the BMW share has outperformed both of their German competitors and the DAX index. The Worldwide stock markets did in 2010 develop inconsistently due to the Sovereign debt crisis and concerns about the US economy, but the German DAX benefited from robust economic growth in Germany and increased by 16.1 percent during 2010 (BMW Group 2011). Additionally, 2010 was also a good year for the German automotive industry, with the prime automobile index rising by 56.5 percent and BMW stock increasing by 85.1 percent, making it the best performing DAX share in 2010 (BMW Group 2011). However, in the second half of 2011, stock markets globally were put under pressure again due to the debt crisis in the Euro zone. The increase during the first six months for the year were wiped out and the DAX ended up decreasing by 14.7 percent in 2011 (BMW Group 2011). Additionally, the aversion from economy-sensitive stocks became particularly evident in the second half of 2011, where the prime automobile index fell by 19 percent (BMW Group 2011). The BMW stock was also affected negatively due to the negative market developments in the second half of the year and decreased by 12 percent over the year (BMW Group 2011). For instance, the BMW stock did reach a new all-time high of €73.85 in July 2011, while dropping to a year low of €43.49 in October 2011 (BMW Group 2011).

2.6 Strategy of the BMW Group

The BMW Group has a defined mission statement up to year 2020 to become the world's leading provider of premium products and premium services for individual mobility. In order to achieve this mission statement, a new strategy named Strategy Number ONE was adopted in 2007 with four pillars: "Growth", "Shaping the future", "Profitability" and "Access to technology and customers". The aim of this strategy is to lay out guidelines for BMW to remain focused on portability and long-term value creation in a changing environment and to achieve significant efficiency improvements (BMW Group C 2012).

The strategy will guide the company to year 2020 with certain targets set for 2012. By 2012, the goal is to increase automobile retail sales to 1.8 million units per year and increase motorcycle sales to 150,000 bikes per year (BMW Group 2008).

2.7 Main Competitors / Peer Group

The automotive industry is a complex industry with a vast range of manufacturers and different car models. Different brands and car models tend to dominate in different geographical regions. For instance, the three German premium brands BMW, Mercedes-Benz and Audi had a combined market share of more than 26 percent in Germany, but less than 5 percent market share in North America for 2011 (See figure 1.13 on p.35). In comparison, the American brand Ford had more than 16 percent market share in North America, but only 8.3 percent market share in Europe the same year (Ford 2011). This suggests customers tend to prefer domestic brands, and BMWs main competitors in North America may not be the same as in Germany, China, or other parts of the world, due to different customer preferences, and due to different brands and car models being present in each region. Furthermore, a customer looking to buy an entry level BMW, may regard a Volkswagen car model as an alternative, whereas a customer looking to buy a high end BMW is not very likely to consider a Volkswagen, but may rather see Porsche or Bentley as an alternative to BMW. For these reasons it may be difficult to identify a limited number of main competitors of BMW, as competitors are likely to vary with geographical region, and for each individual car model.

Nevertheless, there are two brands that seem to have particularly much in common with BMW, namely Mercedes-Benz and Audi. All three brands, BMW, Mercedes-Benz and Audi, are based in Southern Germany with large domestic market shares, but gain most of their revenue from worldwide exports. The three brands have very similar product portfolios that target the premium passenger car segment. With a very similar geographical market presence and similar product portfolios, the three brands mostly compete for the same group of customers, and as such, Mercedes-Benz and Audi are regarded as the two main competitors of BMW.

In addition to Mercedes-Benz and Audi, both PSA Peugeot Citroën (PSA), and Renault S.A. (Renault) are chosen as additional competitors of BMW to serve as a peer group for benchmarking. Although PSA and Renault are not regarded as *main* competitors of BMW to the same degree as Mercedes-Benz and Audi, they are still seen as two significant competitors of BMW, especially on the European market, where

both PSA and Renault have a very strong market presence. The four competitors used for peer group benchmarking are briefly presented below.

Mercedes-Benz

Mercedes-Benz is part of the Daimler AG Group, which is headquartered in Stuttgart, Germany. The Maybach and Smart car brands are comprised within the Mercedes-Benz brand, although Mercedes-Benz branded cars accounts for approximately 93 percent of Mercedes-Benz total sales (Daimler Group 2012). Mercedes-Benz sold approximately 1.38 million vehicles worldwide in 2011, which is slightly less than BMW Group's 1.67 million vehicles sold (Daimler Group 2012). Approximately 45 percent of Mercedes-Benz' vehicle sales in 2011 came from sales in the European market, whereas the other 55 percent came from exports outside Europe (Daimler Group 2012).

Audi Group

The Audi Group is part of the Volkswagen AG Group, which is based in the Bavaria region of Germany. Audi Group comprises the Audi and Lamborghini brands, although the Audi brand alone accounts for more than 99.8 percent of the Audi Group's total vehicle sales. Audi currently offers 12 different car models targeting the premium passenger car segment, and sold approximately 1.30 million cars worldwide in 2011, which is slightly less than Mercedes-Benz and the BMW Group (Audi Group 2012). Approximately 55 percent of Audi's vehicle sales in 2011 came from sales in the European market, whereas the other 45 percent came from exports outside Europe (Audi Group 2012).

PSA Peugeot Citroën

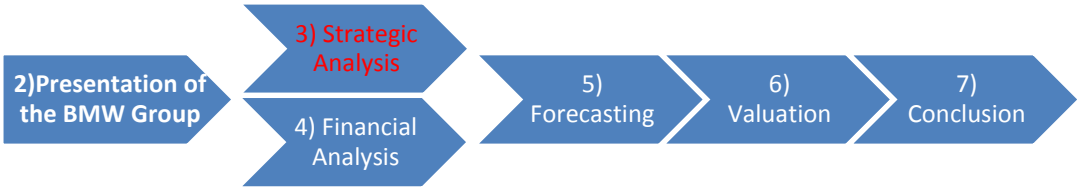
The PSA Peugeot Citroën Group (PSA), is Europe's second largest car manufacturer after the Volkswagen Group, with 3.55 million vehicles sold in 2011 (PSA Peugeot Citroën 2012). The French car manufacturer is headquartered in Paris, and comprises the Peugeot and Citroën brands. The Group offers a wide range of passenger car models that may be regarded as alternatives to many of BMWs car models except for the high end 6- , 7-, and M-series. PSA has a strong market presence in Europe, with approximately 58 percent of PSA's total vehicle sales in 2011 coming from Europe; however, the Group experienced a

decline in global sales of 1.5 percent in 2011 much due to weak European market (PSA Peugeot Citroën 2012).

Renault S.A.

Renault S.A. (Renault) is Europe's third largest car manufacturer, with 2.72 million vehicles sold in 2011 (Renault 2012). The French manufacturer is headquartered in the Paris suburb of Boulogne-Billancourt, and comprises the Renault, Dacia and the South-Korean RSM brand, with the Renault brand itself accounting for 83 percent of the Group's total sales (2.26 of 2.72 million total vehicles sold in 2011) (Renault 2012). Renault offers a range of passenger car models that in particular may be regarded as alternatives to BMW's lower end car models, i.e. the popular 1-, 3-, X1- and X3-series. Like PSA, Renault has a strong market presence in Europe, with approximately 57 percent of the Group's total sales in 2011 coming from sales in the European market (Renault 2012).

3. Strategic Analysis



This section carries out a strategic analysis of the BMW Group and its area of business. The section is divided into an external analysis, an industry analysis, and an internal analysis, and is concluded with a summary that applies the SWOT analysis and highlights the key findings of the preceding analyses.

3.1 External Analysis

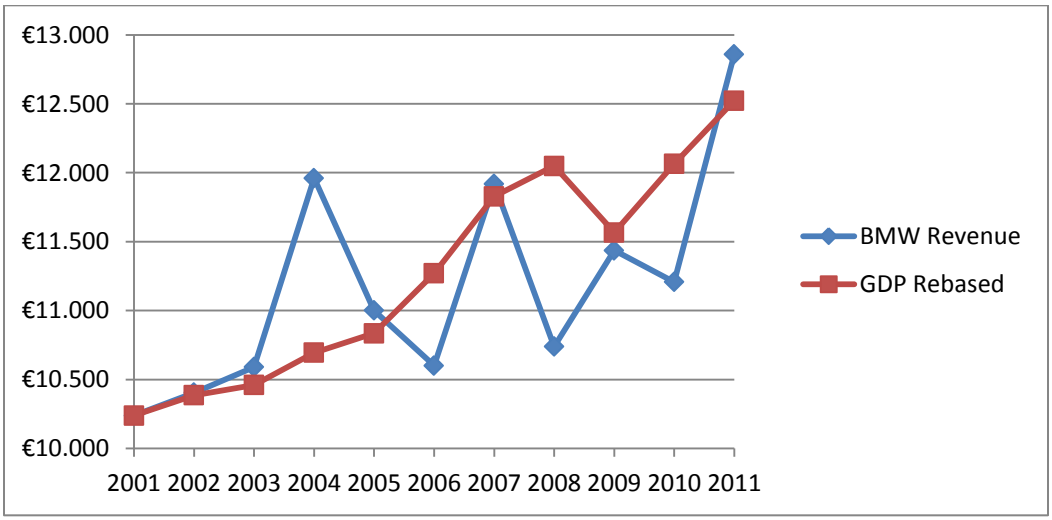
This section identifies important environmental and macroeconomic factors that may affect the BMW Group's profitability and risk. The PESTEL framework is utilized to identify these factors (Petersen and Plenborg 2012, p. 188). The framework includes political, economic, social, technological, environmental and legal factors. The entire PESTEL analysis is included in Appendix A.2, whereas the factors considered most important are discussed further in detail below.

3.1.1 Gross Domestic Product Trends

Gross domestic product (GDP) trends are probably the most important single factor affecting the performance of BMW and the automotive industry over the long run. To get an indication of the influence GDP growth has on BMWs overall revenue growth, the correlation between the growth of the German GDP and the growth of BMWs revenue in Germany is analyzed. The German market is chosen as a sample, because it is BMWs domestic market, and also one of their largest single markets in terms of revenue (the other two being United States and China).

Figure 1.5 illustrates BMWs yearly revenue in Germany for the period 2001–2011, and compares this to the GDP of Germany over the same period. Note that the GDP has been rebased to the level of BMWs revenue in 2001 to make it easier to compare the two factors. The graph clearly suggests that there is a correlation between the two factors over the long run. Over the eleven year period, BMWs revenue in Germany grew by an average of 2.6 percent per year, slightly more than the average GDP growth of 2.1 percent per year (see appendix A.3). The graph further suggests BMWs revenue growth has been much more volatile than the growth of the German GDP over the period. The standard deviation of Germany's GDP growth was 2.4 percentage points over the eleven year period, whereas the standard deviation of BMWs revenue growth was as high as 8.3 percentage points over the same period (see appendix A.3 for more detail). In other words, BMWs revenue growth in Germany has been very varying over the last eleven years, with decreasing revenue in four out of the eleven years analyzed, whereas the German GDP has been growing more stable, with 2009 being the only year in decline.

Figure 1.5 – BMW's German revenue vs. German GDP growth from 2001 to 2011



(Source: Own creation using annual reports from 2001- 2011 and data from OECD)

The correlation coefficient between the two factors is calculated to be 0.6367, with an R-Squared of 0.4054 which suggests that around 40 percent of BMWs revenue growth in Germany is determined by the GDP growth (see Appendix A.3 for more details). Although these estimates are not statistically significant due to a very limited number of data points, it still serves as an indication that BMWs revenue growth is fairly dependent on GDP growth.

The graph further suggests that even though BMW's revenue growth seems to be following the GDP trend closely over the long run, BMWs revenue may not need to follow the GDP trend in individual years. For instance, BMW recorded a positive growth rate of 6.5 percent in Germany in 2009 despite a negative GDP growth of 4.0 percent in Germany the same year. The tables turned the following year, as BMW recorded a negative 2.0 percent growth in 2010, whereas the GDP growth was a positive 4.3 percent. This suggests that even though the GDP trend seems to be a determining factor for BMWs performance over the long run, other factors may also have major influence on BMWs performance, especially over shorter periods of time. The analysis also suggests that the automotive industry is somewhat a cyclical industry, which is defined as an industry that is moving up and down with the general economy (Damodaran 2009).

3.1.2 Government Regulations and Subsidies

Government regulations and subsidies are other important factors that may affect BMWs performance. The German scrappage scheme that was introduced on the 27th of January 2009 is a good example of this (Kollewe 2009). The government financed scrappage scheme offered customers who bought a new car a €2,500 refund if they scrapped a more than 9-year old vehicle. The scheme massively boosted car sales in Germany in 2009, and is likely a contributor to BMWs positive revenue growth in Germany in 2009, despite a domestic economy in decline (see figure 1.5). According to data from Bloomberg A (2012) new car registrations in Germany went up as much as 23.2 percent in 2009 compared to the year before.

However, the scrappage scheme was discontinued at the end of 2009 (BMW Group 2011), and the effect on car sales was reversed. New car registrations in Germany declined as much as 23.4 percent in 2010 according to data from Bloomberg A (2012), and as such, the discontinued scrappage scheme was likely one of the reasons for BMWs decreasing revenues in Germany in 2010 despite a positive domestic GDP growth.

There are many other examples of how government regulations may affect BMWs area of business. For instance, the government in China has put restrictions on how many new cars are allowed to be registered in Beijing each year (Anna 2010). Similar restrictions may be put in place in other urban regions in China in the coming years, and would likely have an adverse effect on future car sales in China if implemented. CO_2 emission limits on passenger cars are another example of government regulations affecting BMWs business. The EU commission governing CO_2 emission limits for passenger cars and light commercial vehicles have already put new regulations in place that will take effect from 2015, and similar regulations are also being developed in other major markets such as the USA, China and Japan (BMW Group 2012). These regulations put pressure on car manufacturers to research and produce "cleaner" vehicles for the future. Tim Schuldt of Equinet AG listed compliance with future limits on CO_2 emission as being a major challenge for car manufacturers in the future, and especially for premium and luxury passenger car brands such as the BMW Group. For instance, BMW may be forced to focus more on smaller cars and more environmentally friendly vehicles and technology in order to comply with the new regulations. Moreover, Volkswagen mentions in its annual report (Volkswagen Group 2011) that there is a potential risk of new government regulations being formed to benefit a country's domestic industry, which could also have an adverse effect on automobile exports to these countries if implemented.

3.1.3 Currency Risk

With more than half of BMWs total revenue coming from sales outside the euro zone, the Group faces extensive currency risks. According to BMW Group (2012) the Chinese renminbi, the US dollar and the British pound accounted for approximately two-thirds of the BMW Group's foreign currency exposure in 2011. In order to mitigate potential losses resulting from foreign currencies depreciating towards the Euro, BMW hedges their currency exposure both through "natural hedging", by increasing the volume of local production and purchases denominated in foreign currency, and through financial hedging on the financial markets (BMW Group 2012). Nevertheless, it is difficult to hedge perfectly against such fluctuations in exchange rates.

3.1.4 Commodity Prices

Changes on the world's commodities markets can also affect the BMW Group's area of business as many raw material commodities are used in the manufacturing process. According to the Bloomberg B (2012), an average vehicle is composed of 54.2 percent steel, 9.1 percent iron, 8.5 percent aluminum, 8.5

percent plastics and composites, 1.5 percent copper, and 19.1 percent other parts. BMW monitors the commodities markets closely, and hedges its prices of certain valuable commodities used for car manufacturing, such as platinum, aluminum, copper, lead, crude oil, amongst other, in order to mitigate the potential impact increased commodity prices can have on BMWs production costs (BMW Group 2012). The price of crude oil is specifically important to BMW because it may affect their area of business in several ways. In addition to being an important basic material for production, a change in the price of oil also leads to a change in fuel prices, which may affect the purchasing behavior of customers. Furthermore, a sharp increase in the price of crude oil may affect the world economy and international capital markets as a whole, and as such also affect BMWs business performance indirectly.

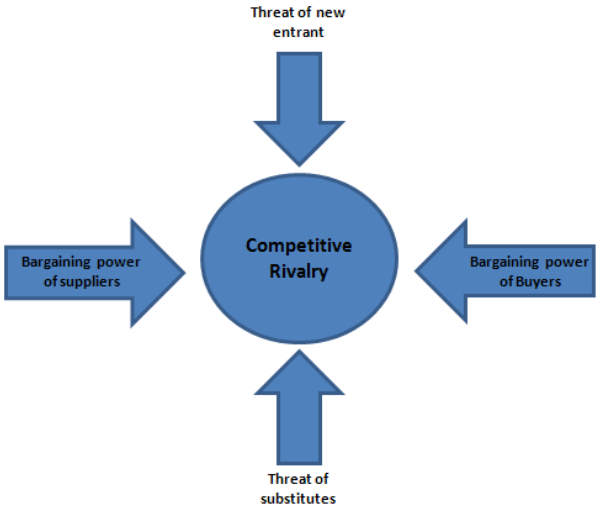
3.2 Industry Analysis

This section carries out an analysis of the automotive industry by utilizing the Porters five forces framework and by analyzing the market share and structure of the BMW Group in comparison to its competitors.

3.2.1 Porters Five Forces

Porter's Five Forces model analyses the competition and profitability in an industry and as such helps to recognize the BMW Group's strengths and weaknesses in relation to its competition (Porter 2008). The five forces model is illustrated in figure 1.6, which highlights the five forces that affect the competition and possibility to earn attractive returns in an industry (Petersen and Plenborg 2011).

Figure 1.6 – Porters Five Forces model



(Source: Own creation)

When analyzing the automotive industry using the five forces framework, the discussion is primarily centered on sales of new cars, as automotive manufacturers does not generate any revenue or profit from the second-hand car market. Additionally, the discussion will try to focus on the premium car segment wherever possible, as this is the segment BMW Group operates in. The bullet point format of the five forces framework on the automotive industry can be found in appendix A.4.

3.2.1.1 Threat of New Entrants

An industry that yields high return will likely attract new firms trying to establish themselves alongside the incumbent firms. However, new entrants to an industry bring new capacity and a desire to gain market share that puts pressure on prices, costs and rate of investment needed to compete (Porter 2008). Thus, in theory unless the incumbent firms are able to block the entry, the abnormal profit tends to move towards zero (Pepall et al. 2008).

Threat of new entrants in the automotive industry appears to be relatively low due to several existing barriers to entry. The main barriers to entry include high capital requirements, large sunk costs, brand equity, access to distribution channels and government policy & legislation.

Firstly, the upfront capital requirements are high in terms of setting up a production plant as well as capital required (re-investments) for maintenance of the production plant. For instance, The Volkswagen Group is expected to spend around $2bn on a brand new plant for its Audi brand in Mexico (Roberts 2012). Additionally, the automotive industry is relatively capital intensive, as capital is needed for running operations, R&D expenditures and for paying wages. Many of these expenditures could also be regarded as sunk costs, as capital investment on specialized machinery or specific technology for certain models may to some extent be unrecoverable. Thus, sunk costs are also likely to be present within the automotive industry.

Secondly, a new firm entering is likely to have no brand equity compared to the already established manufacturers such as Volkswagen, BMW and Toyota. This in turn may require the new firm to spend a significant amount on advertising to increase their brand awareness and new customers are likely to be skeptical towards a new brand with no history. Additionally, a new manufacturer must also be able to secure distribution of its car and would as such need to set up a network of dealerships in the region and

country they plan to sell their cars. For instance, a part of Alfa Romeo's failure in the US during the 1980s and 1990s was due to the inability to set up a network of dealerships (service backups and concessionaries) (Evans 2011).

Thirdly, legislation and government policy on safety requirements and CO2 emission limits for passenger cars and light commercial vehicles models are additional factors that may act as barriers to entry. As this requires continual improvements of engines and technology as well as develop a network of reliable suppliers.

However, despite the high barriers to entry globally, domestic automakers in China are increasing their presence in their domestic market, as it is growing significantly. This may be due to the fact that foreign automotive manufacturers have to form joint ventures with domestic auto manufacturers in China to produce cars in the country (Ying 2012). This is likely to ease the barriers to entry for Chinese auto manufacturers in terms of capital requirements, technology and access to distribution channels. According to PWC (2011) it may even be possible that these Chinese manufacturers may expand into other markets in the future.

3.2.1.2 Bargaining Power of Suppliers

If suppliers have the bargaining power over the buyers in an industry, they can squeeze profitability of the industry by raising prices or lowering quality of the product or service being offered (Petersen and Plenborg 2011). In this context suppliers are referred to as all the suppliers of parts, tires, components and raw materials.

In general automotive manufacturers (buyers) are relatively large and concentrated in comparison to their suppliers. Additionally, many parts and components supplied are standardized and to a certain extent only used in the automotive industry, such as specific oils, belts, filters and mufflers.

Furthermore, switching cost appears to be relatively low due to the fact that auto suppliers are quite fragmented and many components being standardized. Thus, automotive manufacturers can easily switch to other suppliers if they are not satisfied or are able to dictate their terms. For instance, the Department of Commerce USA (2010) does mention in their report that they have observed that automakers are increasingly putting pressure on their suppliers by seeking price concessions and tasking

the suppliers to take on more research, design and manufacturing responsibilities to absorb some of these costs.

Moreover, suppliers are highly dependent on the revenue of the auto manufacturers. This was clearly illustrated during the financial crisis in US, where 50 suppliers filed for chapter 1 protection and another 200 suppliers were liquidated during 2009 (Department of Commerce USA 2010).

In summary, the bargaining power of suppliers in the industry appears to be very low as suppliers hold very little power and are very much dependent upon the performance of the automakers, as suggested during the financial crisis. Thus, given BMW's market position as one of the largest premium car makers and the availability of suppliers, the bargaining power of suppliers does indeed appear to be low.

3.2.1.3 Threat of Substitutes

According to Porter (2008), a substitute performs the same or similar function as an industry's product by a different mean, for instance e-mail is a substitute for express mail. Thus, substitute products in the automotive industry could be public transport (bus, train, metro), other means of transport (motorcycle, bike), alternative fuels or airplane. Additionally, a budget or mid-range passenger car can be seen as a substitute for a premium car. It is argued by Porter (2008) that when the threat of substitutes is high, industry profitability suffers as substitute products or services limit the industry's profit potential by placing a limit on prices.

It is believed that the threat of substitution in the auto industry is relatively mild. As other means of transport may not really offer the same convenience, utility or independence as a car does. For instance, the switching cost of using public transport may be high in terms of personal time (e.g. independence, delays), convenience (e.g. seating space, adaption to bus schedule) and utility (e.g. luggage capacity). Although, this may not necessarily be the case in well-developed urban areas with high population density, as the substitutes available (walking, public transport and bicycle) may be more convenient, yield a higher utility and cost much less than using a car.

In regards to premium brands there is a possibility that the threat of substitution may be higher than the threat to the overall auto industry due to that fact that you may regard a budget or mid-range passenger car as a worthy substitute for a premium car. However, there is no evidence suggesting that the relative profitability of the premium automakers such as the BMW Group, Daimler Group or Audi has suffered in

comparison to other automakers; conversely they seem to have been performing better than most of its competitors (see figure 1.7 and Rauwald 2011). Porter (2008) argues that an industry can distance itself from substitutes through product performance, marketing or other means to not suffer in terms of profitability and growth potential, which may just be the case with the premium brands.

3.2.1.4 Bargaining Power of Buyers

Powerful buyers does according to Porter (2008) capture value from the industry by forcing down prices, demand better quality or service (thereby driving up costs) and playing industry participants against one another at the expense of industry profitability. Buyers in the automotive industry would be the end-consumer, which can either be individual households or businesses, although it is believed that individual households are by far the largest buyers of automobiles and would represent the majority of revenue stream for automakers.

It is believed that consumers yield a relatively high buyer power due to several factors. The product itself is relatively standardized in terms of getting from one place to another, although, it can be argued that an automobile is differentiated in terms of convenience, utility, quality, design and price. However, the large number of available vehicles and low switching cost to other brands or models does leave consumers with a lot of choice and power to easily switch to other brands. This suggests, that buyers have enough power and ability to play auto manufacturer against another, as consumers can easily shop around and look for the best deal. The buyer power is further increased with a second-hand car market and the availability of substitutes, especially in urban areas.

A real world example that suggests that the dependence on buyers is high includes the bailout of General Motors (GM), Ford Motor Company and Chrysler by the Federal Government in the US in 2009, who suffered due to declining sales of automobiles during the financial crisis. In general the whole industry suffered, although some more than others (see section 4.3). Governments in many countries around the world introduced scrappage schemes to boost sales of automobiles and protect the industry from bankruptcies (BMW Group 2009). Thus, despite an assumingly low buyer volume per household the buyer power seem to be relatively high, as automotive manufacturers are highly dependent upon consumers to buy new vehicles.

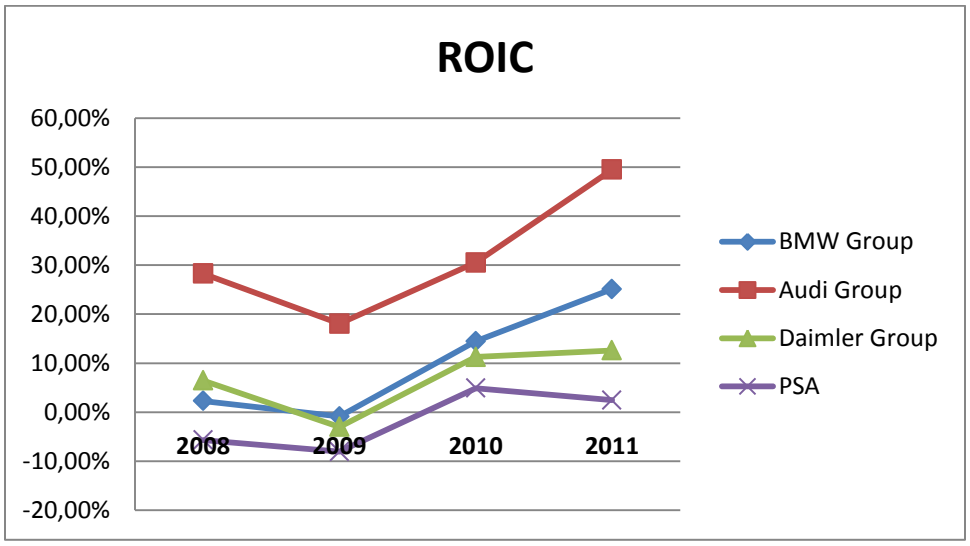
3.2.1.5 Degree of Rivalry

An analysis of the rivalry among existing competitors provides an understanding of the level of competition in the industry (Petersen and Plenborg 2011). The rivalry among existing firms can take many forms such as price discounting, new product introductions, advertising campaigns and service improvements (Porter 2008). High rivalry does according to Porter (2008) limit the profitability of an industry.

The industry concentration based on the Herfindahl-Hirschman index for the general automotive market (including passenger cars, light commercial vehicles and heavy commercial vehicles) suggests that the industry is relatively unconcentrated, meaning that it is regarded as a relatively competitive market (see appendix A.5). The Herfindahl-Hirschman index is further discussed in section 3.2.2.1.

However, similar calculations are difficult to perform for the premium market due to a number of reasons. Firstly, the distinction on the definition between premium and luxury car markets does not always seem to be clear. Additionally, some models may be regarded as premium in some markets and luxury in others. Secondly, some premium brands are owned and part of larger automotive manufacturers, as in the case of Audi and Lexus, which are owned by the Volkswagen Group and Toyota respectively, which further increases the difficulty in finding possible market shares held by these specific premium brands. Nevertheless, figure 1.7 does suggest a relatively high "Return on Invested Capital (ROIC)" for the three premium brands (Audi, BMW and Daimler) and does also illustrates an increasing trend in ROIC the last three years, which generally may not be expected if competition was really intense. The premium car market may as such be more concentrated and less competitive than the general automotive market.

Figure 1.7 – The Development of ROIC for the BMW Group and its peers



(Source: Own creation using annual reports)

Furthermore, as mentioned earlier switching costs to other models or brands are relatively low for buyers, which according to the five forces framework would contribute towards a greater intensity within an industry. It is for instance pointed out by the Volkswagen Group (2012) that price pressure is evident in the established automotive markets such as Western Europe, US and China, where manufacturers are using discounts to promote sales of their own vehicles, putting the sector under price pressure. Additionally, the automotive industry is according to Crosett (2011) among top industries when it comes to expenditure on advertising, which may be another indication of high competition.

In summary, The Porters Five Forces framework suggests that the profitability within the automotive industry is particularly constrained by the high buyer power and to a certain extent the degree of rivalry. Although it is also argued that the degree of rivalry appears to be somewhat lower in the premium segment. It may be possible that the customers buying premium vehicles may not be as price sensitive as customers buying less expensive vehicles. Thus, it is possible that a credit crunch may have a lesser impact on premium car manufacturers compared to i.e. budget car manufacturers.

3.2.2 Market Share and Structure

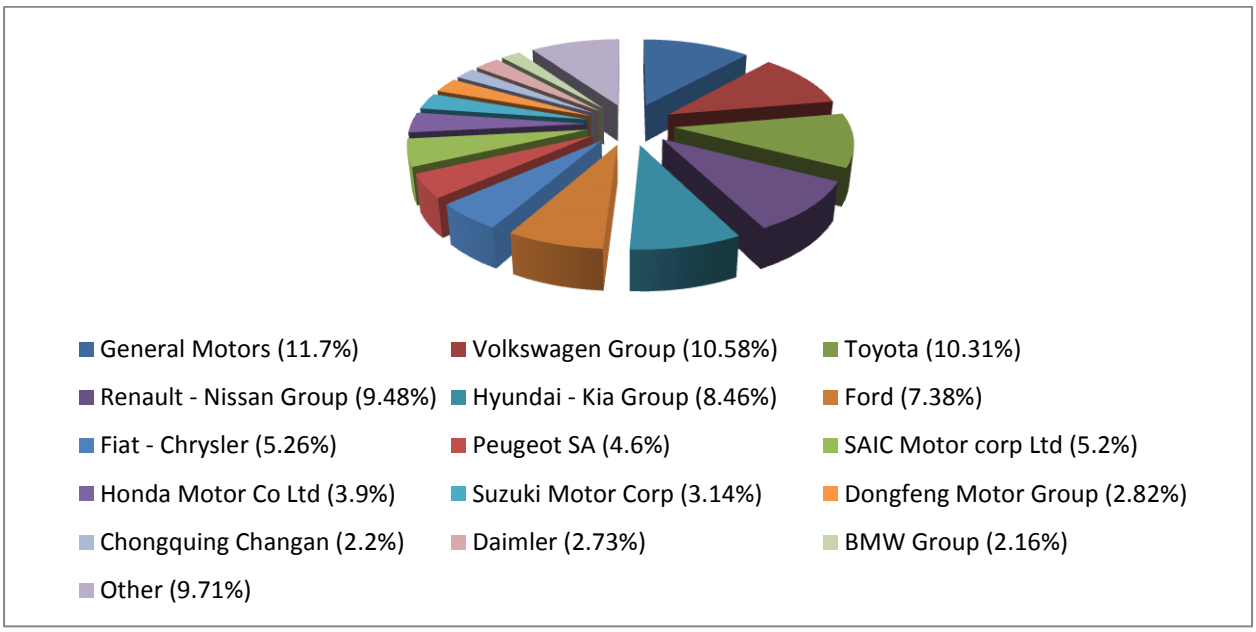
This section will firstly analyze the market structure of the automotive industry in order to get an overview of the competitiveness within the industry. The section will further analyze the development of global vehicle sales within the automotive industry as well as the development of BMW's market share by region in comparison to two of its closest competitors, namely Audi and Mercedes Benz. The period

analyzed is from 2006 to 2011 in order to account for any cyclicality that may have occurred in the automotive industry.

3.2.2.1 Automobile Market Structure

The worldwide market share for the 15th largest automotive manufacturer in terms of vehicles sold for 2011 is illustrated in figure 1.8. Figure 1.8 includes sales of both light and heavy commercial vehicles in addition to passenger cars. Furthermore, sales from all brands owned by each manufacturer are included, e.g. the market share of Volkswagen includes sales of vehicles from all its brands such as Scania, MAN SE, Audi Group and Volkswagen passenger cars amongst other.

Figure 1.8 – Market share per automotive manufacturer 2011



(Source: Own creation using data from Bloomberg)

Moreover, a widely used tool to measure the concentration in an industry is the Herfindahl-Hirschman Index (HHI) (Pepall et al. 2008). For an industry with N number of firms it is defined as:

$$\mathrm{HHI} = \sum_{i=0}^{N} s_i^2$$

where s_i is the market share of the *i*th firm. According to guidelines set out by the U.S department of Justice, a HHI of less than 1,000 represents a relatively unconcentrated market. An HHI between 1,000

and 1,800 would represent a moderate concentrated market, where an index of 10,000 is the highest possible and would mean that there is only a single firm in the market with 100 percent market share.

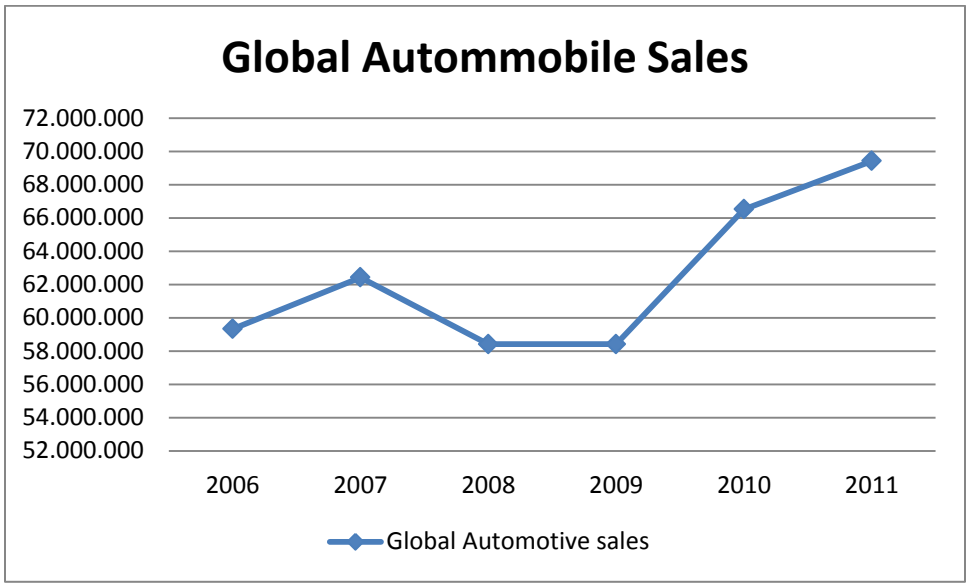
Moreover, using HHI as an overall measure of market structure, it should be clear that the ability to make such measurements is based on the ability to identify a well-defined market (Pepall et al. 2008). For instance, the automobile industry could be separated into the market for passenger cars only, different markets for different sized vehicles, or the market for *premium* passenger cars only. In the case of BMW, it may have been ideal to look at the premium passenger car segment only. However, given the limited availability of data, and the complexity of competition within the automobile industry with a vast range of different car models being offered by each manufacturer, the calculation of HHI here includes all sales of passenger cars, light commercial vehicles and heavy commercial vehicles. The HHI index for 2011 is 798, which suggests that the industry is relatively unconcentrated and as a result highly competitive (see appendix A.5 for calculations). The HHI index for 2006 was 886, suggesting that that the industry has remained competitive throughout the period analyzed. Although, the concentration may be lower in the premium car segment and as such less competitive, as suggested in section 3.2.1.5 above.

Furthermore, as mentioned earlier it is not uncommon for automotive manufacturers to own several brands. For instance, the Volkswagen group does currently own 10 different car brands. Acquisitions and divesting of brands to enter new markets, segments, or as a change of long-term strategy, or due to unprofitability of specific brands appears to have been trends of lately. For instance, the acquisition of the truck maker MAN SE by Volkswagen in 2011 could be viewed as a strategic move as well as expansion into the heavy commercial segment by being able to consolidate the operations of MAN SE with Scania. Other examples include the sale of Volvo, Land Rover, Jaguar and Aston Martin made by Ford Motor Company amongst others. Formation of alliances and strategic partnerships between manufacturers also appears to be a recent trend in the automotive industry. Examples here include the recent PSA Peugeot Citroën – General Motors alliance, and the Volkswagen – Suzuki alliance.

3.2.2.2 Global Automobile Sales

The global sales of automobiles over the period 2006 to 2011 are illustrated in figure 1.9. Automobile sales in figure 1.9 refer to passenger cars and light commercial vehicles only, and do not include sales of heavy commercial vehicles.

Figure 1.9 **-** Global Automobile Sales



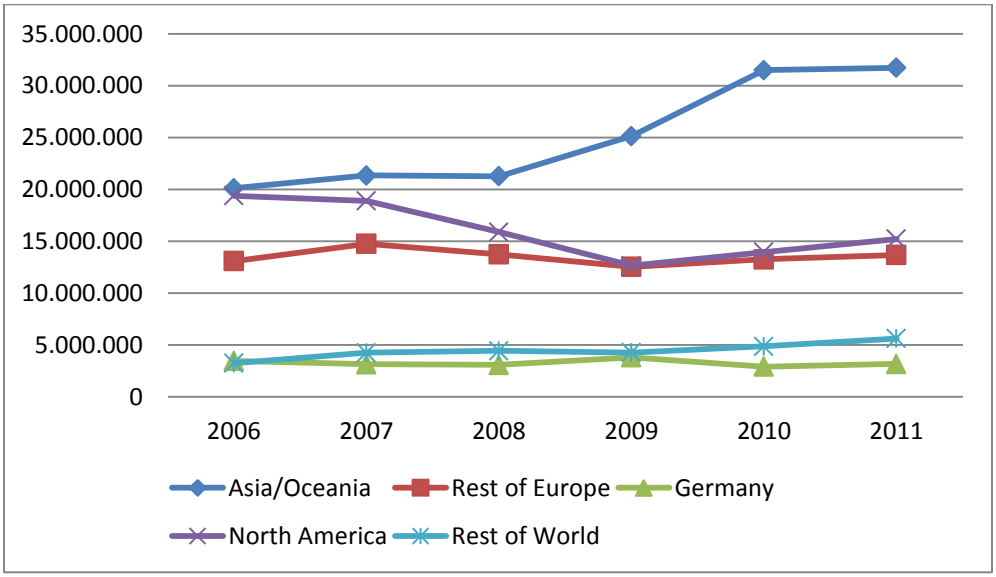
(Source: own creation using data from Bloomberg terminal)

As seen from the figure, there has been a fluctuation in the number of automobiles sold. Especially during 2008, where sales decreased drastically and remained at a similar level in 2009. The global economic climate deteriorated drastically in 2008, as financial markets globally were put under severe pressure in second half of 2008 due to the financial crisis caused by the complex interaction between the value on asset backed securities and liquidity problems in the banking system. This in turn affected demand for goods and services worldwide, as consumers decreased their spending. Expenditure on luxury goods is likely to decrease during uncertain times and as such likely to affect vehicle sales negatively. Three of the main markets (United States, Japan and Western Europe) suffered dramatic slumps at end of 2008 and as such affecting all the manufacturers in the industry (BMW Group 2009). At the height of the crisis in early 2009, The Federal Government in the United States used some of the money from their $700 billion bank bailout fund to rescue three of the biggest American auto manufacturers, General Motors (GM), Ford motor company and Chrysler. The bailout meant that the government took ownership in some of these manufacturers as well as providing conditions on the restructuring of the firms. Moderate recovery in the industry began in the second half of 2009 due to stimulus packages worldwide and scrappage schemes (BMW Group 2010). The recovery in the automotive industry continued during 2010, mainly due to further state-funded stimulus packages, expansionary monetary policies pursued by central banks worldwide, the continued scrappage schemes and the strong demand of vehicles in emerging markets such as China (BMW Group 2011). The recovery

is illustrated in figure 1.9 above, where car sales in 2010 increased by around 13.9%. The growth continued in 2011 but at a more moderate level.

Automobile sales per region over the period 2006 to 2011 are illustrated in figure 1.10 below. The regions analyzed in this analysis are Asia/Oceania, Germany, "Rest of Europe", North America and "Rest of the World". The reason for this segmentation is to get an overview of the development of vehicle sales for the individual geographical regions, and BMW's market share in each of these regions, which provides a base for forecasting BMWs future performance in each specific region. The same segmentation will be used for forecasting purposes in section 6.

Figure 1.10 - Global Automotive Sales by Region



(Source: own creation using data from Bloomberg)

It is clearly evident from figure 1.10 that Asia/Oceania is the by far the largest market, with significant increase over the three last years. The main reason for this is China, where sales increased by approximately 158 percent over the period analyzed. Automobile sales in China accounts for around 26.7 percent of total automobiles sold in 2011. The significant increase in China has been due to a combination of factors such as a rising incomes, rising middle class, favorable economic policies to stimulate consumption and supportive industry policies such as halved sales taxes on new vehicles and offering of subsidies to replace old cars (Madslien 2012 and Ying 2010). Growth in Europe (including Germany) has been stagnant, while sales in North America decreased by 21.5 percent over the period

analyzed. North America and especially the US was probably the hardest hit region by the financial crisis and this in turn affected sales of vehicles negatively as seen in figure 1.10. One of the biggest reasons for the drop in car sales in North America and especially the US was the problem of obtaining finance (Dash 2008 and Carey and Bailey 2009). Lenders experienced an increased default rate on mortgage loans affecting profitability in a negative way, and which in turn lead to cutbacks on new loans as well as tightening of lending standards (Dash 2008). As a result this affected the pool of money available to auto loans negatively and forced borrowers to provide a higher down payment, higher monthly payments, a strong credit record and stringent documentation (Dash 2008). This together with the fact that consumers are likely to cut their expenditure during an economic downturn affected vehicle sales negatively in the US, despite the introduction of favorable government policies to lift vehicle sales (Carey and Bailey 2009). Rest of Europe was the second hardest hit region by the financial crisis at the end of 2008 and during 2009. Although, the sales have somewhat rebounded during the last two years, the region continues to be under pressure by the European sovereign debt crisis, which may affect future sales of automobiles negatively.

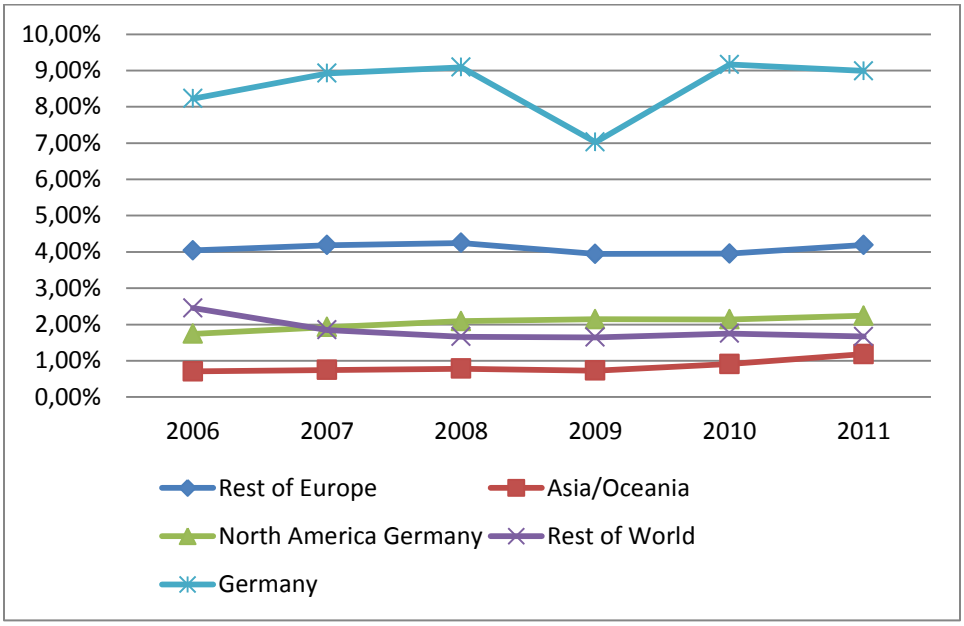
However, in general, global automobile sales did bounce back during 2010, as global sales increased by 13.9 percent. Exceptional sales in Asia/Oceania were the main driver for this global increase in 2010, as vehicle sales in Asia/Oceania rose by 25.3 percent and accounted for 78.5 percent of the total global sales growth in 2010. All the other regions did also experience a growth in automobile sales during the same year, except for Germany, where the discontinued government scrappage scheme is likely to have had a negative impact on car sales for the year 2010 in comparison to the previous year.

The tremendous growth rate in Asia/Oceania did somewhat stagnate during 2011, as automobile sales grew by 0.7 percent. North America continued its positive trend and rose by 9.1 percent, accounting for 43.6 percent of the global automobile sales growth in 2011. All the other regions did also experience a positive sales growth, where especially the growth in the rest of world and Germany stand out, growing by 15.37 percent and 8.85 percent respectively. Over the entire period analyzed, global automobile sales increased by approximately 17 percent, with an average yearly growth of 3.41 percent (see appendix A.6 for more details).

3.2.2.3 Automobile Market Share Analysis

The BMW Group's market share of automobile sales in different regions over the period 2006 to 2011 is illustrated in figure 1.11. More details regarding sales by region can be found in appendix A.7.

Figure 1.11 – BMW market share by region



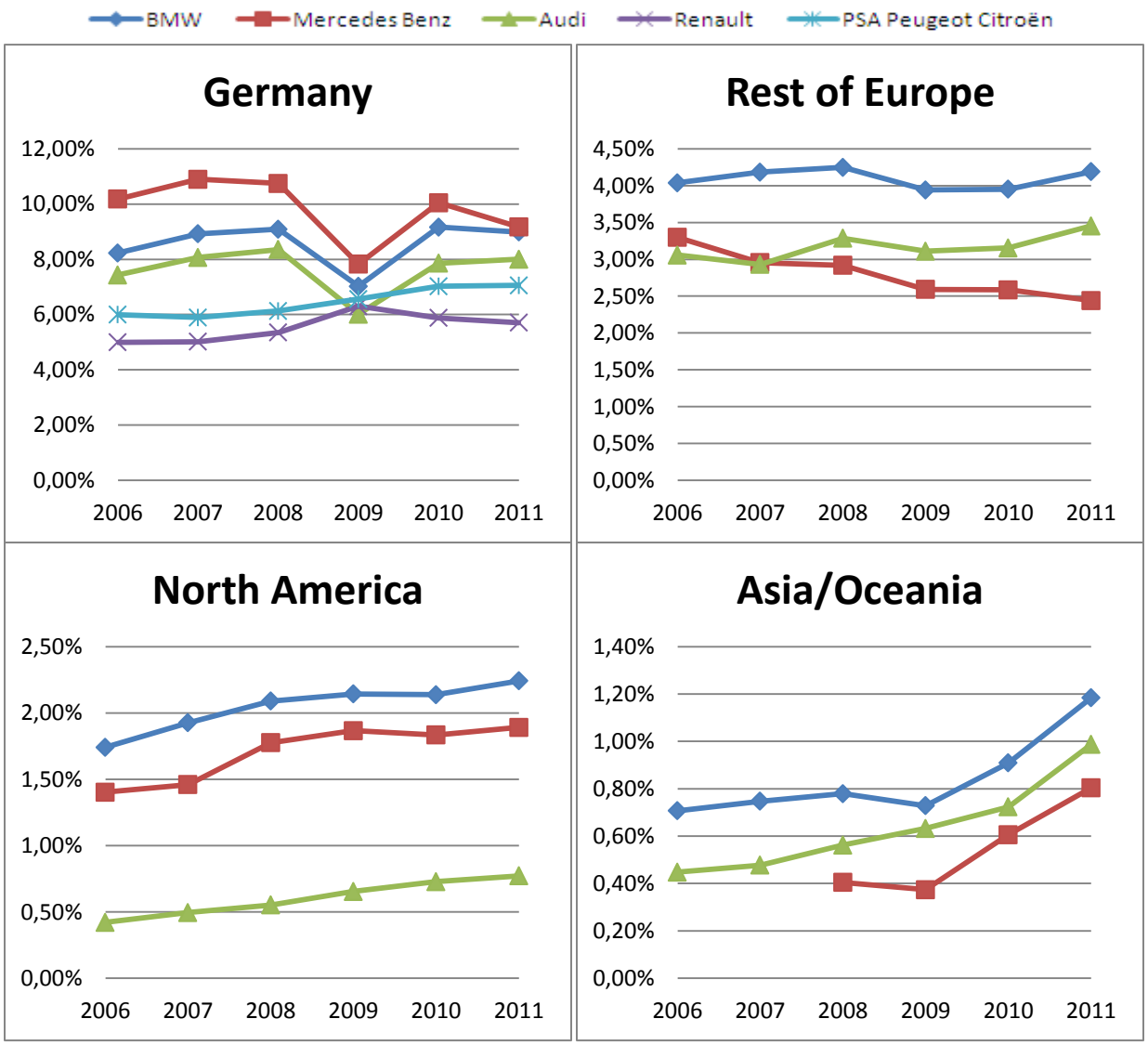
Source (own creation using data from Bloomberg and annual reports)

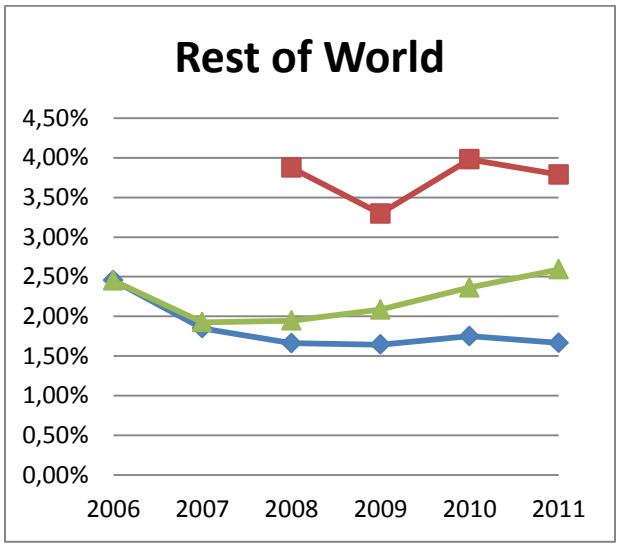
It is clearly evident from the figure that BMW enjoys its highest market share in Germany. However, BMWs market share in Germany experienced a decline in 2009. A plausible explanation could be that the scrappage scheme introduced in Germany early 2009 did rather benefit other brands more than premium brands. Under the scheme, owners of a car older than 9 years were entitled to around €2,500 when buying a new car. However, while a €2,500 discount on a €9,000 budget car might be convenient, the same discount does not make as much a difference to a premium car costing €25,000-€30,000 (Anderson 2009). As such, the scrappage scheme likely benefited budget car makers more than premium car makers. In absolute numbers, the biggest market for BMW is Rest of Europe followed by Asia/Oceania, North America, Germany and Rest of World in order.

The highest growth over the period analyzed was however achieved in Asia/Oceania and North America. One of main reason for the increase of the market share in Asia/Oceania is due to the doubling of market share in China over the period analyzed. BMW has more than quadrupled its total sales in the region from 2006 to 2011, making the Chinese market increasingly more important for BMW. However, despite

the increasing sales in China and as such Asia/Oceania; Germany, Rest of Europe, and North America remain the biggest and most important markets for BMW. The market share of certain regions and countries for BMW and its peers are illustrated in figure 1.12.

Figure 1.12 – Market share of BMW in comparison to its peers in chosen regions





(Source: Own creation using data annual reports from BMW and its peers and Bloomberg terminal)

More detailed information on market shares of the peers can be found in Appendix A.8. The market share figures for BMW includes sales of the Mini and Rolls-Royce brands, the figures for Audi includes sales of the Lamborghini brand and the figures for Mercedes-Benz includes sales of the Maybach and Smart brands. Additionally, only certain figures are included for Renault and PSA Peugeot Citroën due to limited availability of data on vehicle sales by region.

It is clear from figure 1.12 that both Audi and Mercedes-Benz have experienced a similar development of their market share in Germany as BMW, with a decline in 2009, but recovery in 2010. In comparison to the premium brands, both Renault and PSA Peugeot Citroën experienced an increase in 2009. As mentioned earlier, a possible reason for this occurrence in 2009 could be due to the scrappage scheme in Germany, introduced in early 2009 and affecting the market share of premium brands negatively. Since a discount of €2,500 is likely to be more convenient for a car in the region of €9,000-15,000 than a premium car costing €25,000-€30,000. Another interesting development in the German market is the decline of Mercedes-Benz's market share. The yearly number of vehicles sold for Mercedes-Benz has been relatively stagnant since 2009 in Germany, and has as such affected their market share negatively as general automobile sales in Germany has started to pick up to pre-crisis levels. The market in the Rest of Europe is dominated by the BMW Group in comparison to its closest peers as seen in figure 1.12. Additionally, both BMW and Audi have been able to increase the number of vehicles sold in the Rest of Europe over the period analyzed, whereas Mercedes-Benz have experienced a decrease in number of

vehicles sold. Mercedes-Benz has been particularly affected by sales in the Southern Euro area due to the looming sovereign debt problems (Daimler 2012).

Furthermore, the three premium brands have experienced a positive development of their market shares in North America, with BMW having the highest market share out of the three peers over the period analyzed. However, the positive development is due to the fact that sales of vehicles for the three German premium brands have decreased less than the total number of vehicles sold in North America. One reason for this may be that both the BMW Group and Daimler (owner of Mercedes-Benz) have been introducing more vehicle models to the US, increasing local production and offering better incentives than Lexus (premium brand of Toyota) to increase sales and hedge against the overexposure to the Chinese market (Reiter and Ohnsman 2011). In addition, both BMW and Mercedes-Benz brands grabbed the first and second spots respectively in terms of premium vehicles sold in the U.S market, edging out Lexus's decade long lead (Reiter and Ohnsman 2011 and Woodall 2012). This was achieved by taking advantage of Lexus's inventory problems during the March Earthquake in Japan and increased discounts on BMW and Mercedes-Benz vehicles (Woodall 2012).

As mentioned earlier, the increase in Asia/Oceania is due to the significant increase of car sales in China over the last three years and so has the market share of the three premium brands in Asia/Oceania. The aspiration of luxury items have according to Ying (2011) lead to a higher growth in the premium car segment than that of the mass car segment in China over the past two to three years. This is one of the reasons why the three German premium brands have been able increase their market share significantly with many first time buyers of luxury vehicles (Reiter et al. 2012). The next challenge according to Reiter et al. (2012) would be to hold on to these customers.

However, the three premium brands have experienced a different development in rest of the world. The BMW Group has experienced a decline, while Mercedes-Benz has experienced an increase in their market share. The Audi group have by far the largest market share in comparison to the premium brands, although the market share have fluctuated year from year.

In summary, it appears as the industry is very vulnerable to the economic cycle and recessions or other types of economic crisis's affecting vehicle sales negatively. Both the Audi Group and the BMW Group have been able to maintain their market shares in the European region and at the same time increased their market share in both North America and Asia/Oceania, and as such slightly increased their market

share globally over the period analyzed. Mercedes-Benz has similarly to Audi and BMW also been able to increase their market share in North America, Asia/Oceania and rest of the world over the period analyzed, but has on the other hand experienced a decreasing market share in Europe which has affected their global market share negatively. Nevertheless, the trend from 2009 has been positive for all the three premium brands, which is a good indication for possibility of future growth.

3.3 Internal Analysis

This section attempts to identify internal strengths and weaknesses of the BMW Group. The internal factors that are discussed in this section include BMWs brand name, car models and product life cycle, common automobile platform, and market segment focus.

3.3.1 BMW Brand Name

BMW has produced automobiles and motorcycles since the 1920s and as such has a long history and vast experience with automobile production.

Reputation Institute, a global private consulting firm based in New York, conducts an annual study on the World's most reputable companies. The study is labeled "Rep Trak100™" and invites participants to rank 100 different major multinational companies within seven different criteria, namely products/services, innovation, workplace, governance, citizenship, leadership and financial performance. The latest annual Rep Trak ™ 100 report, released in April 2012, had approximately 47,000 respondents from the 15 different countries (the 15 largest economies in the World), which provided more than 150,000 ratings of the 100 companies included in the study (Global Rep Trak 100, 2012).

BMW was ranked as the fourth most reputable company in the Rep Trak100 reports of 2010 and 2011, and further strengthened their position in the 2012 Rep Trak100 report, by being ranked as number one, with an excellent reputation score of 80 (out of 100). Other high ranking companies include Sony, The Walt Disney Company, Apple, Google, Microsoft, in addition to car manufacturers Daimler and Volkswagen, amongst others. The report further notes that BMW ranks among the top 10 reputable companies in 10 of the 15 examined markets, with Sony being the only company in the report ranked among the top 10 in more markets than BMW. Moreover, the report ranks BMW among the top six companies within each of the seven different criteria's mentioned above, and is most notably ranked as number one in the products/services dimension. This suggests that BMW have a very broad reputation

profile, with a very solid reputation in the majority of the largest economies in the World, and also within each of the seven defined dimensions of reputation.

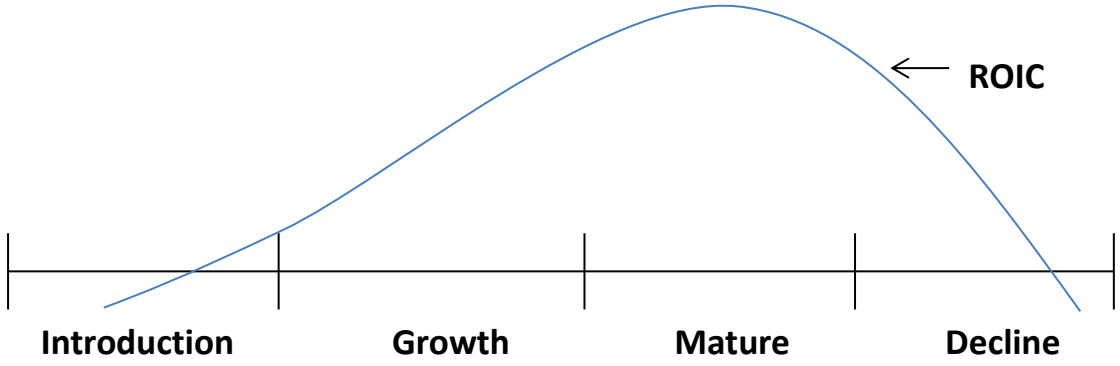
Furthermore, MillwardBrown, a global research agency specializing in brand equity research, has ranked BMW as the World's most valuable brand name in the car industry in their latest annual brand equity report, entitled *BrandZ*, which was released in April 2012. The *BrandZ* report attempts to isolate the value that the individual brand names contribute to the corporation and as such estimate the dollar value of the individual brand names. After BMW, MillwardBrown ranks Toyota as the 2nd most valuable brand name in the car industry, whereas main competitors Mercedes-Benz and Audi are ranked as the 3rd and 8th most valuable car brands, respectively (MillwardBrown 2012).

Although it is difficult to measure factors such as brand value and reputation, BMW is top-ranked in both of the above-mentioned studies, which does suggest that BMW have a very strong brand name. According to Keller (2003) a strong brand name may provide numerous competitive advantages to the firm, such as "free advertising" through customer recommendations and increased brand awareness, the possibility of charging a price premium due to customers' increased perceived quality of the product, increased customer loyalty, and possibly higher supplier power. As such, BMWs strong brand name is considered to be one of the company's major strengths.

3.3.2 Car Models and Product Life Cycle

Another internal factor of importance is the product life cycle. According to Tim Schuldt, Equity Analyst at Equinet, one of things they look at when valuing an automotive manufacturer is the product cycle (See appendix A.1). According to Tim Schuldt, most car models typically sell most after 18-24 months on the market and then tend to slow down after about five years. The concept of the product life cycle is also discussed by Petersen and Plenborg (2011) and illustrated in figure 1.13.

Figure 1.13 – ROIC at different stage of the product life cycle



(Source: Own creation from Petersen and Plenborg 2011)

At the launch of the product the focus is on investment in R&D, marketing and building sales, and the introduction and growth stages are as such capital intensive (Petersen and Plenborg 2011). When the product passes into a more moderate growth pace the product matures and at this stage companies are able to reap gains from the previous phases of investments (Petersen and Plenborg 2011). The ROIC decreases over time due to increased competition or alternatively due to other factors and becomes negative, unless the product is phased out in time or replaced with a newer or more attractive product (Petersen and Plenborg 2011). It may as such be important to have a number of new products or models available on the market.

The BMW Group appears to be constantly introducing new models and revamping existing models. For instance, since 1999, when BMW's range only consisted of three sedans and a roadster, the brand has added four sport vehicles, the 6-Series Coupe and 1-Series compact (Reiter 2012). Other recently introduced models by the BMW Group have been the BMW X6 model in 2008, BMW X1 in 2009, the Mini Countryman model in 2010 and the Mini Coupe in 2011.

Furthermore, the latest BMW 3 series Sedan was launched in February 2012, now the sixth generation of the BMW 3 series. Additionally, the MINI brand added a sixth model in March 2012 to their lineup, the MINI Roadster (BMW Group 2012). The BMW 6 series Gran Coupé, the first four-door Coupé in the history of the Group was introduced in June 2012 followed by the model revision of the BMW 7 Series in July 2012 (BMW Group 2012).

Further planned releases are the BMW i3 in 2013, a battery powered city car and BMW i8 in 2014, a plug-in hybrid sports car (BMW Group 2012). The Group has also planned to release new versions of the

compact 1-series and 5 series as well as to launch a BMW X4 SUV in 2014 (Rauwald 2012 and Reiter 2012). The Group does as such seem to be aware about the importance of both introducing new models and revamping current models to the market with regular intervals. The revamping of current models in terms of the product life cycle might be seen as a way to avoid a negative ROIC. For instance, although the sales of BMW 3 Series have declined by around 124,000 units over the period analyzed (2006 to 2011) it is still the highest selling series for the BMW Group.

3.3.3 Common Automobile Platform

In the interview with Daniel Schwartz, auto analyst at Commerzbank (see Appendix A.1), Schwartz mentioned that Mercedes-Benz have lower operating margins even though they have higher retail prices than their two main competitors, BMW and Audi. This suggests Mercedes-Benz have a higher cost basis compared to their two main rivals, and Schwartz points out this is likely due to the fact that both BMW and Audi uses a common platform and more common parts to build their cars, whereas Mercedes-Benz are not using such a platform and have less common parts in their production. According to Schwartz, BMW uses as much as 60 percent common parts in their automobile production whereas Mercedes only uses around 5 percent common parts. According to Becker (2010), the common platform BMW uses involves common software, electronics, and geometries, in addition to some common components and hardware. Common components most notably include common engines and transmissions, like the N55B30 engine which can be found in a wide range of BMW models according to Becker (2010). Brylawski (1999) points out that using a common automotive platform saves manufacturing costs by creating standardized modules that are produced in high volumes, thus providing economies of scale. Becker (2010) also argues that higher volumes of parts and components may also allow BMW to form tighter bonds with suppliers, which may help them adopt newer technology before manufacturers who have weaker ties to the suppliers. Brylawski (1999) further argues that development expenses can be saved by spreading costs over several models using the same platform, thus making it cheaper to develop new car models and may make it possible for BMW to develop new models more frequently, which is important for a car manufacturer as discussed in section 3.3.2.

Brylawski (1999) also mentions a few possible drawbacks of utilizing a common platform. One is that customers are likely to be somewhat negative towards extensive use of common components, parts and design, as they usually want their cars to be unique. This is likely especially the case for higher end premium cars and luxury cars, where customers typically are looking for differentiation and special

features. As such, it may be risky to overuse the common platform strategy. Brylawski (1999) further mentions the greater risk involved if there are any faults in the underlying platform, which could lead to massive recalls and repair costs for the manufacturer if several car models are built on the same standardized platform.

Overall, the use of a common platform currently seems to represent a competitive cost advantage for BMW compared to manufacturers that does not use such a common platform. However, it should also be recognized that this competitive advantage may come at the cost of increased risk associated with the use of a common underlying platform. Furthermore, competitors that are currently not utilizing such a common platform strategy may adopt it in the future in an attempt to neutralize competitive disadvantages. Mercedes-Benz is already planning to implement a similar common platform strategy according to Daniel Schwartz (see appendix A.1).

3.3.4 Market Segment Focus

The BMW Group is solely focusing on producing and selling vehicles to the premium passenger car segment. There are both benefits and disadvantages by focusing on a single specific segment. The advantage with focusing on a specific segment is that it allows the firm to develop a more specialized expertise within the segment, as it is their only area of focus for the management. This may enable the firm to pursue a clearer strategy and adopt more focused marketing activities.

One weakness is that the BMW Group is dependent upon a single segment or group of consumers and is as such less diversified than the owners of Audi (Volkswagen) and Mercedes-Benz (Daimler). For instance, the Volkswagen Group currently has 10 different brands producing and selling vehicles to the luxury, premium, budget car and heavy truck segments. This makes the BMW Group potentially more vulnerable to economic crises and the economic cycle compared to more diversified automotive manufacturers such as the Volkswagen Group.

3.4 Strategic Analysis Summary

The identified key strengths, weaknesses, opportunities and threats (SWOT) for BMW are summarized in appendix A.9, whereas the most important factors from the SWOT based on the preceding analysis are discussed below. Strengths and weaknesses are linked to BMWs internal performance and business model, whereas opportunities and threats are linked to the auto industry and external environment. The

most relevant and important factors from this analysis will be considered when forecasting BMW's revenue and financial statements in section 5.

BMW's revenue growth seems fairly dependent on GDP growth, with an estimated correlation coefficient of 0.6367 and R-squared of 0.4054 between BMW's revenue growth in Germany and the German GDP growth. As such, GDP growth expectations are one of the key factors that will be looked at when forecasting BMW's future revenue. Another important external factor that will be considered when estimating BMW's future revenue is the implementation of CO2 emission limits for passenger cars in the EU-area. Tim Schuldt believes these new emission limits will be particularly challenging for premium car manufacturers to comply with, especially as the emission limits will become gradually stricter in the coming years. Similar emissions limits could also be implemented in other markets, and are already being considered in the United States and China (BMW Group 2012). Other government regulations and subsidies may also affect BMWs business, such as the scrappage program that was implemented in Germany in 2009, although, such regulations and subsidies are difficult to predict.

Other identified external factors that are important for BMW's business includes commodity prices and currency risks, however, these factors are very difficult to forecast and are therefore not given much weight when forecasting BMW's future revenue. It is nonetheless important to be aware that currency fluctuations and commodity prices may have a large impact on BMW's revenue, especially changes to the USD/EUR and CNY/EUR exchange rates, and changes to the price of crude oil which may affect the purchasing behavior of customers in addition to affecting BMW's production costs.

The Porters Five Forces analysis suggests that profitability in the industry is mainly affected by customer demand and buying power. This can again be related to GDP growth, as there is likely a high correlation between GDP growth and increase in private income and buying power. The porters five forces analysis also suggest that competition may be more concentrated (less competitive) in the premium passenger car segment than in the overall passenger car market. These are both factors that will be considered when forecasting BMWs future performance.

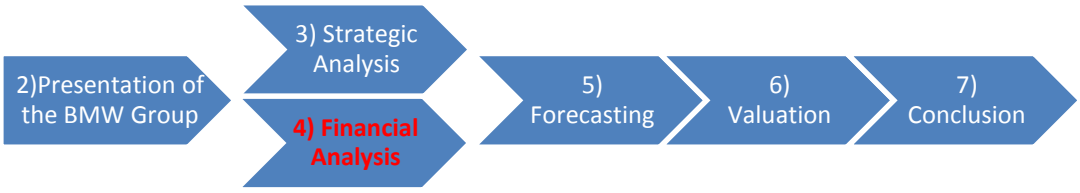
The global automobile sales and market share analyses serves as a starting point for forecasting total automobile sales and BMW's market shares in the different geographical regions. The Asia/Oceania region has been by far the fastest growing car market over the period analyzed, and is the World's largest market for passenger cars. On the other hand, sales in Europe and North America has declined

over the period after being hit by the global financial crisis, although sales in North America has shown signs of improvement over the last couple of years. The market share analysis shows that BMW has managed to improve their global market share, mainly due to a strengthened position in Asia/Oceania and North America.

The internal analysis of the BMW Group suggest that the Group has a very solid reputation and worldwide brand name, which is considered an important factor that may help the Group maintain or even increase their worldwide market share. The Group appears to have been able to position itself as a reliable and trendy premium brand of high quality. It is believed that the Group's sole focus on the premium market segment has helped them gain expertise in this segment and developed a brand name that is usually associated with high quality.

The internal analysis further suggests that BMW's plans of introducing several new car models and revamping existing models may help the Group gain market share. BMW's introduction of the common automobile platform strategy may also help in this respect, as it is likely to decrease costs of developing new car models based on already existing platforms.

4. Financial Analysis



This section assesses the financial performance of the BMW Group. As the valuation of BMW Group requires a forecasting of the firm's future development, it is important to analyze the historical performance, which together with the strategic analysis is an important element in defining the future expectation for the BMW Group. A financial analysis will also provide a better understanding of the firm's underlying income and cost drivers. The basis of the analysis is annual reports for the BMW Group from 2007 until 2011. It is believed that a period of 5 years is enough to reflect any cyclical fluctuation that may have occurred in the industry. This section does therefore look at the separation of the financial statements between the two operating segments, the reformulation of the financial statements and a profitability analysis looking at the historical performance BMW and its peers.

4.1 Separation of the Financial Statements between the Different Operating Segments

Both Damodaran (2002) and Koller et al. (2010) argues that financial service firms are valued differently in comparison to industrial businesses. This was also mentioned by Tim Schuldt, Equity analyst and Equinet AG, who suggested that if a fundamental valuation is performed on an automotive manufacturer, it is important to separate the financial statements between the industrial business and financial service part of the Group as both parts are fundamentally valued differently. Given the following arguments, the financial statements for the BMW Group is separated into two different statements, one in regards to the industrial business (automotive and motorcycle) and one in regards to the financial services business.

However, a Fundamental valuation will only be performed on the industrial part, as the BMW Group does not provide enough information on their financial services business to perform a fundamental valuation. The book value of equity of the financial services business will instead be added to the equity value of the industrial part from the fundamental valuation carried out, as suggested by Tim Shuldt. Additionally, book value of equity in a financial service firm is according to Damodaran (2002) usually a reliable measure of equity, as financial assets are often marked up to market.

The financial statements of the BMW Group do provide specific figures for the following operating segments, automotive, motorcycle, financial services and other entities. However, the figures presented for each division do include inter-segment transactions, which are eliminated in the Group results. The Group does therefore also provide an elimination column, which eliminates business relationships between the operating segments. However, the financial statement of the Group does not provide enough information on what specific amount of eliminations is related to each operating segment and as such certain assumptions discussed below have had to be made.

The income statement was firstly divided into an industrial part (automotive and motorcycle divisions) and a financial services part (financial services and other entities). Secondly, the percent contribution was calculated for each specific income statement item. For instance, the revenue in regards to the industrial business part was divided by the sum of the revenue from both the industrial and financial services part, the COGS was divided by the sum of COGS and so on (see appendix A.10). The elimination figure for each income statement item was then subtracted for each of the two operating segments

using this percentage calculated for each specific item as illustrated in appendix A.10. For instance, if *"Revenue"* in regards to the industrial business represented 80 percent of the total sum for both the industrial business and financial services, then 80 percent of the elimination figure related to *"Revenue"* was subtracted from the *"Revenue"* for the industrial business unit. The percent contribution for "*Results from equity accounted investments*" and "*other financial results*" were set at 100 percent in regards to the industrial business as the elimination figure for these items was close to zero. Moreover, the "*income taxes*" are positive for the industrial business in some periods and negative for the financial services in the same periods and vice versa for the years 2008 and 2009. The percentage contribution was therefore set at a fixed figure of 65% for the industrial business and 35% for the financial services business (see appendix A.10). These percent contribution figures for "*income taxes*" were somewhat based on the percent contribution from year 2007, 2010 and 2011. The separated Income statements for the industrial business and financial service business are illustrated in appendix A.11.

The balance sheet was also divided into an industrial part (automotive and motorcycle divisions) and a financial services part (financial services and other entities), as in the case of the income statement. Secondly, the percent contribution was calculated for each specific balance sheet item. For instance, the specific value for intangible assets in regards to the industrial business part was divided by the sum of the intangible assets from both the industrial part and financial part (see appendix A.12). The elimination figure for each balance sheet item was then subtracted using this percentage calculated for each specific item as illustrated in appendix A.12. For instance, if *"Leased Products"* in regards to the industrial business represented two percent of the total sum from both the industrial business and financial services, then only two percent from the elimination figure was subtracted from the *"Leased Products"* figure for the industrial business unit.

The problem using this method is that the balance sheet for the two segments are unlikely to balance out, meaning that Total assets = Total Liabilities + Equity will in this case not be equal. Thus, further assumptions had to be made in order to balance out the two balance sheets. Using the percent figure calculated for total assets in appendix A.12 and applying this as a percent for each elimination figure on each asset item would balance out the balance sheet if the same method were used for the equity and liability side of the balance sheet. However, this method would not take the relative weight of each balance sheet item into account and is therefore not applied directly. The difference between the sum of all assets calculated using the percent method for each balance sheet item was compared with the

method of using the percent figure for total assets. This difference between the two balance sheets did equal out for each year, for instance the difference in 2007 was 744 for the industrial business and -744 for the financial services business. These differences were then spread on the same balance sheet items for the two separate segments. For instance, the difference in regards to total assets was spread between intangible assets, PPE, inventories and trade receivables. Same method was used to balance out the liability and equity side of the balance sheet. The separated balance sheets for the industrial business and inancial service business are illustrated in appendix A.13.

4.1.1 Separation of Peer Statements

The financial statement of PSA Peugeot Citroën was separated by following the same approach as used for separating the operating segment in the case of the BMW Group. The Audi Group presents their own financial statements in relation to their industrial business and as such no separation as in the case of BMW and PSA was required.

The Daimler Group provides separate figures for the following operating segments: industrial business and financial services. It is assumed that the industrial business unit represents the automotive part of the Daimler Group. Additionally, any figures for the two different segments are already adjusted for any elimination (inter-segmented transactions) in contrast to the BMW Group's and PSA's financial statements (Daimler Group 2012).

Furthermore, Renault has not been included in the profitability analysis due to lack of sufficient information to separate the industrial business from their financial services business.

4.2 Reformulation of Financial Statements

This section reformulates the income statement and balance sheet of the BMW Group by separating operating activities from financing activities. It is argued by Petersen and Plenborg (2011) that a firm's operation is the primary driving force behind value creation, and as such important to isolate for valuation purposes. It is further argued by Petersen and Plenborg (2011) that it is beneficial to separate investments in operation from financing activities when analyzing financial ratios to measure a firm's profitability. Thus, this section will follow the theory of Petersen and Plenborg (2011).

4.2.1 Reformulation of the Income Statement

The aim of reformulating the historical income statement is to separate all operating items from financing activities in order to analyze the historical contributions from operating and financing activities

respectively. The reformulation allows calculation of operating earnings in terms of EBITDA, EBIT and NOPAT (Net operating profit after tax). Appendix A.14 illustrates the original income statement of the BMW Group as well as the separated income statements for both the industrial business and the financial services business.

The BMW Group did not include R&D costs in COGS from 2007 to 2008, but reported it as a separate item. Whereas income statements from 2009 and onwards include the R&D cost in COGS. The R&D costs from 2007 until 2008 has therefore been included in COGS in order to be consistent over time. Appendix A.15 illustrates the analytical income statement of BMW's industrial business, as this is the only statement that is reformulated and used for the profitability analysis and valuation purposes.

The revenue generated from the industrial business is from the automotive and motorcycle division and is as such considered as an operating item. Additionally, certain assumptions have been made regarding the distribution of "Depreciation & Amortization" to the different operating cost items on the income statements, as the annual reports does not specify the exact distribution of "Depreciation & Amortization" among the different cost items on the income statement. However, the total amounts of "Depreciation & Amortization" are stated, and it is further stated in the annual reports that "Depreciation & Amortization" are distributed among cost of goods sold and selling and administration costs. "Depreciation & Amortization" have therefore been distributed to "costs of goods sold" and "selling and administration costs", in order to be able to calculate Gross Profit and EBITDA (See appendix A.16 for more detail).

Other operating income and expenses consists of gains and losses related to exchange rates, reversal/additions of provisions, disposal of assets as well as sundry income or expenses. It is believed from the notes in the annual report that all these items are related to the operating business, and as such classified as an operating item.

Moreover, **result from equity accounted investment** does according to BMW Group (2012) mainly consist of investments in joint ventures with suppliers and manufacturers in the automotive industry. Thus, it is believed that these joint ventures should be considered part of the group's primary activities and as such regarded as an operating item. The remaining items: **interest and similar income, interest and similar expenses** and **other financial result** are regarded as financing activities.

In order to calculate **NOPAT**, it is required to separate taxes on operating income (EBIT) from taxes on financial items. A firm will normally have larger financial expenses than financial income. If this is the case, the net financial expenses will generate a tax return for the firm (a tax shield), and tax on operating profit will equal income taxes plus the tax shield. In the analytical income statement it is assumed that the tax shield equals net financial expenses times the German statutory tax rate of 30.5 percent (BMW Group 2012). It is further assumed that taxes on operating income equals total income taxes plus the calculated tax shield. NOPAT will then equal EBIT less the calculated tax on operating income.

4.2.2 Reformulation of the Balance Sheet

In this section the balance sheets are reformulated much the same way as the income statements by separating all operating items from financing activities. According to Petersen and Plenborg (2011) it is important to match the operating and financing activities with the analytical income statement. For instance, if "result from equity accounted investment" was considered as an operating activity in the analytical income statement it must also be classified as an operating activity in the balance sheet.

The original balance sheet of the BMW Group's industrial Business is already included in appendix A.13 and the analytical balance sheet (both operational and financial) for BMW's industrial Business is found in Appendix A.19. The separation of operating and financial items in the balance sheet allows the calculation of invested capital. Invested capital represents the amount a firm has invested in its operating activities, which requires a return (Petersen and Plenborg 2011).

4.2.2.1 Analytical Balance Sheet – Operational

This part of the analytical balance sheet includes the operating items, and is illustrated in appendix A.17. Invested capital is calculated in the operational balance sheet as the sum of operating assets less the sum of operating liabilities.

Non-current Assets

Intangible assets is mainly compromised of capitalized development costs on vehicle and engine projects as well as subsidies for tool costs, licenses, brand-name rights, purchased development and software project (BMW Group 2012). These can all be related to operations and as such classified as an operating asset. **Property, plant and equipment** is clearly related to operational activities and as such regarded as an operating asset. **Leased products** are referred to as own products and products of other manufacturers that the BMW Group leases out to customers as a part of its financial services business.

However, this post is relatively small for the Industrial Business. Additionally, revenue from the Financial Services business is considered to be part of the group's primary activities even though the statements are separated. Leased products are as such classified as an operating asset.

Investments accounted for using the equity method was in the analytical income statement changed to an operating item, as this post relate to the BMW Group's interests in joint ventures and other similar businesses (BMW Group 2012). As such, investments accounted for using the equity method is also considered as an operating item in the analytical balance sheet.

Receivables from sales financing are related to the financial services business and as mentioned earlier it is considered to be part of the Group's operating activities. It is thus considered to be an operating asset, although it is zero in this case for the industrial Business (see Appendix A.13).

Deferred tax assets are considered an operating asset as it is assumed that the majority of the tax items on the balance sheet relate to operating activities. No specific notes are provided by the BMW Group on deferred tax assets, and additionally accounting practices does not distinguish between tax on operations and financial items (Petersen and Plenborg 2011). Thus, all tax assets and liabilities will be considered as operating items.

Other assets comprises other taxes, receivables from subsidiaries, receivables from other companies in which investment is held, prepayments (e.g prepaid interest), collateral receivables and sundry and other assets (BMW Group 2012). The majority of these items are considered as operating items in the analytical income statement, and as such, other assets are treated as operating assets in the analytical balance sheet. Additionally, according to (Easton et al. 2010), "other" assets and liabilities are normally assumed to be operating unless specific information suggests otherwise.

Current Assets

Inventories and **trade receivables** are both considered to be part of operations and thus regarded as operating assets. Moreover, **receivables from sales financing, current tax** and **other assets** are all considered as operating assets given the explanations above. **Cash and cash equivalents** are assumed to be operating cash needed to finance operating activities. It is assumed that any excess cash not needed to fund operating activities is invested in securities, used to repay debt, acquire treasury stock or paid out as dividend.

Non-current Liabilities

Other provisions comprise obligations for personnel and social expenses, obligations for ongoing operational expenses and "other obligations". It is assumed that obligations for ongoing operational expenses (mainly warranty obligations) and personnel and social expenses are all related to operations. BMW does not give any specific information on "other obligations" in their annual reports, thus, it is assumed that all "other provisions" are related to core operations and regarded as an operating liability.

Deferred tax is considered an operating liability given the previous arguments for classifying all tax items as operating. **Other liabilities** comprises other taxes, social security, advance payments from customers, deposits received, payables to subsidiaries, payables to other companies in which investments are held, deferred income, in addition to "other liabilities" that are not specifically classified. According to (Easton et al. 2010), "other" assets and liabilities are normally assumed to be operating unless specific information suggests otherwise. The majority of the classified items comprising other liabilities are here considered operating items, while no specific explanation has been provided in the annual reports regarding the non-classified "other liabilities". As such, all other liabilities are regarded as operating liabilities.

Current Liabilities

Other provisions, **current tax** and **other liabilities** are all regarded as operating liabilities given the explanations above. **Trade payables** are also considered to be part of operations and thus considered as an operating liability.

4.2.2.2 Analytical Balance Sheet – Financial

This part of the analytical balance sheet includes the financial items, and is illustrated in appendix A.17. The financial part of the balance sheet consists of equity, minority interest and net-interest bearing debt. Invested capital is calculated in the financial balance sheet as total equity (including minority interest) plus total net-interest bearing debt, and should equal the invested capital derived in the operational analytical balance sheet, also illustrated in appendix A.17.

Non-current Assets

Other investments include investments in non-consolidated subsidiaries, investments in other companies and non-current marketable securities (BMW Group 2012). Investments in other companies and non-current marketable securities are considered financial investments and not part of operations. It is also assumed that investments in non-consolidated subsidiaries are not part of operations, thus, all "other investments" are regarded as financial assets.

Financial assets comprise derivative instruments, marketable securities, loans to third parties and "other" items, and is as such are regarded as financial assets.

Current Assets

Financial assets comprise the items described above, and are the only current assets that are regarded as financial assets in the analytical balance sheet.

Equity

The equity items are straight forward except the minority interest. According to Petersen and Plenborg (2011), in valuation of firms, the required rate of return from minority interest would be different from the interest rate on debt and as such a strong argument for treating minority interest as equity capital. Given this argument minority interest is treated as equity capital.

Non-current Liabilities

Pension provisions are recognized as a result of commitments to pay future vested pension benefits and current pensions to present and former employees of the BMW Group and their dependents according to BMW Group (2012). Petersen and Plenborg (2011) suggests that pension liabilities are interest bearing (discounted to present value), and should as such be treated as part of financing activities. Additionally, expenses from reversing the discounting of pensions obligations are treated as financial expenses in the analytical income statement. For these reasons, pension provisions are considered as financial liabilities. **Financial liabilities** are also regarded as a financial liability in the analytical balance sheet.

Current Liabilities

Financial liabilities are the only current liabilities that are considered financial liabilities in the analytical balance sheet.

4.3.3 Reformulating Financial Statements of Peers

Financial statements of Daimler AG, PSA Peugeot Citroën and the Audi Group have all been reformulated for analytical purposes by following the same approach as described above. Operating activities have been separated from financing activities the same way as for BMW; however, some additional assumptions had to be made for accounting posts that differed from the financial statements of BMW. These are described in the following.

Provisions are in general separated and divided into "provisions for pensions" and "other provisions". "Provisions for pensions" are treated as financial liabilities whereas "other provisions" are regarded as operating liabilities as explained in section 4.3.

Other non-current assets (PSA) consist of "excess of payments to external funds over pension obligations", units in FMEA funds (funds that are set up to support automotive equipment manufacturers), guarantee deposits, in addition to some unspecified "other assets". The investments in funds and guarantee deposits are considered to be financial asset, and since there is no more information provided on the "other assets", all "other non-current assets" are regarded as financial assets for the PSA balance sheet.

Assets held for sale (Dailmer AG) are treated as a financial asset. Petersen and Plenborg (2011) argues that the disposal of the assets held for sale will reduce the firms borrowings (or increase cash and cash equivalents) and should therefore be regarded as part of financing rather than operating.

Liabilities held for sale (Daimler AG) are treated as financial liabilities for the same argument as given above.

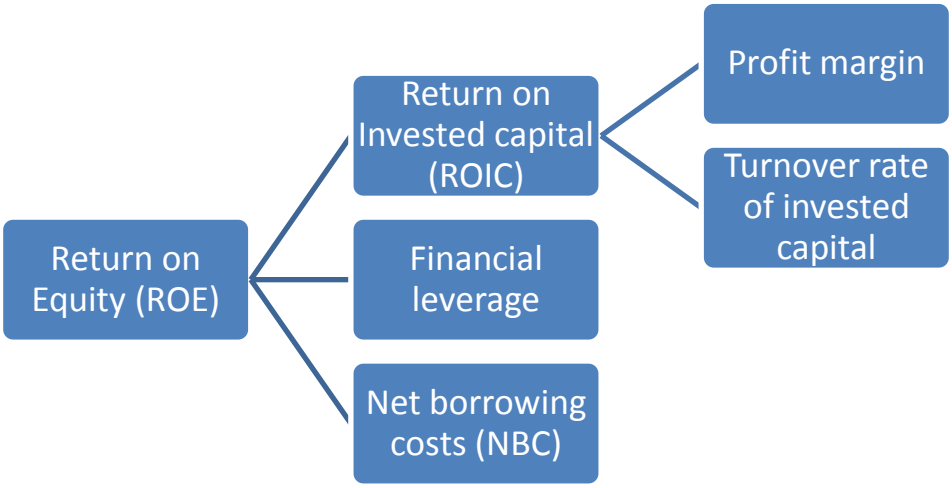
Receivables from Financial Services (Daimler AG) are related to the financial services business and as such considered to be part of the Group's core activities as argued earlier in section 4.3. It is thus considered to be an operating asset.

4.3 Profitability Analysis

This section examines BMW's financial performance in comparison to its competitors and will as such provide a good indication of the firm's financial situation in comparison to its peers. The financial performance is based on the reformulation of the income statements and balance sheets.

The profitability analysis will follow the structure in figure 1.14, also referred to as the Du Pont model by Petersen and Plenborg (2011).

Figure 1.14 – Du Pont model



(Source: Own creation from Petersen and Plenborg 2011)

Return on Equity (ROE) measures the owners accounting return on their investment and is as such important for a company's survival and ability to attract new investments and capital (Petersen and Plenborg 2011). Furthermore, as valuation involves forecasting growth and profitability, it is important to understand the drivers behind the ROE. Thus, by assessing the historical performance in comparison to the peers provides a base for future forecasting together with the strategic analysis.

Moreover, the ROE measures the profitability taking into account both the operating profit and financial leverage, as seen in figure 1.14 above. The profitability side is measured by return on invested capital (ROIC), whereas the financial side is measured by the financial leverage and net borrowing costs (NBC). The relationship between these two drivers is illustrated the in following equation:

$$ROE = ROIC + (ROIC - NBC) * Financial\ leverage$$

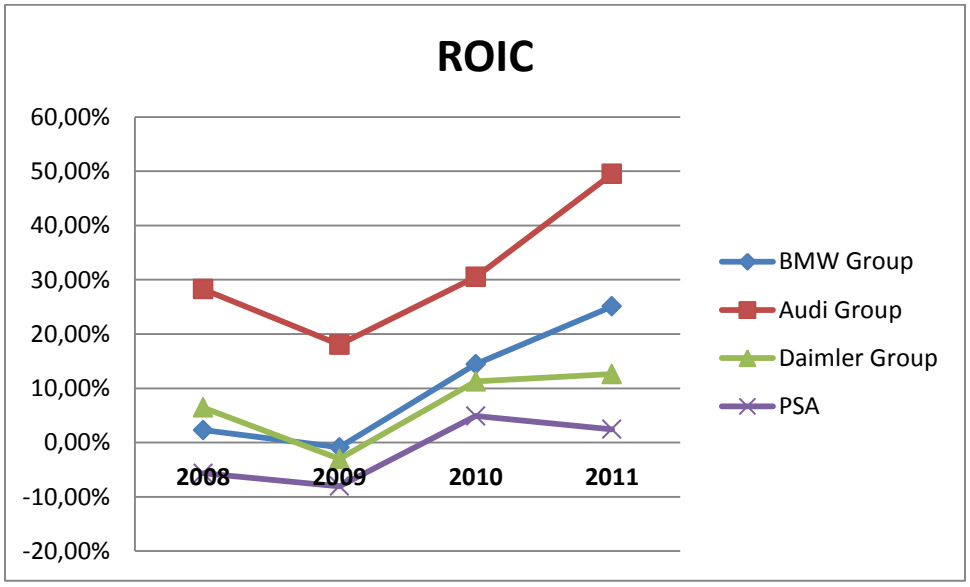
The BMW Group is throughout the profitability analysis compared with three competitors: The *Daimler Group, Audi Group and PSA Peugeot Citroën*. Since none of the peers or the BMW Group provides

financial statements at brand level they are all compared at Group level. The Audi Group includes sales of the Lamborghini brand, while the financial statements of the Daimler Group include sales of Mercedes-Benz, Daimler Trucks, Mercedes-Benz Vans and Daimler Buses. The BMW Group includes sales of the BMW brand as well as the Mini and Rolls-Royce brands. The other peer that the BMW Group will be compared to is Peugeot Citroën (PSA). Although PSA may not be regarded as a *main* competitor of BMW Group to the same degree as Mercedes-Benz and Audi, they are still seen as a significant competitor of the BMW Group, especially on the important European market where PSA have a very strong market presence. The original and reformulated statements of the competitors can be found in Appendix A.18-A.20.

4.3.1 Return on Invested Capital (ROIC)

ROIC is a measure on the overall profitability for operational activities. According to Petersen and Plenborg (2011) a high ROIC will lead, other things being equal to a higher value of the firm and increases the firm's ability to obtain cheaper finance. The development of the ROIC for the BMW Group and its peers are illustrated in figure 1.15.

Figure 1.15 – The Development of ROIC for the BMW Group and its peers



(Source: own creation using annual reports)

Figure 1.15 clearly suggests that there has been a dip in the ROIC for BMW, but also a positive development after 2009. It is also evident that the peers have experienced a somewhat similar pattern in

the ROIC as BMW. The economic climate deteriorated drastically in 2008. Financial markets globally were put under severe pressure during the second half of 2008 due to the financial crisis caused by the complex interaction between the value on asset backed securities and liquidity problems in the banking system. This in turn affected demand for goods and services worldwide, as consumers decreased their spending due to lower buyer power during the recession, and due to decreased availability of financing. Additionally, three of the main markets (United States, Japan and Western Europe) suffered dramatic slumps at end of 2008 affecting all the peers in the industry (BMW Group 2009). Moderate recovery in the industry began in the second half of 2009 due to worldwide stimulus packages and scrappage bonus programmes (BMW Group 2010). The recovery in the automotive industry continued during 2010, mainly due to further state-funded stimulus packages, expansionary monetary policies pursued by central banks worldwide, and strong demand for vehicles in the emerging markets such as China (BMW Group 2011). This recovery is illustrated in figure 1.15 above, where the trend in ROIC has been positive since 2009.

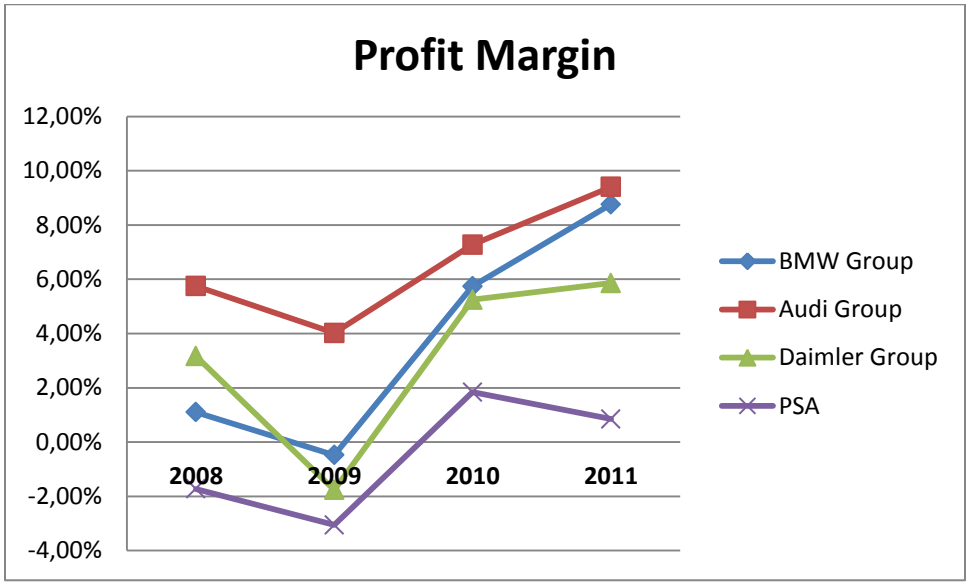
Furthermore, it is clear from figure 1.15 that the Audi Group has clearly outperformed its competitors, followed by the BMW Group. On average, BMW has had a ROIC of 10.24 percent over the period analyzed, which is well below the average of the Audi Group (31.58 percent), but above the other peers. However, the ROIC of the BMW Group increased to 25.09 percent in 2011, which is the second highest ROIC out of the competitors, although well below the 49.5 percent of the Audi Group for 2011.

However, the ROIC on its own is not able to explain whether the positive or negative development is driven by better revenue and expense relation or improved capital utilization. Because, as already mentioned, the ROIC is decomposed of both the profit margin and turnover rate of invested capital. Thus, to be able to answer the main driving force behind ROIC, both the profit margin and turnover rate of invested capital will be further analyzed below.

4.3.2 Profit Margin (NOPAT margin)

The profit margin describes the revenue and expense relation by expressing operating income as a percentage of revenue. All things being equal it is attractive with a high profit margin (Petersen and Plenborg 2011). The profit margin of BMW and its peers are illustrated in figure 1.16.

Figure 1.16 – The Profit Margin BMW and its competitors



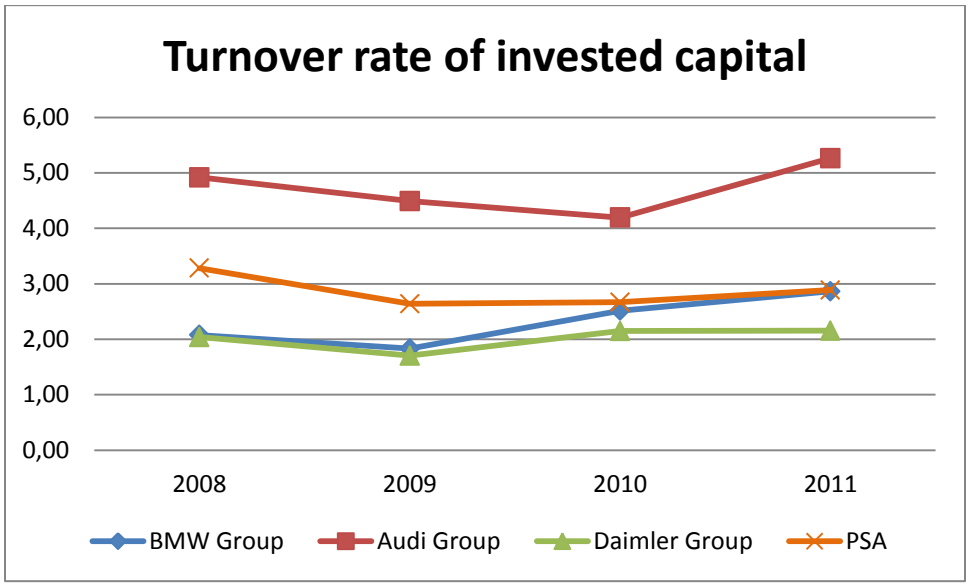
(Source: own creation using annual reports)

It is evidential from figure 1.16 that the profit margin has followed a fairly similar pattern to the ROIC. Most likely due to the effects of the financial crisis and the recovery of the automotive industry as already mentioned in the ROIC discussion above. The BMW Group has performed relatively well over the period analyzed in comparison to their peers and they have the second highest profit margin in 2011 (8.76 percent), whereas the Audi Group had the highest Profit Margin in 2011, 9.4 percent. Additionally, all the three German premium automotive manufacturers have had a positive development in their Profit Margin since 2009.

4.3.3 Turnover Rate of Invested Capital

The turnover rate of invested capital expresses a company's ability to utilize invested capital. For instance, a turnover rate of 2 indicates that a firm has tied up invested capital in 182.5 days (365 days divided by 2), or alternatively that for each euro invested in operations (net operating assets) a sale of 2 Euros is generated (Petersen and Plenborg 2011). Thus, all things being equal a higher turnover rate is more attractive. The turnover rate of invested capital of BMW and its competitors are illustrated in figure 1.17.

Figure 1.17 – Turnover rate of invested capital BMW and its competitors



(Source: own creation using annual reports)

It is clearly evident that the Audi Group has the highest turnover rate in comparison to its competitors. The peers have a much lower turnover rate in comparison to the Audi Group, suggesting that they are not utilizing their capital as well as the Audi Group. The BMW Group had a turnover rate of 2.08 in 2008 and 2.86 in 2011 and has as such experienced a positive development. Thus, the time tied up in invested capital decreased by 48.3 days, from 175.7 to 127.4 days over the period analyzed.

The analysis so far suggests that both the profit margin and the turnover rate has had a positive influence on the development of the operating profitability (ROIC) of the BMW Group for the last three years. However, a trend and common size analysis would further deepen our understanding on the development of the revenue/expense relation (profit margin) and capital utilization efficiency (turnover rate) that affect both these margins.

4.3.4 Analysis of Profit margin and Turnover Rate of Invested Capital

Trend and Common Size Analysis of Revenue and Expenses

The full trend and common size analysis of revenue and expenses for the BMW Group and its peers can be found in appendix A.21 – A.24. Table 1.1 illustrates selected key figures from the trend analysis over the period 2007 to 2011. The revenue growth for all the peers except the BMW Group is assumed to be based on organic growth only, as no known acquisitions has been made by the peers over period

analyzed. Husqvarna Motorcycles was acquired by the BMW Group in July 2007. However, BMW's revenue growth has not been adjusted for this acquisition, as the motorcycle sales from Husqvarna is believed to only be representing around 0.28% of the revenue for the industrial business in 2008. In 2008, Husqvarna motorcycles sold 13 511 bikes, which represented around 11.72% of total motorcycle sales. Assuming that Husqavarna motorcycles also represent 11.72% of the Motorcycle revenue gives a total revenue of 144.15 €M, which in turn represents 0.28% of total revenue for the industrial business of the BMW Group.

Table 1.1 – Selected key growth figures from the trend analysis over the period 2007 to 2011

	BMW Group	Audi Group	Daimler Group	PSA
Revenue growth	21.7%	31.2%	4.3%	-1.1%
COGS	16.0%	30.2%	6.8%	3.5%
Gross profit growth	38.7%	34.7%	-3.2%	19.4%
EBITDA growth	44.9%	47.1%	-10.1%	16.1%
EBIT growth	95.2%	104.1%	-8.5%	27.4%
NOPAT growth	68.7%	162.6%	29.1%	142.0%

(Source: own creation using data from annual reports)

The result from table 1.1 suggests that BMW's revenue has increased by 21.7 percent from 2007 to 2011, while cost of sales increased by 16 percent in the same period. These two developments are likely to have affected the profit margin positively.

Additionally, the BMW Group has had the second highest revenue growth in comparison to the peers over the period analyzed. The main reason for this increase for the BMW Group appears to be due to the increase in number of automobiles sold over the period analyzed. Automobile sales increased by around 165 776 vehicles, which represents an 11.05% increase over the period analyzed. There has also been an increase in the number of motorcycles sold, although the contribution to the revenue increase has been relatively low. The main contribution to the increase in automobile sales appears to be due to the increase of sales in BMW brand vehicles, but also to a certain extent the increase in sales of the MINI brand. More specifically, the introduction of BMW X1 and the increase in sales of vehicles in the BMW 5 series appears to be the main contributor towards this increase in sales. Additionally, the introduction of MINI countryman and MINI Coupé has also contributed positively towards the increase in total vehicle sales over the period analyzed. As discussed earlier, this suggests that it is important for automotive manufacturers to constantly introduce new models if they look to grow organically.

Moreover, the growth in the operating margins (EBITDA, EBIT and NOPAT) is much higher than the revenue growth, suggesting that BMW has over time managed to decrease their operating costs relative to the revenue. A more detailed analysis of this will be made when looking at the common-size analysis. Additionally, it is not only BMW that appears to have managed to decrease their operating costs over time, but also all their competitors except the Daimler Group. Key figures from the common a size analysis of the BMW Group and its peers are summarized in table 1.2 and table 1.3 to further deepen our analysis on the development of the revenue/expense relation.

Table 1.2 – Key average figures from the common size analysis from 2007 to 2011

Common size analysis percentage of revenue - Average from 2007 to 2011				
	BMW Group	**Audi Group**	**Daimler Group**	**PSA**
COGS	-75.6%	-79.0%	-76.8%	-82.1%
Gross profit	24.4%	21.0%	23.2%	17.9%
EBITDA	14.3%	14.7%	10.0%	5.3%
EBIT	5.9%	9.0%	5.9%	-0.8%
NOPAT	4.3%	6.2%	3.4%	-0.3%
Net earnings	3.8%	6.7%	2.6%	-0.8%

(Source: own creation using data from annual reports)

Table 1.3 – Key figures from the common size analysis for 2011

Common size analysis percentage of revenue - 2011				
	BMW Group	**Audi Group**	**Daimler Group**	**PSA**
COGS	-71.6%	-78.0%	-76.1%	-83.4%
Gross profit	28.4%	22.0%	23.9%	16.6%
EBITDA	18.9%	16.8%	11.8%	5.5%
EBIT	12.1%	12.7%	8.1%	0.4%
NOPAT	8.8%	9.4%	5.9%	0.8%
Net earnings (profit after tax)	7.9%	10.1%	5.5%	0.5%

(Source: own creation using data from annual reports)

Note that the table 1.2 only illustrates the average over the 5-year period. It is evident from table 1.2 that the BMW Group has the lowest average COGS Margin. This may be due to the use of a common platform as suggested earlier. It is further suggested from table 1.2 that the BMW Group has one of the highest EBIT and NOPAT margins out of the peers.

Table 1.3 illustrates the margins for 2011 and does as such somewhat provide an indication on the development of the margins compared the average figures in table 1.2. In 2011 the BMW Group does by

far have the lowest COGS margin, as well as one of the highest operating margins (EBITDA, EBIT and NOPAT) among the peers. By comparing the data in table 1.2 with the data in table 1.3, it appears as the BMW Group has improved over the period analyzed. To see whether this is the case, a more detailed common size analysis of the BMW Group is illustrated in table 1.4.

Table 1.4 – Common size analysis of the BMW Group from 2006 to 2011

Common size analysis as percentage of revenue - BMW Group Industrial Business					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100.0%	100.0%	100.0%	100.0%	100.0%
COGS	-75.1%	-78.3%	-79.6%	-73.1%	-71.6%
Gross Profit	24.9%	21.7%	20.4%	26.9%	28.4%
Sales and adm. costs	-9.4%	-11.0%	-11.3%	-9.7%	-9.2%
Other operating income	1.2%	1.3%	1.1%	1.0%	0.9%
Other operating expenses	-0.8%	-1.4%	-1.3%	-1.6%	-1.5%
Result from equity accounted investments	0.0%	0.1%	0.1%	0.2%	0.3%
EBITDA	15.8%	10.7%	9.2%	16.9%	18.9%
Depreciation & Amortization	-8.3%	-9.1%	-9.6%	-8.3%	-6.7%
EBIT	7.5%	1.6%	-0.5%	8.6%	12.1%
Taxes on EBIT (operating taxes)	-1.2%	-0.5%	0.0%	-2.9%	-3.3%
NOPAT	6.3%	1.1%	-0.5%	5.7%	8.8%
Net financial expenses	-0.4%	-0.7%	-0.1%	-0.8%	-1.3%
Tax savings from debt financing	0.1%	0.2%	0.0%	0.3%	0.4%
Net financial expenses after tax	-0.3%	-0.5%	-0.1%	-0.6%	-0.9%
Net earnings (profit after tax)	6.0%	0.6%	-0.5%	5.2%	7.9%
Attributable to minority interest	0.0%	0.0%	0.0%	0.0%	0.0%
Attributable to shareholders of BMW AG	6.0%	0.6%	-0.6%	5.1%	7.8%

(Source: own creation using data from annual reports)

It is apparent from table 1.4 that BMW's COGS margin has fluctuated over the period analyzed. The COGS margin increased during 2008 and 2009, most likely due to the revenue decreasing more than COGS as a result of the financial crisis. However, the COGS margin has since 2009 been decreasing and is by far the lowest in 2011 in comparison to the peers. One possible explanation could be the achievement of economies of scale in production due to increased production and the use of a common platform as suggested by Daniel Schwartz, Equity analyst at Commerzbank.

"Sales and administration costs" have stayed fairly constant, while "other operating expenses" have increased over the period analyzed. However, "other operating expenses" include exchange losses, impairment losses and write downs amongst others and may as such vary from year to year, rather than following a trend. "Other operating income" is the same as other operating expense, but looking at the

income side of the same items. Like other operating expenses it is likely to vary from year to year without a clear trend, as items such as exchange losses, impairment losses and write downs will to a large extent depend upon several external and internal factors. Overall, it appears as the decrease in the COGS margin is the main reason for the increase in the EBITDA margin, especially over the last two years.

Noticeable the Depreciation & Amortization margin have also decreased over time, contributing to the positive development in the EBIT Margin, especially in 2011. A more detailed analysis of the Depreciation & Amortization suggests that while it has remained constant in absolute terms over the period analyzed there is a decrease in the margin due to the increase in revenue during the same period. A possible explanation of why it may have remained constant in absolute terms could be due to the decrease in capital expenditure as a percentage of revenue over the last two years. The capital expenditure is discussed more in detail in the following sections.

Thus, the common size analysis above suggests that the main reason for the improvement in the Profit Margin over the last two years has been due to the decrease in the COGS margin.

Trend and Common Size Analysis of Invested Capital

The analysis of the turnover rate of invested capital revealed an increase over time from 2.08 to 2.86. This implies that BMW has been able to decrease the days tied up in invested capital by 48 days. Total growth of key figures that affect the Turnover rate of invested capital are summarized in table 1.5.

Table 1.5 – Key figures from trend analysis for balance sheet items over the period 2007 to 2011

Key figures from Trend analysis of Invested capital over 2007 to 2011				
	BMW Group	**Audi Group**	**Daimler Group**	**PSA**
Tangible and intangible assets	2.7%	44.7%	25.0%	12.0%
Invested capital	16.4%	-9.8%	5.0%	18.6%

(Source: own creation using data from annual reports)

BMW's invested capital has from 2007 to 2011 increased by 16.4%, while its revenue increased by 21.7% during the same period affecting the turnover rate positively. Further, days on hand for each item making up invested capital have been calculated to easier analyze why the turnover rate of invested capital has increased and is illustrated in appendix A.25. Days on hand provide useful information on both the relative importance (weight) and trend of each item. Firstly, the turnover rate for each item was

calculated by dividing the revenue with each balance sheet item. Days on hand was then calculated by the following formula:

Days on hand (for each item): 365/turnover rate (of each item)

Table 1.6 summarizes the key figures from the days on hand analysis for the BMW Group.

Table 1.6 – Key figures for Days On Hand

Analytical Balance Sheet Operational - BMW Group - Days on hand key figures					
	2007	**2008**	**2009**	**2010**	**2011**
Total non-current assets	137.3	146.2	159.9	127.6	115.8
Total current assets	97.2	133.0	131.6	130.2	133.4
Total non-current liabilities	31.0	36.5	39.8	39.8	32.4
Total current liabilities	59.8	49.7	61.1	81.4	79.3
Net working capital	37.4	83.3	70.5	48.9	54.1
Invested capital	143.7	192.9	190.6	136.6	137.5
Average Invested capital		175.7	199.2	145.1	127.4

(Source: own creation using data from annual reports)

As seen from table 1.6, average invested capital has over the period decreased by around 48.3 days. It should be noted that "average invested capital" figures are not the average of the "invested capital" figures in table 1.6. For instance, the average of the "invested capital" figure for 2008 and 2009 is not the same as the "average invested capital" figure in 2009. These slight estimation differences occur because the turnover rate is based on the absolute revenue figures on the individual days on hand.

The main reason for this decrease on days on hand in invested capital is mainly due to the decrease in non-current assets and increase in current liabilities in regards to days on hand. It is more specifically the decrease of days on hand in intangible assets and PPE, and the increase of days on hand in trade payables and other liabilities that have contributed towards the decrease in invested capital. However, it could be argued that the decrease in days on hand in relation to intangible assets and to a certain extent PPE is somewhat more uncontrollable than items such as trade receivables and payables. Thus, the decrease of days on hand in regards to intangible assets and PPE may have more to do with the increase in revenue rather than an active utilization on these items (intangible assets and PPE). Furthermore, cash and cash equivalents have increased by 29 days over the period analyzed, holding back the turnover rate from increasing further. This suggests that for future improvement on ROIC, BMW might need to

manage cash and cash equivalents more efficiently by maybe holding lower amounts of cash and cash equivalents if possible.

Capital Expenditure (CAPEX)

Another possible factor that may affect the operating profitability (ROIC) is capital expenditure. Capital expenditure is the amount a firm spends on buying or upgrading physical assets such as property, industrial buildings and equipment. Capital expenditure in the automotive industry appears to typically be product investments in new models, infrastructure investments to expand production, and investments in new technologies (BMW Group 2012). The capital expenditure as a percentage of revenue is illustrated in table 1.7 for both the BMW Group and its peers.

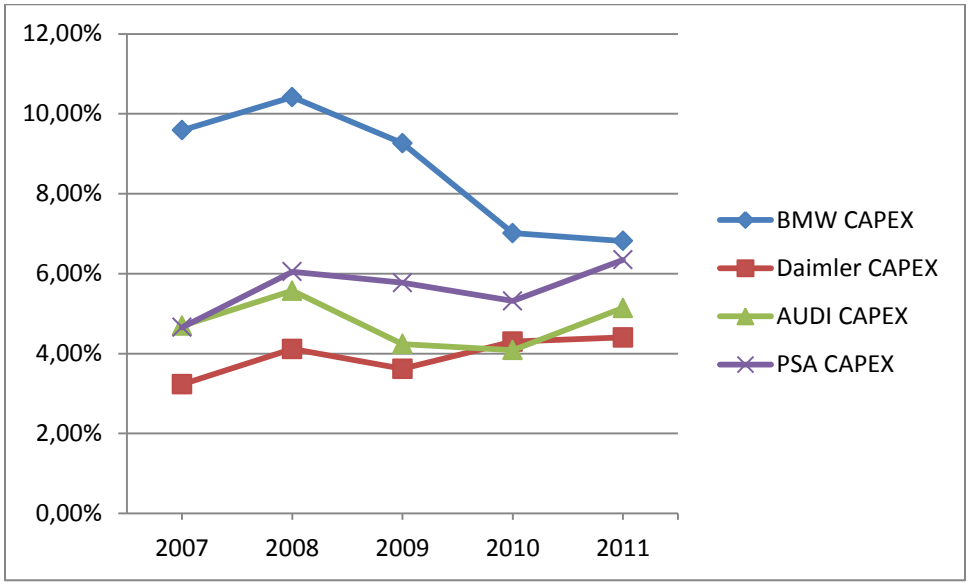
Table 1.7 – CPEX as a percentage of revenue for BMW and its peers

	2007	2008	2009	2010	2011
BMW CAPEX as a % of Group revenue	7.62%	7.90%	6.85%	5.40%	5.36%
BMW CAPEX as a % of Industrial revenue	9.59%	10.42%	9.26%	7.01%	6.82%
Daimler CAPEX as a % of Group revenue	2.88%	3.61%	3.07%	3.74%	3.90%
Daimler CAPEX as a % of Industrial revenue	3.23%	4.11%	3.62%	4.30%	4.40%
AUDI CAPEX as a % of Group revenue	4.69%	5.57%	4.24%	4.09%	5.14%
PSA CAPEX as a % of Group revenue	4.52%	5.84%	5.57%	5.15%	6.16%
PSA CAPEX as a % of Industrial revenue	4.66%	6.05%	5.77%	5.32%	6.35%

(Source: Own creation using annual reports)

CAPEX as a percentage of revenue is shown for both Group revenue and industrial revenue in table 1.7. This is due to the fact that all of the manufacturers analyzed do not present capital expenditure figures at segmented levels (industrial business and financial services). However, the peers that do present CAPEX at segmented level (Daimler and PSA), show very little CAPEX being related to the financial services division. Additionally, it is assumed that the group revenue of Audi is the same as industrial revenue for the peers. Figure 1.20 below does therefore only illustrate CAPEX as a percentage of revenue from the industrial businesses, as very little CAPEX seems to be related to the financial services divisions. Additionally, comparison with peers and over time becomes easier for forecasting purposes as only the Industrial Business is analyzed and forecasted.

Figure 1.18 – CAPEX as a percentage of Industrial Business revenue



(Source: Own creation using annual reports)

It is clearly evident from figure 1.18 that the BMW Group has the largest CAPEX as a percentage of revenue in comparison to the rest of the manufacturers. This suggests that the BMW Group has a much higher investment rate than their peers and they may as such be overinvesting in comparison to the industry. This high investment rate may partly explain why BMW have been able to capture market share in the industry over the period analyzed. This also suggests that the BMW Group may need to keep CAPEX as a percentage of revenue at a similar level if they wish to continue growing at a comparable pace in the future.

4.3.5 Financial Leverage and Net Borrowing Cost (NBC)

Net borrowing costs (NBC), as the name suggests provide the firms borrowing rate. However, according to Petersen and Plenborg (2011) firms NBC rarely matches the firm's borrowing rate. Firstly, NBC will be affected by the difference between deposit and lending rates (Petersen and Plenborg 2011). Secondly, other financial expenses such as currency effects as well gains and losses on securities are also included in the financial expenses (Petersen and Plenborg 2011). Thus, the NBC rate should be interpreted with care. Furthermore, financial leverage is defined as:

$$\frac{Net\ interest\ bearing\ debt\ (NIBD)}{Book\ value\ of\ equity\ (BVE)}$$

The difference between ROIC and NBC is referred to as the spread and if the spread is positive a higher financial leverage will improve the Return on capital employed (ROE) or vice versa. Table 1.8 illustrates the ROIC, NBC, spread and financial leverage of the BMW Group over time, while table 1.9 illustrates the average ROIC, NBC, spread and financial leverage of BMW and its peers. Note that average NIBD and BVE has been used in this case to calculate the financial leverage.

Table 1.8 – Financial gearing the BMW Group

BMW Financial Gearing				
	2008	**2009**	**2010**	**2011**
ROIC	2.29%	-0.87%	14.45%	25.09%
Net Borrowing Cost (NBC)	3.58%	0.40%	8.36%	24.55%
Spread	-1.29%	-1.27%	6.09%	0.54%
Financial Leverage	0.37	0.41	0.21	0.12

(Source: own creation using annual repots)

Table 1.9 - Financial gearing average figures for BMW and its peers

Financial Gearing - Average figures from 2008 to 2011				
	BMW Group	**Audi Group**	**Daimler Group**	**PSA**
ROIC	10.24%	31.58%	6.84%	-1.59%
Net Borrowing Cost (NBC)	9.22%	5.98%	8.77%	3.36%
Spread	1.02%	25.60%	-1.93%	-4.95%
Financial Leverage	0.28	-0.29	0.34	0.79

(Source: own creation using annual repots)

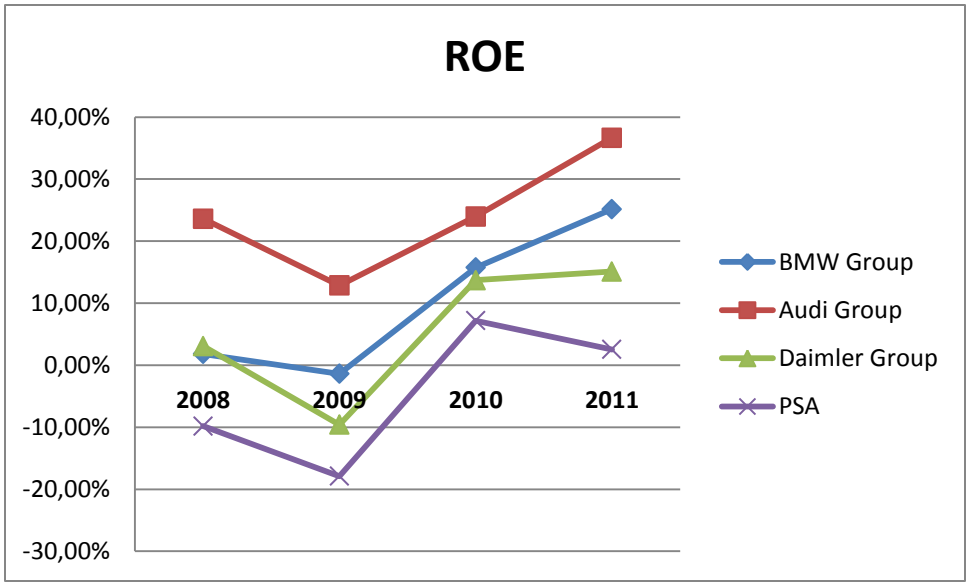
It is clear from table 1.8 that the spread has varied considerably over the period analyzed, being negative the first two years and then being positive for 2010 and 2011. Additionally, the net borrowing cost for 2011 is extremely high due to high losses relating to financial instruments rather than the difference in borrowing rates. As such the NBC is interpreted with care. The average NBC of the peers is found in table 1.9 and suggests that the net borrowing costs are quite different among the peers, with the BMW Group having the largest NBC.

Moreover, the average spread is by far highest for the Audi Group and negative in the case of the Daimler Group and PSA. However, since the financial leverage is relatively low in the case of the Daimler Group it should not really have a large negative impact on Return on Equity. Furthermore, the financial leverage appears to be quite low in general for the industrial business among the auto manufacturers analyzed and even negative in case of the Audi Group.

4.3.6 Return on Capital Employed (ROE)

As mentioned earlier, return on equity measures owners' accounting return on the investment and is calculated by using many of the inputs analyzed above (*ROE = ROIC + (ROIC – NBC) *Financial leverage)* Figure 1.19 illustrates the ROE of the BMW Group and its peers.

Figure 1.19 – ROE of the BMW Group and its peers



(Source: own creation using annual reports)

It is clearly evident from figure 1.19 that the BMW Group and majority of the peers have experienced a positive trend since 2009 and the drop between 2008 and 2009 for all the manufacturers was most likely due to the global financial crisis. Additionally, it is also evident that the BMW Group and the peers have experienced a similar development in their ROE as to the development in their ROIC. The most likely explanation for this is the heavy influence of ROIC on the ROE due to the assumingly low financial leverage.

4.3.7 Summary of the Profitability Analysis

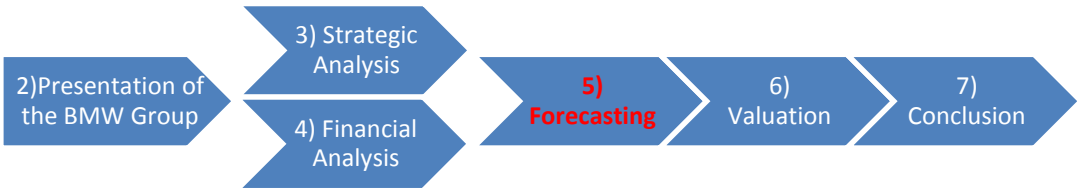
In summary, it is clear that the ROIC of the BMW Group has had a positive development since the financial crisis in 2009. The ROIC of the BMW Group was 25.09 percent in 2011 and has mainly been driven by the growth in both the profit margin and the turnover rate over the last three years. A more detailed analysis of the profit margin suggested that the increase in the profit margin, especially the last two years has mainly been driven by the decrease in the COGS margin. The BMW Group had a COGS

margin of 71.6 percent in 2011, which is by far the lowest in comparison to its peers. For future improvement in the profit margin, the BMW Group would either have to reduce its COGS margin even further, or it would have to be more efficient at controlling other operating costs.

Furthermore, a detailed analysis of the average turnover rate suggests that the increase in turnover rate is mainly due to the better utilization of intangible assets, PP&E and trade payables. However, it is also noted that utilization in regards to intangible assets and PP&E may not be something a firm can actively or easily improve as much as they can with items such as trade payables, trade receivables, accounts payables, accounts receivables and "cash and cash equivalents". These items (intangible assets and PP&E) may as such rather be affected by an increase in revenue rather than any active management. Thus, for future improvement of the turnover rate, the BMW Group needs to actively manage items such as trade payables, trade receivables, accounts payables, accounts receivables and especially "cash and cash equivalents" if possible, since it has increased significantly over the period analyzed and as such holding back a further increase in the turnover rate.

It was further noted that the NBC rate should be interpreted with care and not considered as the borrowing rate. Additionally, the financial leverage appears to be relatively low among the automotive manufacturers analyzed and even negative in the case of the Audi group, which suggests that the ROE is heavily influenced by the ROIC. The BMW Group does further have a high CAPEX margin in comparison to their peers, which may be a contributor to the positive development in ROIC.

5. Forecasting



The preceding strategic- and financial analysis sections analyzed the performance of the BMW Group and the automobile market in general over the past six year period, and identified important factors affecting the performance of the auto industry. The key findings in these previous analyses are utilized in this section to form a detailed forecast of BMW's future performance.

This section is divided into a revenue forecast, a forecast of the income statement and balance sheet and a brief analysis of the forecasted value drivers. The forecast period is set to ten years, where the first five years are forecasted individually and thoroughly by analyzing the development over the past few years and future expectations for the next five year period. The remaining forecast period is forecasted more statically and simplistic, due to the difficulty and uncertainty when forecasting five to ten years ahead. A perpetuity growth model is applied from year 2022 on, after the ten year explicit forecast period, assuming that the company has reached a steady state by then.

5.1 Revenue Forecast

The revenue forecast of BMW Group's industrial business is an important factor when estimating the BMW Group's share value not only because it estimates the future revenues of the group, but also because most of the forecasted cost figures are related to the revenue forecast. As such, it is regarded important to conduct a thorough revenue forecast.

The revenue forecast of the BMW Group is based on the *top-down* approach as described by Koller et al. (2010). The top-down approach attempts to estimate future revenues by sizing the total market, determining market share, and forecasting prices. Similarly, this section will attempt to forecast the size of the total car market, BMW's share of this market, and average price per vehicle sold, and thereby estimate BMW's future revenues based on these forecasts. In equation form, future revenue is forecasted as follows:

Total Revenue = (Total Car Market x BMW's Market Share) x Average Price per Unit Sold

Furthermore, the forecasts are segmented into five geographical regions, namely Germany, "Rest of Europe", North America, Asia/Oceania and "Other markets", which covers the remaining geographical regions, mainly South America and Africa. The geographical segmentation is necessary in order to achieve a more reliable forecast due to substantial differences between the regions in several key aspects, such as expected growth rates, average prices and BMW's market share in the specific regions.

5.1.1 Total Vehicle Sales

It was noted in the strategic analysis that the automotive industry appears to be relatively dependent on the general economic environment, especially over the long run. It is therefore believed that future vehicle sales will to a certain extent follow the general economic growth, especially over the long run.

The International Monetary Fund (IMF) provides frequently updated 2-year GDP growth forecasts for the largest economies in the World, which is illustrated in table 1.10 together with the historical GDP growth rates of these countries. These forecasts are seen as a guide to how the general economic environment is likely to develop over the coming years in these key countries. The GDP forecasts are also seen as a pinpoint to expected long-term GDP growth, as it is very difficult to forecast long-term GDP growth, and short-term predictions are therefore often regarded as the best estimate also in regards to long-term growth. In order to get an estimate of the expected average GDP growth in the geographical regions used for forecasting vehicles sales, table 1.10 below includes weighted average GDP growth estimates for these regions based on the number of vehicles sold in 2011 in each major country included in the specific region. For instance, the weighted average GDP growth of North America is calculated as 1.59/15.23 times GDP growth in Canada, plus 0.91/15.23 times GDP growth in Mexico, plus 12.73/15.23 times GDP growth in the United States.

Table 1.10 – Historical and forecasted GDP

	Historical GDP Growth						Forecasted GDP Growth	
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Germany	***3,6%***	***2,8%***	***0,7%***	***-4,7%***	***3,5%***	***2,5%***	***1,0%***	***1,4%***
France	*2,4%*	*2,3%*	*0,1%*	*-2,6%*	*1,5%*	*1,7%*	*0,3%*	*0,8%*
Italy	*2,0%*	*1,5%*	*-1,3%*	*-5,2%*	*1,3%*	*1,1%*	*-1,9%*	*-0,3%*
Spain	*4,0%*	*3,6%*	*0,9%*	*-3,7%*	*-0,2%*	*0,8%*	*-1,5%*	*-0,6%*
U.K.	*2,8%*	*2,7%*	*-0,1%*	*-4,9%*	*1,3%*	*1,7%*	*0,2%*	*1,4%*
Russia	*8,2%*	*8,5%*	*5,2%*	*-7,8%*	*4,0%*	*4,8%*	*4,0%*	*3,9%*
Rest of Europe*	***4,2%***	***2,4%***	***1,3%***	***-5,1%***	***1,9%***	***2,4%***	***0,7%***	***1,5%***
Canada	*2,8%*	*2,2%*	*0,5%*	*-2,5%*	*3,1%*	*2,8%*	*2,1%*	*2,2%*
Mexico	*5,2%*	*3,3%*	*1,5%*	*-6,1%*	*5,5%*	*4,6%*	*4,0%*	*3,4%*
United States	*2,7%*	*2,0%*	*0,0%*	*-2,6%*	*2,8%*	*2,8%*	*2,0%*	*2,3%*
North America*	***2,8%***	***2,1%***	***0,1%***	***-2,8%***	***3,0%***	***2,9%***	***2,1%***	***2,4%***
China	*12,7%*	*1,4%*	*9,6%*	*9,2%*	*10,3%*	*9,6%*	*8,0%*	*8,5%*
India	*9,7%*	*9,9%*	*6,2%*	*6,8%*	*10,4%*	*8,2%*	*6,1%*	*6,5%*
Japan	*2,0%*	*2,4%*	*-1,2%*	*-6,3%*	*3,9%*	*1,4%*	*2,4%*	*1,5%*
Asia/Oceania*	***10,6%***	***2,2%***	***7,5%***	***6,4%***	***9,2%***	***8,1%***	***6,9%***	***7,1%***
Brazil	*4,0%*	*6,1%*	*5,2%*	*-0,7%*	*7,5%*	*4,5%*	*2,5%*	*4,6%*
South Africa	*5,6%*	*5,6%*	*3,6%*	*-1,7%*	*2,8%*	*3,5%*	*2,6%*	*3,3%*
Other Regions*	***4,1%***	***6,0%***	***5,0%***	***-0,7%***	***7,1%***	***4,4%***	***2,5%***	***4,5%***

***Weighted average for the region, based on vehicle sales**

(Source: Own creation using data from IMF)

Germany

As previously discussed in the strategic analysis section, the automobile market in Germany has been relatively volatile over the period analyzed from 2006 to 2011, much due to the financial crisis, and the scrappage scheme that was introduced to boost vehicle sales in 2009. Vehicle sales in Germany declined by 1.77 percent per year on average over the period from 2006 to 2011, but went up by as much as 8.8 percent in 2011, and the German economy seems to have somewhat recovered from the financial crisis of 2008-2009 with a GDP growth rate of 3.5 percent in 2010, and 2.5 percent in 2011. However, the IMF expects the German economy to continue to grow at a lower rate over the next couple of years, with an expected growth rate of 1.0 percent in 2012, and 1.4 percent in 2013.

Carlos Gomes (2012) of Scotiabank estimates a 2.2 percent growth in vehicle sales in Germany for 2012 in his auto report from August 2012, which is believed to be a reasonable short term estimate. It is further believed that vehicle sales will continue to grow at a lower rate in Germany over the medium-long term, reflecting the general future expectations for the German economy. As such, vehicle sales in Germany are forecasted to grow by 2.2 percent in 2012, 2.0 percent in 2013, 1.8 percent in 2014, 1.6 percent in 2015, and 1.4 percent from 2016 onwards.

Rest of Europe

Rest of the European auto market did also suffer during the global financial crisis, and annual vehicle sales did only grow by 0.90 percent per year on average over the period analyzed. The region experienced positive growth of 3.1 and 4.4 percent in 2010 and 2011, respectively, after negative growth rates in 2008 and 2009. The IMF expects poor GDP growth in key European countries over the next couple of years, and forecasts *negative* growth in Spain and Italy in 2012 and 2013 (see table 1.10). According to Gomes (2012), vehicle sales in Western Europe looks set to reach the lowest volume since 1996 in 2012, mostly due to poor sales in the debt-ridden nations of Spain, Italy, Portugal and Greece. Moreover, Gomes (2012) states that further deterioration is to be expected in the region due to the sovereign debt issues and high unemployment in certain European countries.

Gomes (2012) forecasts vehicle sales in Europe, excluding Germany, to *decrease* by approximately 2.1 percent in 2012, which is used as an estimate for vehicle sales in this region for 2012. Furthermore, considering the low expectations for future GDP growth in the region, and the sovereign debt issues

within some of the major countries in the region, vehicle sales are expected to decline over the short term, but to somewhat improve and continue to grow at a lower rate, more in line with the expected GDP growth over the medium-long term. As such, vehicle sales in "Rest of Europe" are forecasted to decrease by 2.1 percent in 2012, decrease by 1.0 percent in 2013, remain unchanged (zero growth) in 2014, increase by 1.0 percent in 2015, and by 1.4 percent from 2016 onwards.

North America

The North American automobile market was the region that was hit the hardest by the global financial crisis, as discussed in the strategic analysis. Vehicle sales in North America declined as much as 16.0 percent in 2008, and 20.4 percent in 2009, however, the region has shown signs of recovery over the last couple of years with vehicle sales growing by 10.4 percent in 2010, and 9.1 percent in 2011. Nevertheless, only 15.2 million vehicles were sold in 2011 compared to 19.4 million in 2006, which is a reduction by 21.5 percent since 2006.

Gomes (2012) forecasts the North American market to continue its positive trend of the last couple of years and estimates vehicle sales to grow by 9.5 percent in 2012. Gomes (2012) further notes that the U.S. passenger car fleet is approaching an average age of 11 years, which is an important indicator of customer demand in established markets. According to Daniel Schwarz, equity analyst at Commerzbank, as much as 80 percent of vehicle sales in established markets are driven by replacement demand. Considering the large setback in the North American market since 2006, the highly replacement driven demand, and a somewhat improved economic climate, it is believed that the North American market will grow back to pre-financial crisis levels over the next few years. Over the longer term it is believed that the market will continue to grow, but at a more moderate level more in line with the expected GDP growth rate. As such, vehicle sales in North America are forecasted to increase by 9.5 percent in 2012, 7.5 percent in 2013, 5.5 percent in 2014, 3.5 percent in 2015, and 2.4 percent from 2016 onwards.

Asia/Oceania

The automobile market in Asia/Oceania was not hit by the financial crisis as much as the more established markets, Europe and North America. As discussed in the strategic analysis, vehicle sales in Asia/Oceania has grown as much as 57.7 percent over the period analyzed, from 2006 to 2011, which is the equivalent of a 9.54 percent annual growth rate over the period. However, the market in

Asia/Oceania only grew by 0.7 percent in 2011, after experiencing tremendous growth rates of 18.2 percent in 2009, and 25.3 percent in 2010.

Gomes (2012) forecasts vehicle sales in Asia/Oceania to grow by approximately 9.2 percent in 2012. Although the automobile market in Asia/Oceania has experienced tremendous growth over the last 6-year period, both auto analysts Tim Schuldt and Daniel Schwartz believes that there is still growth potential in the region, and does not believe that the market is overheated. Daniel Schwartz points out that car sales relative to GDP are still low in China compared to countries such as South Korea and Brazil. Daniel Schwartz also argues that demand in emerging markets, such as Asia and South America, is mostly driven by first time buyers, and to a lesser extent replacement demand as in the more established markets. This means that there is a larger potential for growth in the emerging markets, although sales may be more volatile and even more dependent on the general economic environment in these regions due to the uncertainty with first time buyers. In summary, it is believed that car sales in Asia/Oceania will continue to grow rapidly over the next few years, but that growth is likely to slow down on average over the longer term. As such, vehicle sales in Asia/Oceania are forecasted to grow by 9.2 percent in 2012, 8.0 percent in 2013, 6.5 percent in 2014, 5.0 percent in 2015, and 4.5 percent from 2016 onwards.

Other Markets

Vehicle sales have also grown greatly in the “other markets”, which mainly include South America and Africa. As discussed in the strategic analysis, vehicle sales have grown as much as 72.5 percent over the period analyzed, which is the equivalent of a 11.52 percent annual growth rate over the period.

The IMF forecasts GDP growth in Brazil, by far the largest market included in this region, to be around 2.5 percent in 2012, and 4.6 percent in 2013. Furthermore, Gomes (2012) forecasts vehicle sales in South America to grow by approximately 4.3 percent in 2012, which is also believed to be a reasonable estimate for this region as a whole. It is not believed that the “other markets” region will continue to grow at the rates it has over the last six years, but that future growth will be more in line with the expected vehicle sales growth for South America in 2012, and the general expectations for GDP growth in the region. As such, vehicle sales in “other markets” are forecasted to grow by 4.3 percent in 2012, and 4.0 percent from 2013 and onwards.

Summary of Total Vehicle Sales

The total vehicle sales growth forecast is summarized in table 1.11. Over the short-medium term it is believed that Asia/Oceania and North America will be the driving markets in terms of growth, whereas the European market is likely to struggle due to the sovereign debt issues and high unemployment rate in certain countries in the region. Over the longer term it is believed that the European market will somewhat recover, but remain as the lowest growing market, whereas growth in North America is likely to stagnate somewhat after a recovery period with high growth. It is further believed that Asia/Oceania will remain the growth leader over the longer term, together with the "other markets", which mainly includes South America and Africa.

Table 1.11 – Forecasted market growth

	Forecasted Market Growth									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Germany	*2,2%*	*2,0%*	*1,8%*	*1,6%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*
Rest of Europe	*-2,1%*	*-1,0%*	*0,0%*	*1,0%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*	*1,4%*
North America	*9,5%*	*7,5%*	*5,5%*	*3,5%*	*2,4%*	*2,4%*	*2,4%*	*2,4%*	*2,4%*	*2,4%*
Asia/Oceania	*9,2%*	*8,0%*	*6,5%*	*5,0%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*
Other Markets	*4,3%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*	*4,0%*

(Source: Own creation)

5.1.2 Market Shares by Region

The BMW Group's market shares in the individual regions were analyzed over the period from 2006 to 2011 in the strategic analysis, section 3.3.

Germany and the Rest of Europe

BMW held a market share of approximately 9 percent in Germany over the period 2007-2011, with the exception of 2009, when their market share was down to 7.03 percent. However, it is believed that the market share drop in 2009 was mainly due to the government backed scrappage scheme being offered that year, which distorted the market and likely benefited budget car manufacturers more than other manufacturers. BMW and its two main competitors, Mercedes-Benz and Audi, have a strong market position in Germany with a total market share of more than 25 percent shared between them. BMW has also held a relatively constant market share in the rest of European market, ranging between 3.94 to 4.25 percent over the period from 2006-2011, a slightly higher market share than Mercedes-Benz (2.44 to 3.30 percent) and Audi (2.93 to 3.45 percent) in this region.

Although BMW has adopted the common platform strategy over the last few years, released several new car models, and main competitor Mercedes-Benz has lost some of its market shares in Europe, BMW has been unable to increase their market share notably in these regions over the period analyzed. According to Daniel Schwartz, Mercedes-Benz has already started developing its own common platform, which may make them more competitive over the medium-long term and possibly regain some of its lost market share in Europe at the expense of BMW and other premium car manufacturers. Furthermore, Tim Schuldt raises concern over whether the BMW Group will be able to adapt to the strict CO2-emissions limit that has already taken effect across the European Union, and will be further expanded over the coming years. It is believed that these new regulations represent a major challenge for car manufacturers, and especially premium car manufacturers, that may need to develop and sell smaller and more environmental friendly vehicles in order to comply with these new regulations.

In summary, it is believed that BMW may be able to maintain their market shares in the European markets over the short-medium term, but that they may struggle to adapt to the strict CO2-emission limits over the longer term, and hence possibly lose some of its market shares in the region. As such, BMW's market share in Germany is forecasted to remain at 9.0 percent in 2012 and 2013, but eventually decrease to 8.6 percent in 2014, and 8.2 percent in 2015, and 7.8 percent from 2016 onwards. BMW's market share in the rest of Europe is believed to follow a similar trend, and is as such forecasted to remain at 4.2 percent in 2012 and 2013, but decrease to 4.0 percent in 2014, and 3.8 percent in 2015, and 3.6 percent from 2016 onwards.

North America

BMW has slightly increased their market share in North America over the period from 2006-2011, where they held a market share of 2.24 percent in 2011, up from 1.74 percent in 2006. As noted in the strategic analysis, BMW introduced several new car models to the North American market over the last years, and also offered discounts on cars in an attempt to capture additional market share and in order to hedge somewhat against overexposure to the Chinese market (Reiter and Ohnsman 2011). BMW and other premium car manufacturers may also have benefited somewhat from Lexus' inventory problems after the earthquake in Japan in March 2011.

Since BMW may not be able to offer similar price discounts to gain market share in the future, and because Lexus' inventory problems may have helped them gain additional market share in 2011, it is

believed that BMW may struggle to maintain their current market share of 2.24 percent. As such, BMW's market share in North America is forecasted to decrease to 2.1 percent in 2012, further decrease to 2.0 percent in 2013, and remain at 2.0 percent thereafter.

Asia/Oceania and Other Markets

BMW has considerably strengthened their market position in the Asia/Oceania region over the past six year period, where they held a market share of 1.18 percent in 2011, up from 0.71 percent in 2006. In the "other markets" region, BMW had a market share of 1.67 percent in 2011, a somewhat lower share than most other years from 2006-2011, although they have held a relatively constant market share ranging from 1.64 to 1.85 percent over the last five years in this region.

According to BMW Group (2012), BMW intends to capitalize on the future growth potential in the emerging markets, such as China, India, South Korea and Brazil, in addition to Russia and Turkey. BMW is also planning to increase their production capacity in many of these countries, and is for instance planning to produce up to 300,000 vehicles per year at the Shenyang site in China in the future, up from around 98,000 vehicles produced at the site in 2011 (BMW Group 2012).

Although BMW has increased their market share in the Asia/Oceania region considerably over the last few years, they still hold a relatively low market share in this region compared to most other regions. With plans of increasing their market presence and production capacity in the region, it is believed that BMW may be able to further increase their market share in Asia/Oceania in the future. As such, BMW's market share in Asia/Oceania is forecasted to increase to 1.25 percent in 2012, 1.30 percent in 2013, 1.35 percent in 2014, 1.40 percent in 2015, and 1.45 percent from 2016 onwards. For the other markets region, it is believed that BMW will continue to hold a market share around 1.7 percent, thus BMW's market share in this region is forecasted to remain at 1.7 percent over the forecast period. Table 1.12 illustrates the forecasted market shares of BMW.

Table 1.12 – Forecasted market share of the BMW Group

	Forecasted Market Shares									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Germany	*9,00%*	*9,00%*	*8,60%*	*8,20%*	*7,80%*	*7,80%*	*7,80%*	*7,80%*	*7,80%*	*7,80%*
Rest of Europe	*4,20%*	*4,20%*	*4,00%*	*3,80%*	*3,60%*	*3,60%*	*3,60%*	*3,60%*	*3,60%*	*3,60%*
North America	*2,10%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*	*2,00%*
Asia/Oceania	*1,25%*	*1,30%*	*1,35%*	*1,40%*	*1,45%*	*1,45%*	*1,45%*	*1,45%*	*1,45%*	*1,45%*
Other Markets	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*	*1,70%*

(Source: Own creation)

5.1.3 Average Vehicle Price

Since no data for average BMW vehicle prices were obtainable, average vehicle prices are estimated based on the previously derived revenue figures for the automotive division and the reported number of vehicles sold per region in BMW's annual reports. The average vehicle price growth estimated over the period 2006-2011 in table 1.13 below shows that average prices seem to be quite volatile on a year to year basis (the full calculation is included in appendix A.26). This may be explained by factors such as price discounts, government subsidies, and fluctuations in exchange rates. Over the period as a whole yearly average price growth has been lowest in Rest of Europe and North America, with 0.5 and 1.3 percent yearly growth, respectively, and highest in Germany and "other markets", with 3.7 and 5.0 percent growth, respectively.

Table 1.13 – Average BMW vehicle price growth

Average Price Growth	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Average**
Germany	N/A	11,6%	-14,0%	9,0%	2,1%	9,9%	3,7%
Rest of Europe	N/A	1,8%	-6,7%	-5,5%	7,4%	5,5%	0,5%
Asia/Oceania	N/A	3,4%	-6,0%	-0,4%	15,8%	1,4%	2,8%
North America	N/A	-6,4%	7,3%	12,3%	4,6%	-11,0%	1,3%
Other Markets	N/A	9,8%	-17,0%	17,0%	24,1%	-8,9%	5,0%
Total	N/A	2,3%	-5,2%	3,6%	9,3%	1,9%	2,4%

It is difficult to forecast average prices accurately due to the complexity and uncertainty of factors affecting prices, such as exchange rate fluctuations and price discounts. However, it is believed that average vehicle prices will to a certain extent follow the inflation rate, especially over the longer term.

The IMF provides country specific inflation rate forecasts for the period 2012-2017, which is listed for selected key countries in table 1.14 below. The table includes weighted average inflation forecasts for

the regions that are used for forecasting average vehicle prices. The weighted average is based on the number of BMW vehicles sold in 2011 in each major country included in the specific region.

Table 1.14 – Historical and forecasted inflation figures

	Historical Annual Inflation						Forecasted Annual Inflation					
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Germany	***1,4%***	***3,1%***	***1,1%***	***0,8%***	***1,9%***	***2,3%***	***1,9%***	***1,8%***	***1,9%***	***2,0%***	***2,0%***	***2,0%***
France	*1,9%*	*1,6%*	*3,2%*	*0,1%*	*1,7%*	*2,3%*	*2,0%*	*1,6%*	*1,8%*	*1,9%*	*1,9%*	*2,0%*
Italy	*2,1%*	*2,8%*	*2,4%*	*1,1%*	*2,1%*	*3,7%*	*1,8%*	*0,8%*	*1,2%*	*1,3%*	*1,4%*	*1,5%*
Spain	*2,7%*	*4,3%*	*1,5%*	*0,9%*	*2,9%*	*2,4%*	*1,7%*	*1,5%*	*1,5%*	*1,5%*	*1,5%*	*1,5%*
U.K.	*2,8%*	*2,0%*	*3,9%*	*2,1%*	*3,4%*	*4,7%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*
Russia	*9,0%*	*11,9%*	*13,3%*	*8,8%*	*8,8%*	*6,1%*	*6,2%*	*6,5%*	*6,5%*	*6,5%*	*6,5%*	*6,5%*
Europe*	***4,2%***	***5,1%***	***5,8%***	***3,2%***	***4,2%***	***4,1%***	***3,1%***	***2,9%***	***3,0%***	***3,1%***	***3,1%***	***3,1%***
Canada	*1,4%*	*2,5%*	*1,8%*	*0,8%*	*2,2%*	*2,7%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*
Mexico	*4,1%*	*3,8%*	*6,5%*	*3,6%*	*4,4%*	*3,8%*	*3,6%*	*3,1%*	*3,0%*	*3,0%*	*3,0%*	*3,0%*
United States	*2,2%*	*4,1%*	*0,7%*	*1,9%*	*1,7%*	*3,0%*	*1,9%*	*1,9%*	*1,8%*	*1,8%*	*1,9%*	*1,9%*
North America*	***2,2%***	***3,9%***	***1,2%***	***1,9%***	***1,9%***	***3,0%***	***2,0%***	***2,0%***	***1,9%***	***1,9%***	***2,0%***	***2,0%***
China	*2,8%*	*6,5%*	*1,2%*	*1,9%*	*4,6%*	*4,1%*	*3,5%*	*2,5%*	*3,0%*	*3,0%*	*3,0%*	*3,0%*
India	*6,7%*	*5,5%*	*9,7%*	*15,0%*	*9,5%*	*6,6%*	*8,5%*	*6,3%*	*5,3%*	*4,5%*	*4,0%*	*4,0%*
Japan	*0,3%*	*0,7%*	*0,4%*	*-1,7%*	*-0,4%*	*-0,2%*	*0,2%*	*0,1%*	*0,4%*	*0,6%*	*0,8%*	*1,0%*
Asia/Oceania*	***2,7%***	***5,4%***	***1,7%***	***2,3%***	***4,1%***	***3,6%***	***3,3%***	***2,4%***	***2,7%***	***2,7%***	***2,7%***	***2,7%***
Brazil	*3,1%*	*4,5%*	*5,9%*	*4,3%*	*5,9%*	*6,5%*	*5,0%*	*5,0%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*
South Africa	*5,8%*	*9,0%*	*10,1%*	*6,3%*	*3,5%*	*6,1%*	*5,5%*	*5,3%*	*4,9%*	*4,8%*	*4,7%*	*4,7%*
Other*	***3,4%***	***4,9%***	***6,3%***	***4,5%***	***5,7%***	***6,5%***	***5,0%***	***5,0%***	***4,5%***	***4,5%***	***4,5%***	***4,5%***

***Weighted average for the region, based on BMW vehicle sales**

(Source: Own creation, using data from IMF)

As it is difficult to forecast factors such as price discounts and changing consumer preferences that may affect average vehicle prices, it is believed that the average price will follow the inflation rate over the long term. The average vehicle price forecast is based on IMFs inflation rate forecasts for key countries listed in table 1.14. The average vehicle price growth per region analyzed is therefore listed in table 1.15.

Table 1.15 – Forecasted average price

	Forecasted Average Price Growth									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	*1,9%*	*1,8%*	*1,9%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*
Rest of Europe	*3,1%*	*2,9%*	*3,0%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*	*3,1%*
North America	*2,0%*	*2,0%*	*1,9%*	*1,9%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*	*2,0%*
Asia/Oceania	*3,3%*	*2,4%*	*2,7%*	*2,7%*	*2,7%*	*2,7%*	*2,7%*	*2,7%*	*2,7%*	*2,7%*
Other Markets	*5,0%*	*5,0%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*	*4,5%*

(Source: Own creation using data from IMF)

5.1.4 Terminal Growth Rate

After the ten year explicit forecast period, it is assumed that the BMW Group enters a steady state growth period, also referred to as the terminal growth rate. Even as companies can maintain high growth for extensive periods, they will approach more stable growth at some point in time.

Damodaran (2002) argues that the terminal growth rate cannot exceed the growth rate of the economy that the firm operates in. It is assumed by Damodaran (2002) that the economy is composed of both high growth and stable growth firms, where the latter will most likely grow at a lower rate than the economy. Additionally, by the time the firm enters the terminal growth rate stage, it is past the high growth period and has entered a steady state of stable growth, and as such is likely growing at a lower rate than that of the economy as a whole. Damodaran (2002) suggests that determinants such as size of the firm, current growth rate, barriers to entry and differential advantages are examples of factors that affect the growth pattern. For instance, as firms become larger, it becomes much more difficult for them to maintain a high growth rate. Damodaran (2002) argues that the risk-free rate may be used as a proxy for the nominal growth rate of the economy.

The BMW Group operates in a worldwide market and a vast majority of their revenue comes from the European Union, the United States, and China. As previously mentioned, the risk-free rate of German 10-year government bonds was 1.83 percent as of January 1st 2012. Similar bonds issued by the United States government had a 1.97 percent yield as of January 1st 2012, whereas Chinese 10-year government bonds had a yield of 3.44 percent as of January 1st 2012 according to Bloomberg. It is as such believed that a terminal growth rate of 2 percent is reasonable, where it is assumed that the Groups economy (car market) does mainly consist of (US, China and Europe).

5.1.5 Forecasted Revenue

After forecasting the size of the total car market in each geographical region, BMW's future market share in each of these regions, and average vehicle prices for each region, BMW's revenue is derived per region for the forecast period 2012-2021 using the following formula:

BMW revenue = (total car market x BMW's market share) x average price per vehicle sold

The detailed revenue forecast derived by utilizing this formula is included in appendix A.27, whereas the total forecasted revenue is illustrated in table 1.16 below. Note that revenue for the terminal year 2022

is simply forecasted as the forecasted revenue for 2021 multiplied by 1 plus the assumed terminal growth rate of 2 percent.

Table 1.16 – BMW Revenue Forecast

	Forecasted Revenue										
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Germany	10 551	10 955	10 859	10 730	10 557	10 919	11 293	11 680	12 081	12 495	12 745
Rest of Europe	16 685	16 997	16 673	16 494	16 335	17 078	17 854	18 665	19 513	20 399	20 807
Asia/Oceania	18 011	20 716	23 530	26 313	29 248	31 390	33 688	36 154	38 801	41 642	42 475
North America	10 624	11 094	11 927	12 579	13 139	13 723	14 333	14 971	15 637	16 332	16 659
Other Markets	2 537	2 770	3 011	3 272	3 556	3 865	4 200	4 565	4 961	5 392	5 500
Total Revenue	**58 408**	**62 533**	**66 000**	**69 388**	**72 835**	**76 974**	**81 368**	**86 035**	**90 993**	**96 260**	**98 185**
Revenue Growth	*7,9%*	*7,1%*	*5,5%*	*5,1%*	*5,0%*	*5,7%*	*5,7%*	*5,7%*	*5,8%*	*5,8%*	*2,0%*

(Source: Own creation)

5.2 Forecasted Income Statement

This section describes and discusses the techniques and assumptions made in forecasting the income statement of the BMW Group. The forecasted analytical income statement is illustrated in appendix A.28 whereas the forecasted inputs and assumptions are presented in table 1.17 and discussed more in detail below.

Table 1.17 – Forecasted assumption and inputs for the analytical income statement

Analytical Income statement - Assumptions	Forecasted Ratios										
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Revenue Growth	7.9%	7.1%	5.5%	5.1%	5.0%	5.7%	5.7%	5.7%	5.8%	5.8%	2.0%
R&D % of revenue	-7.00%	-7.50%	-8.00%	-8.50%	-8.50%	-8.50%	-8.50%	-8.50%	-8.50%	-8.50%	-8.50%
COGS % revenue	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%	-65.00%
Total COGS % of revenue	-72.00%	-72.50%	-73.00%	-73.50%	-73.50%	-73.50%	-73.50%	-73.50%	-73.50%	-73.50%	-73.50%
Gross Profit	-	-	-	-	-	-	-	-	-	-	-
Sales and adm. costs % of revenue	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%	-9.50%
Other operating income % of revenue	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Other operating expenses % of revenue	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%	-1.50%
Result from equity accounted investments % of revenue	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
EBITDA	-	-	-	-	-	-	-	-	-	-	-
Depreciation & Amortization % of PP&E and intangible assets	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%	-24.20%
EBIT	-	-	-	-	-	-	-	-	-	-	-
Taxes on EBIT (Statutory tax rate 30.5%)	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%
NOPAT	-	-	-	-	-	-	-	-	-	-	-
Net borrowing costs % of NIBD	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%	-4.00%
Other financial results	-185	-185	-185	-185	-185	-185	-185	-185	-185	-185	-185

Net financial expenses	-	-	-	-	-	-	-	-	-	-	-
Tax savings from debt financing (Statutory tax rate 30.5%)	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%	-30.50%
Net financial expenses after tax	-	-	-	-	-	-	-	-	-	-	-
Net earnings (profit after tax)	-	-	-	-	-	-	-	-	-	-	-
Attributable to minority interest	-	-	-	-	-	-	-	-	-	-	-
Attributable to shareholders of BMW AG	-	-	-	-	-	-	-	-	-	-	-

(Source: Own creation)

Cost of Gods Sold

Operating expenses such as “Cost of goods sold”, “Sales and administration costs” and “other operating expenses” are by Koller et al (2010) recommended to be forecasted as a percentage of revenue. Additionally, all of these items were considered to be operating activities in the financial analysis and are as such believed to be strongly related to the revenue of the group.

It was clear from the profitability analysis that BMW had by far the lowest COGS margin in comparison to its peers, one likely reason being the common platform used for producing vehicles. However, it is believed that the COGS margin will to some extent increase in the future, as it is believed that the BMW Group will have to increase their investments in research and development in the future, in order to be able to comply with the strict CO2 emission limits set in place by the European Union, and which may be further adopted by other countries as well.

R&D expenses as a margin of revenue have therefore been separated from the COGS margin to illustrate this clearer. The R&D cost as a percent of revenue has fluctuated between -6.3 to 7 percent over the period analyzed and was 6.7 percent of revenue in 2011. It is forecasted that it will increase to 7 percent in 2012 and increase by another 0.5 percent of revenue each year until 2015 and stay constant at a margin of 8.5 for the remaining forecasted years. The total COGS margin will as such be 73.5 percent in year 2015 and onwards, which is still well below the COGS margin of the group’s peers in 2011 but also likely to affect the profit margin negatively in comparison to the 2011 t margin.

Other Operating Expenses

As suggested above it is believed that “sales and administration costs” are strongly related to the firm’s revenue. However, as suggested in the profitability analysis, “other operating expenses” may be harder to predict, as it includes exchange losses, impairment losses and write downs amongst other

items and may as such vary from year to year depending upon both the external and internal environment. But it is also believed that these costs are more likely to increase as the group expands their sales and operations (assuming that revenue increases as a result).

Excluding the years affected by the financial crisis (2008 and 2009), the average margin of "Sales and administration costs" as a percentage of revenue is -9.43%. It is believed that it will stay at a similar level in the future and the margin is as such forecasted at -9.5%. The average margin of "other operating expenses" as a percentage of revenue has over the last two years been 1.54 percent and it is believed that it will remain at a similar margin and it is therefore forecasted at 1.5 percent of revenue.

Other Operating Income

As with operating expenses, "other operating income" is also forecasted as a percentage of revenue for the same reasons discussed above. The average margin of "other operating income" as a percentage of revenue has over the last two years been 0.97 percent and it is believed that it will remain at a similar margin in the future and is therefore forecasted at 1 percent of revenue.

Results From Equity Accounted Investments

According to Koller et al (2010) income from equity investments could be estimated using historical growth or by examining the revenue and the profit forecasts of publicly traded comparables that are similar to the equity investments. However, such detailed information on the investments is not provided by the BMW Group. "Result from equity accounted investments" is therefore forecasted as percentage of revenue as suggested by Petersen and Plenborg (2011). "Result from equity accounted investments" as a percentage of revenue increased over the period analyzed from 0.02 to 0.3 percent. The margin as a percent of revenue is given the limited information forecasted as no change and therefore set at 0.3 percent.

Depreciation & Amortization

Depreciation & Amortization can according to Koller et al (2010) either be forecasted as a percentage of revenue or as a percentage of property, plant and equipment (PP&E). Either method could be used if capital expenditure is smooth rather than lumpy (Koller et al 2010).

The BMW Group has a capital expenditure target of 7 percent of total Group revenue (BMW Group 2012). An analysis of the CAPEX margin in comparison to the group's total revenue (Industrial Business and Financial Services) suggests that CAPEX margin has been smooth rather than lumpy, although the trend has been decreasing over the period analyzed (see appendix A.29). Moreover, "Depreciation & Amortization" is according to BMW Group (2012) derived from "PP&E" and "intangible assets" and the forecast is as such based on these two balance sheet items. "Depreciation & Amortization" as a percentage of "PP&E" and "intangible assets" have fluctuated between 23.06% and 25.95% with an average of 24.19% over the period analyzed. Depreciation & Amortization is therefore forecasted to be 24.2% of "PP&E" and "intangible assets".

Tax Rate

The tax rate is set at the German Statutory tax rate of 30.5 percent and the same tax rate is also applied to calculate the forecasted tax savings from debt financing.

Net Financial Expenses

Net financial expenses consist of "interest expenses", "Interest income" and "other financial results". Net-interest borrowing rate is in this case defined as the difference between "interest expenses" and "interest income" divided by previous year's net-interest bearing debt. Previous year's net-interest bearing debt is used as suggested by Koller et al (2010), in order to avoid any circularity that leads to implementation problems.

The net-interest borrowing rate has fluctuated between -2.45 to -6.89 percent, with an average of -3.95 percent over the period analyzed. The net-interest borrowing rate is therefore forecasted to be -4 percentage of previous year's net-interest bearing debt.

"Other financial results" is mainly affected by losses and gains related to financial instruments, which would be very difficult to predict. Additionally, no further information is provided on these losses and gains. The average absolute value over the period analyzed is therefore used as the forecasted value, which is equal to - 185.

5.3 Forecasted Balance Sheet

This section describes and discusses the techniques and assumptions made in forecasting the balance sheet of the Group's industrial business. The forecasted inputs and assumptions are illustrated in table 1.18 and discussed more in detail below, whereas appendix A.30 presents the forecasted balance sheet.

Table 1.18 – Forecasted assumption and inputs for the balance sheet

Balance Sheet Assumptions	Forecasted Ratios										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-current Assets											
Intangible assets	-	-	-	-	-	-	-	-	-	-	-
Property, plant and equipment % revenue	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%	21.10%
Leased products % revenue	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%	0.41%
Investments accounted for using the equity method % revenue	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%	0.31%
Other investments	-	-	-	-	-	-	-	-	-	-	-
Receivables from sales financing	-	-	-	-	-	-	-	-	-	-	-
Financial assets	-	-	-	-	-	-	-	-	-	-	-
Deferred tax % revenue	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%	2.80%
Other assets % revenue	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%	0.18%
Current Assets											
Inventories as days on hand	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Trade receivables as days on hand	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Receivables from sales financing	-	-	-	-	-	-	-	-	-	-	-
Financial assets	-	-	-	-	-	-	-	-	-	-	-
Current tax % revenue	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Other assets % revenue	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%	1.95%
Cash and cash equivalents % revenue	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%	11.00%
Excess Cash	-	-	-	-	-	-	-	-	-	-	-
Excess Cash	-	-	-	-	-	-	-	-	-	-	-
Equity											
Subscribed capital	-	-	-	-	-	-	-	-	-	-	-
Capital reserve	-	-	-	-	-	-	-	-	-	-	-
Accumulated other equity	-	-	-	-	-	-	-	-	-	-	-
Revenue reserve (Retained earnings)	-	-	-	-	-	-	-	-	-	-	-
Non-current Liabilities											
Pension provisions	-	-	-	-	-	-	-	-	-	-	-
Other provisions % revenue	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%	6.57%
Deferred tax % revenue	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Financial liabilities	-	-	-	-	-	-	-	-	-	-	-
Other liabilities % revenue	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%
Total Non-Current Liabilities											

Current Liabilities											
Other provisions % revenue	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%	5.79%
Current tax % revenue	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%	2.20%
Financial liabilities	-	-	-	-	-	-	-	-	-	-	-
Trade payables as days on hand	33.00	34.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
Other liabilities % revenue	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%	3.30%

(Source: Own creation)

Non-current Assets

A firm records goodwill and acquired intangibles when the price paid for an acquisition exceeds the targets book value (Koller et al 2010). However, modeling any future potential acquisitions is difficult and Koller et al (2010) also points at existing literature documenting how a typical acquisition fails to create value. It is therefore argued by Koller et al (2010) that intangible assets should be forecasted as constant. "Intangible assets" are therefore forecasted as no change.

Property, Plant and Equipment (PP&E) is forecasted as percentage of revenue as suggested by Koller et al (2010). The PP&E margin as a percentage of revenue has fluctuated between 19.88 to 27.82 percent with an average of 23.91 percent over the period analyzed. However, the average over the last two years has been a bit lower (21.1 percent) and is believed that this may be a better reflection for the future. A margin of 21.1 percent is therefore used as a forecasted input.

"Leased products", "investments accounted using the equity method" and "other assets" are all considered to be operating assets as mentioned in financial analysis section and are as such forecasted as a percentage of revenue. The average margin as a percentage of revenue is in this case used to forecast these three items (**see** table 1.18).

Furthermore, Koller et al (2010) recommends using changes in deferred taxes or changes in deferred tax assets divided by operating taxes to forecast deferred tax assets. However, either method gives extreme changes in this case, as deferred tax assets have grown significantly certain years compared to others without any clear trend in relation to both the methods outlined above. Thus, given that "deferred tax" is regarded as an operating asset it is in this case forecasted as a percentage of revenue. "Deferred tax" as a percentage of revenue has illustrated an increasing trend over the period analyzed and the margin for 2011 was 2.83 percent. 2.8 percent of revenue is therefore believed to be a reasonable estimate for the future and used as the forecasted margin throughout the forecasted period.

Both “other investments” and “financial assets” are regarded as financial activities (non-operating assets) and is according to Easton et al. (2010) usually forecasted as constant, meaning no change. Additionally, “Other investments” relate primarily to investments in other companies and marketable securities, whereas “financial assets” comprises derivative instruments, loan to third parties, credit card receivables and marketable securities. These items are as such very difficult to forecast and forecasted as no change as suggested by Easton et al. (2010).

Current Assets

Both “inventories” and “trade receivables” are forecasted using days on hand as suggested by Koller (2010). Days on hands in regards to “Inventories” have remained relatively constant over the period analyzed and “Inventories” was at 60 days in 2011, mainly due to higher business volumes and stocking up in conjunction with introduction of new models (BMW Group 2012). It is believed that days on hand in regards to “inventories” will continue to remain at 60 days as it is assumed that business will continue to expand (see table 1.15) and with the planned introduction and revamping of new and current models as discussed in the strategic analysis.

Days on hand in relation to “trade receivables” are already low and it assumed that the group will not be able collect money quicker from its debtors, especially as the firm continues to expand. Thus, days on hand are forecasted to remain constant at around 20 days, as days on hand were 19.58 in 2011.

“Other assets” as discussed in the non-current section above is forecasted using the average margin of revenue from the historical period, which is 1.95 percent. Additionally, as also discussed in the non-current section, “financial assets” are forecasted as no change. “Current tax” is as in the case of “Deferred tax” forecasted as a percentage of revenue for the same reasons discussed above. A margin of 2% is used in this case, as the margin for 2011 was 1.97%.

“Cash and cash equivalents” are as mentioned in the financial analysis assumed to be operating cash needed to finance operating activities and is as such forecasted as a margin of revenue (cash target) as suggested by Easton et al. (2010). “Cash and cash equivalents” as a percentage of revenue has fluctuated between 10.77% to 12.57% in the last four years and it is believed that a cash target of 11 percent going forward seems to be a reasonable assumption based on the historical margins.

Equity

Total equity includes “subscribed capital”, “capital reserve”, accumulated other equity” and “revenue reserve”. However, these figures are not presented at segmented level (industrial and financial business) and do as such require certain assumptions. Firstly, “subscribed capital”, “capital reserve” and “accumulated other equity” are all divided by two as it is simply assumed that half belongs to the industrial business and half to the financial services. Secondly, the sum of total equity minus the sum of “subscribed capital”, “capital reserve” and “accumulated other equity” is assumed to belong to the “revenue reserve” for 2011. “Revenue reserve” is mainly comprised of retained earnings and it is in this case assumed that the forecasted “revenue reserve” will only be affected by retained earnings.

“Subscribed capital”, “capital reserve” and accumulated other equity” are all forecasted as no change, as suggested by Koller et al. (2010). The “revenue reserve” is forecasted using the following formula:

*Revenue Reserve from previous year + net income * (1 – payout ratio)*

The dividend payout ratio has over the last two years been around 35 percent but also fluctuated the years before that, mainly due to the financial crisis (see appendix A.31). However, it is believed that the payout ratio can increase further, given the forecasted net income, which is predicted to be much higher than it was during the years affected by the financial crisis. Additionally, as mentioned earlier, it is forecasted that the firm has a cash target of 11 percent and it is as such believed that majority of the retained earnings can be paid out as dividend. Moreover, the payout ratio and retained earnings does not really have any effect on the fundamental valuation of the BMW Group. Thus, it is assumed that the Group increases the payout ratio to 45 percent for 2012, and then increases the payout ratio by 5 percent each year until it reaches 75 percent in 2017, which will stay constant throughout the budgeted period.

Non-current Liabilities

“Other provisions” and “other liabilities” are as mentioned in the financial analysis part regarded as operating activities and are as such forecasted as a percentage of revenue. The average margin over the historical period is used as the forecasted margin for both “other provisions” and “other liabilities”, which are 6.57 percent and 1.10 percent respectively.

Deferred tax liabilities are as in the case of deferred tax assets measured as a percentage of revenue. The trend has been decreasing over the period analyzed and the margin as a percentage of revenue was 1.04 percent in 2011. 1 percent of revenue is therefore used as the forecasted margin.

“Pension provisions” are forecasted as no change, as suggested by Koller et al. (2010) and Easton et al. (2010) due to difficulties in forecasting “Pension provisions” with any confidence. “Financial liabilities” is also forecasted as no change given the arguments earlier in relation to “financial assets” and also as suggested by Easton et al. (2010).

Current Liabilities

“Trade payables” are forecasted using days on hand. As discussed in the profitability analysis, days on hand in relation to trade payables have increased over the period analyzed, which means that the group has successfully been able to delay payments to its creditors, affecting the turnover rate positively. Given the already large buying power of BMW as one of the biggest premium car manufacturers globally and the low bargaining power of suppliers as mentioned in the strategic analysis, it is believed that the BMW Group could delay payments even further to their suppliers. The general payment condition is 30 days for invoices in Europe. However, it is assumed that the group can on average hold payments to 35 days given their power over suppliers and based on the historical days on hand figures. This increase in days on hand for “trade payables” will occur gradually, thus days on hand will increase by one day each year until it reaches 35 days, which is held constant throughout the budgeted period (see table 1.18).

“Other provisions” and “other liabilities” are as explained in the non-current liabilities section forecasted as the average margin of revenues over the period analyzed, which in this case is 5.79 and 3.3 percent respectively.

“Current tax” as in the case of “Deferred tax” is forecasted as a percentage of revenue for the same reasons discussed above. In this case a margin of 2.2 percent is used as the margin for 2011 was 2.2 percent. “Financial liabilities” is also forecasted as no change given the arguments in the non-current liabilities section above.

Adjusting Forecasted Financial Statements for Cash Target

The final step of the forecast is to make sure that total liabilities + equity equals total assets. Excess cash is in this case calculated the following way:

Excess cash = Total liabilities & Equity – Total assets

This difference exists, since a cash target of 11% is used in forecasting "Cash and cash equivalents". Easton et al. (2010) suggests three possibilities on how to invest the excess cash, "invest in marketable securities", "retire short-term debt" or "acquire treasury stocks".

The excess cash is illustrated in appendix A.30 and as seen it is does fluctuate to a certain extent. It is assumed that if excess cash is negative, then new debts are issued to cover the difference and if excess cash is positive it is used to retire short-term debt. However, for 2022 the excess cash is used to pay of all the short-term debt, and the remaining excess cash is invested in marketable securities, which in this case would mean short-term financial assets. All these adjustments are illustrated in appendix A.30.

5.4 Budget Control

This section discusses and looks at the value drivers analyzed in the profitability analysis, but for the budgeted period to ensure consistency between the strategic and financial analysis and the completed projections of the Group's future performance. Table 1.19 illustrates the historical and budgeted development for some the Group's key indicators.

Table 1.19 – Key performance indicators of the BMW Group

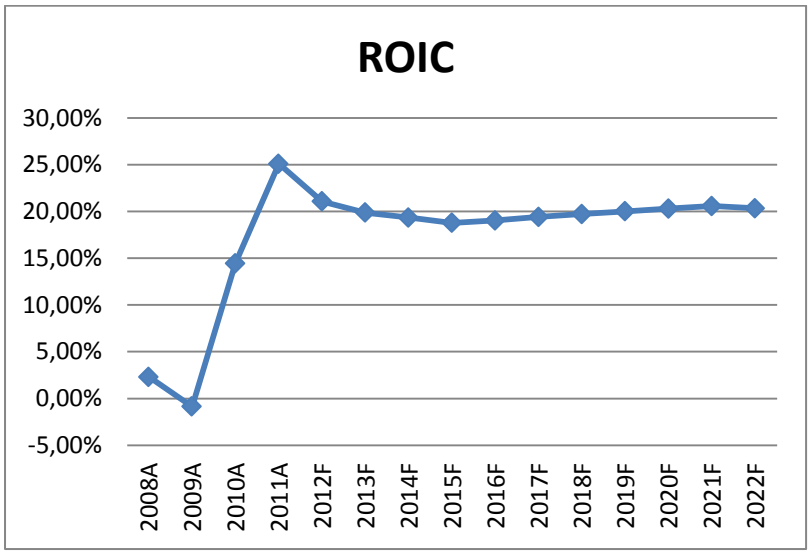
Value Driver/Budget Control															
	2008	**2009**	**2010**	**2011**	**2012F**	**2013F**	**2014F**	**2015F**	**2016F**	**2017F**	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**
Revenue Growth	-9.3%	-7.2%	24.2%	16.4%	7.9%	7.1%	5.5%	5.1%	5.0%	5.7%	5.7%	5.7%	5.8%	5.8%	2.0%
EBITDA margin	10.7%	9.2%	16.9%	18.9%	18.3%	17.8%	17.3%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%	16.8%
EBIT margin	1.6%	-0.5%	8.6%	12.1%	11.4%	11.0%	10.6%	10.2%	10.2%	10.3%	10.4%	10.5%	10.5%	10.6%	10.6%
ROIC	2.29%	-0.87%	14.45%	25.09%	21.07%	19.88%	19.34%	18.77%	19.04%	19.41%	19.71%	20.01%	20.29%	20.57%	20.34%
Profit margin	1.10%	-0.48%	5.74%	8.76%	7.91%	7.64%	7.36%	7.07%	7.12%	7.17%	7.22%	7.27%	7.32%	7.36%	7.38%
Turnover rate	2.08	1.83	2.52	2.86	2.66	2.60	2.63	2.66	2.68	2.71	2.73	2.75	2.77	2.79	2.76
Return on Equity	1.82%	-1.39%	15.74%	25.15%	23.28%	21.38%	19.85%	18.69%	18.68%	18.97%	19.28%	19.58%	19.87%	20.14%	19.60%
Net borrowing cost	3.58%	0.40%	8.36%	24.55%	6.83%	8.07%	11.87%	21.60%	59.49%	515.32%	3549.83%	-505.92%	-205.95%	-119.30%	-17.58%
Financial leverage	0.37	0.41	0.21	0.12	0.16	0.13	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	-0.02

(Source: Own creation using annual reports)

A comparison with historical key indicators does in general not really suggest any unrealistic budget expectations, except for the net borrowing cost. However, as mentioned in the profitability section, there are some limitations in relation to the specific formula used and the NBC will be discussed more in detail later in this section.

Furthermore it is clearly evident from table 1.19 that there is a drop in the expected revenue growth in comparison to the previous to two years (2010 and 2011). The revenue forecasts are already discussed more in detail above, but it is in general believed that the double digit growth from the last two years were mainly due to the recovery after the financial crisis and a very high growth rate in the Asia/Oceania region, which is not predicted to continue at the same pace for the future. The forecasted ROIC for both the historical and budgeted period is illustrated in Figure 1.20 below.

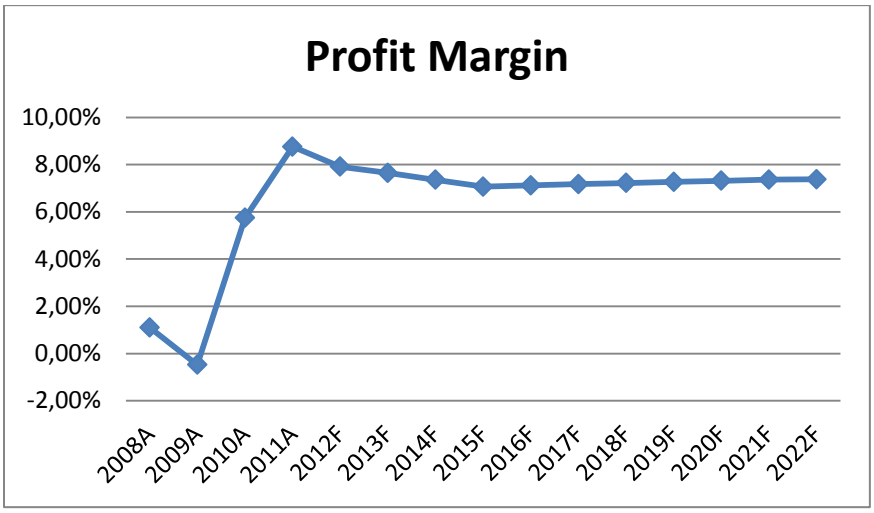
Figure 1.20 – Historical and budgeted ROIC for the BMW Group



(Source: Own creation)

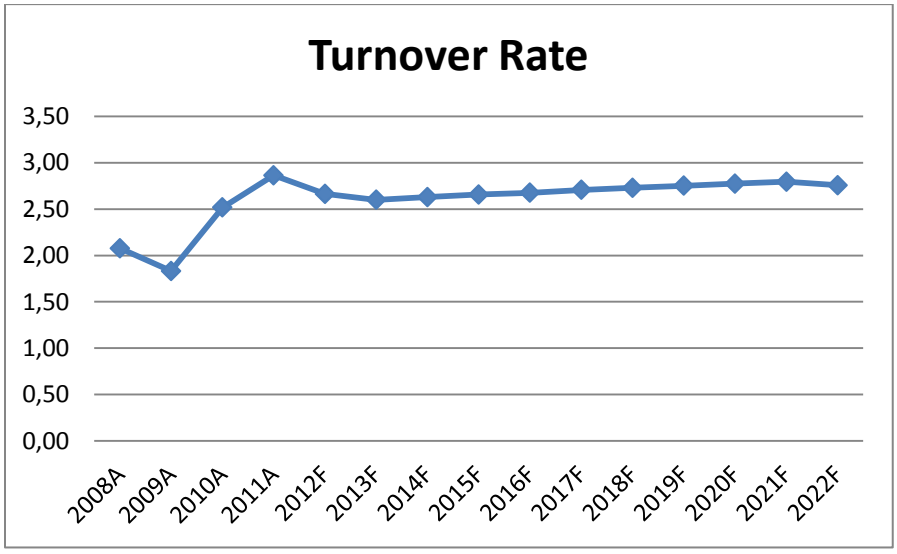
It is clear from figure 1.20 that the budgeted ROIC, although smooth is expected to be slightly lower than it was in 2011. Moreover, figure 1.20 does clearly suggest that the Group is able maintain ROIC of around 20% throughout the budgeted period, which is seen as a likely scenario as it was argued that rivalry appears to be lower in premium car segment than the general automotive market. Additionally, the forecasted ROIC is still well below the historical average of the Audi Group. Furthermore, both the Profit Margin and Turnover rate of invested capital are illustrated in figure 1.21 and figure 1.22 respectively, to analyze the effect these two drivers have on the ROIC.

Figure 1.21 – Historical and budgeted Profit Margin for the BMW Group



(Source: Own creation)

Figure 1.22 – Historical and budgeted Turnover rate of invested capital for the BMW Group



(Source: Own creation)

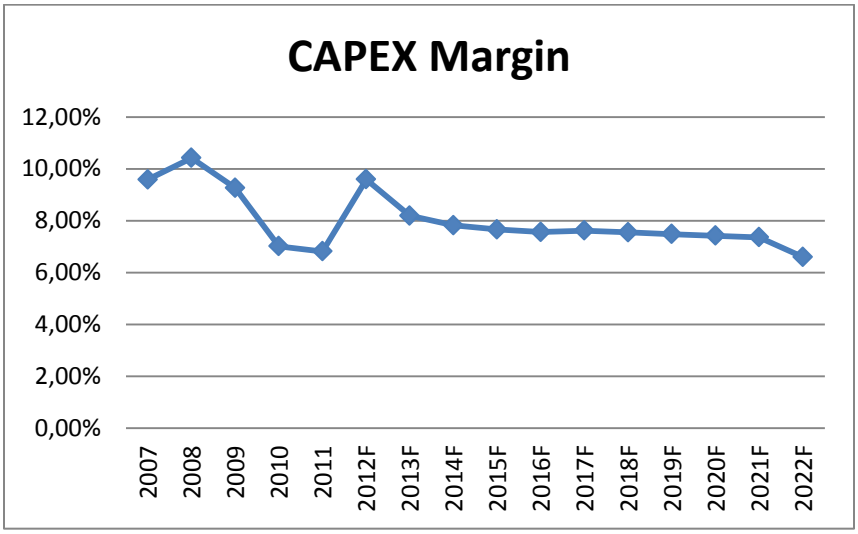
It is clear from the figure 1.21 and figure 1.22 above that both the forecasted profit margin and turnover rate does slightly affect the ROIC negatively in comparison to the value from year 2011. The Profit margin is in this case mainly affected by forecasted increase in R&D costs as mentioned in section 5.2. The R&D costs are forecasted to increase by 0.5 percent of revenue each year until 2015. This is also illustrated in figure 1.21, as the profit margin is clearly affected negatively each year until 2015, then to

slightly increase each year throughout the budgeted period. The forecasted increase in the R&D costs each year does also affect the EBITDA and EBIT margin negatively until 2015, as illustrated in table 1.19.

The turnover rate is also slightly affected negatively in the beginning of the forecasted period due to the forecasted decrease in "other liabilities" for non-current liabilities in comparison to the value in year 2011. However, the turnover rate does slightly increase over the budgeted period, as the revenue grows more than the invested capital over the budgeted period.

Another important factor, as mentioned in the profitability analysis that possibly could affect the ROIC is the capital expenditure (CAPEX). The CAPEX as a percentage of revenue for the Industrial Business for both the historical and forecasted period is therefore illustrated in figure 1.23.

Figure 1.23 – Historical and forecasted CAPEX of the BMW Group



(Source: Own creation)

The CAPEX was calculated using the following formula suggested by Koller et al. (2010):

Net PP&E for the year – Net PP&E for the previous year + Depreciation for the year

The forecasted CAPEX margins do clearly seem to follow the trend of the historical margins, and does as such support the possibility of a ROIC trend of around 20 percent for the budgeted period. Furthermore, table 1.20 illustrates the ROIC, NBC, Spread and Financial Leverage of the BMW Group for the budgeted period.

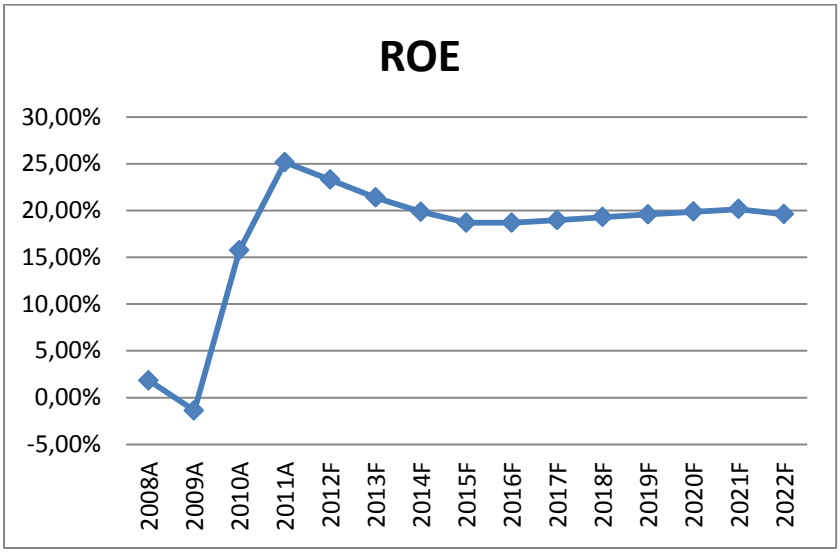
Table 1.20 – Financial gearing of the BMW Group

BMW Group - Financial Gearing											
	2012F	2013F	2014F	2015F	2016F	2017F	2018F	2019F	2020F	2021F	2022F
ROIC	21.07%	19.88%	19.34%	18.77%	19.04%	19.41%	19.71%	20.01%	20.29%	20.57%	20.34%
Net borrowing cost	6.83%	8.07%	11.87%	21.60%	59.49%	515.32%	3549.83%	-505.92%	-205.95%	-119.30%	-17.58%
Spread	14%	12%	7%	-3%	-40%	-496%	-3530%	526%	226%	140%	38%
Financial leverage	0.16	0.13	0.07	0.03	0.01	0.00	0.00	0.00	0.00	0.00	-0.02

(Source: Own creation)

It is clearly evident from table 1.20 that the net borrowing costs are increasing significantly over the budgeted period until 2018 and then becomes negative throughout the forecast. This is due to the decrease in net-interest bearing debt, as most of the excess cash is positive and as such used to pay down short-term debt and invested in marketable securities, which leads to a decrease and even negative net-interest bearing debt as illustrated in appendix A.30. However, it was already discussed in the profitability section that the NBC rate is interpreted with care. Additionally, the NBC rate has no affect on the valuation or the return on equity (ROE) as financial leverage is almost zero during these years, which is due to the low net-interest bearing debt over the budgeted period. Both the historical and forecasted ROE is illustrated in figure 1.24.

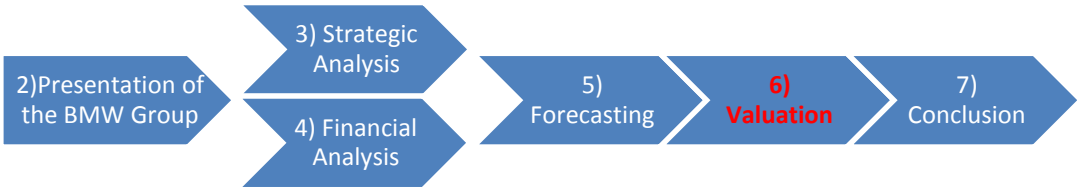
Figure 1.24 – Historical and forecasted ROE of the BMW Group



(Source: Own creation)

It is clearly evident from figure 1.24 that the ROE is following a similar trend to the ROIC. This is mainly due to the significant impact ROIC has on the ROE due to the low financial leverage. Thus, the budgeted ROE is consistent with the historical ROE, just as in the case with ROIC.

6 Valuation



This section proceeds on the previous section, which forecasted the future performance of the BMW Group. This allows estimating the enterprise and equity value of the firm and as such the share price based on the fundamental approach used. This section starts with a discussion of the different valuation approaches and the models used. This is followed by a discussion of the WACC, the inputs to the WACC and the calculation of the WACC in regards to the BMW Group. The final part of the section estimates the value of the Group and examines how sensitive this value may be to certain inputs.

6.1 Discussion/Choice of Valuation Methods

There are many different valuation techniques that may be applied to estimate the value of the BMW stock. Petersen and Plenborg (2012) distinguish between four main categories of valuation approaches: The present value approach, the relative valuation approach, the liquidation approach and the contingent claim valuation models.

The liquidation approach values the company's equity by measuring the net proceeds that the company can obtain if it liquidates all its assets and settles all its liabilities (Petersen and Plenborg 2012). As such, this approach should only be used if liquidation is to be expected at the end of the forecast period. This is not seen as a likely scenario for BMW, the liquidation approach is therefore not further discussed or utilized for valuing BMW.

The contingent claim valuation models, also referred to as real option models, applies option pricing models to measure the value of companies that share option characteristics (Petersen and Plenborg 2012). According to Petersen and Plenborg (2012) this method is rarely used by practitioners due to the high complexity and challenges of providing reliable real option estimates. Moreover, real option

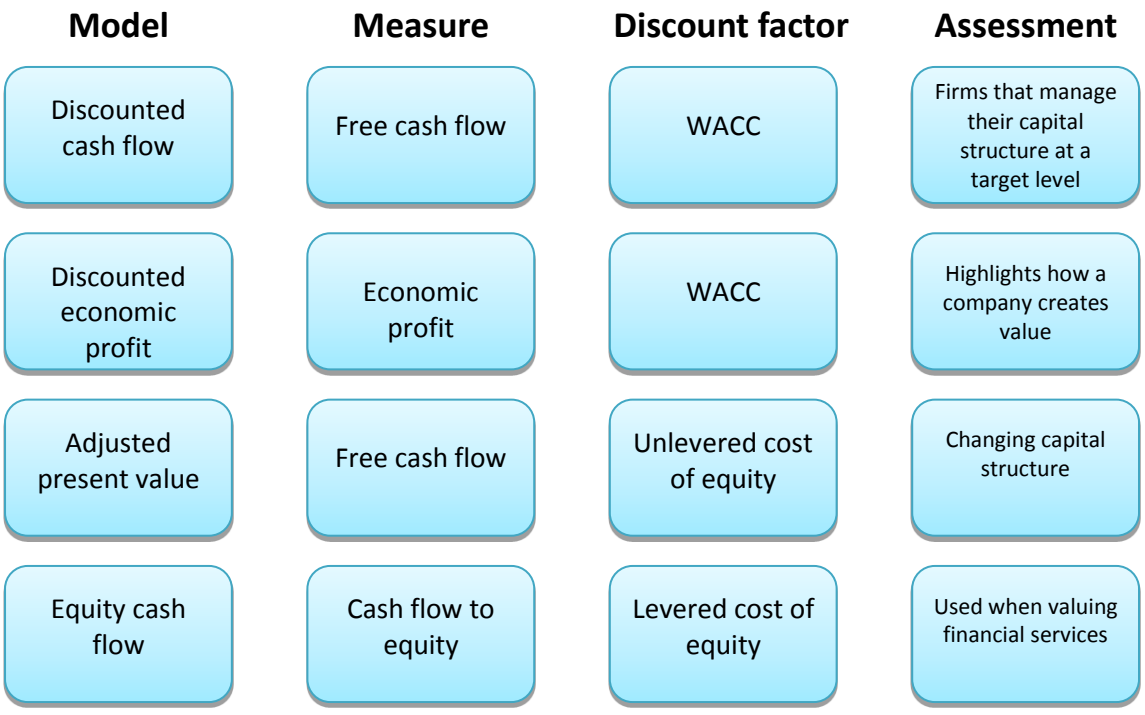
valuation may be more suitable to value patents, future R&D projects or natural resources and may as such apply more to pharmaceuticals, natural resource and oil & gas companies (Damodaran 2002).

The present value approach and the relative valuation approach are by far the most used methods for valuation by practitioners according to a study conducted by Petersen and Plenborg (2011), and are discussed more in-depth in the following sub-sections.

6.1.1. Present Value Approaches

There are several present value based valuation approaches that can be applied to calculate the enterprise or equity value of a firm. The type of income stream that is discounted varies depending upon the present value approach used (Petersen and Plenborg 2012). Figure 1.25 illustrates some of these many present value approaches. There are more present value approaches than those listed in figure 1.25, but only these four are discussed in this case.

Figure 1.25 – Some present value based valuation approaches



(Source: own creation using Koller et al. 2010)

The enterprise discounted cash flow model (DCF) discounts the free cash flows, meaning cash flow available to all investors (equity and debt holders) are discounted at the weighted average cost of capital

(WACC) (Koller et al. 2010). The claims on cash flow of debt holders and other non-equity investors are then subtracted from the enterprise value to determine the equity value. Another way to derive the equity value is to discount the free cash flow to equity by the cost of equity also referred to as the equity cash flow model in figure 1.25. Both methods should lead to identical results if applied correctly, but Koller et al. (2010) recommends using the Enterprise approach as matching cash flows with correct cost of equity tends to be challenging.

The economic profit model highlights how a firm creates value, and if applied correctly should lead to a valuation that is identical to that of the DCF model (Koller et al. 2010). Economic Profit is defined as:

Economic Profit = Invested Capital ∗ (ROIC – WACC)

The enterprise value is the derived using the following formula, which is somewhat similar to the DCF approach:

$$Enterprise\ value_0 = Invested\ Capital_0 + \sum_{t=1}^{n} \frac{Economic\ Profit}{(1+WACC)^t} + \frac{Economic\ Profit}{(WACC-g)} * \frac{1}{(1+WACC)^n}$$

The economic profit approach does as such illustrate the expected value creation in comparison to the DCF model; given the assumption that ROIC is a primary driver of economic profit (Koller et al. 2010). The free cash flow models does according to Koller et al. (2010) fail to show this dynamic, as free cash flow could continue to grow even as ROIC falls.

The adjusted present value approach is variant of the DCF model and more suitable in cases where a firm plans to change its capital structure, as it accounts tax shield on net interest-bearing debt separately (Koller et al. 2010, p119 and Petersen and Plenborg 2012). The Adjusted Present Value approach can be defined as:

APV = Enterprise value as if the company was all equity financed + Present value of tax shields

The "enterprise discounted cash flow model" is in this case used to calculate enterprise value of the BMW Group. One reason being that is by far the most popular present value approach among analysts (Petersen and Plenborg 2012). Second being that the DCF approach does rely on cash flow of the company rather than accounting based earnings that could be manipulated (Koller et al 2010). However,

the DCF valuation approach will only be utilized to value the industrial business of the BMW Group, as the DCF approach is generally not recommended to value a financial services entity due to the complexity of their business operations and often unstable cash flows. Tim Schuldt, Equity analyst at Equinet, suggests applying the DCF approach to the industrial business of the Group only, and simply adding the book value of the financial services business to get total Group value (see appendix A.1). This approach will be followed in section 6.3.

6.1.2. Relative Valuation Approaches

Valuation based on multiples is according to Petersen and Plenborg (2011) another very popular valuation approach due to its low level of complexity and the speed by which a valuation can be formed. Additionally, a DCF analysis is only as accurate as the input and forecasts it relies on. A multiple valuation and analysis can therefore a good method to triangulate the results from the DCF approach.

A relative valuation approach is also likely to reflect the current market value and as such is likely to provide a value different from the discounted cash flow model (Damodaran 2002). However, a thorough valuation based on multiples can be both complicated and time consuming, as there is a number of factors that affect the multiple a company are valued at (Petersen and Plenborg 2011). For instance, an EV/EBIT multiple does according to Petersen and Plenborg (2011) assume that company has similar ROIC, WACC, tax rate and terminal growth rate, which in most cases might be highly unlikely.

Furthermore, multiple models are mostly used to value and compare companies within the same industry. Additionally, using multiples from companies within the same industry who are more likely to share similar economic characteristics might reduce some of the problems listed above.

EV/EBITDA is according to Koller et al. (2010) one of the most widely used enterprise based multiples when comparing valuations across firms. Another very common enterprise based multiple is EV/EBIT. However, in comparison to the EV/EBITDA multiple, it does include depreciation & amortization costs and can as such be affected by differences or manipulations in accounting policies . The price-earnings multiple (PE) is one of the most widely used equity based multiples among analysts, but it is according to Koller et al. (2010) distorted by capital structure and non-operating gains and losses.

Thus, the EV/EBITDA multiple is considered the most appropriate relative valuation approach to apply to the BMW Group, and is therefore used in this case to triangulate the results of the DCF valuation.

6.2 Weighted Average Cost of Capital

As the name implies, the weighted average cost of capital (WACC) estimates the cost of capital for the firm, and as such also represents the required rate of return the firm needs on its investments in order to be profitable. The WACC is used as the discount factor for the future cash flows available to the firm; therefore, the WACC of BMW needs to be estimated before the DCF valuation can be conducted.

The WACC equals the weighted average of the after-tax cost of debt and cost of equity. In equation form (Koller et al. 2010):

$$WACC = \frac{D}{V} r_d (1 - t) + \frac{E}{V} r_e$$

Where V = enterprise value (D + E), D/V = total debt to enterprise value, E/V = total equity to enterprise value, $r_d(1-t)$ = after-tax cost of debt capital, r_e = cost of equity capital. These inputs of the WACC model are discussed in the following sub-sections.

6.2.1. Cost of Debt Capital

The after-tax cost of debt capital is generally derived as follows (Petersen and Plenborg 2012):

$$r_d = (r_f + r_s) \times (1 - t)$$

r_f= risk-free rate, r_s = default spread, or risk premium on debt, t = tax rate.

According to Koller et al. (2010) there are two commonly used approaches to estimate the cost of debt capital to the firm. If the firm has long-term bonds outstanding that is regularly traded, the yield to maturity of the outstanding bonds may be calculated and used as an estimate of the firm's pre-tax cost of debt capital. Börse Stuttgart has information on many tradable BMW bonds, but all are relatively short term ranging from 1-7 years in maturity, and as such, is not regarded as an ideal match for BMWs long-term cash flows.

The second approach to estimate the cost of debt capital to the firm, as described by Koller et al. (2010), is to utilize the firm's credit rating and associated default spread. The intuition is that the credit rating gives an indication of how likely the firm is to default, and the associated default spread represents the lenders risk premium required to cover their exposure to default risk. As such, companies with equal credit ratings should in theory have comparable default spreads, and the default spread should be higher

the lower the credit rating as lenders would require a higher premium to cover their increased exposure to default risk. The pre-tax cost of debt capital to the firm will in this case equal the risk-free rate (r_f) plus the default spread (r_s). The three variables used to estimate the after-tax cost of debt capital for BMW following this method are discussed in the following sections: the risk-free rate(r_f), the default spread or risk premium on debt (r_s), and the corporate tax rate (t).

6.2.1.1. The Risk-free Rate

In general, there is no true risk-free investment, where the investor is guaranteed a return without any risk. However, government bonds have very minimal default risk and are therefore generally used as an approximation of the risk-free rate when calculating the WACC to the firm. According to Koller et al. (2010), it would be ideal to discount each separate expected cash flow with a government bond with the same maturity. For instance, the rate of a three-year government bond would be used to discount an expected cash flow three years from now. However, the use of year-specific rates is not very practical, and the rates usually do not deviate significantly across time according to Damodaran (2008) therefore, it is a usually a good compromise to use a single risk-free rate on all cash flows. Koller et al. (2010) argues that 30-year government bonds might match the cash flow stream better than 10-year government bonds; however, 30-year bonds often suffer from illiquidity that affects the yields. Furthermore, the government bond used as an estimate for the risk-free rate should be denominated in the same currency as the company's cash flows in order to handle issues such as inflation. Therefore, 10-year German government bonds are used as an estimate of the risk-free rate for BMW. According to Bloomberg C (2012) the rate of 10-year German government bonds was 1.83 percent as of January 1st2012.

6.2.1.2. The Risk Premium on Debt

Petersen and Plenborg (2012) reports default spreads, or risk premiums on debt, measured over a two-year period for US industrial companies. The spreads are measured as the two-year high and low end premiums paid by industrial companies over the 10-year US Treasury bond rate of 3.38 percent. The results are presented in table 1.21.

Table 1.21 - US Industrial 10-year spread (two-year high/low) to US Treasury, 10 year, 3.38 %

S&P Rating	AAA	AA	**A**	BBB	BB	B
High	1.9%	2.4%	**3.6%**	4.7%	11.2%	13.1%
Low	0.6%	0.7%	**0.8%**	1.3%	2.6%	3.2%
Average	1.3%	1.6%	**2.2%**	3.0%	6.9%	8.2%

(Source: Petersen and Plenborg 2012, S&P's and Bloomberg)

BMW was rated as an "A" security by Standard and Poor's (S&P) and an "A2" security by Moody's as of January 1st 2012. Both ratings correspond to a middle rated "upper-medium investment grade security". With the assumption that similar default spreads are paid by German industrial companies, this study implies that the default spread for BMW, as an A-rated company, is in the range of 0.8 to 3.6 percent. Furthermore, the S&P A rating of BMW is in the middle range of A rated companies. As an A rated company, BMW is ranked as slightly less risky than an A- rated company but more risky than an A+ rated company. This suggests that BMWs default spread is likely to be somewhere in the middle of the range of 0.8 to 3.6 percent. As such, the average spread of A rated companies of 2.2 percent is regarded as a reasonable estimate of BMWs credit spread, or risk premium on debt.

6.2.1.3. The Corporate Tax Rate

The cost of debt capital is calculated *after-tax* because interest expenses are tax deductible to the firm. According to Damodaran (2002) the marginal tax rate should be used rather than the firm's effective tax rate when calculating the after-tax cost of debt capital as interest expenses save taxes at the margin. That is, the savings are deducted from the last euro of income. Furthermore, Graham (1996) estimate the future marginal tax rate for investment grade companies to equal the full statutory tax rate. Therefore, the statutory corporate tax rate in Germany of 30.5 percent is used to calculate the after-tax cost of debt capital.

6.2.1.4. Cost of Debt Capital for BMW

The after-tax cost of debt capital for BMW is derived by utilizing the model and inputs as discussed above:

$$r_d = (r_f + r_s) \times (1 - t)$$
$$r_d = (1.83\% + 2.20\%) \times (1 - 0.305)$$
$$r_d = 2.80\ \%$$

This yields an estimated after-tax cost of debt capital for BMW of 2.80 percent.

An alternative method of estimating the cost of debt capital for BMW is to use the net borrowing cost (NBC) of the firm, which is defined as net financial expenses after tax divided by the average net interest-bearing debt. In equation form (Easton et al. 2010):

$$NBC = \frac{Net\ financial\ expenses\ after\ tax}{Average\ net\ interest-bearing\ debt}$$

The NBC for BMW is thus calculated as follows:

$$NBC = \frac{797 \times (1 - 0{,}305)}{(64{,}146 + 58{,}610)/2}$$

$$NBC = \frac{554}{61{,}378}$$

$$NBC = 0.90\ \%$$

This implies a cost of debt capital for BMW of 0.90 percent. It should be notet that this estimate is for the BMW Group as a whole, and not only the industrial business entity which is analyzed in the financial analysis.

However, Petersen and Plenborg (2012) argue that NBC rarely matches the firm's true borrowing cost because NBC is affected by differences between rates of lending and deposits, and because several other items such as currency gains and losses on securities often are included in financial income and expenses. The net financial expenses for BMW comprise many different items such as losses and gains on derivatives, impairment losses on investments in subsidiaries amongst other (BMW Group 2012). Furthermore, a 0.90 percent cost of debt for BMW would be lower than the 10-year German government bond rate, and would as such imply that BMW has a lower chance of defaulting on its bond payments than the country of Germany has on defaulting on its government bond payments, which does not seem to be a reasonable assumption. For these reasons it is not believed that the NBC of 0.90 percent reflects BMWs true borrowing cost. The cost of debt capital estimate of 2.80 percent as described above is regarded as a better estimate, and is as such used for calculating BMWs weighted average cost of capital.

6.2.2. Cost of Equity Capital

The capital asset pricing model (CAPM) is utilized to estimate the cost of equity capital. The cost of equity is estimated as the sum of three components: *the risk-free rate (r_f),* the *market risk premium (r_p),*and the *stock specific risk* (β). In equation form, the cost of equity capital *(r_e),* follows (Koller et al. 2010):

$$r_e = r_f + (r_p \times \beta)$$

Additionally, a company specific risk premium or liquidity premium may be added to the cost of equity capital derived from the CAPM if seen relevant (Damodaran 2005). However, the BMW Group has a total of more than 650 million shares outstanding on the Frankfurt Stock Exchange with an average trading volume of more than 2.5 million shares per day over the last three months according to data from Yahoo Finance (2012). As such, it is not regarded relevant to add a liquidity premium to the cost of equity capital for the BMW Group. Adding an additional risk premium to the CAPM model is not considered relevant for the BMW Group either, considering the company's solid financial position, long history, strong brand name, and solid position in one of the World's largest industries.

In the following sub-sections, the three above-mentioned components of the CAPM needed to estimate the cost of equity capital for the BMW Group are discussed.

6.2.2.1. The Risk-free Rate

As discussed in section 6.2.1.1 the rate of 10-year German government bonds was 1.83 percent as of January 1st 2012, and will also be used as the risk-free rate when estimating the cost of equity for BMW.

6.2.2.2. The Market Equity Risk Premium

The market equity risk premium represents the expected excess return that the overall stock market has over the risk-free rate. This can also be regarded as the rate of return an investor requires in order to invest in the stock market portfolio rather than in a risk-free asset.

According to Koller et al. (2010) the market risk premium may be estimated based on historical market returns, or by using regression analysis to link current market variables such as the aggregate dividend-to-price ratio to project the expected market risk premium. Koller et al. (2010) believes that the market risk premium varies continually between 4.5 and 5.5 percent based on evidence from these estimation models, and that the market risk premium equaled 5.4 percent as of May 2009.

Furthermore, Fernández et al. (2011) released a survey in May 2011 on equity risk premiums used by analysts, companies and professors in 56 countries at the time. On average, the 71 respondents in Germany used an equity risk premium of 5.4 percent, with a median of 5.0 percent. Fernández et al. (2011) got very similar responses from 1,503 analysts, companies and professors in the United States, who reported an average equity risk premium of 5.5 percent, with a median of 5.0 percent.

Damodaran (2012) stimates an implied equity risk premium on the U.S. market every month, and estimated the equity risk premium to be 6.01 percent as of January 1st 2012. The survey of Fernández et al. (2011) suggests that analysts on the German market use very similar equity risk premiums as analysts in the United States. Furthermore, the 10-year U.S. treasury bond rate (regarded as the risk-free rate) was 1.88 percent as of January 1st 2012, almost identical to the 1.83 percent rate on German government bonds as of January 1st 2012. For these reasons, it is believed that Damodaran's estimate of the equity risk premium on the U.S. market is also applicable to the German market. Therefore, Damodaran's estimate of the market equity risk premium of 6.01 percent as of January 1st 2012 is applied when estimating BMW's cost of equity capital.

6.2.2.3. Stock Specific Risk

According to the CAPM theory, the stock specific risk, or equity beta, measures the co-variation of the company stock returns with that of the stock market as a whole. If the beta is greater than 1, the volatility of the stock returns is greater than that of the market. If the beta is lower than 1, the volatility of the stock returns is lower than that of the market.

According to Koller et al. (2010) the future stock specific risk, or equity beta, is usually estimated based on historical stock returns. However, Petersen and Plenborg (2012) argue that estimating the stock specific risk based on historical returns has several weaknesses. Firstly, the company has to be listed on the stock exchange for a considerable amount of time in order to provide enough historical observations for the estimation. Secondly, the shares has to be traded frequently, or else the stock returns may appear to be very stable, leading to a low beta estimate that may not necessarily reflect the true underlying risk of the company. However, BMW stock has been quoted on the stock exchange since 1926 and is being traded in considerable volumes every day, as such, it is not believed that these specific weaknesses of estimating beta based on historical returns applies to the BMW stock.

Petersen and Plenborg (2012) further argue that the beta estimate is often not stable across time, which may reflect a true change in the underlying risk of the company, but may also imply measurement problems. According to Petersen and Plenborg (2012) the time interval that is used between each observation and the total time period of the observation may affect the beta estimate considerably. Petersen and Plenborg (2012) also argue that the use of historical stock returns to measure the future stock specific risk may not be meaningful because the risk profile of the company may change over time.

The company may enter a new product segment, acquire another company, or make other strategic changes in the future that may affect the company risk profile. However, in lack of a better alternative, the use of historical returns is generally applied to estimate the future stock specific risk.

Koller et al. (2010) suggests that monthly returns should be used when estimating the stock specific risk based on historical returns, because daily or weekly returns may lead to systematic bias. Koller et al. (2010) also argue that the stock returns should be regressed against a well-diversified market portfolio such as the Morgan Stanley Capital International (MSCI) World Index rather than a local country index, because most countries are not well-diversified, but rather heavily weighted in just a few industries. Furthermore, Koller et al. (2010) suggests that the regression should include at least 60 data points in order to reduce estimation error.

As suggested by Koller et al. (2010), a regression of BMW's stock returns against the MSCI World Index was run in order to estimate BMW's stock specific risk:

$$R_{bmw} = \alpha + \beta R_{MSCI\ world\ index} + \varepsilon$$

The regression is based on monthly returns over the past five year period, from January 2007 to December 2011, with data gathered from Yahoo Finance and MSCI. The regression estimates a beta of 1.24 for the BMW stock, implying that the BMW stock is slightly more volatile than the overall stock market (represented by the MSCI index). However, the beta estimate has a standard error of 0.225, which yields a 95 percent confidence interval of 0.79 – 1.69. The high standard error is likely due to a relatively low number of data points (60). However, increasing the number of data points by using more frequent data may lead to systematic bias, and increasing the number of data points by increasing the time period may not be beneficial either. BMW may have had a somewhat different strategy and risk profile further back in time, and as such an estimate of future stock specific risk based on older data may not be as relevant as an estimate based on newer data. Further details on the regression results are included in appendix A.32.

To support the analysis of BMW's stock specific risk, the beta estimates provided by some of the most used financial databases and web sites was gathered and is presented in table 1.22 below.

Table 1.22 – Beta estimates from various financial sources

Source	BMW Beta
Cnbc	1,16
Datastream	1,21
Ft.com	1,16
Reuters	1,16
Thomson ONE Banker	1,24
Worldscope	1,24

(Source: Own creation, sources as listed)

As seen from table 1.22, the beta estimates provided by these sources are very similar to the regression estimate of 1.24. Both Thomson ONE Banker and World scope suggests an identical beta of 1.24, whereas the other sources suggest a slightly lower beta of 1.16 or 1.21. As such, it is believed that the regression estimate of 1.24 is a reasonable estimate for BMW's future stock specific risk.

6.2.2.4. Cost of Equity Capital for BMW

The cost of equity capital for BMW is derived by utilizing the CAPM model and inputs as discussed above:

$$r_e = r_f + (r_p \times \beta)$$

$$r_e = 1.83\% + (6.01\% \; x \; 1.24)$$

$$r_e = 9.28\,\%$$

This yields an estimated cost of equity capital for BMW of 9,28 percent.

6.2.3. Weighted Average Cost of Capital for BMW, Industrial Business

As discussed in section 6.1.1, the DCF valuation approach is only used to value the industrial business segment of the BMW Group. Therefore, the total debt and total equity for BMWs industrial business needs to be estimated in order to calculate the weighted average cost of capital for the industrial business segment which is used to discount the free cash flows.

As suggested by Tim Schuldt, the book value of equity for the financial services segment is deducted from the BMW Group's total equity value to estimate the total equity value for the industrial business segment. As mentioned earlier, book value of equity in a financial service firm is usually a reliable measure of equity, as financial assets often are marked up to market, according to Damodaran (2002). The BMW Group's market value of total equity is calculated as the share price times the number of

shares outstanding as of January 1st 2012. As of January 1st 2012 there were 602,00 million BMW Group common shares outstanding with a market price of €51.84 per share, in addition to 53,57 million BMW Group preferred shares with a market price of €36,55 per share (BMW Group 2012). This yields a market value of total equity of €33 166 million for the BMW Group. Book value of equity for the financial services segment is estimated to €9 337 million (appendix A.14), which leaves a total equity value of €23 829 million for BMW's industrial segment.

Total debt should ideally be estimated at market value, however, market value of debt is often difficult to determine, and therefore the book value of debt is often used as an alternative (Easton et al 2010). Since the BMW Group does not report the fair market value of its debt in their annual report, the book value of debt is used instead. Net interest bearing debt for BMW's industrial segment was estimated to €2 631 million as of January 1st 2012 (appendix A.17).

A total equity value of €23 829 million and total debt value of €2.631 billion yields a capital structure for BMW's industrial business segment of 90,06 percent equity and 9,94 percent debt. In comparison, the capital structure of the Daimler Group's industrial business segment estimated by using the same procedure as for the BMW Group above, suggests a capital structure of 73,89 percent equity and 26,11 percent debt (Appendix A.33). The capital structure of the Audi Group is difficult to estimate using this method, as the Group is comprised in the Volkswagen Group and not listed separately on the stock exchange. However, the financial analysis suggests the industrial business segment of the Audi Group has a *negative* net interest bearing debt. As such, it appears as the financial leverage is very low amongst the analyzed industrial business entities in the industry. A possible explanation for the low level of financial leverage may be that all of these auto manufacturers also have financial services entities that may be more leveraged, and thus the financial leverage of the industrial entities may be held low in order to balance the total financial leverage of the company.

The estimated cost of equity capital, cost of debt capital and capital structure derived above, yields a WACC of 8.66 percent for BMW's industrial business segment:

$$WACC = (0{,}9006\ x\ 9{,}28\%) + (0{,}0994\ x\ 2{,}80\%)$$

$$WACC = 8{,}64\%$$

6.3 DCF Valuation of the BMW Group

After forecasting the financial statements of the industrial business of the BMW Group and estimating its cost of capital, the enterprise value of the BMW Group is calculated by using the "enterprise discounted cash flow" model as discussed in section 6.1.1.

The free cash flow available to the firm (FCFF) is calculated as net operating profit after tax (NOPAT) less the increase in invested capital (Easton et al. 2010). NOPAT is derived in the pro-forma income statement (appendix A.28), whereas invested capital is derived in the pro-forma balance sheet (appendix A.30). In order to calculate the present value of the FCFF, the free cash flows are discounted at the WACC rate of 8.64 percent per year. The free cash flows are discounted at "mid-year" since the cash flows are assumed to be paid equally during each year. As such, the discount rate for 2012 is calculated as 1/(1+0,0864)^0.5 = 0,9594, the discount rate for 2013 is calculated as 1/(1+0,0864)^1.5 = 0,8831, and so on. The present value of total FCFF in the horizon period is calculated to be €26 289 million as shown in table 1.23 below.

Table 1.23 – PV of FCFF, horizon period

	2012f	2013f	2014f	2015f	2016f	2017f	2018f	2019f	2020f	2021f	2022f
NOPAT	4 619	4 780	4 856	4 903	5 183	5 519	5 876	6 255	6 658	7 086	7 243
Invested Capital	23 464	24 641	25 583	26 672	27 779	29 109	30 520	32 019	33 612	35 304	35 923
Increase in Inv. C.	3 067	1 177	942	1 088	1 107	1 330	1 412	1 499	1 593	1 692	618
FCFF	1 552	3 603	3 914	3 814	4 075	4 189	4 464	4 756	5 066	5 394	6 624
Discount Factor	0,9594	0,8831	0,8129	0,7482	0,6887	0,6340	0,5835	0,5371	0,4944	0,4551	
PV of FCFF	1 489	3 182	3 182	2 854	2 807	2 656	2 605	2 555	2 505	2 455	
PV of Total FCFF, horizon period			**26 289**								

(Source: Own creation)

Furthermore, FCFF in the terminal period is calculated as FCFF in the terminal year 2022 divided by the WACC less the assumed terminal growth rate of 2.0 percent (Easton et al. 2010):

$$\text{Terminal FCFF} = \frac{FCFF_{terminal\ year}}{WACC - terminal\ growth\ rate}$$

Terminal FCFF is discounted at the horizon-end-period discount factor of 0,4551 (calculated as 1/(1,0864^9,5))(Easton et al. 2010). This yields the following present value of terminal FCFF for the industrial business of the BMW Group:

$$\text{Terminal FCFF} = \frac{6\,624}{(0{,}0864 - 0{,}02)} x\ 0{,}4551$$

Terminal FCFF = 45 402

The sum of horizon period FCFF and terminal period FCFF yields an enterprise value of the industrial business of the BMW Group of €71 691 million. Net interest bearing debt of the industrial business is deducted from the enterprise value in order to get the equity value of the industrial business. Moreover, as mentioned earlier, book value of equity of the financial services entity is added to get total equity value of the BMW Group.

Since the BMW Group has preferred shares outstanding in addition to its common shares, the market value of preferred shares are removed from total equity value together with non-controlling interests, in order to get the equity value of common stock. The calculation of equity value and value per share of common stock is shown in table 1.24. The value of BMW Group common stock is estimated to be €126,87 per share, which is a considerably higher value than the actual stock price of €51,84 as of January 1st 2012.

Table 1.24 – Equity value and value per share of common stock (own creation)

Enterprise value of industrial business	71 691
Net interest bearing debt, industrial business	2 631
Equity value of industrial business	69 060
Book value of equity, financial services	9 337
Total equity, BMW Group	78 397
Market value of preferred stock	1 958
Non-controlling Interest	65
Equity value of common stock	76 374
Common shares outstanding (in millions)	602,00
Value per share of common stock	**€ 126,87**

(Source: Own creation)

6.4 Sensitivity Analysis

The sensitivity analysis conducted in this section illustrates the impact changes to the discount factor (WACC) and terminal growth rate has on the estimated share price of the BMW Group. There is some uncertainty associated with the assumed terminal growth rate and the underlying assumptions that determines the discount factor (WACC), and as such it is important to analyze how changes to these assumptions impact the estimated share price.

Table 1.25 illustrates the estimated value per share of BMW Group common stock with a combination of a WACC ranging from 5 to 12 percent and a terminal growth rate ranging from 1 to 3 percent, holding other factors constant.

Table 1.25 – Sensitivity Analysis (own creation)

WACC/Growth	1,0 %	1,5 %	**2,0 %**	2,5 %	3,0 %
12,00 %	€ 80,69	€ 81,75	€ 82,91	€ 84,91	€ 85,62
11,00 %	€ 89,32	€ 90,80	€ 92,44	€ 94,27	€ 96,33
10,00 %	€ 100,00	€ 102,10	€ 104,46	€ 107,31	€ 110,19
9,00 %	€ 113,51	€ 116,57	€ 120,06	€ 124,09	€ 128,79
8,64 %	€ 119,28	€ 122,81	**€ 126,87**	€ 131,59	€ 137,14
8,00 %	€ 131,07	€ 135,68	€ 141,05	€ 147,39	€ 155,01
7,00 %	€ 154,74	€ 161,98	€ 170,67	€ 181,28	€ 194,55
6,00 %	€ 188,21	€ 200,31	€ 215,43	€ 234,87	€ 260,80
5,00 %	€ 238,88	€ 261,02	€ 290,53	€ 331,85	€ 393,83

(Souce: Own creation)

Table 1.25 suggests that the assumed discount factor (WACC) has a particularly large impact on the estimated share price. The estimated share price ranges from €82,91 with a WACC of 12 percent, to €290,53 with a WACC of 5 percent, holding all other factors constant and assuming a terminal growth rate of 2 percent. The estimated share price ranges from €119,28 to €137,14 when the terminal growth rate changes from 1 to 3 percent, assuming a WACC of 8,64 percent and holding other factors constant. In the most extreme examples illustrated in the table above, the estimated share price ranges from €80,69 with an assumed WACC of 12 percent and a terminal growth rate of 1 percent, to €393.83 per share with an assumed WACC of 5 percent and a terminal growth rate of 3 percent. As such, this sensitivity analysis highlights the importance of the assumed discount factor and terminal growth rate in relation to the share price derived from the DCF-model.

6.5 EV/EBITDA Valuation

As discussed in section 6.1.2 the EV/EBITDA multiple based valuation approach is here utilized to triangulate the results of the DCF valuation.

The multiple valuation approach is performed by calculating enterprise value to EBITDA multiples for the peer group, and then applying these multiples to the BMW Group to estimate its enterprise and equity values. Since the Audi Group is not listed on the stock exchange by itself, but is a part of the Volkswagen Group, the Volkswagen Group is used as a peer instead of the Audi Group in this case.

According to Koller et al. (2010) empirical evidence suggests multiples based on a forecast of profits are more accurate than multiples based on historical profits. Furthermore, Koller et al. (2010) argue that a forecast year of EBITDA that best represents the long-term prospects of the business should be used. Since the automotive industry is considered a stable growing industry overall, and all the companies in the peer group are relatively stable in terms of growth, it is believed that forecasted EBITDA for 2012 also represents a reasonable estimate of the long-term prospects of these businesses. Therefore, the EV/EBITDA multiples are calculated as enterprise value as of January 1st 2012 divided by forecasted EBITDA for 2012. The forecasted EBITDA figures are gathered from the Thomson ONE Banker database, which reports average EBITDA estimates gathered from more than 20 different analysts. The enterprise values of the peer group are calculated as total market value of equity plus net interest bearing debt (see Appendix A.34 for details). Table 1.26 below shows the calculated EV/EBITDA multiples for the peer group.

Table 1.25 – EV/EBITDA multiples

	Enterprise Value	EBITDA 2012f	EV/EBITDA
Volkswagen AG	127 912	21 574	5,93
Daimler AG	103 286	12 776	8,08
PSA Peugeot	34 023	2 650	12,84
Renault	37 899	3 871	9,79
Average Multiple			**9,16**

(Source: Own creation)

The average EV/EBITDA multiple of the peer group is calculated to be 9,16. Applying this multiple to the BMW Group's forecasted EBITDA of €12 561 million for 2012 yields a total enterprise value of €115 059 million. Deducting total net interest bearing debt of the BMW Group of €64 146 million (calculated similarly to net interest bearing debt of the industrial business show in appendix A.17, but for the entire BMW Group) and market value of preferred stock of €1 958 million yields a total value of common share equity of €48 955 million, or an estimated value of €81,32 per share of common stock.

The Daimler Group is probably the best comparable company to the BMW Group of the four companies listed in table 1.25 in terms of product portfolios and financial performance. Therefore, it may be argued that the Daimler Group's EV/EBITDA multiple of 8,08 is a reasonable multiple to apply to the BMW Group. However, the financial analysis in section 4 shows that the BMW Group has had a higher ROIC

and profit margin compared to the Daimler Group over the last few years, and as such it seems reasonable to apply a somewhat higher EV/EBITDA multiple to the BMW Group, such as the average peer group 9,16 EV/EBITDA multiple.

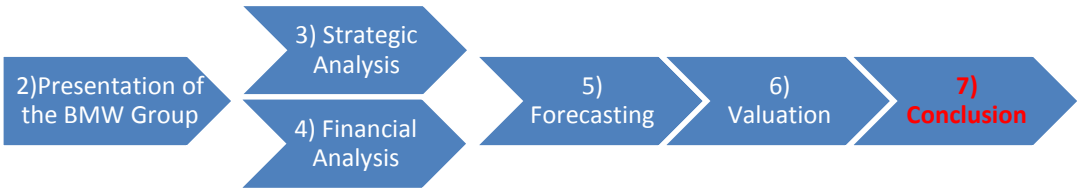
Table 1.26 below shows the estimated price per share of BMW Group common stock should a different EV/EBITDA multiple in the range of 6-11 be applied to the BMW Group.

Table 1.26 – EV/EBITDA multiples applied to the BMW Group

EV/EBITDA	BMW Share Price
6	€ 15,39
7	€ 36,25
8	€ 57,12
9,16	**€ 81,32**
10	€ 98,85
11	€ 119,71
12	€ 140,58

(Source: Own creation)

7. Conclusion



The main problem statement of this thesis was to establish the fair value of the BMW Group common stock as of January 1st 2012 based on a fundamental valuation analysis, and assess whether the market under- or overvalues the stock. The market price of the BMW Group stock was €51.84 per share as of January 1st 2012. In order to establish the fair value of the BMW Group stock and forecast its financial performance, the automotive industry and the BMW Group was analyzed both from a strategic and from a financial perspective.

The PESTEL and the Porters Five Forces analyses both indicate that the automotive industry is relatively strongly correlated with the general economic development, and the industry was as such struggling during the global financial crisis that peaked during 2008-2009. Especially the mature markets of Europe and North America struggled during the financial crisis; however, the last couple of years have shown

solid growth in passenger car sales worldwide, as the world economy has started to recover from the global financial crisis. Future expectations for the development of the world economy have been emphasized when forecasting total worldwide passenger car sales and average vehicle prices. The PESTEL analysis further suggests that the new CO2 emission limits for passenger cars currently being implemented in the European Union, and also being considered in other major markets such as the United States and Brazil, may represent a serious challenge for automakers to comply with, and in particular premium car manufacturers such as BMW. These regulations may force BMW to change its strategy towards producing more environmentally friendly vehicles, and perhaps focus more on smaller cars, hybrid cars, or even electric cars, in order to reduce average CO2-emissions per vehicle sold. The potential impacts of such CO2 regulations are considered when assessing BMWs future performance, such as forecasting future R&D costs and market share development. The Porters Five Forces analysis further suggests that although competition seems to be high in the overall passenger car market, it appears to be less competitive in the premium passenger car segment, which may explain the high ROIC of both BMW and the other premium automotive manufacturers in comparison to the budget car manufacturers analysed in this thesis.

The internal analysis of the BMW Group emphasizes the solid brand reputation of BMW, which was ranked as the most reputable company in the world among 100 different major multinational companies in a recent study. Additionally, the Group was ranked as the most valuable brand name in the car industry in the latest brand equity research report by MillwardBrown. The internal analysis further emphasizes the importance of having a constant addition of new car models or revamped existing models, as the ROIC for a car model typically decreases after the first couple of years on the market. The BMW Group does seem to be aware of this and is constantly revamping existing car models in addition to releasing brand new models, such as the planned release of the BMW i3 in 2013, and the BMW i8 in 2014. The BMW Group's new common automobile platform strategy has also made it easier and less expensive for the Group to develop new car models, and has likely contributed towards a lower COGS margin for the Group over the last few years.

Furthermore, the financial analysis revealed that the BMW Group has had very positive ROIC and operating margin development over the past few years. After a tough period during the financial crisis in 2008 and 2009, ROIC rose to 14.45percent in 2010 and to 25.09 percent in 2011. The development of the operating margin has seen a similar pattern, and rose to 5.7 percent in 2010 and 8.8 percent in 2011. The

financial analysis suggests that increased revenues combined with a decreasing COGS margin is the main reason for BMW's positive financial development in the profit margin over the last few years. The BMW Group was further found to have a high CAPEX margin in comparison with their peers, which to a certain extent may explain why they have been able to capture additional market share in the industry over the last few years. The high CAPEX margin also signals intent of continuing to grow and invest in the Group's core business activities.

Relatively good outlooks for the world economy after a slow period during the global financial crisis, in addition to the BMW Group's solid brand reputation, constant stream of new and revamped car models, reduced COGS margin and generally healthy financial position, suggests that the BMW Group is very well positioned for the future. Thus, the BMW Group is forecasted to continue its solid financial performance with a forecasted yearly ROIC in the range of 18-21 percent over the forecast period.

The positive forecasts are ultimately reflected in the DCF-valuation which estimates a value of €126,87 per share of BMW common stock and suggests that the market undervalues the BMW Group stock as of January 1st 2012. The estimate of the DCF-valuation is validated by performing a sensitivity analysis that shows that the estimated WACC has a particularly large impact on the valuation. However, the sensitivity analysis also revealed that even with a much higher WACC, the DCF-valuation still suggests that the market undervalues the BMW Group stock as of January 1st 2012. Furthermore, the market based EV/EBITDA relative valuation approach applied to triangulate the results of the DCF-valuation also indicate that the market undervalues the BMW Group stock, thus further strengthening the conclusion from the DCF-valuation approach.

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Appendices

Appendix A.1

Interview with Tim Schuldt, Equity Analyst, Equinet AG, Frankfurt.

Are there any specific factors you think we should consider when valuing BMW?

There are in particular two issues you may want to look into when valuing an automotive company like BMW. First of all, the company has a bank, or financial services, mixed into the numbers. If you are doing a DCF-valuation, you would typically only value the industrial business of the company using the DCF-approach. You would then deduct the net interest bearing debt of the industrial business only, and finally add back the value of the financial services business. Most analysts would here typically just add back the book value of equity of the financial services business.

However, the second issue is that it is typically difficult to determine the debt and cash amounts belonging to the financial services business, as it is all mixed together. As such, you may need to make certain assumptions depending on what data is available.

Are there any specific internal drivers you look at in the automotive industry?

No, nothing specific.

What are the major risk factors in the automotive industry as you see it?

I think that the three main risks are ruined brand image, changes in legislation (CO2 limits in particular) and cyclical risk.

For instance, Toyota experienced some brand image problems when they had to call back millions of cars due to technical problems and defects in 2009-2010. The problem with lost brand image is that it is very difficult to change, and you have typically invested large amounts in research and development for a specific car model that is non-recoverable.

The EU has already set in place new regulations governing CO2 limits for new vehicles which will be further expanded in the coming years. I think that in particular the new limits that will take effect from 2020 will be a tough challenge for auto manufacturers to comply with, and especially a premium car

manufacturer as BMW. The regulations will be based on total number of cars sold and not for individual cars, which means that a brand like BMW may have to sell more small cars, or even look into selling electric cars.

The last major risk is the industry's dependence on the general economic environment. For instance, probably 90 percent of new cars sold are financed by loans, and as such a new credit crunch could have a major negative impact on car sales.

What is currently driving automotive industry growth?

Regional growth in Asia, especially China, has been driving the industry growth for the past few years. I believe that Asia will remain as the growth driver for the coming years, because Europe and North America are mature markets with less opportunity to grow. However, it may be that growth in Asia will slow down on average.

What factors do you look at when forecasting revenue?

I look at product cycles, as most car models typically sell most after 18-24 months on the market, and then slow down after 5 years. Therefore, it is important to have a number of fresh models on the market. Furthermore, you can look at market shares and growth in certain regions, depending on what assumptions you make.

Typically, you would want to forecast the next few years in detail, and then have a more constant growth rate (of 4%) period up until the perpetuity growth.

Interview with Daniel Schwartz Auto analyst at Commerzbank

Are there any specific internal drivers you look at in the automotive industry?

There are no specific industry drivers that we really look at.

Do you look at any specific company factors when analyzing the automotive industry or comparing the premium car manufacturers with each other?

The margin is actually quite different among the three German premium car makers (Mercedez, BMW and Audi). Mercedes Benz is actually lagging in comparison to Audi and BMW, although Mercedes have a

higher transaction price (retail price). Suggesting that cost basis are different and more efficient for both Audi and BMW. This is mainly due to the fact that both Audi and BMW are using a common platform and more common parts (around 60%) to build their cars in comparison to Mercedes Benz, who does not use a common platform and they do also use less common parts (around 5 percent). This does ultimately lead to higher cost per unit for Mercedes Benz.

What makes BMW different from its competitors, especially in the premium segment?

As mentioned previously, we believe that it is clearly the cost strcutre that differantiates BMW from its competitors. They are currently using a common platform to produce all of its cars. This means that the development of new cars are much cheaper, as they are able to spread the fixed cost over more units. For instance, without a common platform you need to produce around 50 000 cars annually to be profitable, but with a common platform you can produce around 10 000 cars and still be profitable. Additionally, the common platform allows BMW to produce more cars and models in the different niche markets/segments within the premium car segment in comparison to Mercedes Benz. For instance, BMW has clearly more models than Mercedes Benz in the convertible segment due to the use of a common platform.

However, Mercedes Benz have now started to develop a common platform as well, but BMW does certainlty posses a compettitve advantage at the moment and for the comming three years or more.

What are the major risk factors in the automotive industry and especially for the premium segment as you see it?

There are 4 factors that are especially important for the premium segment:

- Growth in China
- Interest rate developments
- Price of raw materials
- Currency exchange rates

What is the outlook for the automotive industry the comming 5 years?

I do belivie that in the medium term, the growth in the industry will be mainly driven by car sales in China. The car sales relative to GDP in China is still below countires such as South Korea and Brazil. Thus

it is not belivied that the market is overheated in China. However, the market in China is certainly volatile as the growth in car market in China is driven by first time buyers. While demand in regions such as Europe and North America are by 80 percent driven by replacement demand, and growth are as such less volatile.

It is also believed that the market in North America is expected to grow more than the European market in the shorter term. Firstly due to the current soverign debt problems in Europe. Secondly, we have seen a good growth in Nort America since the crisis and currently the car purchases per household is at a 50 year low. It is as such believed that the North American market will in the shorter-term grow at a faster rate to later slow down.

Appendix A.2

Political factors	Economic factors	Social factors
• Taxation policy • Government subsidies • Government regulations	• GDP trends / Purchasing power • Interest rates • Currency risk • Commodity prices • Difficulty of raising capital • Risk of credit rating downgrade • Counterparty risk • Wage cost • Unemployment rate • Inflation	• Social mobility • Lifestyle • Income distribution • Customer trend: more environmental minded • Unions • Availability of qualified competence

Technological factors	Environmental factors	Legal factors
• Government spending on research • Speed of technology transfer • Rates of obsolescence • Patent/design protection • New discoveries	• CO2 taxes • Energy availability and cost • Environmental regulations • Natural disasters	• Employment law • Competition law • Safety requirements

Appendix A.3

BMW revenue in Germany vs. GDP growth in Germany					
Year	BMW Revenue	GDP	GDP Rebased	Yearly BMW revenue growth	Yeraly GDP Growth
2001	10,238	2,101,900	10,238		
2002	10,404	2,132,200	10,386	1.60%	1.40%
2003	10,590	2,147,500	10,460	1.80%	0.70%
2004	11,961	2,195,700	10,695	12.90%	2.20%
2005	11,001	2,224,400	10,835	-8.00%	1.30%
2006	10,601	2,313,900	11,271	-3.60%	4.00%
2007	11,918	2,428,500	11,829	12.40%	5.00%
2008	10,739	2,473,800	12,049	-9.90%	1.90%
2009	11,436	2,374,500	11,566	6.50%	-4.00%
2010	11,207	2,476,800	12,064	-2.00%	4.30%
2011	12,859	2,570,800	12,522	14.70%	3.80%
	BMW	GDP		BMW	GDP
Covariance	75,260,083		Average growth:	2.60%	2.10%
Std. Dev.	765	154,485	Std. dev. avr. growth:	8.30%	2.40%
Correlation*	0.64				
R^2**	0.41				

*The correlation coefficient is calculated as: $\frac{Covariance}{(Std.Dev.of\ BMW\ Revenue)\ x\ (Std.Dev.of\ GDP)}$

** R^2 is estimated as correlation coefficient squared.

Results from the regression run in excel is summarized below:

Regression Statistics	
Multiple R	0,636732462
R Square	0,405428228
Adjusted R Square	0,339364698
Standard Error	652,2267665
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2610654,751	2610654,751	6,136944653	0,035147615
Residual	9	3828597,794	425399,7549		
Total	10	6439252,545			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	3884,463831	2950,578186	1,316509371	0,220541116	-2790,207733
X Variable 1	0,647424292	0,261344213	2,477285743	0,035147615	0,056222611

	Upper 95%	*Lower 95.0%*	*Upper 95.0%*
Intercept	10559,1354	-2790,207733	10559,1354
X Variable 1	1,238625974	0,056222611	1,238625974

Appendix A.4

Threat of new entrants (Low)

- High sunk costs
- Reinvestments
- High capital requirements
- Brand equity
- Access to distribution channels (Network of dealerships)
- Legislation and government policy
- Asian companies increasing their presence domestically

Supplier Power (Low)

- Buyers are relatively concentrated in comparison to suppliers
- Many components are standardized (e.g. oils, belts, filters and mufflers)
- Relatively low switching cost for buyers
- High supplier dependence on automaker revenue and profitability

Threat of substitutes (Relatively mild)

- Alternative fuels
- Alternative mean of transportation (motorcycle, bikes)
- Public transport (bus, train, metro)
- Budget or Passenger cars

Bargaining power of customers (Relatively high)

- Relatively standardized product (vehicle) in terms of transportation
- Low switching cost for consumers to other brands and models
- Significant number of different vehicles

Degree of rivalry (High)

- Relatively low industry concentration (HHI index)
- Low or negative industry growth in certain regions and countries
- Low switching cost for

available in terms of price, quality and design
- Large number of substitutes available in public transport or alternative mean of transportation (motorcycle, bikes)
- Second-hand market

consumers (switching to other models or brands)
- Price pressure

Appendix A.5

Calculation of the HHI for Automobile industry based on sales				
	Market share 2011 (%)	**Squared market share 2011**	**Market share 2006 (%)**	**Squared market share 2006**
General Motors	11.7	136.89	13.83	191.18
Volkswagen Group	10.58	111.94	8.72	76.02
Toyota	10.31	106.30	13.40	179.55
Renault - Nissan Group	9.84	96.83	10.00	99.96
Hyundai - Kia Group	8.46	71.57	5.70	32.50
Ford	7.38	54.46	10.03	100.63
Fiat - Chrysler	5.26	27.67	3.03	9.18
Peugeot SA	4.6	21.16	5.21	27.17
SAIC Motor corp. Ltd	5.2	27.04	2.04	4.18
Honda Motor Co Ltd	3.9	15.21	5.47	29.90
Suzuki Motor Corp	3.14	9.86	3.08	9.50
Dongfeng Motor Group	2.82	7.95	1.14	1.30
Chongqing Changan	2.2	4.84	0.84	0.71
Daimler	2.73	7.45	7.17	51.43
BMW Group	2.16	4.67	2.09	4.37
Other	9.71	94.28	8.24	67.96
SUM	100	798	100	886

Appendix A.6

Global Automobile Sales							
	2006	2007	2008	2009	2010	2011	Total Growth
Asia Pacific	12,929,000	12,567,000	11,899,000	11,518,000	13,458,000	13,189,000	2.01%
China	7,184,000.00	8,785,000	9,363,000	13,622,000	18,042,000	18,533,000	157.98%
Rest of Europe	13,101,000	14,757,000	13,741,000	12,543,000	13,266,000	13,681,000	4.43%
Germany	3,468,000	3,148,000	3,090,000	3,807,000	2,916,000	3,174,000	-8.48%
North America	19,382,000	18,900,000	15,879,000	12,641,000	13,955,000	15,224,000	-21.45%
Latin America	2,778,000	3,793,000	4,019,000	3,887,000	4,398,000	5,088,000	83.15%
Africa & Middle East	482,075	473,041	420,412	390,839	477,404	536,561	11.30%
Total sales	59,324,075	62,423,041	58,411,412	58,408,839	66,512,404	69,425,561	17.03%

Growth in percent							
	2006	2007	2008	2009	2010	2011	Average over period
Asia Pacific	N/A	-2.80%	-5.32%	-3.20%	16.84%	-2.00%	0.71%
China	N/A	22.29%	6.58%	45.49%	32.45%	2.72%	21.90%
Europe	N/A	12.64%	-6.88%	-8.72%	5.76%	3.13%	1.19%
Germany	N/A	-9.23%	-1.84%	23.20%	-23.40%	8.85%	-0.48%
North America	N/A	-2.49%	-15.98%	-20.39%	10.39%	9.09%	-3.87%
Latin America	N/A	36.54%	5.96%	-3.28%	13.15%	15.69%	13.61%
Africa & Middle East	N/A	-1.87%	-11.13%	-7.03%	22.15%	12.39%	2.90%
Total sales	N/A	5.22%	-6.43%	-0.0044%	13.87%	4.38%	3.41%

Appendix A.7

BMW sales by region and market							
	2006	2007	2008	2009	2010	2011	Total growth
Rest of Europe	529,100	617,400	583,700	494,400	524,100	573,200	8.33%
Asia/Oceania	142,200	159,500	165,700	183,100	286,300	375,500	164.06%
North America	337,400	364,000	331,800	271,000	298,300	341,300	1.16%
Germany	285,300	280,900	280,900	267,500	267,200	285,300	0.00%
Rest of World	80,000	78,900	73,800	70,300	85,300	93,700	17.13%
Total sales	1,374,000	1,500,700	1,435,900	1,286,300	1,461,200	1,669,000	21.47%

Global Automobile Sales							
	2006	2007	2008	2009	2010	2011	Total Growth
Asia/Oceania	20,113,000	21,352,000	21,262,000	25,140,000	31,500,000	31,722,000	57.72%
Rest of Europe	13,101,000	14,757,000	13,741,000	12,543,000	13,266,000	13,681,000	4.43%
Germany	3,468,000	3,148,000	3,090,000	3,807,000	2,916,000	3,174,000	-8.48%
North America	19,382,000	18,900,000	15,879,000	12,641,000	13,955,000	15,224,000	-21.45%
Rest of World	3,260,075	4,266,041	4,439,412	4,277,839	4,875,404	5,624,561	72.53%
Total sales	59,324,075	62,423,041	58,411,412	58,408,839	66,512,404	69,425,561	17.03%

BMW Market share by region						
	2006	2007	2008	2009	2010	2011
Rest of Europe	4.04%	4.18%	4.25%	3.94%	3.95%	4.19%
Asia/Oceania	0.71%	0.75%	0.78%	0.73%	0.91%	1.18%
North America	1.74%	1.93%	2.09%	2.14%	2.14%	2.24%
Germany	8.23%	8.92%	9.09%	7.03%	9.16%	8.99%
Rest of World	2.45%	1.85%	1.66%	1.64%	1.75%	1.67%
Total sales	2.32%	2.40%	2.46%	2.20%	2.20%	2.40%

Appendix A.8

Mercedes-Benz sales by region and market						
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Germany	353,000	343,000	332,000	298,000	293,000	291,000
Rest of Europe	432,000	436,000	401,000	325,000	343,000	334,000
NAFTA	272,000	276,000	282,000	236,000	256,000	288,000
Asia/Oceania	NA	NA	86,000	94,000	191,000	255,000
Rest of world	NA	NA	172,000	141,000	194,000	213,000
Total	1,252,000	1,293,000	1,273,000	1,094,000	1,277,000	1,381,000

Mercedes-Benz market share						
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Germany	10.18%	10.90%	10.74%	7.83%	10.05%	9.17%
Rest of Europe	3.30%	2.95%	2.92%	2.59%	2.59%	2.44%
NAFTA	1.40%	1.46%	1.78%	1.87%	1.83%	1.89%
Asia/Oceania	NA	NA	0.40%	0.37%	0.61%	0.80%
Rest of world	NA	NA	3.87%	3.30%	3.98%	3.79%
Total	2.11%	2.07%	2.18%	1.87%	1.92%	1.99%

AUDI sales by region and market						
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Germany	257,792	254,014	258,111	228,844	229,157	254,011
Rest of Europe	400,671	432,466	451,566	390,010	418,474	472,307
Asia/Oceania	90,116	101,996	119,598	158,941	227,938	313,036
USA	81,708	93,506	87,760	82,716	101,629	117,561
Other	79,901	82,169	86,434	89,218	115,213	145,744
Total	910,188	964,151	1,003,469	949,729	1,092,411	1,302,659

AUDI market share						
	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Asia/Oceania	0.45%	0.48%	0.56%	0.63%	0.72%	0.99%
Rest of Europe	3.06%	2.93%	3.29%	3.11%	3.15%	3.45%
Germany	7.43%	8.07%	8.35%	6.01%	7.86%	8.00%
North America	0.42%	0.49%	0.55%	0.65%	0.73%	0.77%
Rest of World	2.45%	1.93%	1.95%	2.09%	2.36%	2.59%
Total	1.53%	1.54%	1.72%	1.63%	1.64%	1.88%

Appendix A.9

Strengths

- A solid worldwide brand name.
- A broad range of car models with several new models currently available and more planned for the future.
- A well functioning common platform that provides cost benefits.
- Expertise in the premium market segment.
- A strong position in Germany, Europe and North America in comparison with main competitors Mercedes-Benz and Audi.

Weaknesses

- Not very diversified, highly focused on the premium and luxury car segments and dependent on customers in these segments.
- Somewhat increased risk due to the use of common automobile platforms.
- Competitive advantages related to the common platform strategy may be of short term.

Opportunities

- Still a high growth potential in emerging markets in Asia and South America, and especially in China.
- Potential growth in North America over the short-medium term.
- Further development of hybrid and electric cars may provide opportunities in a new market segment.

Threats

- Risk of slower growth in emerging economies and/or continued stagnant growth in established markets.
- Stricter CO2 emissions regulations and possibility of other new government regulations interfering with business.
- Currency risks due to large exports and production in foreign countries.
- Risk of higher commodity prices, and especially oil/fuel prices.
- High competition between auto manufacturers.
- High buyer power of customers.
- Substitutes such as public transport, bicycles, electric

cars and air transport.

- Possible threat of new entrants, particularly from emerging markets.

Appendix A.10

BMW Industrial Business percent contribution					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	79.5%	75.9%	73.9%	76.9%	78.7%
COGS	78.6%	74.2%	73.2%	75.6%	77.4%
Gross Profit	-	-	-	-	-
Sales and adm. costs	87.0%	88.1%	88.6%	89.0%	87.9%
Other operating income	70.3%	37.9%	53.1%	63.3%	62.1%
Other operating expenses	68.0%	46.5%	58.7%	69.6%	72.1%
Profit before financial result	-	-	-	-	-
Result from equity accounted investments	100.0%	100.0%	100.0%	100.0%	100.0%
Interest and similar income	28.6%	26.7%	24.0%	22.1%	28.3%
Interest and similar expenses	35.6%	35.1%	36.4%	30.0%	32.7%
Other financial result	100.0%	100.0%	100.0%	100.0%	100.0%
Financial result	-	-	-	-	-
Profit before tax	-	-	-	-	-
Income taxes	65.6%	65.0%	65.0%	75.4%	64.5%
Net profit	-	-	-	-	-
Attributable to minority interest	100.0%	100.0%	100.0%	93.8%	96.2%
Attributable to shareholders of BMW AG	-	-	-	-	-

BMW Financial Services Business percent contribution					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	20.5%	24.1%	26.1%	23.1%	21.3%
COGS	21.4%	25.8%	26.8%	24.4%	22.6%
Gross Profit	-	-	-	-	-
Sales and adm. costs	13.0%	11.9%	11.4%	11.0%	12.1%
Other operating income	29.7%	62.1%	46.9%	36.7%	37.9%
Other operating expenses	32.0%	53.5%	41.3%	30.4%	27.9%
Profit before financial result	-	-	-	-	-
Result from equity accounted investments	0.0%	0.0%	0.0%	0.0%	0.0%
Interest and similar income	71.4%	73.3%	76.0%	77.9%	71.7%
Interest and similar expenses	64.4%	64.9%	63.6%	70.0%	67.3%
Other financial result	0.0%	0.0%	0.0%	0.0%	0.0%
Financial result	-	-	-	-	-
Profit before tax	-	-	-	-	-
Income taxes	34.4%	35.0%	35.0%	24.6%	35.5%
Net profit	-	-	-	-	-
Attributable to minority interest	0.0%	0.0%	0.0%	6.3%	3.8%
Attributable to shareholders of BMW AG	-	-	-	-	-

Appendix A.11

Income Statement BMW Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	44,511	40,354	37,468	46,528	54,153
COGS	-36,746	-34,987	-33,178	-37,446	-42,001
Gross Profit	7,766	5,367	4,289	9,082	12,152
Sales and adm. costs	-4,572	-4,728	-4,463	-4,923	-5,432
Other operating income	513	541	429	485	486
Other operating expenses	-360	-551	-472	-736	-816
Profit before financial result	3,347	629	-216	3,908	6,390
Result from equity accounted investments	11	25	42	98	164
Interest and similar income	185	183	206	151	216
Interest and similar expenses	-319	-326	-369	-290	-308
Other financial result	-66	-127	130	-251	-609
Financial result	-189	-245	8	-291	-537
Profit before tax	3,158	383	-208	3,616	5,853
Income taxes	-485	-126	6	-1,214	-1,596
Net profit	2,673	258	-202	2,402	4,256
Attributable to minority interest	8	6	6	15	25
Attributable to shareholders of BMW AG	2,665	252	-208	2,387	4,231

Income Statement BMW Financial Services Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	11,507	12,843	13,213	13,949	14,668
COGS	-10,006	-12,161	-12,178	-12,099	-12,275
Gross Profit	1,500	682	1,036	1,850	2,393
Sales and adm. costs	-682	-641	-577	-606	-745
Other operating income	217	887	379	281	296
Other operating expenses	-170	-636	-332	-322	-316
Profit before financial result	865	292	505	1,203	1,628
Result from equity accounted investments	0	1	-6	0	-2
Interest and similar income	460	502	650	534	547
Interest and similar expenses	-578	-604	-645	-676	-635
Other financial result	-32	-224	116	176	-8
Financial result	-150	-325	116	33	-98
Profit before tax	715	-32	621	1,237	1,530
Income taxes	-254	105	-209	-396	-880
Net profit	461	72	412	841	651
Attributable to minority interest	0	0	0	1	1
Attributable to shareholders of BMW AG	461	72	412	840	650

Appendix A.12

BMW Industrial Business - Percent contribution					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
ASSETS					
Non-current assets					
Intangible assets	95.20%	96.68%	97.96%	98.07%	90.45%
Property, plant and equipment	99.60%	99.78%	99.82%	99.83%	99.67%
Leased products	1.26%	1.17%	0.90%	0.86%	0.58%
Investments accounted for using the equity method	100.00%	73.87%	83.21%	89.15%	93.05%
Other investments	53.40%	33.39%	33.20%	38.82%	44.08%
Receivables from sales financing	0.00%	0.00%	0.00%	0.00%	0.00%
Financial assets	7.65%	11.65%	28.12%	28.90%	12.83%
Deferred tax	62.58%	67.60%	61.95%	67.18%	79.44%
Other assets	3.42%	11.81%	15.23%	15.28%	15.93%
Total non-current assets	29.28%	25.44%	27.18%	26.44%	25.11%
Current assets					
Inventories	99.70%	99.88%	99.86%	99.90%	99.89%
Trade receivables	95.70%	94.53%	93.21%	90.04%	95.62%
Receivables from sales financing	0.00%	0.00%	0.00%	0.00%	0.00%
Financial assets	65.06%	37.65%	47.52%	53.38%	55.74%
Current tax	75.95%	59.47%	83.05%	91.60%	89.20%
Other assets	39.07%	36.75%	32.23%	32.89%	32.50%
Cash and cash equivalents	52.19%	68.06%	55.76%	75.20%	75.00%
Total current assets	41.99%	40.21%	35.68%	38.63%	40.01%
Total assets	35.01%	32.08%	31.35%	32.35%	32.03%
Equity	63.07%	72.25%	72.49%	69.61%	65.55%
Non-current liabilities					
Pension provisions	85.20%	89.59%	58.08%	23.48%	39.17%
Other provisions	90.28%	89.77%	87.32%	89.71%	93.81%
Deferred tax	42.99%	38.30%	34.64%	31.87%	17.16%
Financial liabilities	3.33%	8.74%	0.75%	3.21%	4.78%
Other liabilities	15.66%	22.36%	25.68%	18.94%	17.59%
Total non-current liabilities	23.70%	23.52%	16.34%	14.15%	14.66%
Current liabilities					
Other provisions	92.81%	85.30%	86.62%	84.41%	83.07%
Current tax	77.97%	73.93%	77.75%	85.64%	87.16%
Financial liabilities	9.04%	8.58%	17.40%	3.58%	4.77%
Trade payables	82.31%	85.44%	87.22%	89.91%	90.71%
Other liabilities	30.30%	24.76%	24.89%	35.66%	35.20%
Total current liabilities	29.01%	22.45%	26.88%	30.70%	30.61%
Total equity and liabilities	35.01%	32.08%	31.35%	32.35%	32.03%

BMW Financial Services Business - Percent contribution					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
ASSETS					
Non-current assets					
Intangible assets	4.80%	3.32%	2.04%	1.93%	9.55%
Property, plant and equipment	0.40%	0.22%	0.18%	0.17%	0.33%
Leased products	98.74%	98.83%	99.10%	99.14%	99.42%
Investments accounted for using the equity method	0.00%	26.13%	16.79%	10.85%	6.95%
Other investments	46.60%	66.61%	66.80%	61.18%	55.92%
Receivables from sales financing	100.00%	100.00%	100.00%	100.00%	100.00%
Financial assets	92.35%	88.35%	71.88%	71.10%	87.17%
Deferred tax	37.42%	32.40%	38.05%	32.82%	20.56%
Other assets	96.58%	88.19%	84.77%	84.72%	84.07%
Total non-current assets	**70.72%**	**74.56%**	**72.82%**	**73.56%**	**74.89%**
Current assets					
Inventories	0.30%	0.12%	0.14%	0.10%	0.11%
Trade receivables	4.30%	5.47%	6.79%	9.96%	4.38%
Receivables from sales financing	100.00%	100.00%	100.00%	100.00%	100.00%
Financial assets	34.94%	62.35%	52.48%	46.62%	44.26%
Current tax	24.05%	40.53%	16.95%	8.40%	10.80%
Other assets	60.93%	63.25%	67.77%	67.11%	67.50%
Cash and cash equivalents	47.81%	31.94%	44.24%	24.80%	25.00%
Total current assets	**58.01%**	**59.79%**	**64.32%**	**61.37%**	**59.99%**
Total assets	**64.99%**	**67.92%**	**68.65%**	**67.65%**	**67.97%**
Equity	36.93%	27.75%	27.51%	30.39%	34.45%
Non-current liabilities					
Pension provisions	14.80%	10.41%	41.92%	76.52%	60.83%
Other provisions	9.72%	10.23%	12.68%	10.29%	6.19%
Deferred tax	57.01%	61.70%	65.36%	68.13%	82.84%
Financial liabilities	96.67%	91.26%	99.25%	96.79%	95.22%
Other liabilities	84.34%	77.64%	74.32%	81.06%	82.41%
Total non-current liabilities	76.30%	76.48%	83.66%	85.85%	85.34%
Current liabilities					
Other provisions	7.19%	14.70%	13.38%	15.59%	16.93%
Current tax	22.03%	26.07%	22.25%	14.36%	12.84%
Financial liabilities	90.96%	91.42%	82.60%	96.42%	95.23%
Trade payables	17.69%	14.56%	12.78%	10.09%	9.29%
Other liabilities	69.70%	75.24%	75.11%	64.34%	64.80%
Total current liabilities	70.99%	77.55%	73.12%	69.30%	69.39%
Total equity and liabilities	**64.99%**	**67.92%**	**68.65%**	**67.65%**	**67.97%**

Appendix A.13

Balance Sheet BMW Group - Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets					
Intangible assets	5,245	4,954	4,833	4,492	4,381
Property, plant and equipment	10,751	10,233	10,425	10,387	10,768
Leased products	214	229	162	154	134
Investments accounted for using the equity method	63	82	114	189	281
Other investments	112	108	77	69	247
Receivables from sales financing	0	0	0	0	0
Financial assets	90	211	427	539	218
Deferred tax	451	585	784	936	1,530
Other assets	14	78	97	106	90
Total non-current assets	**16,940**	**16,479**	**16,920**	**16,872**	**17,650**
Current assets					
Inventories	7,120	6,613	6,005	7,064	8,901
Trade receivables	2,485	1,979	1,588	1,909	2,905
Receivables from sales financing	0	0	0	0	0
Financial assets	2,357	1,245	1,528	1,741	2,091
Current tax	180	358	789	1,068	1,065
Other assets	824	677	801	973	1,087
Cash and cash equivalents	1,249	5,073	4,331	5,589	5,832
Total current assets	**14,214**	**15,945**	**15,041**	**18,344**	**21,881**
Total assets	**31,155**	**32,424**	**31,961**	**35,216**	**39,531**
Total equity	**13,714**	**14,647**	**14,437**	**16,079**	**17,766**
Non-current liabilities					
Pension provisions	3,751	2,987	1,854	549	1,082
Other provisions	2,299	2,490	2,539	3,650	3,737
Deferred tax	1,167	1,056	959	935	562
Financial liabilities	680	2,681	277	1,720	2,272
Other liabilities	317	492	586	489	512
Total non-current liabilities	**8,214**	**9,707**	**6,215**	**7,343**	**8,164**
Current liabilities					
Other provisions	2,496	1,824	1,915	3,567	3,262
Current tax	630	468	650	1,026	1,188
Financial liabilities	1,934	2,579	5,034	1,420	1,834
Trade payables	2,923	2,189	2,723	3,912	4,844
Other liabilities	1,244	1,010	988	1,868	2,473
Total current liabilities	**9,227**	**8,070**	**11,310**	**11,794**	**13,601**
Total equity and liabilities	**31,155**	**32,424**	**31,961**	**35,216**	**39,531**

Balance Sheet BMW Group - Financial Services Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets					
Intangible assets	425	687	546	539	857
Property, plant and equipment	357	1,059	960	1,040	917
Leased products	16,799	19,295	17,811	17,637	22,978
Investments accounted for using the equity method	0	29	23	23	21
Other investments	97	214	155	108	314
Receivables from sales financing	20,248	22,192	23,478	27,126	29,331
Financial assets	1,083	1,597	1,092	1,328	1,484
Deferred tax	269	281	482	457	396
Other assets	401	582	543	586	478
Total non-current assets	**39,679**	**45,937**	**45,089**	**48,844**	**56,775**
Current assets					
Inventories	229	677	550	702	737
Trade receivables	187	326	269	420	381
Receivables from sales financing	13,996	15,871	17,116	18,239	20,014
Financial assets	1,265	2,061	1,687	1,521	1,660
Current tax	57	244	161	98	129
Other assets	1,285	1,165	1,683	1,984	2,258
Cash and cash equivalents	1,144	2,381	3,436	1,843	1,944
Total current assets	**18,164**	**22,725**	**24,903**	**24,807**	**27,123**
Total assets	**57,842**	**68,662**	**69,992**	**73,651**	**83,898**
Total equity	**8,030**	**5,626**	**5,478**	**7,021**	**9,337**
Non-current liabilities					
Pension provisions	876	327	1,118	1,014	1,101
Other provisions	377	267	167	-929	-588
Deferred tax	1,547	1,701	1,810	1,998	2,711
Financial liabilities	20,748	27,816	34,114	34,113	35,325
Other liabilities	1,707	1,709	1,695	2,094	2,399
Total non-current liabilities	**25,255**	**31,819**	**38,904**	**38,290**	**40,949**
Current liabilities					
Other provisions	330	301	143	-741	-158
Current tax	178	165	186	172	175
Financial liabilities	20,559	27,308	21,900	25,100	28,546
Trade payables	628	373	399	439	496
Other liabilities	2,862	3,070	2,981	3,371	4,553
Total current liabilities	**24,557**	**31,217**	**25,609**	**28,340**	**33,612**
Total equity and liabilities	**57,842**	**68,662**	**69,992**	**73,651**	**83,898**

Appendix A.14

Income Statement - BMW Group					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	56,018	53,197	50,681	60,477	68,821
COGS	-46,752	-47,148	-45,356	-49,545	-54,276
Gross Profit	**9,266**	**6,049**	**5,325**	**10,932**	**14,545**
Sales and adm. costs	-5,254	-5,369	-5,040	-5,529	-6,177
Other operating income	730	1,428	808	766	782
Other operating expenses	-530	-1,187	-804	-1,058	-1,132
Profit before financial result	**4,212**	**921**	**289**	**5,111**	**8,018**
Result from equity accounted investments	11	26	36	98	162
Interest and similar income	645	685	856	685	763
Interest and similar expenses	-897	-930	-1,014	-966	-943
Other financial result	-98	-351	246	-75	-617
Financial result	**-339**	**-570**	**124**	**-258**	**-635**
Profit before tax	**3,873**	**351**	**413**	**4,853**	**7,383**
Income taxes	-739	-21	-203	-1,610	-2,476
Net profit	**3,134**	**330**	**210**	**3,243**	**4,907**
Attributable to minority interest	8	6	6	16	26
Attributable to shareholders of BMW AG	**3126**	**324**	**204**	**3227**	**4881**

Income Statement - BMW Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	44,511	40,354	37,468	46,528	54,153
	-	-	-	-	-
COGS	36,746	34,987	33,178	37,446	42,001
Gross Profit	7,766	5,367	4,289	9,082	12,152
Sales and adm. costs	-4,572	-4,728	-4,463	-4,923	-5,432
Other operating income	513	541	429	485	486
Other operating expenses	-360	-551	-472	-736	-816
Profit before financial result	3,347	629	-216	3,908	6,390
Result from equity accounted investments	11	25	42	98	164
Interest and similar income	185	183	206	151	216
Interest and similar expenses	-319	-326	-369	-290	-308
Other financial result	-66	-127	130	-251	-609
Financial result	-189	-245	8	-291	-537
Profit before tax	3,158	383	-208	3,616	5,853
Income taxes	-485	-126	6	-1,214	-1,596
Net profit	2,673	258	-202	2,402	4,256
Attributable to minority interest	8	6	6	15	25
Attributable to shareholders of BMW AG	2,665	252	-208	2,387	4,231

Income Statement - BMW Financial Services Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	11,507	12,843	13,213	13,949	14,668
COGS	-10,006	-12,161	-12,178	-12,099	-12,275
Gross Profit	1,500	682	1,036	1,850	2,393
Sales and adm. costs	-682	-641	-577	-606	-745
Other operating income	217	887	379	281	296
Other operating expenses	-170	-636	-332	-322	-316
Profit before financial result	865	292	505	1,203	1,628
Result from equity accounted investments	0	1	-6	0	-2
Interest and similar income	460	502	650	534	547
Interest and similar expenses	-578	-604	-645	-676	-635
Other financial result	-32	-224	116	176	-8
Financial result	-150	-325	116	33	-98
Profit before tax	715	-32	621	1,237	1,530
Income taxes	-254	105	-209	-396	-880
Net profit	461	72	412	841	651
Attributable to minority interest	0	0	0	1	1
Attributable to shareholders of BMW AG	461	72	412	840	650

Appendix A.15

Analytical Income Statement BMW Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Statutory tax rate	30.50%				
Revenues	44,511	40,354	37,468	46,528	54,153
COGS	-33,440	-31,604	-29,820	-34,010	-38,795
Gross Profit	11,071	8,751	7,648	12,519	15,358
Sales and adm. costs	-4,188	-4,435	-4,219	-4,499	-4,984
Other operating income	513	541	429	485	486
Other operating expenses	-360	-551	-472	-736	-816
Result from equity accounted investments	11	25	42	98	164
EBITDA	7,047	4,330	3,429	7,867	10,208
Depreciation & Amortization	-3,689	-3,676	-3,603	-3,861	-3,654
EBIT	3,358	654	-174	4,006	6,554
Taxes on EBIT (operating taxes)	-546	-208	-4	-1,333	-1,810
NOPAT	2,812	446	-178	2,673	4,744
Net financial expenses	-200	-270	-34	-389	-701
Tax savings from debt financing	61	82	10	119	214
Net financial expenses after tax	-139	-188	-24	-271	-487
Net earnings (profit after tax)	2,673	258	-202	2,402	4,256
Attributable to minority interest	8	6	6	15	25
Attributable to shareholders of BMW AG	2,665	252	-208	2,387	4,231

Appendix A.16

Depreciation	**2007**	**2008**	**2009**	**2010**	**2011**
Development Costs (attributable to COGS)	1,109	1,185	1,226	1,260	1,209
Other Depreciation	2,580	2,491	2,377	2,601	2,445
- attributable to COGS	*2,186*	*2,179*	*2,123*	*2,164*	*1,988*
- attributable to sales/adm.	*394*	*312*	*254*	*437*	*457*
Total Depreciation	**3,689**	**3,676**	**3,603**	**3,861**	**3,654**

Appendix A.17

Analytical Balance sheet - Operational					
	2007	**2008**	**2009**	**2010**	**2011**
Non-Current assets					
Intangible assets	5,245	4,954	4,833	4,492	4,381
Property, plant and equipment	10,751	10,233	10,425	10,387	10,768
Leased products	214	229	162	154	134
Investments accounted for using the equity method	63	82	114	189	281
Receivables from sales financing	0	0	0	0	0
Deferred tax	451	585	784	936	1,530
Other assets	14	78	97	106	90
Total non-current assets	**16,739**	**16,161**	**16,416**	**16,264**	**17,184**
Current assets					
Inventories	7,120	6,613	6,005	7,064	8,901
Trade receivables	2,485	1,979	1,588	1,909	2,905
Receivables from sales financing	0	0	0	0	0
Current tax	180	358	789	1,068	1,065
Other assets	824	677	801	973	1,087
Cash and cash equivalents	1,249	5,073	4,331	5,589	5,832
Total Current assets	**11,858**	**14,700**	**13,513**	**16,603**	**19,790**
Total operating assets	**28,597**	**30,861**	**29,929**	**32,866**	**36,975**
Non-interest bearing debt					
Non-current liabilities					
Other provisions	2,299	2,490	2,539	3,650	3,737
Deferred tax	1,167	1,056	959	935	562
Other liabilities	317	492	586	489	512
Total non-current liabilities	**3,783**	**4,038**	**4,083**	**5,074**	**4,810**
Current liabilities					
Other provisions	2,496	1,824	1,915	3,567	3,262
Current tax	630	468	650	1,026	1,188
Trade payables	2,923	2,189	2,723	3,912	4,844
Other liabilities	1,244	1,010	988	1,868	2,473
Total Current liabilities	**7,293**	**5,491**	**6,276**	**10,374**	**11,767**
Total non-interest bearing debt	**11,075**	**9,529**	**10,360**	**15,448**	**16,577**
Invested capital (Net operating assets)	**17,521**	**21,332**	**19,570**	**17,418**	**20,397**
Average Invested capital		**19,427**	**20,451**	**18,494**	**18,908**

Analytical Balance sheet - Financial					
	2007	**2008**	**2009**	**2010**	**2011**
Equity					
Total Equity	**13,714**	**14,647**	**14,437**	**16,079**	**17,766**
Average Equity		**14,180**	**14,542**	**15,258**	**16,923**
Interest bearing debt (non-current liabilities)					
Pension provisions	3,751	2,987	1,854	549	1,082
Financial liabilities	680	2,681	277	1,720	2,272
Total interest bearing debt (non-current liabilities)	**4,431**	**5,668**	**2,131**	**2,269**	**3,354**
Interest bearing debt (Current liabilities)					
Financial liabilites	1,934	2,579	5,034	1,420	1,834
Total interest bearing debt (current liabilities)	**1,934**	**2,579**	**5,034**	**1,420**	**1,834**
Total Interest bearing debt	**6,366**	**8,248**	**7,165**	**3,689**	**5,187**
Total interest bearing debt + equity	**20,079**	**22,895**	**21,602**	**19,768**	**22,954**
Interest bearing assets (Non-current assets)					
Other investments	112	108	77	69	247
Financial assets	90	211	427	539	218
Total interest bearing assets (Non-current assets)	**201**	**318**	**504**	**608**	**466**
Interest bearing assets (Current assets)					
Financial assets	2,357	1,245	1,528	1,741	2,091
Total interest bearing assets (current assets)	**2,357**	**1,245**	**1,528**	**1,741**	**2,091**
Total interest bearing assets	**2,558**	**1,563**	**2,032**	**2,349**	**2,556**
Net-interest bearing debt	**3,808**	**6,685**	**5,133**	**1,340**	**2,631**
Invested capital	**17,521**	**21,332**	**19,570**	**17,418**	**20,397**
Average invested capital		**19,427**	**20,451**	**18,494**	**18,908**

Appendix A.18

Income statement Audi group						
€ million	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	31,142	33,617	34,196	29,840	35,441	44,096
COGS	-27,309	-28,478	-28,848	-25,649	-29,706	-36,000
Gross Profit	**3,833**	**5,139**	**5,348**	**4,191**	**5,735**	**8,096**
Distribution expenses	-2,164	-2,737	-3,240	-3,138	-3,038	-3,599
Administrative expenses	-237	-266	-302	-301	-374	-429
Other operating income	1,051	1,266	1,588	1,475	1,684	1,967
Other operating expenses	-468	-697	-622	-622	-667	-687
Operating profit	**2,015**	**2,705**	**2,772**	**1,605**	**3,340**	**5,348**
Share of profits and losses of equity-accounted investments*	17	47	57	110	220	270
Finance costs	-254	-237	-293	-269	-294	-264
Other financial result	168	400	641	483	368	687
Financial result	**-69**	**210**	**405**	**324**	**294**	**693**
Profit before tax from continuing operations	**1,946**	**2,915**	**3,177**	**1,929**	**3,634**	**6,041**
Income tax income/expense	-603	-1,223	-970	-581	-1,004	-1,601
Profit after tax	**1,343**	**1,692**	**2,207**	**1,348**	**2,630**	**4,440**
Minority interests		38	29	48	45	51
Profit attributable to shareholders of Audi AG	**1,343**	**1,654**	**2,178**	**1,300**	**2,585**	**4,389**

Analytical income statement Audi group						
€ millions	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Statutory tax rate	-30.50%					
Revenues	31,142	33,617	34,196	29,840	35,441	44,096
COGS	-24,997	-26,409	-27,149	-24,084	-27,760	-34,387
Gross Profit	**6,145**	**7,208**	**7,047**	**5,756**	**7,681**	**9,709**
Distribution expenses	-1,981	-2,538	-3,049	-2,947	-2,839	-3,438
Administrative expenses	-217	-247	-284	-283	-349	-410
Other operating income/expenses	583	569	966	853	1,017	1,280
Result from equity accounted investments*	17	47	57	110	220	270
EBITDA	**4,547**	**5,039**	**4,737**	**3,490**	**5,730**	**7,411**
Depreciation & Amortization	-2,515	-2,287	-1,908	-1,775	-2,170	-1,793
EBIT	**2,032**	**2,752**	**2,829**	**1,715**	**3,560**	**5,618**
Taxes on EBIT (operating taxes)	-629	-1,173	-864	-516	-981	-1,472
NOPAT	**1,403**	**1,579**	**1,965**	**1,199**	**2,579**	**4,146**
Net financial income/expenses	-86	163	348	214	74	423
Tax savings from debt financing (tax shield)	26	-50	-106	-65	-23	-129
Net financial income/expenses after tax	-60	113	242	149	51	294
Net earnings (profit after tax)	**1,343**	**1,692**	**2,207**	**1,348**	**2,630**	**4,440**
Attributable to minority interest	0	38	29	48	45	51
Attributable to shareholders of Audi	**1,343**	**1,654**	**2,178**	**1,300**	**2,585**	**4,389**
*Assuming pretax profit on joint venture operations, included as operating profit.						

Balance Sheet Audi group						
€ millions	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets						
Intangible assets	2,335	2,022	2,112	2,171	2,357	2,531
Property, plant and equipment	5,023	5,178	5,846	5,795	5,803	6,716
Investment Property	9	9	5	12	12	8
Investments accounted for using equity method	128	121	152	212	326	460
Other long-term investments	41	49	75	107	180	244
Fixed assets	**7,536**	**7,379**	**8,190**	**8,297**	**8,678**	**9,959**
Deferred tax assets	636	660	691	919	1,347	1,839
Other receivables and other financial assets	113	286	656	422	560	412
Total non-current assets	**8,285**	**8,325**	**9,537**	**9,638**	**10,585**	**12,210**
Current assets						
Inventories	2,109	2,661	3,347	2,568	3,354	4,377
Trade receivables	1,840	2,149	2,215	2,281	2,099	3,009
Effective income tax assets	7	5	17	23	13	11
Other receivables and other financial assets	771	1,365	5,318	4,764	2,658	7,307
Securities	1,014	1,333	789	821	1,339	1,594
Cash and cash equivalents	4,884	6,740	4,833	6,455	10,724	8,513
Total current assets	**10,625**	**14,253**	**16,519**	**16,912**	**20,187**	**24,811**
Total assets	**18,910**	**22,578**	**26,056**	**26,550**	**30,772**	**37,021**
Equity						
Issued capital	110	110	110	110	110	110
Capital reserve	483	911	1,617	1,924	2,510	3,515
Retained earnings	6,672	7,291	8,233	8,187	8,552	9,080
Audi AG stockholders interest	**7,265**	**8,312**	**9,960**	**10,221**	**11,172**	**12,705**
Minority interest	0	43	368	411	138	198
Total equity	**7,265**	**8,355**	**10,328**	**10,632**	**11,310**	**12,903**
Non-current liabilities						
Financial liabilities	3	4	3	2	15	21
Deferred tax liabilities	7	5	78	45	22	16
Other liabilities	201	288	447	527	712	1,080
Provisions for pensions	1,974	1,957	1,946	2,098	2,331	2,505
Effective income tax obligations	520	588	853	773	636	754
Other provisions	1,905	2,427	2,702	2,979	3,768	4,234
Total non-current liabilities	**4,610**	**5,269**	**6,029**	**6,424**	**7,484**	**8,610**
Current liabilities						
Financial liabilities	210	527	673	577	810	1,172
Trade payables	2,255	2,794	3,302	3,114	3,510	4,193
Effective income tax obligations	536	375	128	405	857	929
Other liabilities	2,109	3,013	3,094	2,895	4,447	6,355
Other provisions	1,925	2,245	2,502	2,502	2,354	2,858
Total liabilities	**7,035**	**8,954**	**9,699**	**9,493**	**11,978**	**15,507**
Total liabilities and equity	**18,910**	**22,578**	**26,056**	**26,549**	**30,772**	**37,020**

Analytical Balance Sheet - Operational - Audi group						
€ millions	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets						
Intangible assets	2,335	2,022	2,112	2,171	2,357	2,531
Property, plant and equipment	5,023	5,178	5,846	5,795	5,803	6,716
Investments accounted for using equity method	128	121	152	212	326	460
Deferred tax assets	636	660	691	919	1,347	1,839
Total non-current assets	**8,122**	**7,981**	**8,801**	**9,097**	**9,833**	**11,546**
Current assets						
Inventories	2,109	2,661	3,347	2,568	3,354	4,377
Trade receivables	1,840	2,149	2,215	2,281	2,099	3,009
Effective income tax assets	7	5	17	23	13	11
Cash and cash equivalents	4,884	6,740	4,833	6,455	10,724	8,513
Total current assets	**8,840**	**11,555**	**10,412**	**11,327**	**16,190**	**15,910**
Total operating assets	**16,962**	**19,536**	**19,213**	**20,424**	**26,023**	**27,456**
Non-current liabilities						
Deferred tax liabilities	7	5	78	45	22	16
Other liabilities	201	288	447	527	712	1,080
Effective income tax obligations	520	588	853	773	636	754
Other provisions	1,905	2,427	2,702	2,979	3,768	4,234
Total non-current liabilities	**2,633**	**3,308**	**4,080**	**4,324**	**5,138**	**6,084**
Current liabilities						
Trade payables	2,255	2,794	3,302	3,114	3,510	4,193
Effective income tax obligations	536	375	128	405	857	929
Other liabilities	2,109	3,013	3,094	2,895	4,447	6,355
Other provisions	1,925	2,245	2,502	2,502	2,354	2,858
Total current liabilities	**6,825**	**8,427**	**9,026**	**8,916**	**11,168**	**14,335**
Total non-interest bearing debt	**9,458**	**11,735**	**13,106**	**13,240**	**16,306**	**20,419**
Invested capital (Net operating assets)	**7,504**	**7,801**	**6,107**	**7,184**	**9,717**	**7,037**
Average invested capital		**7,653**	**6,954**	**6,646**	**8,451**	**8,377**

Analytical Balance Sheet - Financial - Audi group						
€ millions	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Equity						
Issued capital	110	110	110	110	110	110
Capital reserve	483	911	1,617	1,924	2,510	3,515
Retained earnings	6,672	7,291	8,233	8,187	8,552	9,080
Audi AG stockholders interest	**7,265**	**8,312**	**9,960**	**10,221**	**11,172**	**12,705**
Minority interest	0	43	368	411	138	198
Total equity	**7,265**	**8,355**	**10,328**	**10,632**	**11,310**	**12,903**
Average equity		**7,810**	**9,342**	**10,480**	**10,971**	**12,107**
Interest bearing debt (non-current liabilities)						
Financial liabilities	3	4	3	2	15	21
Provisions for pensions	1,974	1,957	1,946	2,098	2,331	2,505
Total non-current liabilities	**1,977**	**1,961**	**1,949**	**2,100**	**2,346**	**2,526**
Interest bearing debt (current liabilities)						
Financial liabilities	210	527	673	577	810	1,172
Total current liabilities	**210**	**527**	**673**	**577**	**810**	**1,172**
Total Interest bearing debt	**2,187**	**2,488**	**2,622**	**2,677**	**3,156**	**3,698**
Total interest bearing debt + equity	**9,452**	**10,843**	**12,950**	**13,309**	**14,466**	**16,601**
Interest bearing assets (Non-current assets)						
Investment Property	9	9	5	12	12	8
Other long-term investments	41	49	75	107	180	244
Other receivables and other financial assets	113	286	656	422	560	412
Total interest bearing assets (non-current assets)	**163**	**344**	**736**	**541**	**752**	**664**
Interest bearing assets (Current assets)						
Other receivables and other financial assets	771	1,365	5,318	4,764	2,658	7,307
Securities	1,014	1,333	789	821	1,339	1,594
Total interest bearing assets (current assets)	**1,785**	**2,698**	**6,107**	**5,585**	**3,997**	**8,901**
Total interest bearing assets	**1,948**	**3,042**	**6,843**	**6,126**	**4,749**	**9,565**
Net - interest bearing debt	239	-554	-4,221	-3,449	-1,593	-5,867
Average net-interest bearing debt		-158	-2,388	-3,835	-2,521	-3,730
Invested capital	**7,504**	**7,801**	**6,107**	**7,183**	**9,717**	**7,036**
Average invested capital		**7,653**	**6,954**	**6,645**	**8,450**	**8,377**

Appendix A.19

Income statement Daimler Group Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Revenue	90,602	86,505	66,928	84,973	94,460
Cost of sales	-68,082	-66,396	-54,268	-63,912	-71,152
Gross Profit	**22,520**	**20,109**	**12,660**	**21,061**	**23,308**
Selling expenses	-8,643	-8,887	-7,303	-8,517	-9,502
General administrative expenses	-3,492	-3,608	-2,838	-2,951	-3,301
Research and non-capitalized development costs	-3,158	-3,055	-2,896	-3,476	-4,174
Other operating income	701	1,181	589	879	1,313
Other operating expense	-666	-432	-460	-569	-325
Share of profit (loss) from companies using equity method	1,051	-1,029	65	-141	286
Other financial income/expense net	-233	-2,226	-1,339	157	-162
EBIT	**8,080**	**2,053**	**-1,522**	**6,443**	**7,443**
Interest income (expense) net	482	76	-775	-636	-297
Profit before income taxes	**8,562**	**2,129**	**-2,297**	**5,807**	**7,146**
Income tax (expense) benefit	-4,101	-882	-350	-1,681	-1,929
Net profit from continuing operations	**4,461**	**1,247**	**-2,647**	**4,126**	**5,217**
Net profit (loss) from discounted operations)	-1,850	-290			
Net profit	**2,611**	**957**	**-2,647**	**4,126**	**5,217**

Analytical Income statement Daimler Group Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Statutory tax rate	-30.50%				
Revenue	90,602	86,505	66,928	84,973	94,460
Cost of sales	-67,327	-66,611	-54,086	-64,193	-71,922
Gross Profit	**23,275**	**19,894**	**12,842**	**20,780**	**22,538**
Selling expenses	-8,643	-8,887	-7,303	-8,517	-9,502
General administrative expenses	-3,300	-3,460	-2,685	-2,811	-3,152
Other operating income	701	1,181	589	879	1,313
Other operating expense	-666	-432	-460	-569	-325
Share of profit (loss) from companies using equity method	1,051	-1,029	65	-141	286
EBITDA	**12,418**	**7,267**	**3,048**	**9,621**	**11,158**
Depreciation & amortization	-4,105	-2,988	-3,231	-3,335	-3,553
EBIT	**8,313**	**4,279**	**-183**	**6,286**	**7,605**
Taxes on EBIT (operating expenses)	-4,025	-1,538	-995	-1,827	-2,069
NOPAT	**4,288**	**2,741**	**-1,178**	**4,459**	**5,536**
Net financial expenses	249	-2,150	-2,114	-479	-459
Tax savings from debt financing	-76	656	645	146	140
Net financial expenses after tax	173	-1,494	-1,469	-333	-319
Net earnings from continuing operations (profit after tax)	**4,461**	**1,247**	**-2,647**	**4,126**	**5,217**
Net profit (loss) from discounted operations)	-1,850	-290	0	0	0
Net earnings (profit after tax)	**2,611**	**957**	**-2,647**	**4,126**	**5,217**

Balance Sheet Daimler Group Industrial Business					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Intangible assets	5,128	5,964	6,690	7,450	8,200
Property, plant and equipments	14,600	16,022	15,911	17,544	19,129
Equipment on operating leases	8,186	7,185	8,651	9,611	10,849
Investments accounted for using the equity method	4,845	4,258	4,241	3,917	4,631
Receivables from financial services	0	-302	-24	-45	-32
Marketable securities			85	15	14
Other financial assets	3,928	3,060	2,634	2,015	-367
Deferred tax assets	1,613	2,544	1,830	2,108	2,244
Other assets	339	454	305	214	-1,637
Total non-current assets	**38,639**	**39,185**	**40,323**	**42,829**	**43,031**
Inventories	13,604	16,244	12,337	14,056	16,575
Trade receivables	6,135	6,793	5,073	6,964	7,580
Receivables from financial services	0	-67	-37	-51	-52
Cash and cash equivalents	14,894	4,664	6,735	9,535	8,908
Marketable securities			4,988	1,243	1,157
Other financial assets	-1,034	-2,489	-4,312	-5,282	-5,120
other assets	-68	181	-1,346	-1,335	429
Assets held for sale	922	0			
Total-current assets	**34,453**	**25,326**	**23,438**	**25,130**	**29,477**
Total assets	**73,092**	**64,511**	**63,761**	**67,959**	**72,508**
Total equity	**33,840**	**28,092**	**27,157**	**33,088**	**35,964**
Provisions for pensions and similar obligations	3,686	3,969	3,901	4,141	2,985
Provisions for income taxes	1,761	1,579	2,772	2,537	2,496
Provisions for other risk	5,984	4,801	4,585	5,367	5,494
Financing liabilities	11,905	10,505	13,390	3,480	10,250
Other financial liabilities	1,589	1,846	1,985	1,824	1,840
Deferred tax liabilities	-2,091	-3,171	-2,987	-1,813	-920
Deferred income	1,351	1,210	1,305	1,481	1,675
Other liabilities	114	78	66	74	50
Total non-current liabilities	**24,299**	**20,817**	**25,017**	**17,091**	**23,870**
Trade payables	6,730	6,268	5,422	7,429	9,233
Provisions for income taxes	-1,180	39	75	382	921
Provisions for other risk	7,026	6,647	6,070	6,711	6,473
Financing liabilities	-6,886	-6,057	-7,874	-4,838	-12,525
Other financial liabilities	7,255	7,193	6,280	6,058	6,276
Deferred income	777	573	755	766	1,064
Other liabilities	1,205	939	859	1,272	1,232
Liabilities held for sale	26	0	0	0	0
Total current liabilities	**14,953**	**15,602**	**11,587**	**17,780**	**12,674**
Total equity and liabilities	**73,092**	**64,511**	**63,761**	**67,959**	**72,508**

Analytical Balance Sheet - Operational					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets					
Intangible assets	5,128	5,964	6,690	7,450	8,200
Property, plant and equipments	14,600	16,022	15,911	17,544	19,129
Equipment on operating leases	8,186	7,185	8,651	9,611	10,849
Investments accounted for using the equity method	4,845	4,258	4,241	3,917	4,631
Receivables from financial services	0	-302	-24	-45	-32
Deferred tax assets	1,613	2,544	1,830	2,108	2,244
Other assets	339	454	305	214	-1,637
Total non-current assets	**34,711**	**36,125**	**37,604**	**40,799**	**43,384**
Current assets					
Inventories	13,604	16,244	12,337	14,056	16,575
Trade receivables	6,135	6,793	5,073	6,964	7,580
Receivables from financial services	0	-67	-37	-51	-52
Cash and cash equivalents	14,894	4,664	6,735	9,535	8,908
other assets	-68	181	-1,346	-1,335	429
Total current assets	**34,565**	**27,815**	**22,762**	**29,169**	**33,440**
Total operating assets	**69,276**	**63,940**	**60,366**	**69,968**	**76,824**
Non - interest bearing debt					
Non-current liabilities					
Deferred tax liabilities	-2,091	-3,171	-2,987	-1,813	-920
Provisions for pensions and similar obligations	3,686	3,969	3,901	4,141	2,985
Provisions for other risk	5,984	4,801	4,585	5,367	5,494
Deferred income	1,351	1,210	1,305	1,481	1,675
Other liabilities	114	78	66	74	50
Provisions for income taxes	1,761	1,579	2,772	2,537	2,496
Total non-current liabilities	**10,805**	**8,466**	**9,642**	**11,787**	**11,780**
Current liabilities					
Trade payables	6,730	6,268	5,422	7,429	9,233
Provisions for income taxes	-1,180	39	75	382	921
Provisions for other risk	7,026	6,647	6,070	6,711	6,473
Deferred income	777	573	755	766	1,064
Other liabilities	1,205	939	859	1,272	1,232
Total current liabilities	**14,558**	**14,466**	**13,181**	**16,560**	**18,923**
Total non-interest bearing debt	**25,363**	**22,932**	**22,823**	**28,347**	**30,703**
Invested capital (Net operating assets)	**43,913**	**41,008**	**37,543**	**41,621**	**46,121**
Average Invested capital		**42,461**	**39,276**	**39,582**	**43,871**

Analytical Balance Sheet - Financial					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Equity					
Total Equity	**33,840**	**28,092**	**27,157**	**33,088**	**35,964**
Interest bearing debt (non-current liabilities)					
Financing liabilities	11,905	10,505	13,390	3,480	10,250
Other financial liabilities	1,589	1,846	1,985	1,824	1,840
Total interest bearing debt (non-current liabilities)	**13,494**	**12,351**	**15,375**	**5,304**	**12,090**
Interest bearing debt (Current liabilities)					
Financing liabilities	-6,886	-6,057	-7,874	-4,838	-12,525
Other financial liabilities	7,255	7,193	6,280	6,058	6,276
Liabilities held for sale	26	0	0	0	0
Total interest bearing debt (current liabilities)	**395**	**1,136**	**-1,594**	**1,220**	**-6,249**
Total Interest bearing debt	**13,889**	**13,487**	**13,781**	**6,524**	**5,841**
Total interest bearing debt + equity	**47,729**	**41,579**	**40,938**	**39,612**	**41,805**
Interest bearing assets (Non-current assets)					
Marketable securities			85	15	14
Other financial assets	3,928	3,060	2,634	2,015	-367
Total interest bearing assets (Non-current assets)	**3,928**	**3,060**	**2,719**	**2,030**	**-353**
Interest bearing assets (Current assets)					
Marketable securities			4,988	1,243	1,157
Other financial assets	-1,034	-2,489	-4,312	-5,282	-5,120
Assets held for sale	922	0			
Total interest bearing assets (current assets)	**-112**	**-2,489**	**676**	**-4,039**	**-3,963**
Total interest bearing assets	**3,816**	**571**	**3,395**	**-2,009**	**-4,316**
Net - interest bearing debt	**10,073**	**12,916**	**10,386**	**8,533**	**10,157**
Average net-interest bearing debt		**11,495**	**11,651**	**9,460**	**9,345**
Invested capital	**43,913**	**41,008**	**37,543**	**41,621**	**46,121**
Average invested capital		**42,461**	**39,276**	**39,582**	**43,871**

Appendix A.20

Income Statement Industrial Business PSA Peugeot Citroën					
€ million	**2007**	**2008**	**2009**	**2010**	**2011**
Revenues	58,842	52,487	46,740	54,356	58,170
COGS	-47,826	-44,146	-40,156	-44,900	-49,018
SG&A	-8,027	-6,521	-5,966	-6,238	-6,376
R&D	-2,072	-2,045	-1,950	-2,075	-2,152
Recurring operating income	**917**	**-226**	**-1,333**	**1,143**	**624**
Non-recurring operating income/expenses	-632	-943	-725	-87	-417
Operating profit	**285**	**-1,169**	**-2,058**	**1,056**	**207**
Interest income	283	247	85	86	114
Finance costs	-306	-343	-491	-455	-331
Other financial income/expenses	-16	-189	-113	-58	-116
Financial result	**-39**	**-285**	**-519**	**-427**	**-333**
Profit before tax from continuing operations	**246**	**-1,454**	**-2,577**	**629**	**-127**
Income taxes	-116	300	731	-115	227
Profit after tax	**130**	**-1,154**	**-1,846**	**514**	**101**
Share in net earnings/loss of companies at equity*	48	57	73	202	170
Consolidated profit after tax	**178**	**-1,097**	**-1,773**	**716**	**271**

Analytical Income statement PSA Peugeot Citroën					
€ million	**2007**	**2008**	**2009**	**2010**	**2011**
Statutory tax rate	-33.33%				
Revenues	58,842	52,487	46,740	54,356	58,170
COGS	-46,832	-42,980	-39,308	-44,371	-48,485
Gross Profit	**12,009**	**9,506**	**7,431**	**9,985**	**9,685**
SG&A	-7,534	-6,068	-5,570	-5,892	-6,041
Other operating income/expenses	-632	-943	-725	-87	-417
EBITDA	**3,844**	**2,496**	**1,137**	**4,006**	**3,227**
Depreciation & Amortization	-3,559	-3,664	-3,194	-2,950	-3,020
EBIT	**284**	**-1,169**	**-2,058**	**1,056**	**207**
Taxes on EBIT (operating taxes)	-129	205	558	-257	116
Share in net earnings/loss of companies at equity*	48	57	73	202	170
NOPAT	**204**	**-906**	**-1,426**	**1,000**	**493**
Net financial income/expenses	-39	-285	-519	-427	-333
Tax savings from debt financing (tax shield)	13	95	173	142	111
Net financial income/expenses after tax	-26	-190	-346	-285	-222
Net earnings (profit after tax)	**177**	**-1,097**	**-1,773**	**716**	**271**

Balance Sheet Industrial Business PSA Peugeot Citroën					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets					
Goodwill	1,488	1,237	1,237	1,428	1,505
Intangible assets	3,885	4,061	4,440	4,854	5,378
Property, plant and equipment	14,652	14,064	13,425	13,714	14,059
Investments in companies at equity	725	732	785	1,002	1,410
Investments in non-consolidated companies	47	48	46	100	84
Other non-current financial assets	1,121	824	812	775	1,011
Other non-current assets	126	152	268	333	445
Deferred tax assets	428	468	478	419	1,370
Total non-current assets	**22,472**	**21,586**	**21,491**	**22,625**	**25,262**
Current assets					
Loans and receivables - finance companies	0	0	0	0	0
Short-term investments - finance companies	0	0	0	0	0
Inventories	6,913	7,757	5,360	5,947	6,609
Trade receivables	2,700	1,855	1,719	1,876	2,220
Current taxes	133	175	136	166	162
Other receivables	1,689	1,897	1,598	1,865	1,840
Current financial assets	1,483	515	284	306	265
Cash and cash equivalents	5,059	2,040	7,744	9,167	5,007
Total current assets	**17,976**	**14,239**	**16,841**	**19,326**	**16,102**
Total assets	**40,448**	**35,825**	**38,333**	**41,951**	**41,365**
Equity					
Total equity	**11,700**	**10,634**	**9,171**	**10,782**	**10,503**
Liabilities					
Non-current liabilities					
Non-current financial liabilities	4,294	4,491	9,268	8,259	7,639
Other non-current liabilities	2,886	2,793	2,552	2,772	2,865
Provisions for pensions	867	680	789	546	544
Other non-current provisions	242	196	171	158	152
Deferred tax liabilities	1,689	1,321	543	490	984
Total non-current liabilities	**9,978**	**9,481**	**13,323**	**12,225**	**12,184**
Current liabilities					
Financing liabilities	0	0	0	0	0
Current provisions	2,132	2,053	2,369	2,418	2,242
Trade payables	10,571	8,417	8,414	9,561	9,665
Current taxes	125	63	88	58	87
Other payables	3,992	3,484	3,299	3,694	4,544
Current financial liabilities	1,950	1,693	1,670	3,213	2,140
Total current liabilities	**18,770**	**15,710**	**15,839**	**18,944**	**18,678**
Total liabilities	**28,748**	**25,191**	**29,162**	**31,169**	**30,862**
Total liabilities and equity	**40,448**	**35,825**	**38,333**	**41,951**	**41,365**

Analytical Balance Sheet - Operational					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Non-current assets					
Goodwill	1,488	1,237	1,237	1,428	1,505
Intangible assets	3,885	4,061	4,440	4,854	5,378
Property, plant and equipment	14,652	14,064	13,425	13,714	14,059
Investments in companies at equity	725	732	785	1,002	1,410
Deferred tax assets	428	468	478	419	1,370
Total non-current assets	**21,178**	**20,562**	**20,365**	**21,417**	**23,722**
Current assets					
Loans and receivables - finance companies	0	0	0	0	0
Inventories	6,913	7,757	5,360	5,947	6,609
Trade receivables	2,700	1,855	1,719	1,876	2,220
Current taxes	133	175	136	166	162
Other receivables	1,689	1,897	1,598	1,865	1,840
Cash and cash equivalents	5,059	2,040	7,744	9,167	5,007
Total Current assets	**16,493**	**13,724**	**16,557**	**19,020**	**15,837**
Total operating assets	**37,671**	**34,286**	**36,922**	**40,437**	**39,559**
Non-current liabilities					
Other non-current liabilities	2,886	2,793	2,552	2,772	2,865
Other non-current provisions	242	196	171	158	152
Deferred tax liabilities	1,689	1,321	543	490	984
Total non-current liabilities	**4,817**	**4,310**	**3,266**	**3,420**	**4,001**
Current liabilities					
Current provisions	2,132	2,053	2,369	2,418	2,242
Trade payables	10,571	8,417	8,414	9,561	9,665
Current taxes	125	63	88	58	87
Other payables	3,992	3,484	3,299	3,694	4,544
Total current liabilities	**16,820**	**14,017**	**14,169**	**15,731**	**16,538**
Total non-interest bearing debt	**21,637**	**18,327**	**17,435**	**19,151**	**20,538**
Invested Capital	**16,034**	**15,959**	**19,487**	**21,287**	**19,021**
Average invested Capital		**15,996**	**17,723**	**20,387**	**20,154**

Analytical Balance Sheet - Financial					
€ millions	**2007**	**2008**	**2009**	**2010**	**2011**
Equity					
Total equity	**11,700**	**10,634**	**9,171**	**10,782**	**10,503**
Average Equity		**11,167**	**9,902**	**9,977**	**10,643**
Interest bearing debt (non-current liabilities)					
Non-current financial liabilities	4,294	4,491	9,268	8,259	7,639
Provisions for pensions	867	680	789	546	544
Total non-current liabilities	**5,161**	**5,171**	**10,057**	**8,805**	**8,183**
Interest bearing debt (current liabilities)					
Financing liabilities	0	0	0	0	0
Current financial liabilities	1,950	1,693	1,670	3,213	2,140
Total current liabilities	**1,950**	**1,693**	**1,670**	**3,213**	**2,140**
Total Interest bearing debt	**7,111**	**6,864**	**11,727**	**12,018**	**10,323**
Total Interest bearing debt + Equity	**18,811**	**17,498**	**20,897**	**22,801**	**20,826**
Interest bearing assets (non-current assets)					
Investments in non-consolidated companies	47	48	46	100	84
Other non-current financial assets	1,121	824	812	775	1,011
Other non-current assets	126	152	268	333	445
Total current assets	**1,294**	**1,024**	**1,126**	**1,208**	**1,540**
Interest bearing assets (current assets)					
Short-term investments - finance companies	0	0	0	0	0
Current financial assets	1,483	515	284	306	265
Total current assets	**1,483**	**515**	**284**	**306**	**265**
Total interest bearing debt	**2,777**	**1,539**	**1,410**	**1,514**	**1,805**
Net - interest bearing debt	**4,334**	**5,325**	**10,316**	**10,504**	**8,518**
Average net-interest bearing debt		**4,830**	**7,821**	**10,410**	**9,511**
Invested capital	**16,034**	**15,959**	**19,487**	**21,287**	**19,021**
Average invested capital		**15,996**	**17,723**	**20,387**	**20,154**

Appendix A.21

Trend analysis - BMW Group					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100	91	84	105	122
COGS	100	95	89	102	116
Gross Profit	100	79	69	113	139
Sales and adm. costs	100	106	101	107	119
Other operating income	100	105	84	95	95
Other operating expenses	100	153	131	204	226
Result from equity accounted investments	100	227	382	891	1,491
EBITDA	100	61	49	112	145
Depreciation & Amortization	100	100	98	105	99
EBIT	100	19	-5	119	195
Taxes on EBIT (operating taxes)	100	38	1	244	332
NOPAT	100	16	-6	95	169
Net financial expenses	100	135	17	194	350
Tax savings from debt financing	100	135	17	194	350
Net financial expenses after tax	100	135	17	194	350
Net earnings (profit after tax)	100	10	-8	90	159
Attributable to minority interest	100	75	75	188	313
Attributable to shareholders of BMW AG	100	9	-8	90	159

Common size analysis as percentage of revenue - BMW					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100.0%	100.0%	100.0%	100.0%	100.0%
COGS	-75.1%	-78.3%	-79.6%	-73.1%	-71.6%
Gross Profit	24.9%	21.7%	20.4%	26.9%	28.4%
Sales and adm. costs	-9.4%	-11.0%	-11.3%	-9.7%	-9.2%
Other operating income	1.2%	1.3%	1.1%	1.0%	0.9%
Other operating expenses	-0.8%	-1.4%	-1.3%	-1.6%	-1.5%
Result from equity accounted investments	0.0%	0.1%	0.1%	0.2%	0.3%
EBITDA	15.8%	10.7%	9.2%	16.9%	18.9%
Depreciation & Amortization	-8.3%	-9.1%	-9.6%	-8.3%	-6.7%
EBIT	7.5%	1.6%	-0.5%	8.6%	12.1%
Taxes on EBIT (operating taxes)	-1.2%	-0.5%	0.0%	-2.9%	-3.3%
NOPAT	6.3%	1.1%	-0.5%	5.7%	8.8%
Net financial expenses	-0.4%	-0.7%	-0.1%	-0.8%	-1.3%
Tax savings from debt financing	0.1%	0.2%	0.0%	0.3%	0.4%
Net financial expenses after tax	-0.3%	-0.5%	-0.1%	-0.6%	-0.9%
Net earnings (profit after tax)	6.0%	0.6%	-0.5%	5.2%	7.9%
Attributable to minority interest	0.0%	0.0%	0.0%	0.0%	0.0%
Attributable to shareholders of BMW AG	6.0%	0.6%	-0.6%	5.1%	7.8%

Appendix A.22

Trend analysis - Audi Group					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100	102	89	105	131
COGS	100	103	91	105	130
Gross Profit	100	98	80	107	135
Distribution expenses	100	120	116	112	135
Administrative expenses	100	115	115	142	166
Other operating income/expenses	100	170	150	179	225
Result from equity accounted investments*	100	121	234	468	574
EBITDA	100	94	69	114	147
Depreciation & Amortization	100	83	78	95	78
EBIT	100	103	62	129	204
Taxes on EBIT (operating taxes)	100	74	44	84	125
NOPAT	100	124	76	163	263
Net financial income/expenses	100	213	131	45	260
Tax savings from debt financing (tax shield)	100	213	131	45	260
Net financial income/expenses after tax	100	213	131	45	260
Net earnings (profit after tax)	100	130	80	155	262
Attributable to minority interest	100	76	126	118	134
Attributable to shareholders of Audi	100	132	79	156	265

Common size analysis as percentage of revenue - Audi Group					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100.0%	100.0%	100.0%	100.0%	100.0%
COGS	-78.6%	-79.4%	-80.7%	-78.3%	-78.0%
Gross Profit	21.4%	20.6%	19.3%	21.7%	22.0%
Distribution expenses	-7.6%	-8.9%	-9.9%	-8.0%	-7.8%
Administrative expenses	-0.7%	-0.8%	-0.9%	-1.0%	-0.9%
Other operating income/expenses	1.7%	2.8%	2.9%	2.9%	2.9%
Result from equity accounted investments*	0.1%	0.2%	0.4%	0.6%	0.6%
EBITDA	15.0%	13.9%	11.7%	16.2%	16.8%
Depreciation & Amortization	-6.8%	-5.6%	-5.9%	-6.1%	-4.1%
EBIT	8.2%	8.3%	5.7%	10.0%	12.7%
Taxes on EBIT (operating taxes)	-3.5%	-2.5%	-1.7%	-2.8%	-3.3%
NOPAT	4.7%	5.7%	4.0%	7.3%	9.4%
Net financial income/expenses	0.5%	1.0%	0.7%	0.2%	1.0%
Tax savings from debt financing (tax shield)	-0.1%	-0.3%	-0.2%	-0.1%	-0.3%
Net financial income/expenses after tax	0.3%	0.7%	0.5%	0.1%	0.7%
Net earnings (profit after tax)	5.0%	6.5%	4.5%	7.4%	10.1%
Attributable to minority interest	0.1%	0.1%	0.2%	0.1%	0.1%
Attributable to shareholders of Audi	4.9%	6.4%	4.4%	7.3%	10.0%

Appendix A.23

Trend analysis - Daimler Group					
	2007	2008	2009	2010	2011
Revenue	100	95	74	94	104
Cost of sales	100	99	80	95	107
Gross Profit	100	85	55	89	97
Selling expenses	100	103	84	99	110
General administrative expenses	100	105	81	85	96
Other operating income	100	168	84	125	187
Other operating expense	100	65	69	85	49
Share of profit (loss) from companies using equity method	100	-98	6	-13	27
EBITDA	100	59	25	77	90
Depreciation & amortization	100	73	79	81	87
EBIT	100	51	-2	76	91
Taxes on EBIT (operating expenses)	100	38	25	45	51
NOPAT	100	64	-27	104	129
Net financial expenses	100	-863	-849	-192	-184
Tax savings from debt financing	100	-863	-849	-192	-184
Net financial expenses after tax	100	-863	-849	-192	-184
Net earnings from continuing operations (profit after tax)	100	28	-59	92	117
Net profit (loss) from discounted operations)	100	16	0	0	0
Net earnings (profit after tax)	100	37	-101	158	200

Common size analysis as percentage of revenue - Daimler Group					
	2007	2008	2009	2010	2011
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales	-74.3%	-77.0%	-80.8%	-75.5%	-76.1%
Gross Profit	25.7%	23.0%	19.2%	24.5%	23.9%
Selling expenses	-9.5%	-10.3%	-10.9%	-10.0%	-10.1%
General administrative expenses	-3.6%	-4.0%	-4.0%	-3.3%	-3.3%
Other operating income	0.8%	1.4%	0.9%	1.0%	1.4%
Other operating expense	-0.7%	-0.5%	-0.7%	-0.7%	-0.3%
Share of profit (loss) from companies using equity method	1.2%	-1.2%	0.1%	-0.2%	0.3%
EBITDA	13.7%	8.4%	4.6%	11.3%	11.8%
Depreciation & amortization	-4.5%	-3.5%	-4.8%	-3.9%	-3.8%
EBIT	9.2%	4.9%	-0.3%	7.4%	8.1%
Taxes on EBIT (operating expenses)	-4.4%	-1.8%	-1.5%	-2.2%	-2.2%
NOPAT	4.7%	3.2%	-1.8%	5.2%	5.9%
Net financial expenses	0.3%	-2.5%	-3.2%	-0.6%	-0.5%
Tax savings from debt financing	-0.1%	0.8%	1.0%	0.2%	0.1%
Net financial expenses after tax	0.2%	-1.7%	-2.2%	-0.4%	-0.3%
Net earnings from continuing operations (profit after tax)	4.9%	1.4%	-4.0%	4.9%	5.5%
Net profit (loss) from discounted operations)	-2.0%	-0.3%	0.0%	0.0%	0.0%
Net earnings (profit after tax)	2.9%	1.1%	-4.0%	4.9%	5.5%

Appendix A.24

Trend analysis - PSA					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100	89	79	92	99
COGS	100	92	84	95	104
Gross Profit	100	79	62	83	81
SG&A	100	81	74	78	80
Other operating income/expenses	100	149	115	14	66
EBITDA	100	65	30	104	84
Depreciation & Amortization	100	103	90	83	85
EBIT	100	-411	-723	371	73
Taxes on EBIT (operating taxes)	100	-159	-433	199	-90
Share in net earnings/loss of companies at equity*	100	119	152	421	354
NOPAT	100	-445	-701	491	242
Net financial income/expenses	100	731	1,331	1,095	854
Tax savings from debt financing (tax shield)	100	731	1,331	1,095	854
Net financial income/expenses after tax	100	731	1,331	1,095	854
Net earnings (profit after tax)	100	-618	-999	403	152

Common size analysis as percentage of revenue - PSA					
	2007	**2008**	**2009**	**2010**	**2011**
Revenues	100.0%	100.0%	100.0%	100.0%	100.0%
COGS	-79.6%	-81.9%	-84.1%	-81.6%	-83.4%
Gross Profit	20.4%	18.1%	15.9%	18.4%	16.6%
SG&A	-12.8%	-11.6%	-11.9%	-10.8%	-10.4%
Other operating income/expenses	-1.1%	-1.8%	-1.6%	-0.2%	-0.7%
EBITDA	6.5%	4.8%	2.4%	7.4%	5.5%
Depreciation & Amortization	-6.0%	-7.0%	-6.8%	-5.4%	-5.2%
EBIT	0.5%	-2.2%	-4.4%	1.9%	0.4%
Taxes on EBIT (operating taxes)	-0.2%	0.4%	1.2%	-0.5%	0.2%
Share in net earnings/loss of companies at equity*	0.1%	0.1%	0.2%	0.4%	0.3%
NOPAT	0.3%	-1.7%	-3.1%	1.8%	0.8%
Net financial income/expenses	-0.1%	-0.5%	-1.1%	-0.8%	-0.6%
Tax savings from debt financing (tax shield)	0.0%	0.2%	0.4%	0.3%	0.2%
Net financial income/expenses after tax	0.0%	-0.4%	-0.7%	-0.5%	-0.4%
Net earnings (profit after tax)	0.3%	-2.1%	-3.8%	1.3%	0.5%

Appendix A.25

Operational Analytical Balance Sheet - BMW Industrial Business - Days on Hand					
	2007	**2008**	**2009**	**2010**	**2011**
Non-Current assets					
Intangible assets (O)	43	45	47	35	30
Property, plant and equipment (O)	88	93	102	81	73
Leased products	2	2	2	1	1
Investments accounted for using the equity method	1	1	1	1	2
Receivables from sales financing					
Deferred tax	4	5	8	7	10
Other assets	0	1	1	1	1
Total non-current assets	**137**	**146**	**160**	**128**	**116**
Current assets					
Inventories	58	60	58	55	60
Trade receivables	20	18	15	15	20
Receivables from sales financing					
Current tax	1	3	8	8	7
Other assets	7	6	8	8	7
Cash and cash equivalents	10	46	42	44	39
Total Current assets	**97**	**133**	**132**	**130**	**133**
Total operating assets	**234**	**279**	**292**	**258**	**249**
Non-interest bearing debt					
Non-current liabilities					
Other provisions	19	23	25	29	25
Deferred tax	10	10	9	7	4
Other liabilities	3	4	6	4	3
Total non-current liabilities	**31**	**37**	**40**	**40**	**32**
Current liabilities					
Other provisions	20	16	19	28	22
Current tax	5	4	6	8	8
Trade payables	24	20	27	31	33
Other liabilities	10	9	10	15	17
Total Current liabilities	**60**	**50**	**61**	**81**	**79**
Net working capital	**37**	**83**	**71**	**49**	**54**
Total non-interest bearing debt	**91**	**86**	**101**	**121**	**112**
Invested capital (Net operating assets)	**144**	**193**	**191**	**137**	**137**
Average Invested capital		**176**	**199**	**145**	**127**

Appendix A.26

Average price per BMW vehicle sold is estimated as the derived automotive revenue per region divided by the number of units sold per region.

Automotive revenue in the table below is reported in million Euros. Estimated average prices are reported in Euros.

Automotive Revenue	2006	2007	2008	2009	2010	2011
Germany	8 615	9 470	8 146	8 454	8 622	10 118
Rest of Europe	14 985	17 795	15 697	12 560	14 295	16 490
Asia/Oceania	5 038	5 843	5 707	6 280	11 368	15 120
North America	9 572	9 663	9 453	8 667	9 975	10 155
Other Markets	1 608	1 741	1 351	1 506	2 267	2 270
Automotive	**39 819**	**44 511**	**40 354**	**37 468**	**46 528**	**54 153**

BMW Units Sold	2006	2007	2008	2009	2010	2011
Germany	285 300	280 900	280 900	267 500	267 200	285 300
Rest of Europe	529 100	617 400	583 700	494 400	524 100	573 200
Asia/Oceania	142 200	159 500	165 700	183 100	286 300	375 500
North America	337 400	364 000	331 800	271 000	298 300	341 300
Other Markets	80 000	78 900	73 800	70 300	85 300	93 700
Total	**1 374 000**	**1 500 700**	**1 435 900**	**1 286 300**	**1 461 200**	**1 669 000**

Average Price Per Unit	2006	2007	2008	2009	2010	2011
Germany	30 196	33 713	29 001	31 606	32 268	35 466
Rest of Europe	28 322	28 822	26 893	25 404	27 276	28 768
Asia/Oceania	35 432	36 631	34 441	34 300	39 706	40 268
North America	28 370	26 547	28 489	31 983	33 441	29 753
Other Markets	20 103	22 065	18 307	21 421	26 580	24 228
Total	**28 980**	**29 660**	**28 104**	**29 128**	**31 842**	**32 446**

Appendix A.27 –Revenue forecast

Total Car Market		Forecasted Total Car Market									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	3 174 000	3 243 828	3 308 705	3 368 261	3 422 153	3 470 064	3 518 644	3 567 905	3 617 856	3 668 506	3 719 865
Rest of Europe	13 681 000	13 393 699	13 259 762	13 259 762	13 392 360	13 579 853	13 769 971	13 962 750	14 158 229	14 356 444	14 557 434
Asia/Oceania	31 722 000	34 640 424	37 411 658	39 843 416	41 835 586	43 718 188	45 685 506	47 741 354	49 889 715	52 134 752	54 480 816
North America	15 224 000	16 670 280	17 920 551	18 906 181	19 567 898	20 037 527	20 518 428	21 010 870	21 515 131	22 031 494	22 560 250
Other Markets	5 624 561	5 866 417	6 101 074	6 345 117	6 598 921	6 862 878	7 137 393	7 422 889	7 719 805	8 028 597	8 349 741
Total Car Market	**69 425 561**	**73 814 648**	**78 001 749**	**81 722 737**	**84 816 919**	**87 668 510**	**90 629 943**	**93 705 769**	**96 900 736**	**100 219 793**	**103 668 106**

BMW Market Shares		Forecasted Market Shares									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	8,99 %	9,00%	9,00%	8,60%	8,20%	7,80%	7,80%	7,80%	7,80%	7,80%	7,80%
Rest of Europe	4,19 %	4,20%	4,20%	4,00%	3,80%	3,60%	3,60%	3,60%	3,60%	3,60%	3,60%
Asia/Oceania	1,18 %	1,25%	1,30%	1,35%	1,40%	1,45%	1,45%	1,45%	1,45%	1,45%	1,45%
North America	2,24 %	2,10%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%	2,00%
Other Markets	1,67 %	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%	1,70%

BMW Unit Sales		Forecasted BMW Unit Sales									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	285 300	291 945	297 783	289 670	280 617	270 665	274 454	278 297	282 193	286 143	290 149
Rest of Europe	573 200	562 535	556 910	530 390	508 910	488 875	495 719	502 659	509 696	516 832	524 068
Asia/Oceania	375 500	433 005	486 352	537 886	585 698	633 914	662 440	692 250	723 401	755 954	789 972
North America	341 300	350 076	358 411	378 124	391 358	400 751	410 369	420 217	430 303	440 630	451 205
Other Markets	93 700	99 729	103 718	107 867	112 182	116 669	121 336	126 189	131 237	136 486	141 946
Total Unit Sales	**1 669 000**	**1 737 290**	**1 803 174**	**1 843 938**	**1 878 764**	**1 910 873**	**1 964 317**	**2 019 612**	**2 076 829**	**2 136 045**	**2 197 340**

Average Price Per Unit	Forecasted Average Price Per Unit									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	35 466	36 140	36 790	37 489	38 239	39 004	39 784	40 579	41 391	42 219	43 063
Rest of Europe	28 768	29 660	30 520	31 435	32 410	33 414	34 450	35 518	36 619	37 754	38 925
Asia/Oceania	40 268	41 596	42 595	43 745	44 926	46 139	47 385	48 664	49 978	51 327	52 713
North America	29 753	30 348	30 955	31 543	32 142	32 785	33 441	34 109	34 792	35 487	36 197
Other Markets	24 228	25 439	26 711	27 913	29 169	30 482	31 853	33 287	34 784	36 350	37 986

Automotive Revenue	Forecasted Revenue									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Germany	10 118	10 551	10 955	10 859	10 730	10 557	10 919	11 293	11 680	12 081	12 495
Rest of Europe	16 490	16 685	16 997	16 673	16 494	16 335	17 078	17 854	18 665	19 513	20 399
Asia/Oceania	15 120	18 011	20 716	23 530	26 313	29 248	31 390	33 688	36 154	38 801	41 642
North America	10 155	10 624	11 094	11 927	12 579	13 139	13 723	14 333	14 971	15 637	16 332
Other Markets	2 270	2 537	2 770	3 011	3 272	3 556	3 865	4 200	4 565	4 961	5 392
Total Revenue	**54 153**	**58 408**	**62 533**	**66 000**	**69 388**	**72 835**	**76 974**	**81 368**	**86 035**	**90 993**	**96 260**

Appendix A.28

Forecasted Income Statement	Pro-forma Income Statement (Analytical)										
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Revenues	58,408	62,533	66,000	69,389	72,836	76,974	81,368	86,035	90,993	96,261	98,186
R&D	-4,089	-4,690	-5,280	-5,898	-6,191	-6,543	-6,916	-7,313	-7,734	-8,182	-8,346
COGS	-37,965	-40,647	-42,900	-45,103	-47,343	-50,033	-52,890	-55,923	-59,145	-62,569	-63,821
Total Cogs	-42,054	-45,337	-48,180	-51,001	-53,534	-56,576	-59,806	-63,236	-66,880	-70,752	-72,167
Gross Profit	**16,354**	**17,197**	**17,820**	**18,388**	**19,301**	**20,398**	**21,563**	**22,799**	**24,113**	**25,509**	**26,019**
Sales and adm. costs	-5,549	-5,941	-6,270	-6,592	-6,919	-7,313	-7,730	-8,173	-8,644	-9,145	-9,328
Other operating income	584	625	660	694	728	770	814	860	910	963	982
Other operating expenses	-876	-938	-990	-1,041	-1,093	-1,155	-1,221	-1,291	-1,365	-1,444	-1,473
Result from equity accounted investments	175	188	198	208	219	231	244	258	273	289	295
EBITDA	**10,689**	**11,131**	**11,418**	**11,657**	**12,236**	**12,932**	**13,670**	**14,454**	**15,287**	**16,172**	**16,495**
Depreciation & Amortisation	-4,043	-4,253	-4,430	-4,603	-4,779	-4,991	-5,215	-5,453	-5,706	-5,975	-6,074
EBIT	**6,646**	**6,878**	**6,988**	**7,054**	**7,457**	**7,941**	**8,455**	**9,001**	**9,580**	**10,196**	**10,422**
Taxes on EBIT (operating taxes)	-2,027	-2,098	-2,131	-2,151	-2,274	-2,422	-2,579	-2,745	-2,922	-3,110	-3,179
NOPAT	**4,619**	**4,780**	**4,857**	**4,903**	**5,183**	**5,519**	**5,876**	**6,255**	**6,658**	**7,086**	**7,243**
Net borrowing cost	-105	-131	-87	-40	-18	-1	-1	0	2	3	5
Other financial results	-185	-185	-185	-185	-185	-185	-185	-185	-185	-185	-185
Net financial expenses	-290	-316	-272	-225	-203	-186	-186	-185	-183	-182	-180
Tax savings from debt financing	89	96	83	69	62	57	57	56	56	55	55
Net financial expenses after tax	-202	-220	-189	-157	-141	-130	-129	-128	-127	-126	-125
Net earnings (profit after tax)	**4,417**	**4,560**	**4,668**	**4,746**	**5,042**	**5,390**	**5,747**	**6,127**	**6,531**	**6,960**	**7,118**
Attributable to minority interest											
Attributable to shareholders of BMW AG											

Appendix A.29

€ million	2007	2008	2009	2010	2011
CAPEX	4,267	4,204	3,471	3,263	3,692
Group revenue	56,018	53,197	50,681	60,477	68,821
CAPEX/Revenue	7.62%	7.90%	6.85%	5.40%	5.36%

Appendix A.30

Balance Sheet	Forecasted Balance Sheet										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-current Assets											
Intangible assets	4,381	4,381	4,381	4,381	4,381	4,381	4,381	4,381	4,381	4,381	4,381
Property, plant and equipment	12,324	13,195	13,926	14,641	15,368	16,242	17,169	18,153	19,200	20,311	20,717
Leased products	240	257	272	286	300	317	335	354	375	396	404
Investments accounted for using the equity method	184	197	208	218	229	242	256	271	286	303	309
Other investments	247	247	247	247	247	247	247	247	247	247	247
Receivables from sales financing	0	0	0	0	0	0	0	0	0	0	0
Financial assets	218	218	218	218	218	218	218	218	218	218	218
Deferred tax	1,635	1,751	1,848	1,943	2,039	2,155	2,278	2,409	2,548	2,695	2,749
Other assets	103	110	116	122	128	135	143	151	160	169	173
Total Non-current Assets	**19,333**	**20,356**	**21,216**	**22,056**	**22,911**	**23,938**	**25,028**	**26,185**	**27,415**	**28,721**	**29,199**
Current Assets											
Inventories	9,601	10,279	10,849	11,406	11,973	12,653	13,376	14,143	14,958	15,824	16,140
Trade receivables	3,200	3,426	3,616	3,802	3,991	4,218	4,459	4,714	4,986	5,275	5,380
Receivables from sales financing	0	0	0	0	0	0	0	0	0	0	0
Financial assets	2,091	2,091	2,091	2,454	2,859	2,877	2,902	2,935	2,975	3,023	4,184
Current tax	1,168	1,251	1,320	1,388	1,457	1,539	1,627	1,721	1,820	1,925	1,964
Other assets	1,140	1,221	1,289	1,355	1,422	1,503	1,589	1,680	1,777	1,880	1,917
Cash and cash equivalents	6,425	6,879	7,260	7,633	8,012	8,467	8,951	9,464	10,009	10,589	10,800
Excess Cash	0	0	0	0	0	0	0	0	0	0	0
Excess Cash Used	-638	1,104	1,158	573	405	18	25	33	40	48	1,161
Total Current Assets	**23,626**	**25,147**	**26,425**	**28,038**	**29,714**	**31,257**	**32,903**	**34,656**	**36,524**	**38,514**	**40,385**
Total Assets	**42,959**	**45,503**	**47,641**	**50,094**	**52,625**	**55,195**	**57,930**	**60,842**	**63,939**	**67,236**	**69,584**

Equity											
Subscribed capital	328	328	328	328	328	328	328	328	328	328	328
Capital reserve	978	978	978	978	978	978	978	978	978	978	978
Accumulated other equity	-837	-837	-837	-837	-837	-837	-837	-837	-837	-837	-837
Revenue reserve (Retained earnings)	19,728	22,008	24,108	25,770	27,282	28,630	30,066	31,598	33,231	34,971	36,751
Total Equity	**20,196**	**22,476**	**24,576**	**26,238**	**27,750**	**29,098**	**30,534**	**32,066**	**33,699**	**35,439**	**37,219**
Average Equity	**18,982**	**21,336**	**23,526**	**25,407**	**26,994**	**28,424**	**29,816**	**31,300**	**32,883**	**34,569**	**36,329**
Non-current Liabilities											
Pension provisions	1,082	1,082	1,082	1,082	1,082	1,082	1,082	1,082	1,082	1,082	1,082
Other provisions	3,838	4,109	4,337	4,560	4,786	5,058	5,347	5,654	5,979	6,326	6,452
Deferred tax	584	625	660	694	728	770	814	860	910	963	982
Financial liabilities	2,272	2,272	2,272	2,272	2,272	2,272	2,272	2,272	2,272	2,272	2,272
Other liabilities	642	687	725	762	800	845	894	945	999	1,057	1,078
Total Non-Current Liabilities	**8,418**	**8,775**	**9,076**	**9,370**	**9,669**	**10,027**	**10,408**	**10,813**	**11,243**	**11,700**	**11,866**
Current Liabilities											
Other provisions	3,379	3,618	3,818	4,015	4,214	4,453	4,708	4,978	5,264	5,569	5,681
Current tax	1,285	1,376	1,452	1,527	1,602	1,693	1,790	1,893	2,002	2,118	2,160
Financial liabilites	1,834	730	0	0	0	0	0	0	0	0	0
Newly issued debt	638	638	210	0	0	0	0	0	0	0	0
Trade payables	5,281	5,825	6,329	6,654	6,984	7,381	7,802	8,250	8,725	9,230	9,415
Other liabilities	1,930	2,066	2,180	2,292	2,406	2,543	2,688	2,842	3,006	3,180	3,244
Total Current Liabilities	**14,346**	**14,252**	**13,989**	**14,487**	**15,206**	**16,070**	**16,988**	**17,962**	**18,997**	**20,097**	**20,499**
Total Equity and Liabilities	**42,959**	**45,503**	**47,642**	**50,094**	**52,625**	**55,195**	**57,931**	**60,841**	**63,939**	**67,236**	**69,584**
Net Interest Bearing Debt	3,269	2,165	1,007	434	29	11	-14	-47	-87	-135	-1,296
Average net interest bearing debt	2,953	2,717	1,586	721	232	20	-1	-30	-67	-111	-715
Invested Capital	23,464	24,641	25,583	26,672	27,779	29,109	30,520	32,020	33,612	35,304	35,923
Average invested Capital	21,935	24,053	25,112	26,128	27,226	28,444	29,815	31,270	32,816	34,458	35,614
Increase In Invested Capital	3,075	1,177	942	1,088	1,107	1,330	1,412	1,499	1,593	1,692	618
Debt to Equity	1.13	1.02	0.94	0.91	0.90	0.90	0.90	0.90	0.90	0.90	0.87

Appendix A.31

€ million	2008	2009	2010	2011
Net income	258	-202	2,402	4,256
Dividend declared	197.0	197.0	852.0	1,508.0
Dividend/net income	76.40%	-97.69%	35.47%	35.43%

Appendix A.32

Regression Statistics	
Multiple R	0,588266526
R Square	0,346057505
Adjusted R Square	0,334782634
Standard Error	0,078022547
Observations	60

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,18684305	0,18684305	30,6928139	7,70299E-07
Residual	58	0,353076031	0,006087518		
Total	59	0,539919081			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	***Lower 95%***
Intercept	0,011822658	0,010088247	1,171923874	0,246019139	-0,008371163
X Variable 1	**1,244651106**	0,224661822	5,540109556	7,70299E-07	0,794941613

	Upper 95%	*Lower 95,0%*	*Upper 95,0%*
Intercept	0,032016478	-0,008371163	0,032016478
X Variable 1	1,694360599	0,794941613	1,694360599

X Variable 1 coeffiecient of 1,24 indicates the estimated Beta value.

Appendix A.33

Daimler Group Capital Structure	
Share price as of Jan 1st 2012	33.92
Shares outstanding as of Jan 1st 2012 (in mill)	1,006
Market value of equity	34,124
Book value of financial services*	5,373
Market value of equity, industrial business	28,751
Net interest bearing debt, industrial business*	10,157
Enterprise value, industrial business	38,908
Equity/Enterprise value	73.89%
Debt/Enterprise value	26.11%

*Values from Daimler (2012)

Appendix A.34

Enterprise values of the peer group – Data gathered from Yahoo Finance! and Thomson ONE Banker.

	Share price, Jan 1st 2012	Shares outstanding (in mill.)	MV of common shares	MV of preferred shares*	Total NIBD**	Enterprise Value
Volkswagen AG	104,00	295,05	30 685	19 643	77 584	127 912
Daimler AG	33,92	1066,43	36 173	0	67 113	103 286
PSA Peugeot	12,11	342,06	4 142	0	29 881	34 023
Renault	26,83	272,38	7 308	0	30 591	37 899

*Volkswagen AG had 170,14 million preferred shares outstanding at a price of €115,45 per share as of January 1st 2012, in addition to its 295,05 million common shares.

**Total net interest bearing debt is calculated on Group level similarly to the derived net interest bearing debt for the industrial businesses of the peer group as shown in appendices A.19-A.22.