

W U T I S

Research Report

BMW Group



Date: 06/15/2018
Ticker: FRA: BMW

Current Price: EUR 84.15
Headquarters: Munich, Germany

Target Price: EUR 86.3
Recommendation: **HOLD**

Highlights

Executive summary

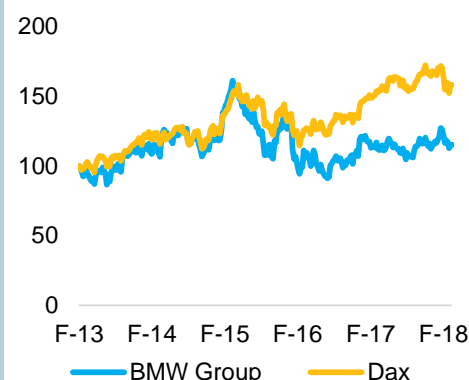
Bayerische Motorenwerke AG (BMW) founded in 1916 is one of the most prestigious automobile and motorcycle manufacturers in the world. Though the group cannot compete with the biggest players in the industry in terms of the number of units produced, this is mainly due to BMW's choice to focus on the premium automotive segment. In 2017, around 2.46mn BMW, Rolls-Royce and MINI vehicles were sold.

Investment Recommendation

- We initiate coverage on BMW Group (BMW:GR) with a **Hold** recommendation based on a three months target price of EUR 86.3 offering 2.3% upside from its closing price of EUR 84.15 on June 15th 2018. Our recommendation is primarily driven by:
 - BMW might be negatively affected by any trade barriers. For instance, the Brexit caused 5.7% decline in cars sold in UK, whereas Moody's forecasts further fall by 5.5%. Similar situation might happen soon at far bigger markets, since the US President Donald Trump has proposed to raise the taxes on imported cars.
 - China and recovery in Europe as drivers for global vehicle sales.
 - Global vehicle sales in the premium segment are expected to rise by 2.6% annually by 2022

BMW Group performance

- In Q1 2018, the largest manufacturer of premium automobiles failed to boost sales revenues. These dropped by 5.1% to EUR 22.69 bn. Simultaneously, also EBIT dropped by 3.1% to EUR 2.73 bn.
- The falls were primarily due to negative currency effects.
- The BMW Group continues to achieve records in terms of sales (+3% to 604,629 vehicles). The electrified models, of which BMW sold 26,858 units (+38.4%) in Q1 2018 and more than 100,000 units in 2017 as a whole, once again registered the most attractive growth rates. As a result, BMW is already one of the largest manufacturers of electrified automobiles and outraces other premium manufacturers in this regard.
- With an EBIT in the core Automobiles segment of EUR 1.88 bn (+0.2%), the corresponding result margin stood at 9.7% in Q1 (previous year: 9.4%). As a result, the latter not only found itself at the upper end of its own target corridor, but also above the level of the direct competition from Germany. Since the current year's model offensive primarily includes product novelties from the luxury or SUV segment, the EBIT margin should remain at a high level.
- Due to the continued product offensive as well as the electrification of vehicles and further development of autonomous driving, research and development costs are increasing. The focus here is on the largest model offensive in the company's history. Besides the new X models (X2, X4, X5, X7), around 20 model innovations and revisions will come onto the market across the group this year. Consequently, BMW refers to 2018 also as the "Year of X", which is likely to additionally boost sales especially in the second half of the year. In the subsequent years, the model offensive will be continued particularly through electrified vehicles.



Market Profile

Closing Price	84.15
Target Price	86.33
52-W High/Low	77.1 / 97.5
52-W Return	4.62%
Market Cap. (bn)	55.6
Dil. Shares Out. (mm)	657.1
Free Float	57.18%
Beta	1.23
Dividend Yield	4.68%
LTM EV / Revenue	1.35x
LTM EV / EBITDA	7.29x
LTM P / E	6.42x

Research Team



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1. Business Description

BMW Group AG (GY:BMW) is a worldwide-operating conglomerate, mainly producing premium (BMW, Mini) and luxury cars (BMW, Rolls-Royce), motorcycles (BMW Motorrad) and providing broad spectrum of financial services. (For overview of sector revenues see figure 1.) BMW's financial sector sales comprise mostly BMW Bank, that offers credit, insurance and leasing services. Apart from aforementioned, there exist few smaller, yet recognizable brands: DriveNow (EU car sharing service), ReachNow (US car sharing service), ParkNow (cashless payment solution & search engine), ChargeNow (plug-in battery charging network). Recently BMW Group has implemented the NUMBER ONE > NEXT strategy, that focuses on accomodating to and supporting the market-wide shift towards electrified mobility, as well as frontrunning other manufacturers by implementing unique technological solutions (ACES – autonomous, connected, elctrified, shared)

BMW

Since 86% of the Group's sold cars are BMWs, there is no doubt it is the most significant BMW Group's brand. BMW has also the widest selection of products, each coming in numerous variants – enough to say, nearly every quality-conscious customer will find a product suiting his or her needs. Only in 2017 there took place 15 revisions and 6 new launches.

BMW is likewise the most impacted entity by NUMBER ONE > NEXT. So far, the brand have been successfully selling two iconic for the brand electrified vehicles, targeted at very different markets (BMW i3 – affordable and agile, BMW i8 – excellent performance and efficiency) as well as electrified versions of already known models, hitting 100.000 electrified vehicles sold in 2018.

Mini

Mini has just 14% share in sold cars volume, but still brings considerable contribution to the company's profit. Since past three years, the brand consequently raises the bar in terms of revenues. Mini has recently launched new Countryman generation, that also comes in plug-in hybrid variant.

Rolls-Royce

Rolls-Royce under the BMW's wings seem to serve the overall image rather than boosting the performace. With sales volume fluctuating around steady value of 4000 it doesn't bring much cash into the company, even though it is working in high-margin car subsegment.

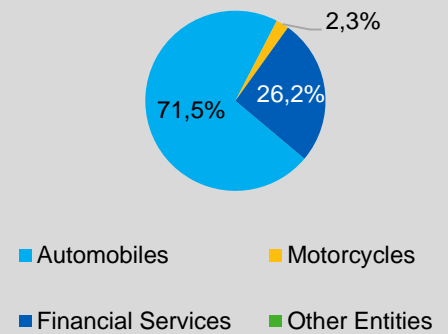
BMW Bank

BMW Bank offers much more services than just car financing, leasing and insurance. Although these remain the core activities, the bank offers also investment products and retail banking services. The financial services generated in FY2017 26% of Group-wide revenues.

Car sharing & other mobility-related services

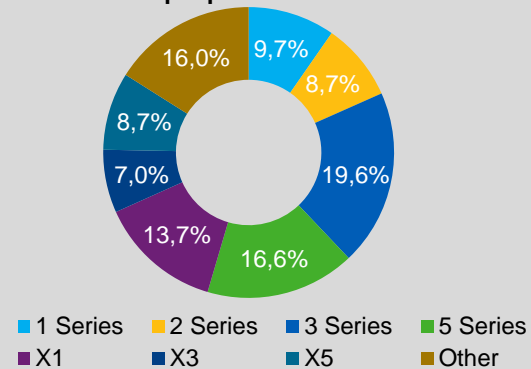
Even though „shared” was mentioned among other key aspects of NUMBER ONE > NEXT strategy, the size and significance of car sharing services do not look impressive anymore. DriveNow operates so far just in 13 cities and generated very slight lossess in the last two fiscal years. However, the existence of these entities is indicative for BMW Group's readiness for potential reshape of the market.

Figure 1: Revenue split per segment



Sources: Company presentation, Team estimates

Figure 2: Automotive split per model



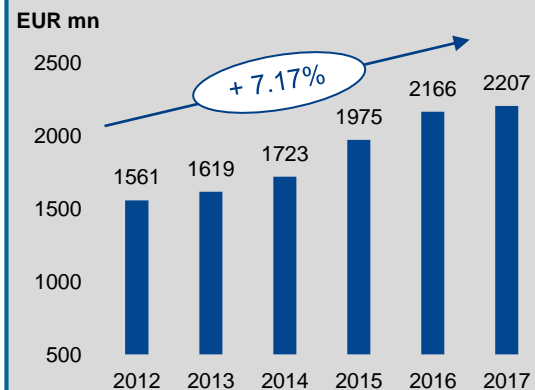
Sources: Company presentation, Team estimates

Figure 3: BMW brand overview



Sources: Company presentation, Team estimates

Figure 4: Financial Service EBT



Sources: Company presentation, Team estimates



2. Industry Overview & Competitive Environment

International automobile sales grew by 1.9% to 87.7 million units in 2017. The overall positive trend from the previous year therefore continued, albeit at a less dynamic pace, about 81 million vehicles are expected to be sold by the end of 2018. Momentum came primarily from Europe (15.6 million units; + 3.3%) and China (24.7 million units; + 2.4%). By contrast, registrations in the USA fell by 1.8% to 17.2 million units. Automobile markets in major emerging economies came out of recession in much stronger health in 2017. Russia saw a 16.1% increase to 1.5 million units, while registrations in Brazil grew by 9.9% to 1.9 million units.

China is the most desired market

All major players are looking forward to increasing the influence in the Chinese market. It is where the biggest number of passenger cars is sold (24.72 million units in 2017) and according to industry experts, the local market is not yet saturated. Not only is the country Asia's main producer of automobiles, but it has also emerged as the number one producer of light vehicles. Chinese joint ventures and leading manufacturers like General Motors or Volkswagen were among the leading passenger car manufacturers in China. It is expected that automakers will undertake unprecedented investment programs to grow their businesses not only in China and India, but also in other emerging markets.

Key Industry Trends: Electro vehicles

Since 2016, the sales of electric cars have reached close to 10 million units, which explains why stalwarts like General Motors, Daimler AG, and VW have entered this lucrative market with their own models. The declining reservoir of non-renewable energy sources is a major push for the production of electric vehicles, which is reflected in the increased market share of electric cars in the European market.

The numbers are in, and in the U.S. alone, electric vehicle sales increased 21 percent last year -- from 158,614 vehicles sold in 2016 to 199,826 vehicles sold in 2017. In 2018, the sale of electric cars is expected to reach close to 12% in the US market. December 2017 also marked the 26th consecutive month of year-over-year sales increases for EVs.

Last year automakers make several major EV announcements. Toyota announced its plans to electrify its entire line-up by 2025, General Motors plans 20 new EVs by 2023, Volkswagen will spend \$82 billion on a multifaceted initiative to develop electric vehicles, mobility services, and autonomous driving by 2022. BMW will mass-produce electric cars by 2020 and make 12 different models by 2025 and Volvo announced that all models introduced after 2019 will either be hybrids or all-electric. In total, the automotive industry is expecting 127 battery-electric models to be introduced worldwide over the next five years.

Figure 9: Car sales in selected countries

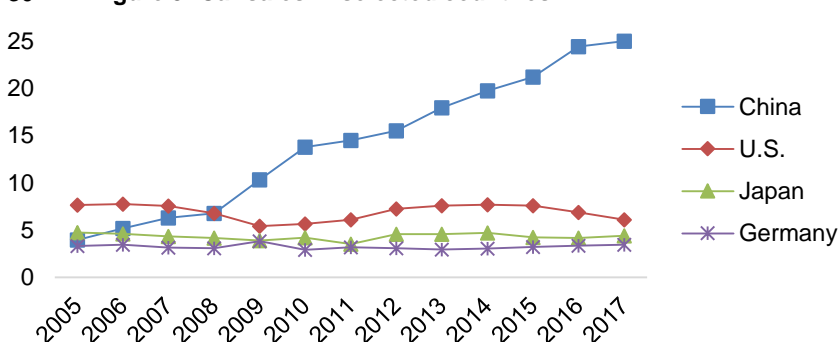
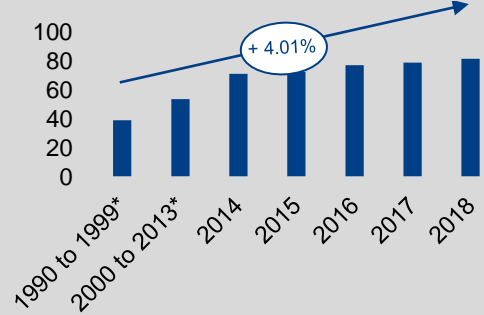
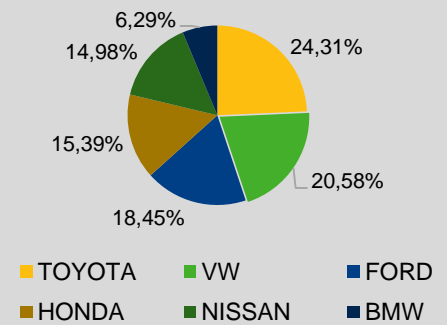


Figure 5: Global car sales



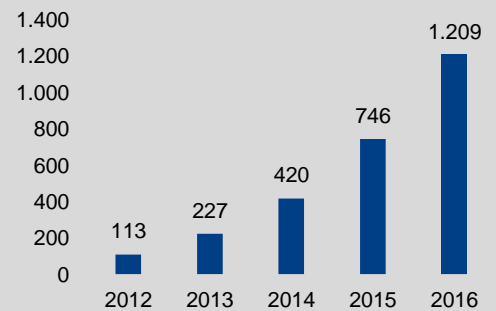
Sources: Company presentation, Team estimates

Figure 6: Automotive brands by market share



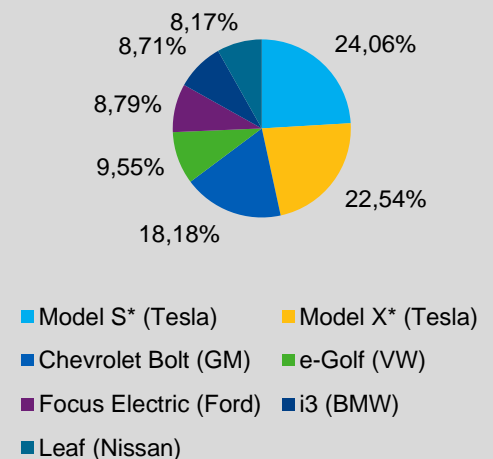
Sources: Company presentation, Team estimates

Figure 7: Number of electric vehicles sales (In thousands of units)



Sources: Company presentation, Team estimates

Figure 8: Range of selected electric vehicles 2017



Sources: Company presentation, Team estimates



Driverless with autonomous vehicles

Though fully autonomous vehicles will take some more time to make their way onto the roads, autonomous vehicles are definitely worth the watch in 2018. It is predicted that 40% of the mileage driven in Europe could be covered by autonomous vehicles in 2030. With benefits like reduced accidents, better traffic management, and increased passenger comfort, the autonomous vehicle is most definitely the future of automotive technology. Currently there are several companies working on driverless car and one of them is Google, up until recently this tech company was putting its own self-driving technology into the cars made by other manufacturers, such as BMW and Audi, but in May Google announced that it would begin producing cars of its own.

Car sharing

Car Sharing Market size was over USD 1.5 billion in 2017, with fleet size of over 100,000 in the same year. The number of members is forecast to grow at over 20% between 2018 and 2024. Germany car sharing market holds the majority share in Europe and is expected to grow significantly due to increasing taxi fares and rising costs of owning a vehicle, currently there are about 140 service providers in the country. The automotive players are facing constant pressure due to reducing car ownership. This is encouraging them to enter the car sharing industry either by forming partnerships with the existing players in the industry or by establishing subsidiaries that provide car sharing services. For instance, the German auto makers will form a joint-venture company that combines Daimler's Car2Go and BMW's DriveNow car-sharing providers to fend off competition from tech giants like Uber, the global ride-hailing leader. The German joint venture will also have to compete with the deep resources of Alphabet Inc.'s Google, and Apple Corp., which are sizing up opportunities in transportation. Daimler and BMW said the agreement—50% in the joint venture for each of company—would likely boost their earnings in 2018 through a one-time increase in the valuation of their mobility holdings.

Figure 14: BMW Strategy number one

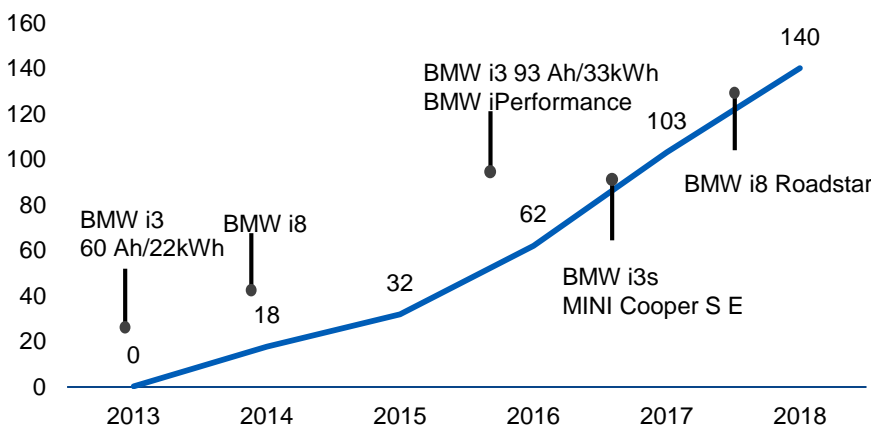
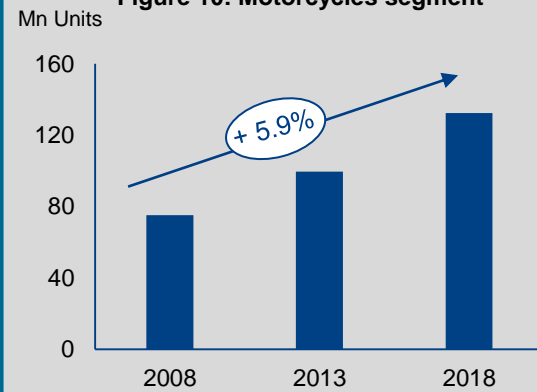
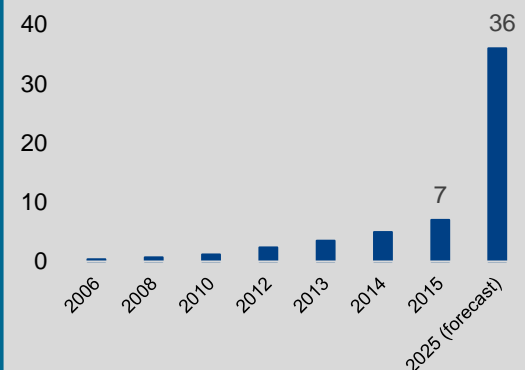


Figure 10: Motorcycles segment



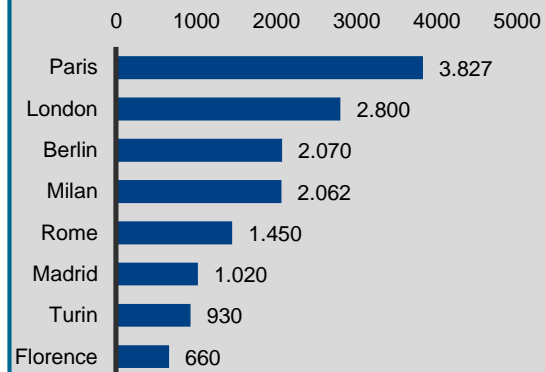
Sources: Company presentation, Team estimates

Figure 11: Car Sharing Users Worldwide



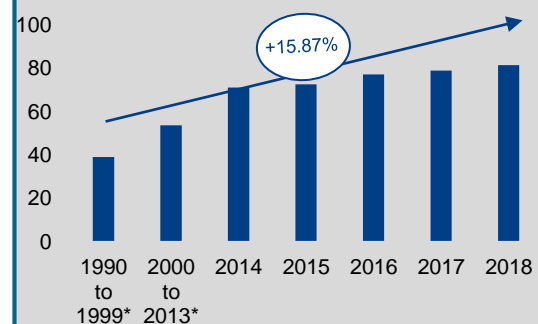
Sources: Company presentation, Team estimates

Figure 12: Number of vehicles in selected European cities



Sources: Company presentation, Team estimates

Figure 13: Autonomous driving features (in billion U.S. dollars)



Source: Thomson Reuters



3. Management Team & Corporate Governance

Management Team

BMW's executive management team has been a key driving force behind the company's overall success during the last 100 years. The board of management consists of eight highly motivated members. Chairman of the board is Mr. Harald Krueger, who joined BMW in 1992 and is CEO since May 2015. Mrs. Milgros Caiña Carreiro-Andree is Head of Human Resources and Labor Relations at BMW Group since July 2012. Markus Duesmann is Head of Purchasing and Supplier Network. Before joining BMW in 2007 he worked in several key positions at Daimler AG. Mr. Klaus Fröhlich is member of the management board since December 2014 and is responsible for development. After working for Unilever and Beiersdorf AG, Mr. Pieter Nota joined BMW in January 2018. His responsibilities are Sales, Aftersales and Brand Management of the BMW Group. Since more than 25 years Dr. Nicolas Peter is working for BMW as a finance manager. He is also a member of the board and responsible for the financial agenda. Mr. Peter Schwarzenbauer is the seventh board member and his fields are Mini, Rolls-Royce, BMW Motorrad and Customer Engagement, as well as Digital Business Innovation. Last, but not least, Oliver Zipse is board member of BMW Group and Head of Production.

Management Compensation

The compensation system for the board of management at BMWAG is designed to encourage a management approach focused on the sustainable development of the BMW Group. The compensation of the board of management comprises both fixed and variable remuneration as well as a share-based component. Retirement and surviving dependents benefit entitlements are also in place.

Supervisory Board

The supervisory board of BMW Group consists of 20 members with different backgrounds. Chairman of the supervisory board is Dr.-Ing. Dr.-Ing. E.h. Norbert Reithofer since 2015. He is appointed until 2020. Formerly he was the Chairman of the management board of BMW Group. Furthermore, BMW has four deputy chairmen of the supervisory board.

Sustainability

Economic success, the responsible use of resources and the assumption of social responsibilities form the basis for long-term growth within the BMW Group. It secures the future of its business model through promoting sustainable activities such as:

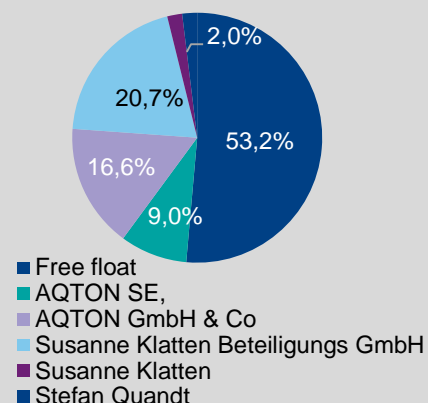
The development of products and services for sustainable individual mobility (e.g. electric mobility and services such as DriveNow and ReachNow)

The efficient use of resources along the entire value chain
Responsibility towards employees and society in general

Compliance Management

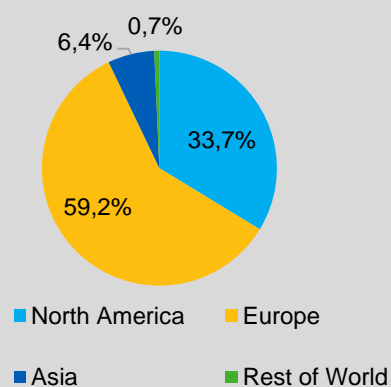
The BMW Group Compliance Committee consists of the heads of the following departments: Legal Affairs, Corporate and Governmental Affairs, Corporate Audit, Group Reporting, Organizational Development and Corporate Human Resources. It manages and monitors activities necessary to avoid non-compliance with the law. These activities include training, information and communication measures, compliance controls and following up cases of non-compliance.

Figure 15: Shareholder structure



Source: Company information

Figure 16: Geographic split



Source: Company information

Figure 17: Management Team overview

Management Team			
Name	YOB	First Appointment	End of Term
Harald Krüger	1965	2008	-
MILAGROS CAIÑA CARREIRO-ANDREE	1962	2012	-
MARKUS DUESMANN	1969	2016	-
KLAUS FRÖHLICH	1960	2014	-
PIETER NOTA	1964	2018	-
DR. NICOLAS PETER	1962	2017	-
PETER SCHWARZENBAUER	1959	2013	-
OLIVER ZIPSE	1964	2015	-

Source: Company information



4. Investment Summary

“Market uncertainty and strategic market changes provide unfavorable investment environment “

We therefore issue a **Hold** recommendation on BMW Group with a 3-months target price of EUR 86.3 per share. Combined with an annual dividend forecasted at EUR 4.0 per share, this represents a total return of 7.13% from its closing price of 84.1 on June 15th, 2018. Our target price is based on a mix of the Discounted Cash Flow to Enterprise Value Model, Dividend Discount Model, and EV/EBITDA trading multiples, attributing 50% /25% /10% and 15% weighting respectively to each methodology. The key investment drivers for our recommendation are:

Key investment drivers

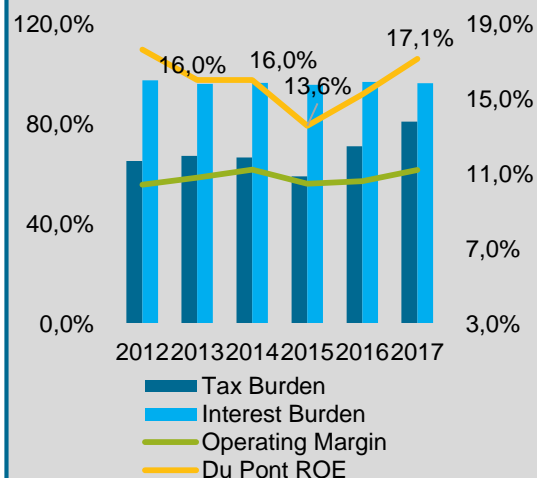
- In Q1 2018, the largest manufacturer of premium automobiles failed to boost sales revenues. These dropped by 5.1% to EUR 22.69 bn. Simultaneously, also EBIT dropped by 3.1% to EUR 2.73 bn
- BMW Group maintains one of the highest levels of profitability among global automobile manufacturers, as well as continued recovery in European demand, partially offset by sharp declines in the South American and Russian markets.
- In our view, BMW faces the same difficult challenges from intense competition as any other global automaker, as well as higher research and development costs as the company steps up spending for its long term plan under the banner “Strategy Number One > Next”.
- Besides the new X models (X2, X4, X5, X7), around 20 model innovations and revisions will come onto the market across the group this year. Consequently, BMW refers to 2018 also as the “Year of X”, which is likely to additionally boost sales especially in the second half of the year. In the subsequent years, the model offensive will be continued particularly through electrified vehicles
- Even though BMW has successfully defended against pricing pressure, the growing excess capacity is still undeniable. For the next several years, industry capacity additions will be driven by the growth in global vehicle production, primarily in China, India, Brazil and Russia. As excess capacity grows, the potential for irrational pricing behavior will also increase, threatening excess returns above cost of capital.

Key risks to our investment thesis:

R1: Being a global enterprise, BMW might be negatively affected by any trade barriers. For instance, the Brexit caused 5.7% decline in cars sold in UK, whereas Moody’s forecasts further fall by 5.5%. Similiar situation might happen soon at far bigger market, since the US President Donald Trump has proposed to raise the taxes on imported cars.

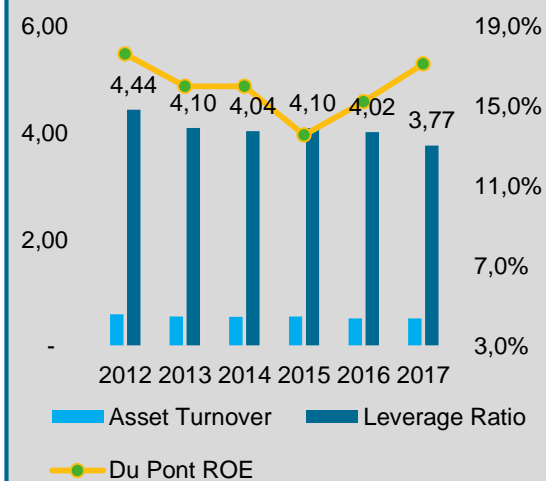
M2: Cars, especially premium-class ones are very income-elastic. Therefore any economic slowdown is likely to have amplified impact on the Group’s sales. The risk is especially meaningful in context of Eurozone low-interest era, which might be over soon (45% of revenues).

Figure 18: DUPont Analysis I



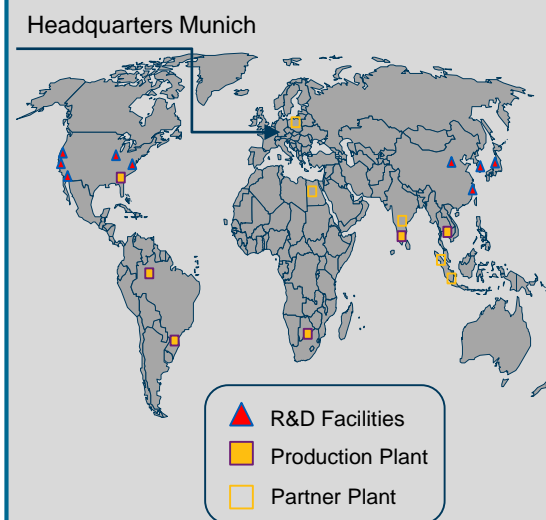
Source: Team estimate

Figure 19: DUPont Analysis II



Source: Team estimate

Figure 20: Group Locations



Source: Company information



5. Financial Analysis

ROIC Tree (from FY 2014 until 2019E) – healthy performance

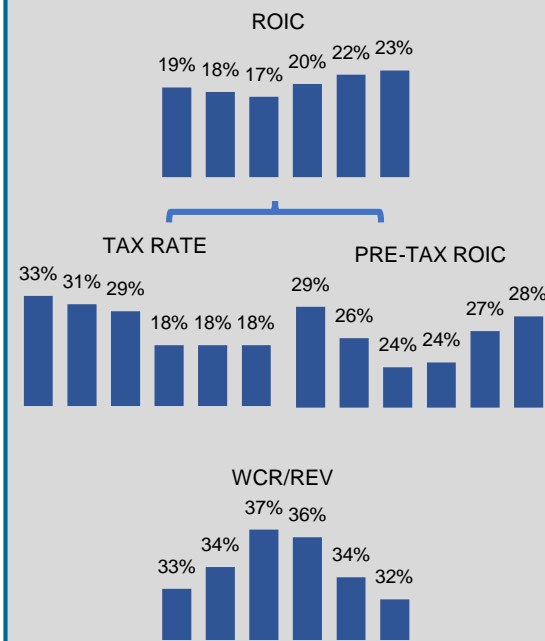
Firstly it is worth to look at the drivers of Return On Invested Capital (see in Appendix the whole analysis as „ROIC Tree“) to understand the current financial position of BMW and also to tackle those areas where the firm may has problems but these ratios are stable or even improving from 2014 until 2019. The increasing ROIC is positively affected by the tax reforms in the Scandanavian countries and the U.S., moreover the decreasing Working Capital Requirements suggest operating efficiency and liquidity in the following years.

Financial Ratios & Key Indicators	FY 2014	FY 2015	FY 2016	FY 2017	2018E	2019E
Profitability Ratios						
Gross Profit margin %	21.15%	19.67%	19.88%	20.20%	20.23%	20.23%
Operating Profit margin %	11.34%	10.41%	9.97%	10.01%	10.44%	10.45%
Net Profit margin %	7.23%	6.94%	7.34%	8.82%	12.43%	12.43%
ROA %	3.76%	3.71%	3.67%	4.50%	6.66%	6.93%
ROIC %	19.25%	18.28%	17.24%	20.00%	22.00%	22.92%
ROE %	24.36%	22.43%	19.82%	17.40%	20.78%	17.13%
Cash Return on Assets %	1.88%	0.56%	1.68%	3.05%	2.98%	3.10%
Financial Ratios						
LT-Debt/Assets (x)	0.28 x	0.29 x	0.29 x	0.28 x	0.23 x	0.26 x
LT-Debt/Equity (x)	1.15 x	1.16 x	1.17 x	0.94 x	0.87 x	0.76 x
Total Debt/Equity (x)	2.15 x	2.14 x	2.06 x	1.67 x	1.63 x	1.34 x
Interest Coverage (x)	0.05 x	0.04 x	0.03 x	0.08 x	0.01 x	0.01 x
Equity Ratio %	24.18%	24.84%	25.12%	29.34%	26.91%	34.01%
In % of revenue						
Cost of materials %	78.85%	80.33%	80.12%	79.80%	79.77%	79.77%
EBITDA %	20.38%	18.88%	18.60%	18.61%	15.61%	15.61%
SG&A %	16.89%	14.05%	14.26%	14.70%	9.65%	9.65%
D&A %	9.42%	8.89%	8.61%	8.57%	5.16%	5.16%
Other operating exp. %	0.30%	0.26%	0.20%	0.45%	0.89%	0.83%
EBIT %	10.96%	9.99%	9.98%	10.04%	10.44%	10.45%
Tax rate in % of EBIT	3.28%	30.70%	29.31%	19.67%	18.29%	18.29%
Interest expenses %	0.41%	0.46%	0.35%	0.27%	0.19%	0.19%
Liquidity KPIs						
Current Ratio (x)	1.04 x	1.06 x	1.02 x	0.96 x	0.97 x	1.12 x
Quick Ratio (x)	0.77 x	0.77 x	0.81 x	0.85 x	0.79 x	0.92 x
Cash Ratio (x)	0.13 x	0.09 x	0.12 x	0.13 x	0.07 x	0.08 x
Working Capital Req. (WCR)	26,600	31,706	34,501	35,698	35,730	36,795

Record revenues and optimistic forecasts

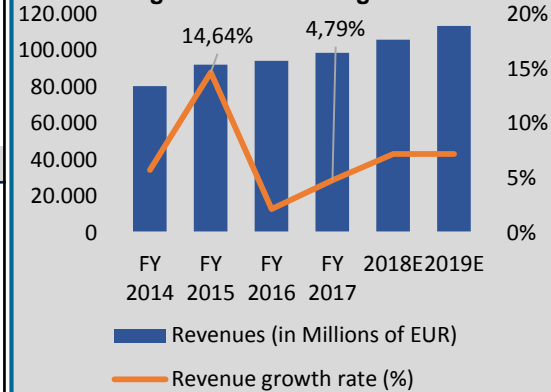
BMW posted record revenues of almost EUR 99 billion in 2017. The Motorcycles segment has the most substantial revenue growth of 10.3% from 2016 to 2017, the Automotive grew by 4.1% while the Financial Services by 7.3%. In terms of profitability, the increasing net profit margins for full year 2017 also suggest optimistic outlook and based on the assumptions, the profitability margins will increase or at least remain stable in the upcoming 2 years. Group profit before tax increased significantly from 2016 to 2017 by 10.2% to EUR 10,66 billion. This profit derives not only from the strong volume growth in the Automotive and Motorcycles segments. The significantly higher financial results also played an important role, resulting from equity accounted investments caused by the joint venture of Shenyang as well as valuation effects. Annual net profit was up 26% to EUR 8.7 billion.

Figure 21: Part of ROIC Tree (FY 2014 - 2019E)



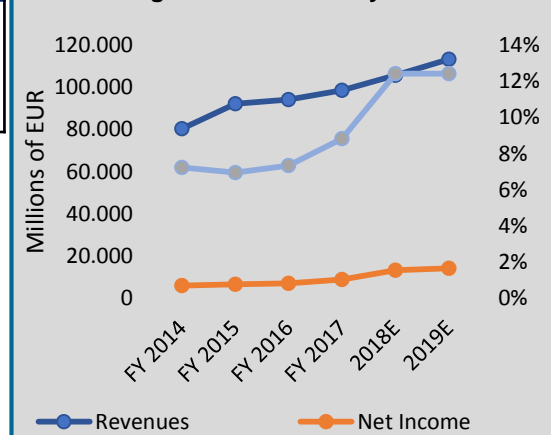
Source: Team estimate

Figure 22: Revenue growth



Source: Team estimate

Figure 23: Profitability



Source: Team estimate



A slight increase can be observed in workforce from 2016 to 2017 (+ 4.2%), what corresponds to the growth in automobile and motorcycle business, expansion of financial and mobility services and projects undertaken by the firm (e.g. electrification of vehicles, autonomous driving).

EBIT Margin in target range, Sustainability, decreasing ROE

BMW maintains the Automotive EBIT margin in the corridor of 8-10% despite ongoing challenges, ensuring that BMW Group has the financial resources to fund the upfront investments in the future – the projected R&D ratio will increase from 6.5 to 7%, or around EUR 7 billion in 2018. Financial Services has significantly contributed to the positive outlook for the performance of Operating Profit due to the increasing share of EBIT for the whole Group from 2014 (19%) to 2017 (22%).

The management also takes into account the average CO₂ emissions for the fleet, which, through their influence on ongoing development costs and due to regulatory requirements, can have significant long-term impact on Group performance.

As predicted one year earlier, the Return on Equity of Financial Services segment was lower by 3.1 percentage points in 2017 than in 2016, at 18.1%. The slight decrease may be due to the more stringent regulatory requirements for equity capital.

Balanced capital structure

A broad range of instruments on international money and capital markets is used by the firm to refinance worldwide operations. Funds raised are used almost exclusively to finance the BMW Group's Financial Services business. The current Equity ratio is 28.2% which is expected to grow over 30% to 2019. Group equity rose by EUR 7,185 million to EUR 54,548 million from 2016 to 2017, mainly as a result of the net profit attributable to shareholders, fair value gains on derivative financial instruments and the positive impact of remeasurements of the net defined benefit liability for pension plans. The Long-Term Debt to Assets ratio represents the average level of leverage in the industry.

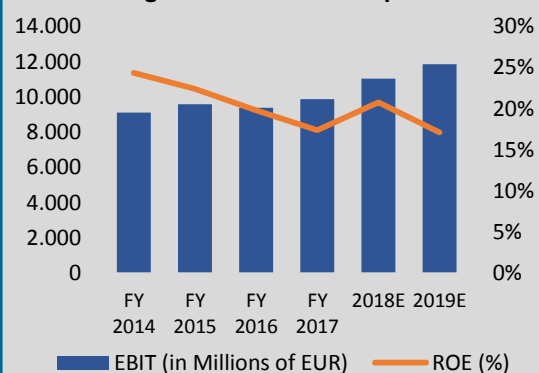
Improved Credit Rating and Liquidity

Moody's has upgraded BMW AG's long-term rating to A1 from A2 in January 2017, thus the outlook has been changed from positive to stable, making BMW Group the best rated automotive manufacturer in Europe and the best rated premium manufacturer globally. BMW also has the highest Standard & Poor's rating of any European automobile manufacturer. The ratings underline the BMW Group's robust financial profile and excellent creditworthiness. As a result, the company not only enjoys good access to international capital markets, but also benefits from attractive refinancing conditions. BMW continues to maintain a solid liquidity position.

Significant increase in dividend

Due to the positive earnings development, the Board of Management and the Supervisory Board are proposing to the AGM to use the net profit of BMW AG of EUR 2,630 million (2016: EUR 2,300 million) for the payment of a dividend of EUR 4.00 per share of common stock (2016: EUR 3.50) and a dividend of EUR 4.02 per share of preferred stock (2016: EUR 3.52). The pay-out ratio for the year 2017 therefore stands at 30.2% (2016: 33.3%).

Figure 24: EBIT – ROE performance



Sources: Company presentation, Team estimates

Figure 25: Assets & Liabilities

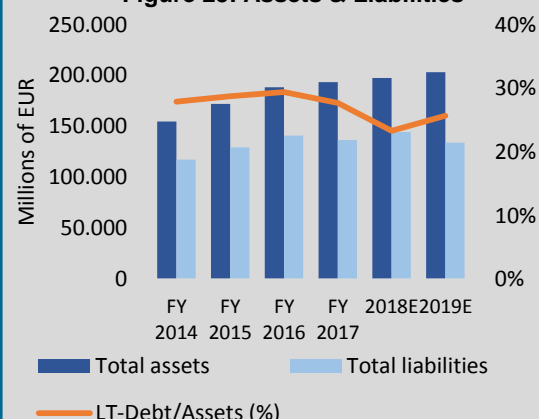


Figure 26: Liquidity KPI-s

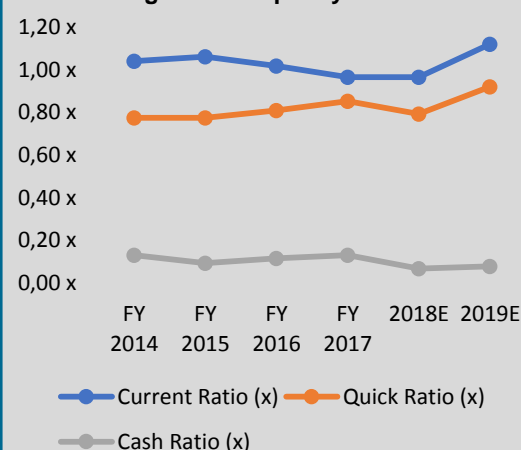


Figure 27: Group Liquidity





6. Valuation

Valuation Price Target: EUR 86.33

The EUR 86.33 Target Price is derived primarily using the 10-Y DCF, 10-Y DDM and relative multiples valuation by weighting the base case 50%, 25%, 10%, 15% each. The resulting **HOLD** recommendation has a deviation of -7.2%.

Discounted Cash Flow Model (DCF)

To estimate the intrinsic Value of BMW's share price, we computed a discounted cash flow analysis due to the predictability of its cash flows in relation to growth and profitability. With regards to industry developments, we performed a three scenario DCF analysis (Bull, Base and Bear Case) by forecasting Revenue, EBIT and CAPEX for 10 years. Our approach generates a price target of EUR 86.33. The three cases for this model were formulated using guidance from historical performance, industry outlook, an assessment of BMW's competitive positioning, company guidance on revenue, EBIT, investment policy and earnings growth. The DCF is most sensitive to the following factors:

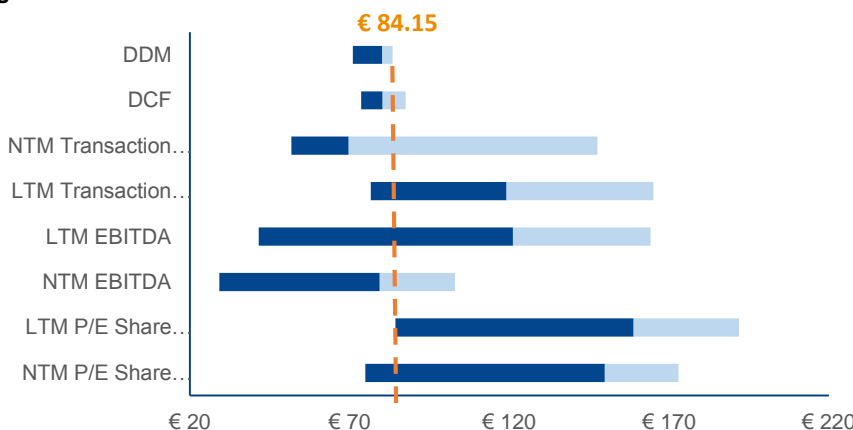
Weighted Average Cost of Capital (WACC) and growth rate:

As discount rate we used the WACC (6.31%) with the firms Cost of Equity (CoE) and Cost of Debt (CoD) weighted with BMW's capital structure. For CoE we used the current bond-yields for a 30-Y German government bond (as of March 2018) as risk-free rate and 5-Y historical returns of DAX as market proxy, while we decided to derive a beta based on the average 5-Y monthly unlevered beta of our peer group with regards to BMW's free float. It was then relevered with our target D/E ratio of 62.5% Debt and 37.5% Equity. While we used the CAPM for computing CoE (10.83%), we weighted interest rates of BMW's long term debt (>1 year) according to the bond maturities to derive CoD (5.0%). For calculating the terminal value we used the perpetuity growth method (PGM) and assumed a long-term growth rate of 1.5%, which is in line with German's GDP growth rate and below the current inflation rate in Germany.

Revenue Growth and EBIT margin

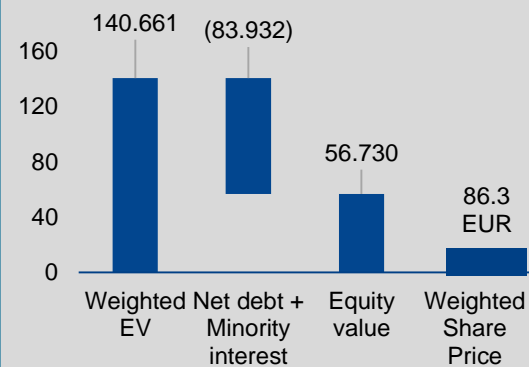
We forecasted BMW's automobile revenues with a 10-Y CAGR of 4.2%. We expect, that the motorcycle business will grow with a solid 10-Y CAGR of 8.8%. We further forecast the Financial Services revues with a CAGR of 7.5% with continuing its constant EBIT Margin of approximately 10% per year.

Figure 32: Valuation football field



Source: Company information

Figure 28: Target price Equity Bridge



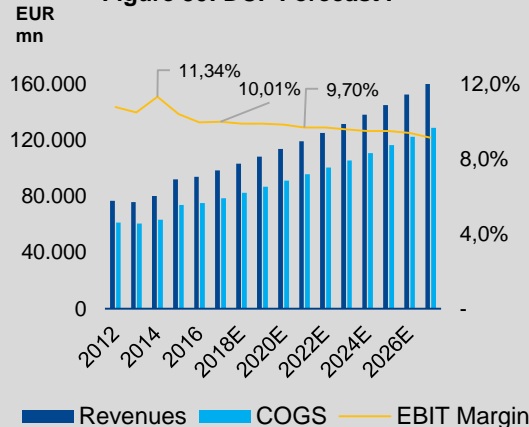
Source: Team estimate

Figure 29: Cost of capital

WACC Calculation		
Risk Free Rate	1.20%	30Y German Bond
Relevered beta	1.23	Peer Group
Market Risk Premium	7.85%	
Cost of Equity	10.83%	
Cost of Debt	5.00%	Weighted Interest
Equity ratio	37.50%	
Debt ratio	62.50%	
Tax rate	30.00%	
WACC	6.31%	

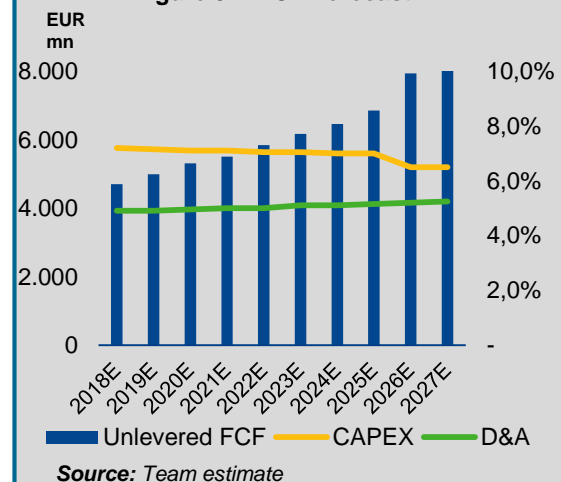
Source: Team estimate

Figure 30: DCF Forecast I



Source: Team estimate

Figure 31: DCF Forecast II



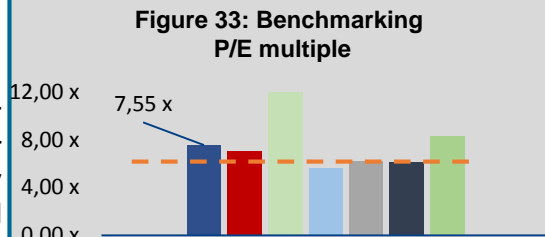
Source: Team estimate



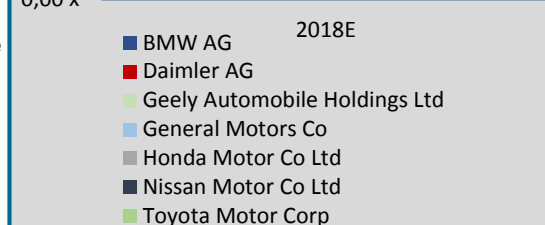
Relative Valuation – Trading Multiples (EV/EBITDA)

The peer group for the relative valuation consists of competitors with comparable size, business model and risk profile, leading to a peer group of 6 companies. We used the EV/EBITDA and P/E multiples for our comparable company analysis. As the charts show, BMW is slightly above the average (orange dotted line) of these companies but based on P/E ratios, BMW is currently undervalued.

The LTM median share price based on EBITDA is EUR 102 while based on P/E it is EUR 90.



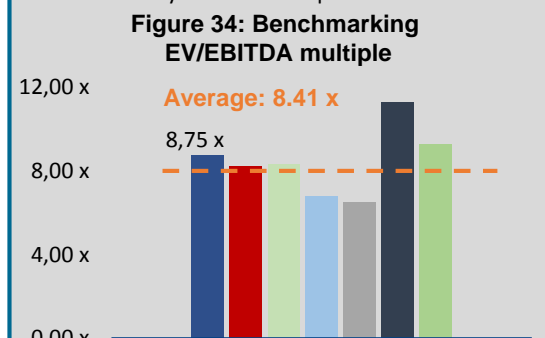
ACQUIRER NAME	TARGET NAME	CLOSED DATE	EV MIO. EUR	REVENUE MIO. EUR		EV / EBITDA	
				LTM	NTM	LTM	NTM
Delphi Automotive Plc	Delphi Technology PLC	05/12/2017	3,83	4,26	4,04	8.42 x	7.54 x
Pierer Industrie AG	SHW AG	08/08/2017	238	406	463	5.45 x	5.57 x
Superior Industries International Inc	Uniwheels AG	22/05/2017	726	464	437	10.33 x	12.36 x
Schouw & Co A/S	Borg Automotive A/S	03/04/2017	168	77	59	11.14 x	18.47 x
LKQ Corporation, Inc.	Mekonomen AB	01/12/2016	810	573	559	9.50 x	9.25 x
Grupo Industrial Saltillo, S.A. de C.V.	Infun S.A.	24/11/2016	315	140	198	22.66 x	7.76 x
Johnson Controls, Inc.	Adient plc	31/10/2016	5,18	17,85	17,37	5.70 x	6.95 x
Alliance Automotive Group	Lookers Plc	04/11/2016	140	297	265	8.22 x	8.45 x
CIMC Vehicle (Group) Co Ltd	Retlan Manufacturing Ltd	27/06/2016	111	234	237	6.74 x	8.27 x
Fiat Chrysler Automobiles N.V.	Fiat Chrysler Automobiles N.V.	03/01/2016	8,09	2,76	2,34	11.93 x	12.77 x
ZF Friedrichshafen AG	TRW Automotive Holdings Corp.	15/05/2015	9,82	12,66	12,45	7.67 x	8.51 x
Rolls-Royce Plc	Rolls-Royce Power Systems AG	26/08/2014	4,86	3,34	3,02	10.43 x	11.65 x



Relative Valuation – Transaction Analysis

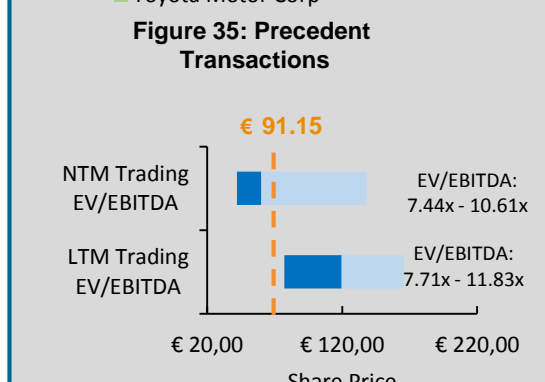
For the comparable transaction analysis we have collected transactions from the automotive industry based on market capitalization, business model and risk profile. These deals were completed in the last 4 years and we did not include ones with small deal values compared to market capitalization, leading to 12 transactions.

As only EBITDA were published by the companies, we have conducted our analysis based on this multiple. Here the price ranges are much wider than for company comparables and also the LTM median share price with value of EUR 119.



Discounted Dividend Model (DDM)

With regards to the Discounted Dividend Model, three different scenarios were constructed to account for certain situations to gain a more robust range for the valuation. In the first scenario, dividend growth was calculated from the historical CAGR (2011-2017) of 11.50% and constructed to decline linear by 0.5% every third year. The second scenario follows a similar pattern, however, the linear growth rate is inclining (-0.5%) meaning that the historical CAGR of 11.50% is met in the final three years. The final scenario assumes absolute growth, calculated by the average of absolute dividend growth of the past four years (€0.52 p.a.), for the next 11 years. Based on these three scenarios the resulting share price of BMW Group is **EUR 80.21**.





7. Investments Risks

Financial Risk

F1: The liquidity risk borne by BMW Group is low. Since more than five years the company's current ratio fluctuates around 1.00, the quick ratio and the cash ratio around 0.75 and 0.25 respectively, what is a decent result. The company is of very good financial health, since net debt is only 2x bigger than EBITDA. It may be therefore concluded, that liquidity risk will not influence the investment considerably.

F2: The residual value risk and interest rate risk remain significant for BMW. The car aftermarket is currently very saturated, what drags down the prices of used cars. This poses the risk that the residual value of leased assets (cars) will be lower than estimated, what may result in write-offs.

Legislative Risk

R1: Being a global enterprise, BMW might be negatively affected by any trade barriers. For instance, the Brexit caused 5.7% decline in cars sold in UK, whereas Moody's forecasts further fall by 5.5%. Similiar situation might happen soon at far bigger market, since the US President Donald Trump has proposed to raise the taxes on imported cars.

R2: The risk related to environmental regulations is not very significant. The BMW Group's product portfolio already has a large quota of energy-efficient cars and moreover, it keeps advancing into this market. Since the environmental regulations appear to be stagnant right now and usually have long vacatio legis period, it is more than safe to assume that BMW Group's management will act reasonably and will refrain from investing heavily in dirtier combustion engines in time.

Market Risk

M1: BMW Group bears medium market risk, due to the fact that its portfolio of products is very well diversified, yet there is still lack of fully electric models. Impact of any rapid shift of customers' interst towards electric cars will not last long anyway, since BMW plans to launch 12 electric long-range models until 2025. We cannot forget, however, that automotive industry is characterized by very tight competition and losing dominant positions will cost a lot and is likely to have long-term consequences.

M2: Cars, especially premium-class ones are very income-elastic. Therefore any economic slowdown is likely to have amplified impact on the Group's sales. The risk is especially meaningful in context of Eurozone low-interest era, which might be over soon (45% of revenues).

Business Risk / Operational risk

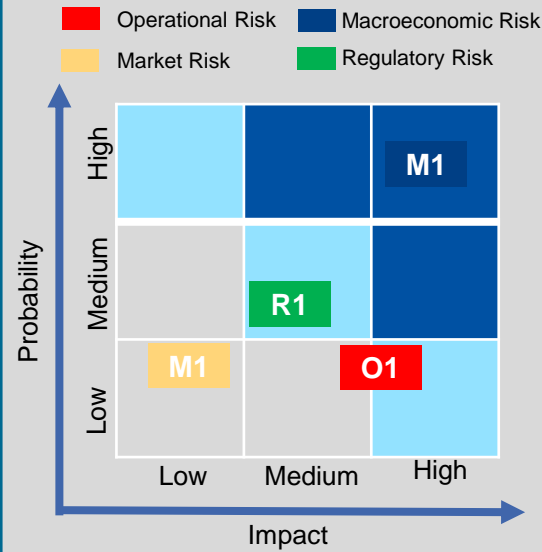
O1: The BMW Grup's very high reliance on IT systems is likely to intensify further. Apart from crimes and misconducts related to personal data, an extremely important class of risks is represented by attacks on physical infrastructure, that becomes more and more automated. Therefore operational risk related to IT is high and is likely to become even higher, whereas its potential impact is already enormous.

O2: BMW Group declares that the complexity of its supply-chain grows, especially among low-tier suppliers, what makes it more mutually beneficial, but on the other hand more co-dependent and difficult to manage. Any shortage on the supply side may lead to production interruptions. Furthermore, the risk related to the quality of purchased components has enormous impact on the Group's revenues and reputation in long run.

Macroeconomic risks

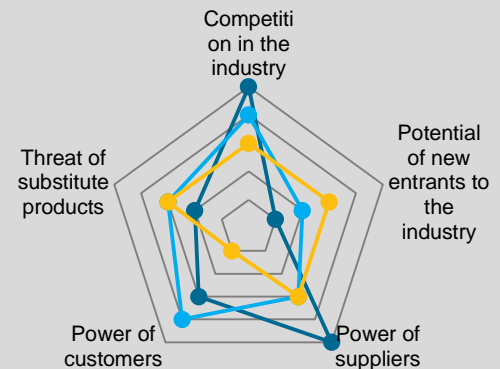
M1: can lead to reduced purchasing power in the countries and regions affected and lead to reduced demand for the products and services offered by the BMW Group. For BMW, the reorientation of the US economic policy, the planned exit of the UK from the EU and possible election wins for anti globalization parties in other EU countries have shown to be more influential in the past year.

Figure 37: Risk matrix



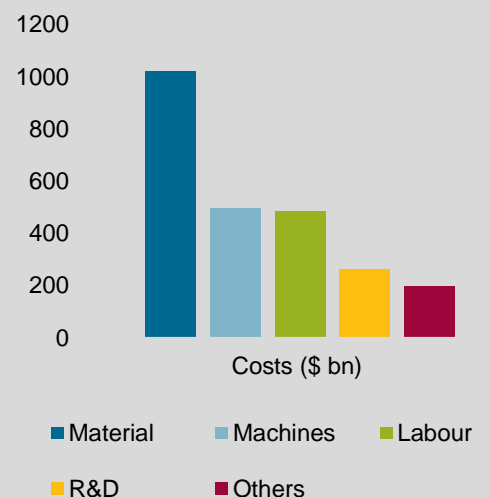
Source: Team estimate

Figure 38: Porters five forces



Source: Team estimate

Figure 39: Costs by input factor



Source: Team estimate



Appendix A: Team Overview I



Alexander Thiel
 Director

- MSc Finance
- BSc Business
- CFA Level 2 Candidate



Johannes Scheufele
 Associate

- BSc Business



Wojciech Lata
 Associate

- BSc Business



Elias Kurta
 Analyst

- MSc Finance
- BSc Business
- CFA Level 2 Candidate





Appendix A: Team Overview II



Valeriya
Krasilnikova
Analyst

- BSc Business



Nóra Zsuzsanna
Nagy
Analyst

- MA Business
Consultancy
- BSc Business

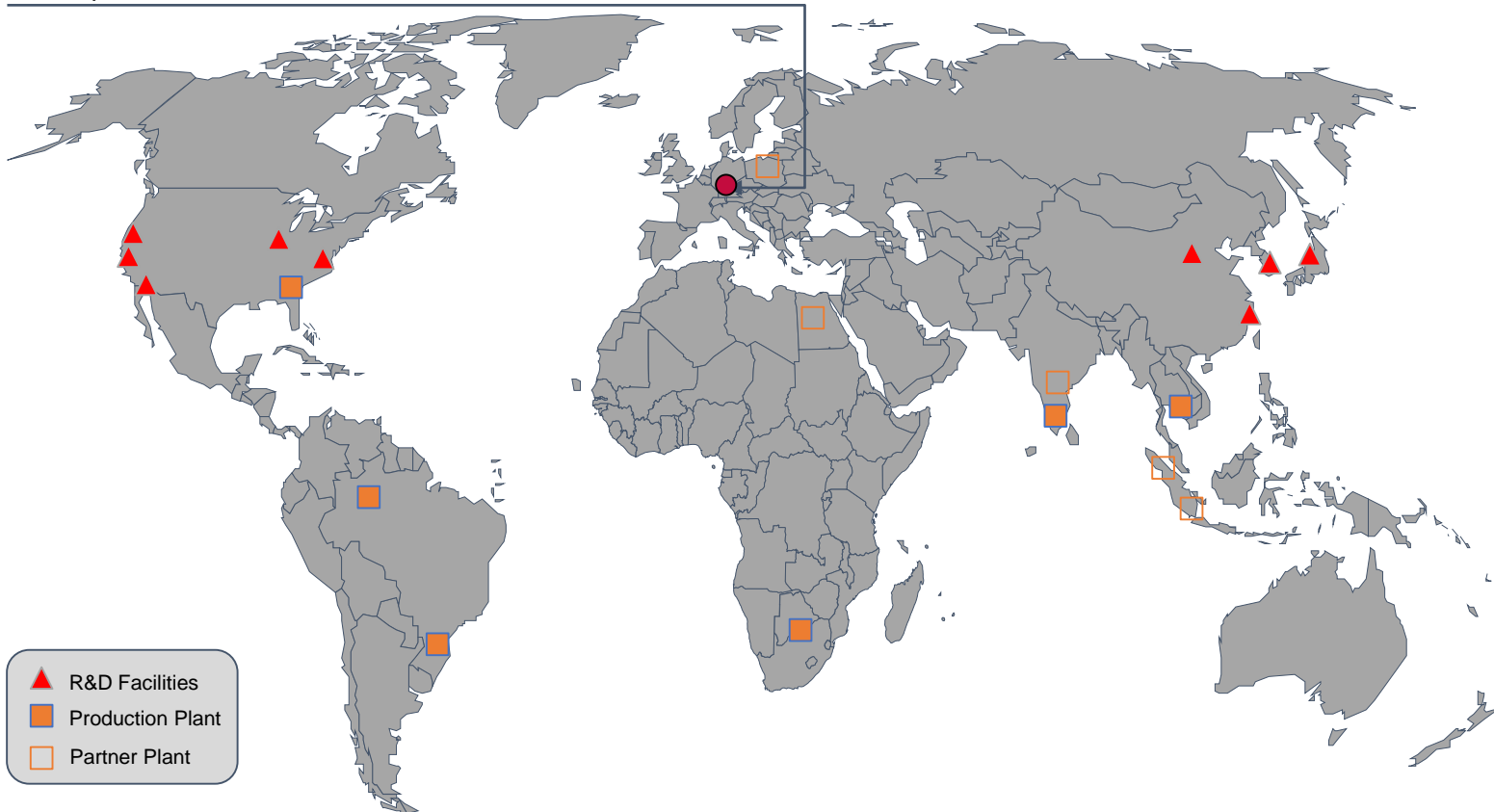
Capitol Consulting, LLC.



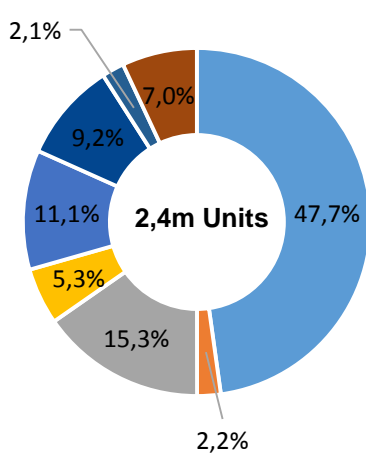


Appendix B: BMW Group Global Overview

Headquarters Munich



Source: BMW Group IR



- Germany
- Roslyn, South Africa
- Spartanburg, USA
- Dadong, China
- Tiexi, China
- Oxford, UK
- Graz, Austria
- Born, Netherlands



Appendix C: Management Team



▪ **Harald Krüger**

Chairman of the Board
 of Management of BMW
 AG



▪ **Norbert Reithofer**

Chairman of the
 Supervisory Board



▪ **Milagros Carreiro-Andree**

Human Resources



▪ **Markus Duesmann**

Purchasing and Supplier
 Network



▪ **Klaus Fröhlich**

Development



▪ **Dr. Nicolas Peter**

Finance



▪ **Pieter Nota**

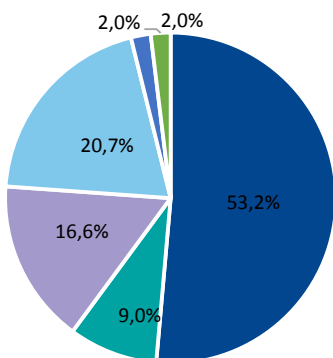
Sales and Brand



▪ **Oliver Zipse**

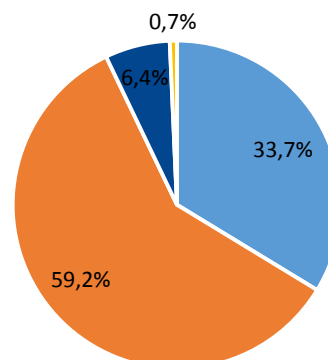
Production

SHAREHOLDER STRUCTURE



- Free float
- AQTON SE,
- AQTON GmbH & Co
- Susanne Klatten Beteiligungs GmbH
- Susanne Klatten
- Stefan Quandt

DISTRIBUTION OF INSTITUTIONAL EQUITY INVESTORS



- North America
- Europe
- Asia
- Rest of World

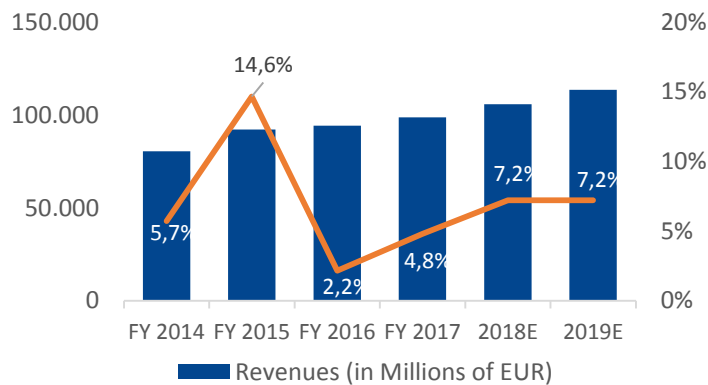


Appendix D: DuPont Analysis

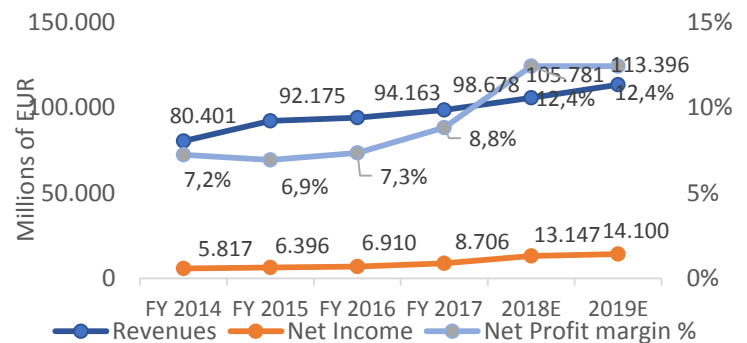
Du Pont Analysis	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tax Burden Net Income / EBT	65,2%	67,2%	66,6%	59,1%	71,0%	80,9%	79,4%	81,4%	78,8%	79,6%	79,0%
Interest Burden EBT / EBIT %	97,4%	96,0%	96,4%	95,6%	96,7%	96,3%	88,9%	90,4%	89,6%	90,4%	90,5%
Operating Margin EBIT / Sales %	10,4%	10,8%	11,2%	10,5%	10,6%	11,2%	7,3%	8,1%	7,3%	7,6%	7,4%
Asset Turnover Sales / Total Assets	0,60	0,56	0,55	0,56	0,52	0,52	1,04	1,04	1,05	1,06	1,06
Leverage Ratio Total Assets / Total Equity	4,44	4,10	4,04	4,10	4,02	3,77	1,71	1,70	1,68	1,67	1,66
Du Pont ROE	17,6%	16,0%	16,0%	13,6%	15,2%	17,1%	9,2%	10,6%	9,1%	9,7%	9,4%

Appendix E: Financial Analysis

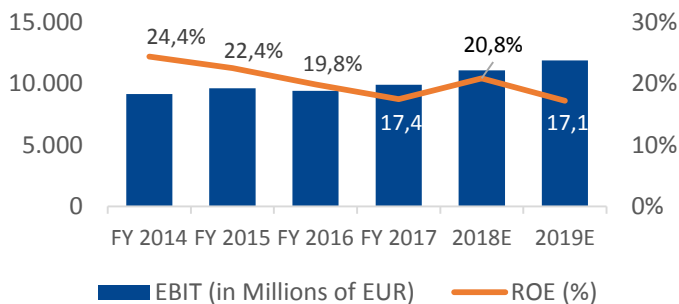
REVENUE GROWTH



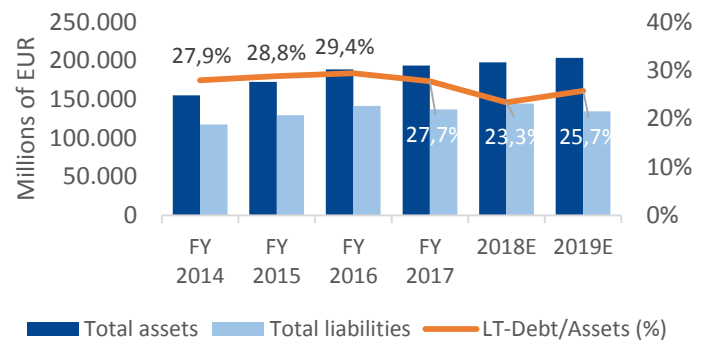
PROFITABILITY



EBIT-ROE PERFORMANCE



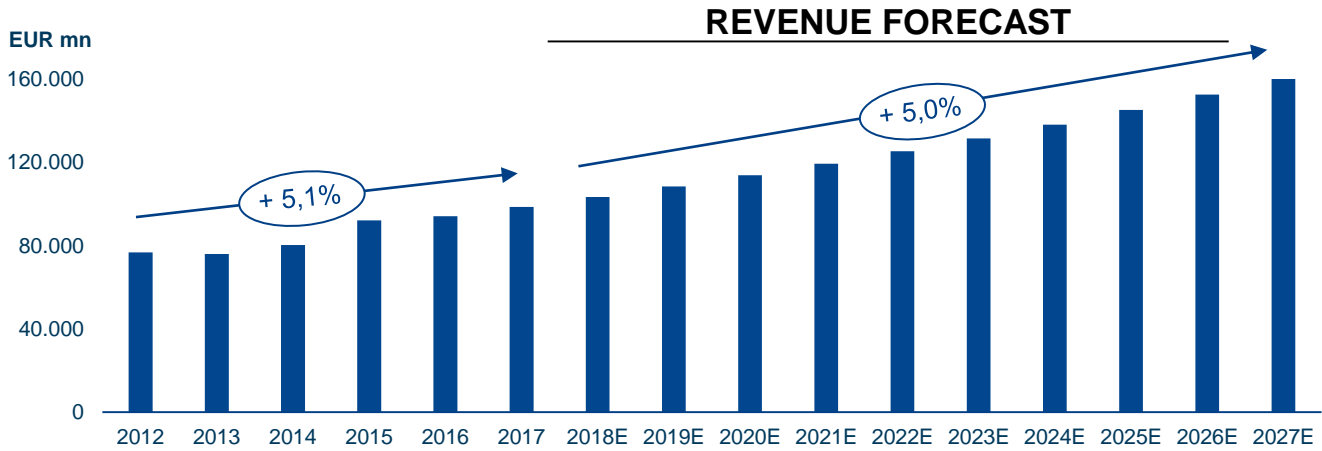
ASSETS & LIABILITIES





Appendix F: Valuation

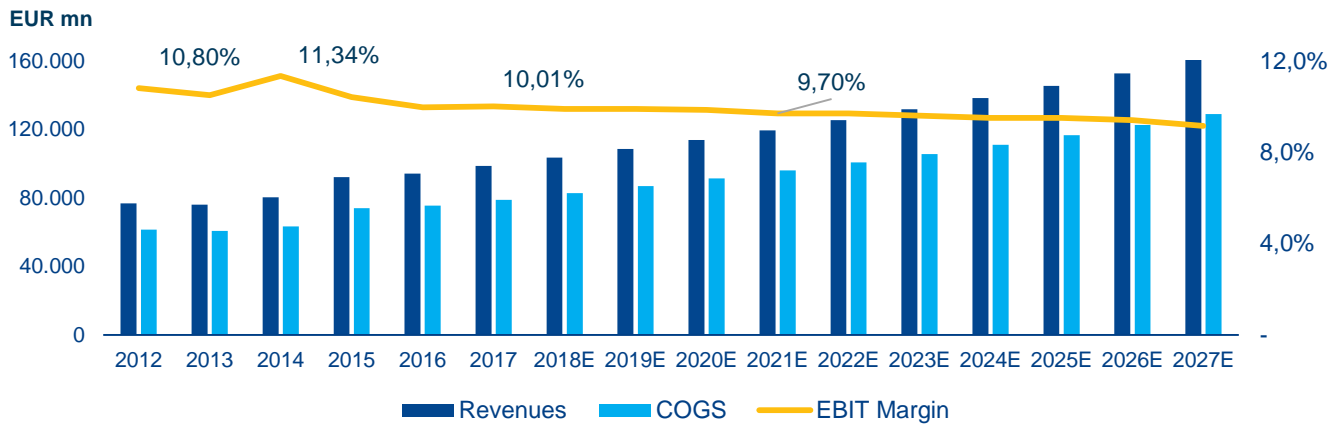
EUR mn



CAGR 2012-2017:
 + 5.1%

CAGR 2018-2027:
 + 5.0%

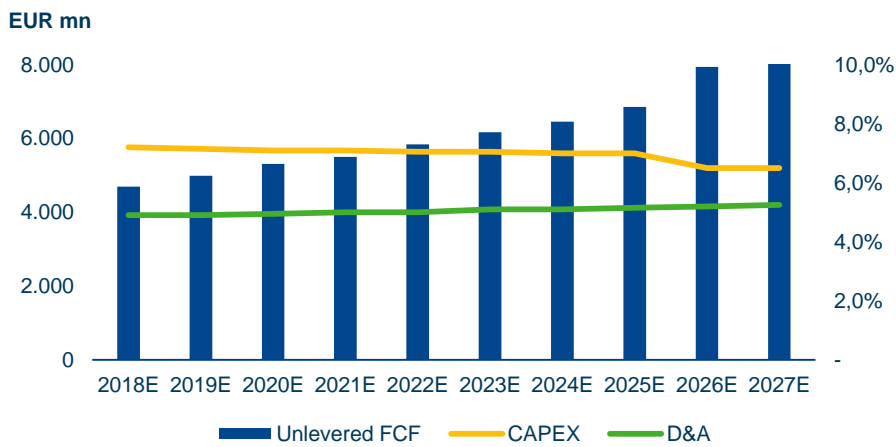
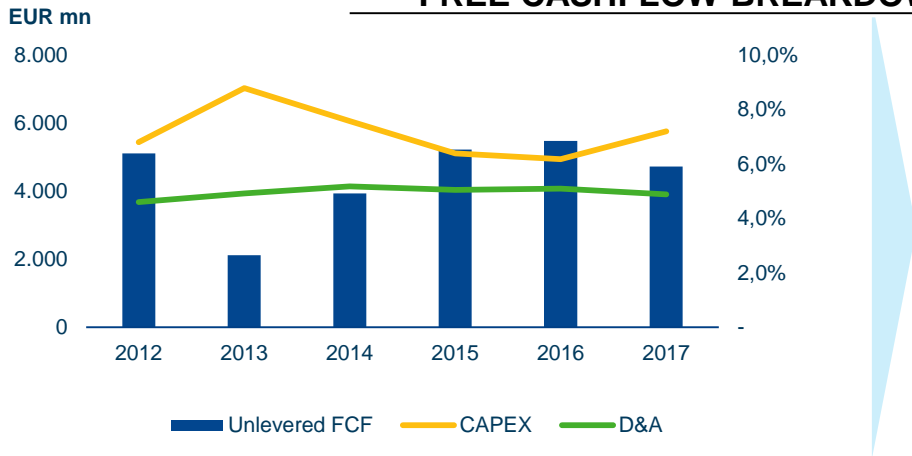
TOTAL EBIT-MARGIN FORECAST



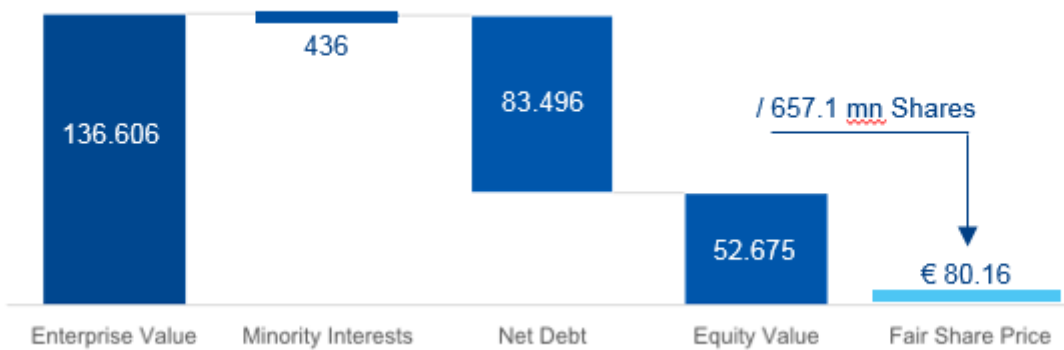
Stable EBIT Margin
 between 9% - 10%



FREE CASHFLOW BREAKDOWN



DCF BASE CASE – EQUITY BRIDGE





DCF valuation assumptions

WACC	6,314%
Terminal EV/EBITDA multiple	7,0x
Terminal growth	1,5%
Tax rate	29,6%
NOSH (m)	657,1

Current market valuation

Current market value (BMW group)	56.767	-
NOSH (m) - all share types	657,1	
Implied share price	86,4	
Fair Value DCF	80,2	
Return %	-7,2%	Hold

Net Debt (per 31/12/17)

(+)Short Term Debt	40.727
(+) Long Term Debt	52.831
(-) Cash & Cash Equivalents	(9.039)
(-) Short Term Investments	(7.965)
(-) Financial Subsidiary Debt	(41.582)
Net Debt	34.972,0

Sensitivity Analysis

		Fair Price per Share						
		WACC						
		6,01%	6,16%	6,31%	6,46%	6,61%	6,76%	6,91%
Terminal growth rate	80,16							
	0,25%	59,9	54,7	49,7	45,0	40,5	36,2	32,2
	1,25%	86,6	79,6	73,0	66,8	60,9	55,4	50,2
	1,50%	95,2	87,5	80,4	73,6	67,3	61,3	55,7
	1,60%	98,8	90,9	83,5	76,6	70,0	63,9	58,1
	1,70%	102,7	94,5	86,8	79,6	72,9	66,5	60,5
	1,80%	106,7	98,2	90,2	82,8	75,8	69,2	63,1
	1,90%	111,0	102,1	93,8	86,1	78,9	72,1	65,7
	2,00%	115,4	106,2	97,6	89,6	82,1	75,1	68,5
2,10%	120,1	110,5	101,5	93,2	85,4	78,2	71,4	

Terminal Growth Method

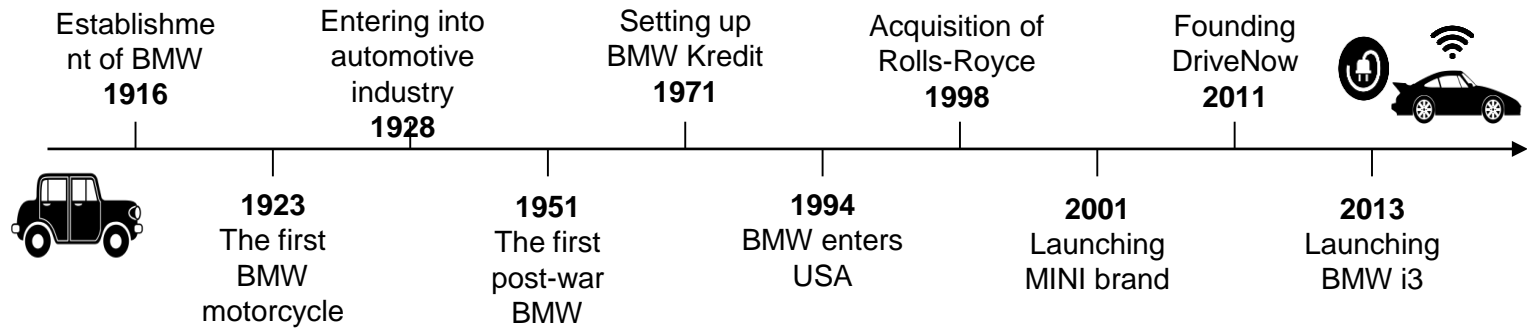
	1	2	3	4	5	6
Terminal Value						
(+) Present Value	4.419	4.415	4.418	4.309	4.301	4.275
Enterprise Value(Jan-2018)	136.606	% TV implied EV/EBITDA x				
(-) Minority Interests	(436)	68,1%	5,7			
(-) Net Debt	(83.496)					
Equity Value(Jan-2018)	52.675					
NOSH (m)	657,1					
Fair Price per Share(€)	80,16					

Terminal Multiple Method

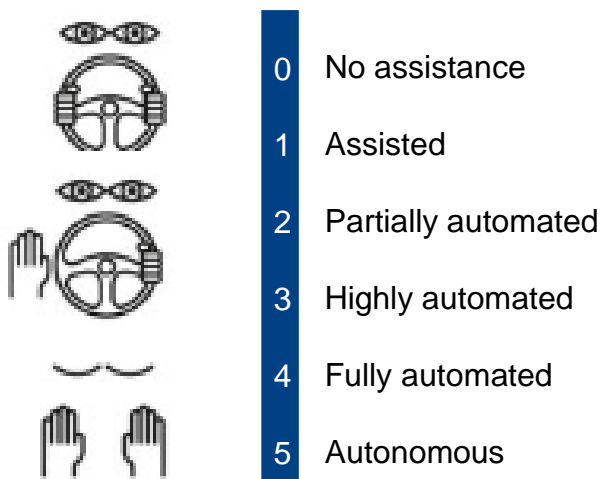
	1	2	3	4	5	6
Terminal Value (EBITDA Multiple)						
(+) Present Value	4.419	4.415	4.418	4.309	4.301	4.275
Enterprise Value(Jan-2018)	135.186	% TV implied EV/EBITDA x				
(-) Minority Interests	(436)	67,8%	5,6			
(-) Net Debt	(83.496)					
Equity Value(Jan-2018)	51.254					
Nosh (m)	657,1					
Fair Price per Share(€)	78,00					



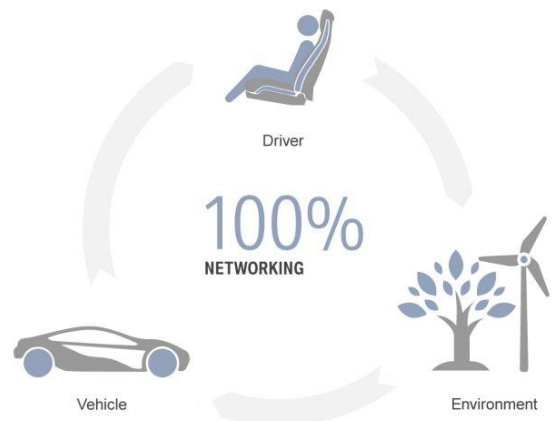
Appendix G: Company History



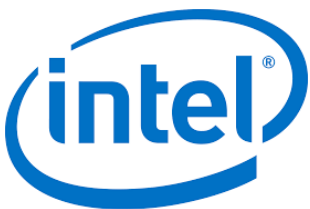
AUTONOMOUS DRIVING CAMPUS



CONNECTED DRIVE



- In 2021, the BMW iNEXT will take to the roads with an electric drivetrain and full connectivity
- Around 10 million vehicles in 45 countries are already connected through Connected Drive
- From mid-2018, Alexa will also be fully integrated into all BMW and MINI models





Disclosures:

Ownership and material conflicts of interest:

The author(s), or a member of their household, of this report does not hold a financial interest in the securities of this company.

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