MASTER OF SCIENCE IN
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PROJECT

EQUITY RESEARCH:
CONTINENTAL AG

MIGUEL GOMES ESTEVES CRISTO LOPES

OUTUBRO 2019

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SUPERVISOR:
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Abstract

The following project is a valuation of the company Continental AG, based solely in public information until the 24th of April 2019. It follows the format recommend by the CFA institute.

Continental AG is one of the global players in the tyre and automotive Original Equipment Manufacturer (OEM) industries. It was founded in 1871 in Hanover, Germany, as result of a merger between Continental-Caoutchouc and Gutta-Percha Compagnie, and, today is the parent company of the Continental group.

This valuation derived from an intrinsic valuation, based in a Discounted Cash Flow (DFC) method through a Free Cash Flow to the Firm (FCFF) perspective, supported by a relative valuation and coherent with the Reuters consensus.

The final target price is €167.45/sh for Continental at 2019YE and a respective HOLD recommendation, based on a upside potential of 9% compared to Continental share price at 24th of April 2019 and a medium risk profile.

JEL classification: G10 ; G32; G34.

Keywords: Equity Research; Valuation; Mergers & Acquisitions; Continental AG

Resumo

O seguinte trabalho final de mestrado faz uma avaliação da empresa Continental AG, baseada apenas em informação publica até 24 de abril 2019. Esta avaliação segue o formato recomendado pelo *CFA institute*.

A Continental AG é um dos líderes de mercado na indústria dos pneus e do equipamento original automóvel. Foi fundada em 1871 em Hanover, Alemanha, como resultado de uma fusão entre Continental-Caoutchouc e Gutta-Percha Compagnie, e, hoje é a empresa mãe do grupo Continental.

Esta avaliação realizou uma análise intrínseca do valor da empresa, baseada no método de fluxos de caixa atualizados, através da perspetiva dos fluxos de caixa para a empresa, suportada por uma avaliação relativa e coerente com o consenso da Reuters.

O preço alvo final é de €167.4/ação para a empresa Continental no final do ano de 2019 e a respetiva recomendação é de manter, baseada num potencial de subida de 9% comparado com o preço da ação em 24 de abril 2019 e num perfil de risco médio.

Classificação JEL: G10; G32 e G34.

Palavras-Chave: Equity Research; Avaliação de Empresas, Fusões e Aquisições e Continental AG.

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Continental AG: Instability, safety and re-organization

YE 2019 Price Target of €167.47 (+9% upside potential), Hold recommendation

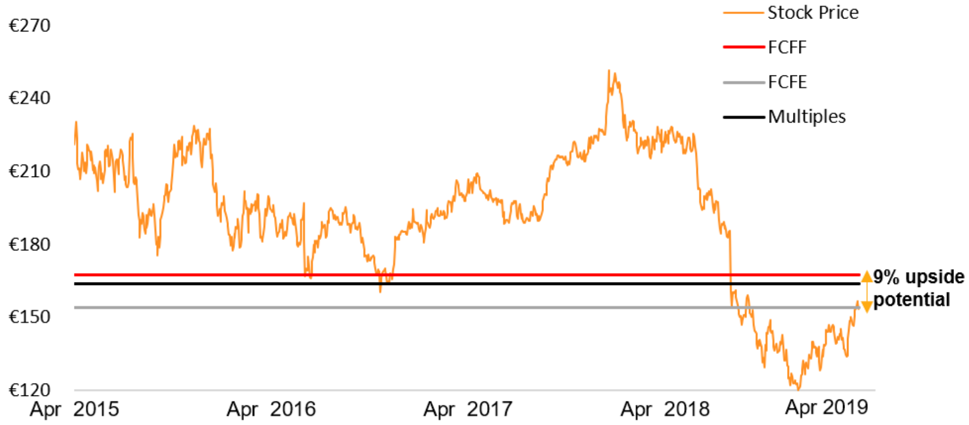
Continental AG
HOLD

Recommendation
Medium Risk
14th of October 2019

1. Research Snapshot

Our final recommendation is **HOLD**, for Continental AG at YE19 with a target price of €167.45/sh and a respective 9% upside potential compared to 24th of April 2019, using the DFC method (FCFF perspective) and a medium risk assessment.

Figure 6. Continental share evolution and respective target prices



Source: *Author*

The TP of €167.45/sh was achieved through an intrinsic valuation (DFC model - FCFF) and supported by a relative valuation with a TP of €163.53/sh. Additionally, it was also analysed through a FCFE perspective, which resulted in a TP slightly more conservative at €153.93/sh. Lastly, the consensus provided by Reuters analysts also pointed for a hold recommendation.

Continental is foreseen to continue posting recurrent profitability, in line with the last decade, however FY19 is forecasted to follow the deterioration of operating profitability seen in 2018 and drop it by 13% (vs. PY). From 2020 to 2023, the firm is expected to recover the momentum seen last years and grow at a 4.7% CAGR, mainly in line with expectations of the industry in the long term. Furthermore, Continental's financial profile continues solid, where net debt to EBIT is expected to continue to fall in the same trend as in the three previous years and turn negative in 2021. With a light financial cost structure, EPS are expected to follow operating profitability and drop by 14% in 2019 down to €12.3/per sh. This represents a decrease 11% higher compared to YE17-YE18 evolution.

It was also computed a complementary analysis through a Monte-Carlo simulation, where it was verified the sensitivity of the model towards several variables. The most sensitive ones were the terminal Growth (correlation of 36.2%); its sales (correlation of 29.5%) and lastly the Cost of Sales (COS), with a correlation of - 24.3%.

Figure 1. Continental market profile

Continental Market Profile	
Share price at 24th of April	€153.26
High - Low (52 weeks)	€223 - €116
Number of shares (Millions)	200
Market Capitalization	€30 652
Index	Dax 30
Ticker (Bloomberg)	CON:GR

Source: *Company data*

Figure 2. Analyst risk assessment

Low	**Medium**	High

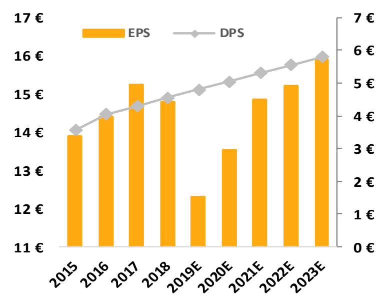
Source: *Author*

Figure 3. Valuation summary

Valuation Summary	
Share price at 24th of April	€153.26
Target Price (FCFF)	**€167.45**
Upside potential	**9%**
Target Price (FCFE)	€153.93
Target Price (Multiple Valuation	€163.53

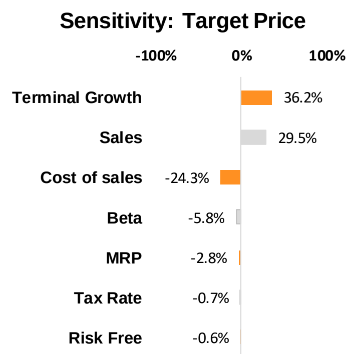
Source: *Author*

Figure 4. Earnings per share (EPS) and dividends per Share (DPS)



Source: *Author*

Figure 5. Monte-Carlo – Sensitivity analysis on the Price target



Source: *Author*

2. Business Description

Continental AG (CON:GR) is one of the global players in the tyre and automobile Original Manufacture Equipment (OEM) industries. It was founded in 1871 in Hanover, Germany, as result of a merger between Continental-Caoutchouc and Gutta-Percha Compagnie, and, today is the parent company of the Continental group. In YE18, it had a workforce of 243,226 employees, spread around 60 countries (Figure 7), with a turnover close to € 44.4bn and a net profit of € 2.9bn.

The company entered in the DAX 30 index (German index for the 30 major companies) in 1996 and since then it was removed two times (2003 and 2008). In YE18, it had a market capitalization of € 24.3bn (vs. € 45bn in PY), representing 2.38% of the DAX 30.

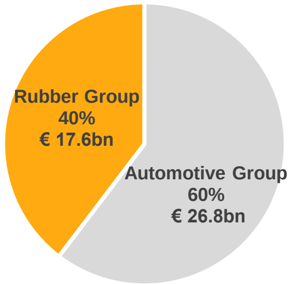
Continental comprises 572 corporations (including non-controlling entities) and is divided into two segments: Automotive and Rubber, which are respectively organized under five divisions and 26 business units.

The Automotive group is responsible for 60% of Continental's turnover (Figure 8) and has grown 1.1% Y.o.Y. It manufactures original pieces for vehicles and its main clients are Daimler, FCA, Ford, Alliance and Volkswagen, which represents 80% of the Automotive group's turnover. Raw materials (steel, aluminium, precious metals, copper and plastics) and electromechanical components are the main inputs in the production process, as they constitute 44% of total production costs. The Automotive group is divided into the following three divisions (% of 2018's turnover of the Automotive group): **Chassis & Safety (35%), Powertrain (29%) and Interior (36%)**. The **Chassis & Safety** division develops and produces a vast portfolio of products in the field of electronic components for cars, namely hydraulic brakes, sensors, advanced driver assistance systems among other components. Their mission is to achieve a fully autonomous driving experience, creating the "Vision Zero" (an accident-free driving experience). This division is further divided into 4 Business Units (BUs) (Figure 9). The **Powertrain** division develops innovative and efficient solutions for powertrains, being a leader in the development of combustion engines, injectors, turbocharges, transmissions, actuators and other products. This division is one of the most volatile, since it's highly exposed to the automotive electric transformation. The industry is currently undergoing a transformation, transitioning from traditional combustion to electrical batteries. Continental strategy for this division is not to pursue pure electric solutions until 2022, focusing in hybrid and combustion solutions, as the margins are very thin and capital investments are very high in the electric segment. Since January 2019, this division is divided into 3 BUs (Figure 10), as independent legal entities, to

Figure 7. Continental's presence

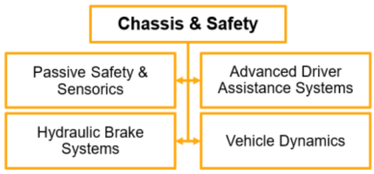
Source: *Company data*

Figure 8. Continental turnover YE18



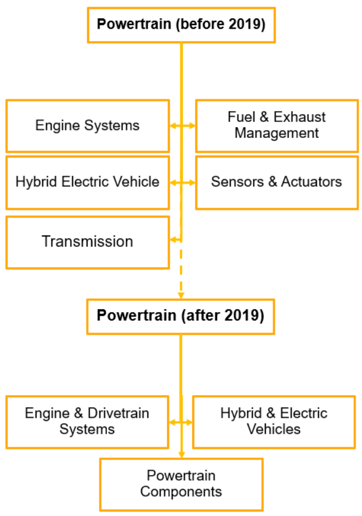
Source: *Company data*

Figure 9. Chassis & safety division organization



Source: *Company data*

Figure 10. Powertrain division reorganization

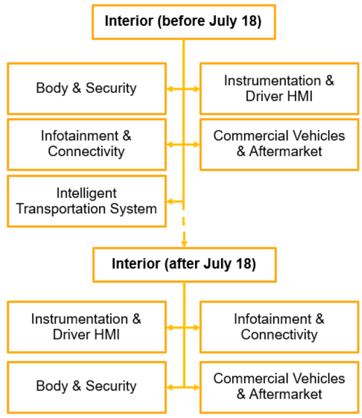


Source: *Company data*

account for a possible partial IPO scheduled for the 2H2019. The **Interior** division is specialized in high technological automobile parts, including crucial hardware and software components. The demand for these components is rising due to the increase use of technology in the cars. This division tries to cooperate as close as possible with the business partners to understand the costumers needs. Since July 2018, it incorporates the latest acquisition (Osram GMBH), which contributed to its structural reorganization. It used to be composed by 5 BUs, but since December 2018 it changed to 4 BUs (Figure 11).

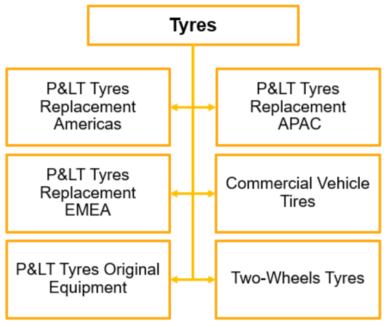
Rubber group has been historically the core and the most profitable business of Continental (ROCE of 23.8% / 680 bps above company average in YE18). During FY18, this group represented 40% of total consolidated sales and produced 155 million tyres. Additionally, during 2018, this segment has been challenged by the rise of the price of raw materials, especially natural rubber and butadiene, as they are highly dependent on crude oil prices. Butadiene, a crucial input in the production of synthetic rubber recorded an increase of 60% in the 1H2018. This group is divided into two divisions (% of 2018's sales of the Rubber group)**: Tyres (65%)** and **ContiTech (35%).** The **Tyre** division represents the biggest stake of Continental revenues and employs the majority of employees (€11.4m, 26% of consolidated turnover / 23.6% of total workforce in YE18). By opposition to the Automotive group, its main market is the Replacement Equipment (RE) tyres, which represent 71.9% of total turnover, while the remaining sales are referent to Original Equipment (OE) tyres. Nonetheless, it's a market leader in OE tyres suppliers, with a market share close to 33% in Europe. Its main clients are Audi, BMW, Ford, Jaguar, Volkswagen and many other top players from the Automotive industry. Furthermore, it tries to gain competitive advantage by maximizing safety through short braking distances with an excellent grip and reducing fuel consumption by minimizing rolling resistance. This division is composed by 5 Bus (Figure 12). **ContiTech** division is specialised in the development and manufacture of components made of rubber and plastics technology, offering a vast variety of functional parts, advanced components and systems made of different raw materials mainly rubber and plastic for plant engineering, mining, agriculture and auto sectors. It's divided into 7 Bus (Figure 13), with a considerable managerial independence.

Figure 11. Interior division reorganization



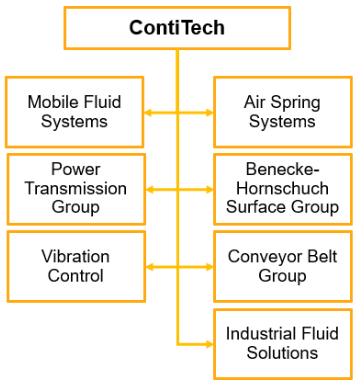
Source: *Company data*

Figure 12. Tyre division organization



Source: *Company data*

Figure 13. ContiTech division organization



Source: *Company data*

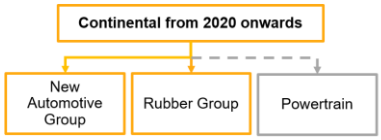
3. Corporate Strategy

Continental is currently implementing a strategic reorganization to maintain its agility and flexibility due to the changing environment and the emergence of electric automotive segment. This reorganization started in middle 2018 and is forecasted to be fully implemented by the beginning of 2020.

The main feature is a new umbrella holding structure (Figure 14), which is going to organize Continental activity into: a new Automotive group, the Rubber group (unchanged) and the Powertrain, the latter as an independent group to facilitate a possible IPO. On top of this reorganization, the company is plaining to set up a research unit that will aggregate all research and development of the Automotive group, in order to gain synergies between those divisions.

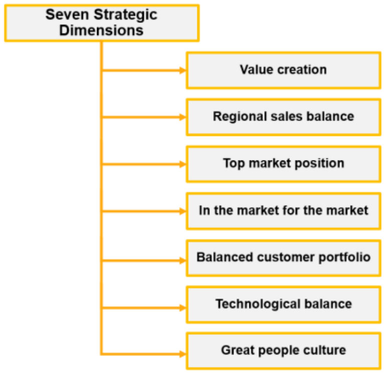
Continental has currently ongoing the Seven strategic dimensions for enhancing the value of the corporation on a sustainable basis (Figure 15)**. Launched in 2015, this document sets the main strategic long-term plan to ensure sustainability.** The cornerstone of this program is **Value creation** – This objective has the aim to enhance value in the long run, in order to ensure sustainability for the company and trust for the shareholders. The financial target is to achieve a Return On Capital Employed (ROCE) of at least 20%. Since 2015, this objective has been always achieved or surpassed, except in FY18, when a ROCE was reported at 17% (Figure 16). The second objective is **Regional sales balance** (Figure 17)**,** wherein Continental aims to reduce the exposure to specific market fluctuations. In YE18, it was still possible to observe a geographical concentration on Europe market, as it represented 49% (less 5% compared YE14). However, the benchmark is for Europe to account for less than 40%, compensated by the increase in American markets (between 25% and 28% in YE18) and Asia (between 30% and 22.2% in YE18). The third objective is to maintain a **Top market position,** among the three leading suppliers in all relevant markets, in terms of quality, customer focus and sales. This is a key success factor for the company sustainability and it was already accomplished in most of the sectors of the automotive supplier industry, tyre industry and in ContiTech division. The fourth objective is to be **In the market for the market.** The company has a policy to work close to its customers, to meet the costumers needs and to reduce transportation costs. Continental's aim is for eight out of ten application developments to be carried out locally. In YE18, they were producing in 38 of the 60 countries in which they have a representation. Furthermore, it's forecasted to increase the production in Asia to support the objective of a higher penetration on that market. The fifth objective is to maintain a **Balanced customer** portfolio by reducing Continental's dependence on the original equipment automotive economy. In 2020, the objective is for the segments *end users* and *other sectors* to amount for 40% (28% in YE18), (Figure 18). For that purpose, the company invested in 3 branches: (1) in the tyre sector through the increase

Figure 14. Continental umbrella structure in 2020



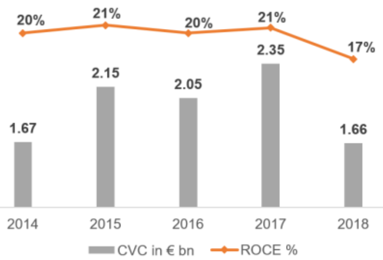
Source: *Company data*

Figure 15. Continental long-term corporate strategy



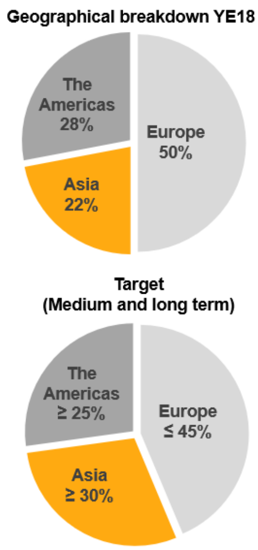
Source: *Continental website*

Figure 16. ROCE and CVC Evolution



Source: *Company data*

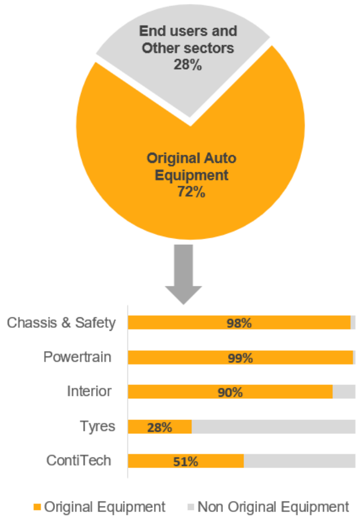
Figure 17. Geographical activity breakdown



Source: *Company data*

production capacity mainly toward the end customer business; (2) in the automotive end costumer sector via specific customer solutions and products and (3) outside the automotive industry both organically and by acquisitions. The sixth objective is **Technological balance.** High technology markets have shown great potentials with high growths, nonetheless they require significant capital expenditures. Currently, the portfolio is a combination of well stablished and pioneering technologies. In terms of advanced technology, Continental is one of the leading suppliers in auto parts (injection systems for low-consumption, supercharged diesel and many others), in the premium tire segment (top scores in neutral test, which meet the highest standards) and in industrial solutions from ContiTech. Moreover, Continental has the goal to deliver to the market, by 2025, fully autonomous driving systems, such as the Cube, a Continental Urban Mobility Experience system for driverless robots in taxis (Figure 19). The last objective is to develop a **Great people culture.** The company sees their employees as a key driver of success, thus ensures an atmosphere of trust, responsibility and organization, affecting positively firm's productivity. Continental has multiple initiatives and programs to motivate employees and to help them to progress and to improve efficiency. During 2018, Continental made a survey to 50,000 employees, and 86% agreed and identified themselves with the firm values.

Figure 18. Continental YE18 sales in OE & NOE



Source: *Company data*

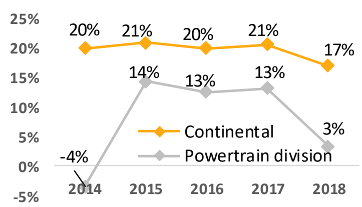
Figure 19. Cube – Test drives

Source: *Company website*

<u>Possible IPO on Powertrain division</u>

As part of the current reorganization, Continental announced a possible partial IPO for the Powertrain division in the second half of 2019. In the beginning of 2019, the Powertrain division was removed from the Automotive group and became a separate group of legal entities, to facilitate the possible IPO process. Additionally, Continental announced that it does not intend to become a purely electric firm in the short future, due to the challenging margins and high competition. This division is highly exposed on the electrisation of the industry, so this IPO would be in line with management's strategic view. Furthermore, this is the division with the lowest ROCE of the group (3.3% in YE18 and 13.2% in YE17, versus 2018's Group average of 17.0%), (Figure 20).

Figure 20. Powertrain vs. Continental historical ROCE



Source: *Company data*

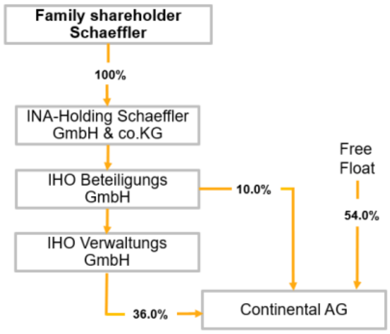
4. Management and Corporate Governance

Shareholders Structure

In 2008, the group Schaeffler[1] made one of the biggest acquisitions in the industry history by acquiring 75.1% of Continental. However, in 2011, it reduced its participation to 60.3%, as the debt from the acquisition was too high in the eyes of its shareholders. In 2013, a second adjustment was made, where the group Schaeffler reduced its share to 46% (Figure 21), justified by the necessity of reducing its leverage. Since the acquisition in 2018, the group Schaeffler is held under an umbrella organization, where INA-Holding Schaeffler GmbH & Co.KG (fully owned by the family Schaeffler) is the top holding. Currently, the group IHO (owned by the Schaeffler family holding company) detains 75.1% of Schaeffler and 46% of Continental (10% by IHO Beteiligungs[2] and 35.9% directly by IHO Verwaltungs GmbH).

As of 31 of December 2018, Continental AG's authorized a capital stock amounted to 200mn shares listed on the DAX stock exchange (Table 1), wherein the group IHO retains 7.8mn (46%) and the remaining is free float (54%). Additionally, Continental has an Over The Counter (OTC) program in America through Continental's American Depositary Receipts (ADRs). As of YE18, 7.2m ADRs were outstanding (ten ADRs are equivalent to one share).

Figure 21. Simplified shareholders organogram



Source: *Schaeffler Annual Report*

Table 1 – Continental's main Shareholders

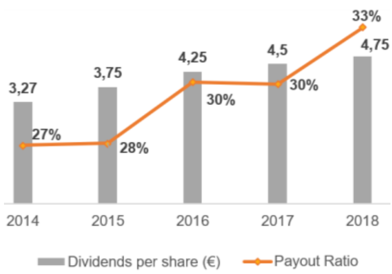
Main Shareholders (Top 5)	% of ownership
Schaeffler (Maria Elisabeth)	46,00%
Harris Associates L.P. **[Activist]**	4,99%
BlackRock Investment Management (UK) Ltd.	3,07%
The Vanguard Group, Inc.	1,52%
DWS Investment GmbH	1,35%

Source: *Thomson Reuters*

Dividend Policy

The group has a floating dividend policy and a historical pay-out ratio between 15% and 33%. Since 2011, both the dividends and the pay-out ratio have been constantly increasing up to € 4.75/ sh, which corresponds to a 32.8 % pay-out ratio (Figure 22). Nonetheless, this increase doesn't put the capitalization of Continental in risk, as they have a solid capitalization shown by its increasing equity ratio at 45.3% (vs 43.5% in FY17).

Figure 22. Dividend and pay-out ratio evolution



Source: *Company data*

Corporate Governance

Continental's corporate governance follows a **two-tier model:** with an **executive board** and a **supervisory board**. Furthermore, Continental's main corporate governance principals are expressed into the internal Governance Code (GC) (named BASICS), which closely follows and derives from the German GC.

[1] The group Schaeffler was founded in 1946 and currently is one of the major players in the Automotive manufacture sector, competing with Continental in automobile segments. It has a workforce of 92,478 employees and a turnover of €14.2bn at YE18.

[2] IHO Beteiligungs is wholly owned by IHO Verwaltungs GmbH.

The **Executive board** has the sole responsibility of managing Continental and is composed by a team of 8 skilled and experience directors (Figure 23 and in detail in Appendix 12) that provide stability and a clear view of its objectives. **Dr. Elmar Degenhart, Chairman of the group** since 2009 and with more than 20 years of experience in management currently leads the executive board. **Wolfgang Schäfer, member of the Executive board, is the CFO** among other responsibilities and has also a vast experience in this industry. Moreover, the executive board is currently composed of six more directors, all committed to the current corporate management strategy.

The **Supervisory board** headed by Prof. Dr-Ing Wolfgag Reitzle (Figure 24) is responsible for appointing and supervising the Executive Board. It is composed by 20 members, half appointed by the shareholders during the annual shareholders meeting and half by the employees. More than 60% of the members of the board are independent members. Furthermore, it supports the Executive Board in strategic decisions by having regular meetings (4 ordinary and 2 extraordinary in 2018). Lastly, this board has four additional committees: **The Chairman's committee,** which is responsible for preparing the appointment of the Executive Board; **the Audit committee**, in charge of auditing the financial accounts, risk management and compliance; **the Nomination committee,** responsible to nominate suitable candidates for the Supervisory Board and the **Mediation committee,** which is only assembled in the case of no consensus in the appointment of the new Executive Board.

To ensure its "outstanding" reputation and the trust from its clients, the company has a 3 Pilar **Compliance Management System (CMS)**: (1) Prevention, through mandatory compliance trainings; (2) Detection, supported by anti-corruption and audit committees and (3) Response, to implement consequences when breaches are found.

All in all, according to Reuters Environmental Social and Governance (ESG) scale, Continental achieves a very good overall score (A), having only a negative point on controversies (D+), (Table 2). Recently, in February 2018, Continental was fined by the European Union a total of € 151m along with Bosh and NGK for cartel practices in the spark plug market and by discussing prices of brake systems with Bosh.

Corporate Social Responsibility (CSR)

Continental is very clear in its commitment towards all stakeholders, as they are the cornerstone for firm sustainability. This important role is under Dr. Ariane Reinhart responsibility, she's the head of HR and Sustainability department and also member of the Executive Board. She coordinates all CSR strategy, in which Continental has the following areas of impact:

Figure 23. Executive board composition

Name	Position
Dr. Elmar Degenhart	Chairman of the Executive Board
Hans-Jurgen Duesing	ContiTech Division
Frank Jourdan	Chassis & Safety Division
Helmut Matschi	Interior Division
Dr. Ariane Reinhart	Human Relations
Wolfgang Schafer	CFO
Nikolai Setzer	Central Functions Automotive
Christian Kötz	Tyre Division

Source: *Company data*

Figure 24. Chairman of the supervisory board

Name	Position
Prof. Dr.-Ing. Wolfgang Reitzle	Chairman of the Supervisory Board

Source: *Company data*

Table 2 – Continental's ESG classifications (scale from A+(highest/best) to D- (lowest/worst))

Continental ESG scores	
Environment Pillar Score	A
Social Pillar Score	A
Governance Pillar Score	A-
ESG Score	**A**
ESG Controversies Score	D+

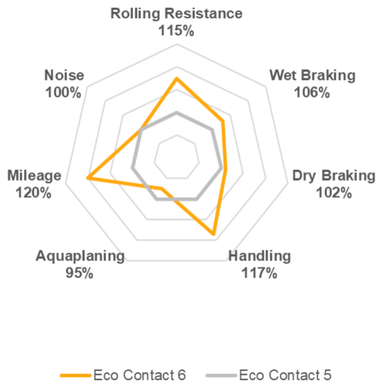
Source: *Thomson Reuters*

Sustainable Product Portfolio Quality, Continental is fully committed to provide trustful and sustainable products, examples include the new Hybrid solutions, the “super clean” diesel components and the new EcoContact 6 tyre (with 20% longer lifetime and 15% less fuel consumption than last generation, Figure 25).

Workforce Interest and Human rights, the company considers their employees as the key resource to achieve its goals. Therefore, the company ensures that all employees have: equal gender rights (objective of reaching 25% of female managers by 2025, Figure 26); a personal development program (Continental was recognized by the ISO 29990 by TÜV Nord in Germany) and all working places follow the United Nation Guidance Principles on Business and Human Rights regardless the location of work.

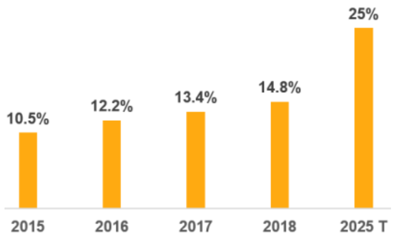
Lastly, in terms of the **Environment**, the company has a global Environment, Safety, Security, Health and Fire protection (ESSHF) policy. Currently the main goals are the reduction of waste generation, CO2 consumption and energy used by 20% in YE20 (vs YE13). However, this is very unlikely to be achieved, since waste generation increased by 13%, CO2 reduced by 5% and energy used reduced by 3%, in YE18 vs. YE13.

Figure 25. Eco contact tyre 6 overview



Source: *Company data*

Figure 26. Women in management positions



Source: *Company data*

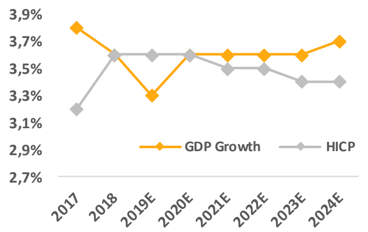
5. Macroeconomic Overview

Worldwide macroeconomic slowdown

2017 and 2018 were very positive years concerning global economic expansion (GDP growth of 3.8% and 3.6% Y.o.Y), however according to the latest report of IMF (2019), the **Global Economic Outlook will suffer a slowdown** (-30bps in 2019 compared to the PY), which has been intensifying overtime. In October 2018, the projections of GDP growth for YE19 were standing at 3.7%, however they were downgraded by 20bps down to 3.5% in January 2019 and currently stands at 3.3% (April 2019). For YE19-YE24, GDP growth is foreseen to be stable featuring a thin rise in YE24, (Figure 27).

The key factors for this slowdown are political uncertainties, the ongoing trade wars and consumer confidence ease. Worldwide inflation is expected to be stable in the time window under analysis featuring a 10bps drop each 2 years until YE24.

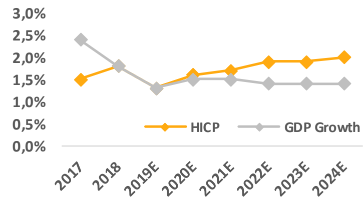
Figure 27. Worldwide GDP growth Y.o.Y and inflation growth



Source: *IMF estimations (March 2019)*

In the Eurozone, GDP is expected to grow at 1.3% for YE19 (110 bps lower than 2017), followed by a rise of 20bps in YE20 (Figure 28). This loss of momentum is justified by the political uncertainty, industrial slowdown, effects from trade tensions and social problems (such as the Yellow Vests Protest in the France). Labour market is expected to tighten thanks to the lowest unemployment rate (7.7% according to Eurostat, March 2019). Lastly, inflation continues below the target levels defined by ECB (2%) and is forecasted to fall by 50bps down to 1.3% in YE19, followed by a smooth recovery.

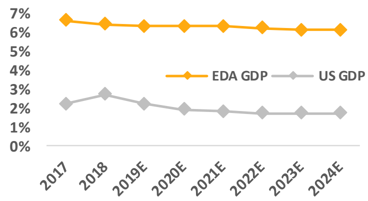
Figure 28. Euro zone GDP growth Y.o.Y and inflation growth



Source: *IMF estimations (March 2019)*

United States' GDP growth continues with a significant gap compared with the main countries in Asia (3.7% in 2018) and is foreseen to start slowing down 50bps already in YE19 after posting a good performance in 2018 (GDP grew 2.7% Y.o.Y, Figure 29). From YE19 until YE24, a continuing ease of the growth is expected reaching 1.7% in YE24. The key factors were the imposition of tariffs with US major trading partners, the decrease of the effects from US fiscal policy and the deterioration of the trade deficit, taking into consideration the rise of imports.

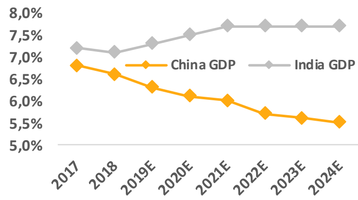
Figure 29. United States and emerging and developing Asia GDP growth Y.o.Y.



Source: *IMF estimations (March 2019)*

Emerging and developing Asia continues to be the geographical area with the highest economic expansion. It's GDP is expected to grow by 6.3% in YE19 followed by an ease of 20bps until YE24 (Figure 30). The two main emerging economies in this economy are: **China**, which recorded the slowest pace in the last 28 years (6.6% in 2018), due to the current trade war, the increase in financial regulations and the lower global demand; and **India**, which is growing at a higher rate than China since 2014. The momentum in India is not expected to vanish and the gap between China and India should wide until YE24 where it should account for 220 bps.

Figure 30. China and India GDP growth Y.o.Y.



Source: *IMF estimations (March 2019)*

6. Industry Overview and Competitive Positioning

Disappointing short-term perspectives for the Tyre Industry

The Tyre industry is characterized by a mature market stage, with high barriers, which leads to a high market concentration. In fact, the five biggest players account for half of the market.

The Tyre industry is divided into two segments (Figure 31): **Original Equipment (OE) Tyres** and **Replacement Equipment (RE) Tyres**. The **OE** represents 30% of the total industry and is almost perfectly correlated with the automobile demand (it has a 3-year historical CAGR of 3.92%, Figure 32) and with the GDP growth (in US it was shown a 78% correlation - Bryan and Garnier, 2017). Nonetheless, the largest segment is the **RE** (represents 70% of the industry), a less cyclical segment, shown by the weaker correlation with economic environment (it has a 36% correlation with the US GDP growth - Bryan and Garnier, 2017) and is less affected by factors related Automotive industry.

Historically, the Tyre industry has shown a very good performance linked to the increase of automotive park, in which tyre volumes were forecasted to grow at a CAGR of 3.4% between 2017 and 2022, (Figure 33). Nonetheless, in the beginning of 2019, new figures pointed to a possible slowdown in the Automotive industry, which directly impacted the OE segment. All in all, the currently outlook point to a flat market in YE19 and a 40bps decrease in CAGR between 2017 and 2022 compared to the previous estimates (Figure 33).

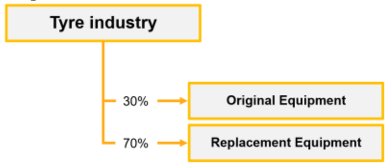
Automotive OE manufacter - shrinking industry

This industry provides all types of auto-parts, from software to mechanical systems. It's positioned in the middle of the supply chain (between the producers of raw materials and the final car makers), and it has as main costumers the main auto brands, such as FCA, PSA, Alliance, among others.

Historically, this industry is more volatile and presents higher growth rates, compared to the Tyre industry, from 2010 to 2017, it recorded a CAGR of 3.6%. However, the year 2018 shown to be a disappoint, considering that was the first year that the industry shrunk since the crisis of 2008 (Figure 34). Furthermore, the outlook for 2019 is currently pointing between a flat market to a drop of 2% and Moody's downgraded the automotive outlook from stable to negative.

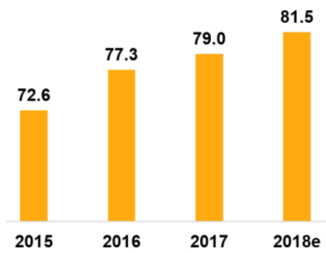
It's an industry in a transformation stage due to the current emergence of electric cars, in fact the electric segment is foreseen to grow at a CAGR of 25% from 2018 to 2022 (Figure 35). Despite, the double-digit growth on the electric segment, operate on this segment implies higher production costs (an electric car cost on average more $12k to produce compare to a combustion car, Mckinsey, 2019), high R&D requirements and capital investments. Nonetheless, the outlook is favourable for electric car production costs, where costs are expected to fall by $6k until 2025,

Figure 31. Tyre industry segmentation



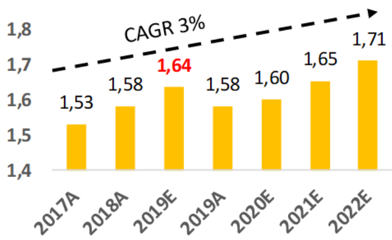
Source: *Continental annual report 2018*

Figure 32. Automotive demand, forecast before 2018 (in million units)



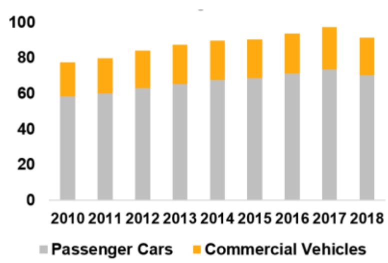
Source: *The international Organization of Motor*

Figure 33. Forecasted global sales volume of Tyres (in billion units).



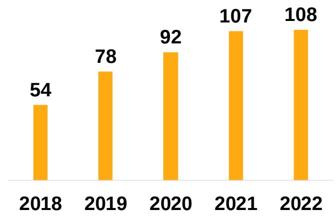
Source: *Smithers Rapra, Continental and student calculations*

Figure 34. Automobile production (in million units)



Source: *The International Organization of Motor Vehicles Manufacturers* which will make this segment more attractive. In YE2018, the three main OEM suppliers represented 11.8% of the industry, in which Robert Bosch was the leading firm with a turnover of € 45bn; followed by Denso (€43.1bn) and Continental (€ 40bn).

Figure 35. Electric car fleet outlook (in million units)



Source: *future fuel strategies*

Political instability and decentralization of powerplants

Traditional players are based in developed regions, mainly Europe and the U.S., reions with a stable economy, usually with political stability and backed by resilient economies. Nevertheless, the tyre manufacturers are being attracted towards the developing markets, such as India and China, due to the rise of the Asian markets and to the decrease production costs.

The current political panorama of escalation of protectionism in the main geographies of the industry is currently threating the industry. The main impacts to the industry are caused by: the US trade war with China, where they imposed bilateral-tariffs burdens on imports of essential goods for industry production (natural rubber, synthetic rubber among other products; the US trade war with UE, concerning steel and aluminium; and the Brexit, which will negatively impact Europe economic growth. Overall, the political environment is expected to enhance the costs in production, challenging the industry profitability.

Figure 36. Contiseal – from Continental AG

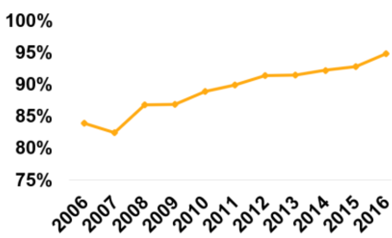
Source: *Continental*

Premium Tyre segment, the niche of traditional companies

To maintain their bargaining pricing power, innovation has become vital for traditional players. It also allows them to rise prices without having a significant deterioration of the demand. It passes by providing new features, recently they have been related to the enhance of security, raising expected lifetime of the tyres or reduce the ecological footprint. One example of innovation in the sector are the tyres that seal punctures until 5mm, not necessitating to either immediate stop or do a roadside tyre change (Figure 36).

Additionally, the integration of technology into tyres is a cornerstone for companies to move into the premium segments, which are expected to grow at 7% (2016-2020). Moreover, R&D investments in the powerplants reduce production costs, resulting into improvement of operational productivity. Between YE10 and YE18 it allowed to improve operational productivity by 18% on average.

Figure 37. ELV, reuse, recycling and recovery (in %)



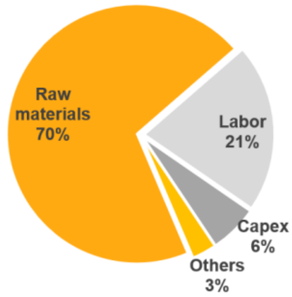
Source: *Eurostat*

Environmental and Sustainability awareness

Tyre and auto parts manufacture involves the utilization of many chemicals, which leads to potential environmental hazards and large amounts of hazardous air pollutants. Efforts have been made towards the decrease in waste by dismantling and recycling of End-of-Life Vehicles (ELVs), which has increased by 5% from 2011 to 2016 (Figure 37). Also, in response to the demand of car manufacturing clients, tyre producers make regular improvements on the rolling resistance, which is responsible for: 4% of total CO_2 expected emissions in 2025 and 20% of fuel consumption.

Consumer preferences are moving towards more ecological segments, due to the increase of environmental awareness. Traditional tyre players are especially careful with the change in social conscious, as they are highly dependent on consumer loyalty. New regulations in the EU regarding tyre industry will increase transparency trough new labelling requirements, allowing the costumer to better understand the product characteristics through standardized and user-friendly measures.

Figure 38. Breakdown Tyre production costs



Source: *Bryan, Garnier & Co ests*

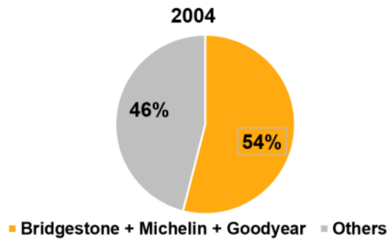
Key Drivers

The main driver of the tyre industry is automobile demand, which have been performing historically well (4.4% CAGR in the last 3 years), backed both by the premium segments, such as the Medium and Heavy Commercial Vehicle (MHCV) and by the rise of the car parking in emerging economies, due to the strong growth of these economies. These two segments have shown up to double digit growth in the last years. Nonetheless, in 2018, the global automobile demand started to fall and by the end of 2018 there was reduction of volume by 1m units instead of expanding by 2.5m units, as previously forecasted.

On the other side, the segment of RE tyres is less correlated with the automotive industry and influenced by other factors like the number of cars in circulation and the life expectancy of tyres. Improvements in rubber quality and better road conditions have increased the average tyre life expectancy up to 30,000 km for automobiles leading to a decrease in replacement turnover. However, mitigated by the fact that cars are driven more frequently, which increases the rotation of replacement tyres to 2.2 years.

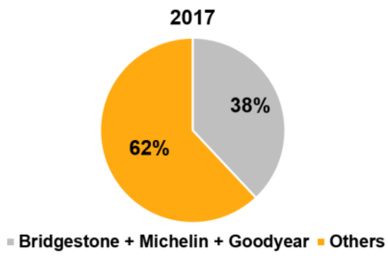
The main drivers of costs for tyres are raw materials (mainly natural rubber and synthetic rubber) and labour (Figure 38). Natural rubber is obtained from rubber trees, which require warm climates. Synthetic rubber can be produced from petrochemical feedstock with crude oil as the main input. Accordingly, an increase in the oil price leads to a rise on synthetic rubber costs, which increases demand for natural rubber and makes tyre production more expensive.

Figure 39. Market share of the 3 main Tyre industry players in 2004



Source: *Companies data*

Figure 40. Market share of the 3 main Tyre industry players in 2017



Source: *Companies data*

Peer Analysis Tyres

The companies most representative of the Tyre and Rubber Industry, ordered by sales at YE18 were: (1) Bridgestone (€ 30.4bn); (2) Michelin (€ 22bn); (3) Goodyear (€ 13.9bn) and (4) Continental (€ 11.3bn).

In 2004YE, the main 3 tyre manufacturers (Bridgestone, Michelin and Goodyear) accounted for 54% of the total market, whereas in 2017YE their market share reduced to 38% (Figure 39 and 40). This reduction was due to the entry of new players from emerging countries and the economic expansion of the Asia and Pacific region.

The traditional players are investing in a product differentiation strategy, focusing on brand recognition, product quality and safety. This increases customer loyalty through more reliable and above-average products, which is reflected in higher

Average Selling Price (ASP) 31% above to the low-cost companies (Table 3). Therefore, to protect gross margins of 30%, traditional players are moving towards premium tyre segment, where product quality is in high demand.
By opposition, the low-cost players follow a cost efficiency strategy, which allows them to deliver products at an ASP of € 58 and still be profitable. Low-cost companies have an average gross margin of 21.9%, due to their light cost structure, low production costs in emerging economies. Additionally, these companies tend to produce tyres with a smaller percentage of natural rubber, and higher percentage of by synthetic rubber, at the expense of overall product quality.

Table 3 - Comparison of retail Tyre prices, 2017 (€ including VAT)

	Average tyres
Traditional companies	76
Low-cost companies	58
Gap	**32.6%**

	Premium tyres
Traditional companies	122
Low-cost companies	74
Gap	**66.3%**

	Low-cost Tyres
Traditional companies	60
Low-cost companies	46
Gap	**30.8%**

Source: *Bryan Garnier & Co*

<u>Porter's Five Forces – Tyre industry</u> (Figure 41)

Competition within the industry (High)

The industry has a considerable concentration, with the five biggest companies representing half of the market. Product differentiation is low, translating into high competition and thigh margins. Companies attempt to gain advantage over competitors by investing in other parameters such as performance, reputation and customer service. Additionally, the decrease of demand caused by the decline of the automotive industry and the emergence of low-cost Asian competitors, imply a higher competition compared to the past. Consequently, firms need to fight for market share, where traditional players invest in product differentiation and client loyalty, while low-cost companies compete on price. Overall, all these factors contribute to a high level of competition within the industry.

Figure 41. Porter's 5 forces Tyre industry

Source: *Author*

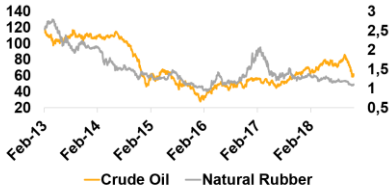
Bargaining Power of Buyers (Moderate)

As previously mentioned, the costumers of OE segment are chiefly groups operating globally and subsequently contracting very high orders, which allows them to have significant bargaining power over the suppliers. Additionally, on the RE tyre market, large retail chains are able also to put pressure on prices when buying in larger quantities. However, the main Tyre companies have as a very significant dimensioned, which partially offsets the bargaining power of buyers. Overall, the low switching costs to change between different tire brands, result in a moderate bargaining power.

Bargaining Power of Suppliers (High)

The manufacturing and processing of both natural and synthetic rubber is dominated by a few large world players. Hence, the Organisation of the Petroleum Exporting Countries (OPEC) have a significant control on the production of natural rubber and petroleum, which translates in high bargaining power of suppliers. Tyre production is highly sensitive to price fluctuations of rubber and other petroleum derivatives since its production depends heavily on those raw materials, (Figure 42). To mitigate the dependence of these few suppliers of raw materials, some manufactures have started to perform backward integration, as in the case of Goodyear, where the company produces a part of its rubber needs.

Figure 42. Crude oil ($ per barrel) and natural rubber ($/Kg) evolution



Source: *Bloomberg*

Threat of New Entrants (Low)

The industry has high entry barriers requiring large capital investments and R&D expenses. Most tyres are relatively undifferentiated, obliging firms to produce in large quantities to achieve economies of scale. High capital expenditures are required, leading to a challenging environment for new entrants to match the scale of the existing producers. Furthermore, a substantial amount of R&D is required to develop and test new tyre models, whose approvals are difficult and costly to get due to strict legal and safety regulations. Also, brand recognition makes it difficult to enter in the market with an unknown product, contributing to a low threat of new entrants.

Threat of Substitutes Products (Low)

There are no viable substitutes for tyres. However, the current environmental awareness might lead to an increase of the usage of public transportation and car sharing, which would negatively affect the number of vehicles in circulation, leading to a decrease in demand for tyres. Additionally, counterfeit tyres have a small market share. It's forecasted that they represent € 1.8bn per year in Europe, bearing low expectations of growth, therefore, they do not represent a significant threat for the industry.

Porter's Five Forces - Automotive OE industry (Figure 43)

The competition within this industry is very high, due to the fall of demand, current electrification and CO_2 limitation. It's considerably less concentrated compared to the tyre industry, as the three main individual companies hold 11.3% of the market (value 3 times lower compared to the tyre industry). Nonetheless, M&A activity is quite active, leading to an increase of concentration.

It's an industry where the majority of the costumers are individuals, not having much bargaining power. However, the switching costs are quite low leading to with moderate bargaining power towards buyers.

Regarding the bargaining power of suppliers, the Automotive industry faces the same challenge as the Tyre industry, previously described.

The threat of entrance of new players is high, considering the emergence of electrical cars. Therefore, new players from specific electric fields will enter with competitive advantages from technology and the know-how.

Based in the transformation stage of the industry, the OEM suppliers expect a high threat of substitute products and try to mitigate with high investments in R&D so they don't become obsolete.

Figure 43. Porter's 5 forces Automotive OE suppliers' industry

Source: *Author*

Table 4 – Continental's SWOT analysis

Strengths	**Weaknesses**
• Market leading position within the Tyre industry and in the automotive OE manufactures; • Worldwide activity and brand recognition; • Low net leverage (1.14x in YE18); • Positive and recurring profitability (ROCE: 18.3% in YE18); • Significant available liquidity (€ 3.5bn in YE18); • Strategic partnerships with the main automotive producers.	• Raw materials with significant price volatility, not actively hedged; • Corporate governance instability due to the possible IPO on the Powertrain division; • Dependence on five key costumers, which represent 40% of Continental revenues; • Underfunded pension fund (€ - 3.87bn).
Opportunities	**Threats**
• Economic growth of emerging markets; • Premium segments growth; • Lower labor costs in emerging countries in pollical stable countries; • M&A activity with the low-cost companies.	• New competitors, mainly low-cost companies; • Political tensions, materialized by additional burdens through tariffs; • Automotive industry slowdown; • Emergence of electrical cars.

Source: *Author*

7. Investment Summary

We estimate a target price of €167.45/sh for Continental at 2019YE and a respective HOLD recommendation, based on a upside potential of 9% compared to Continental share price at 24th of April 2019 and a medium risk assessment, (Table 5).

Continental is a worldwide market leader both in the Automotive OEM and in the Tyre industry, currently operating in a challenging market environment with a negative outlook in the near future, due to the downturn of the automotive industry (expected to be flat in FY19). Nonetheless, Continental benefits from a resilient financial profile and a significant growth in the tyre market (2.1% for FY19).

Earnings forecasts

Continental is foreseen to continue posting recurrent profitability, in line with the last decade, however FY19 is forecasted to follow the deterioration of operating profitability seen in 2018 and drop it by 13% (vs. PY). From 2020 to 2023, the firm is expected to recover the momentum seen last years and grow at a 4.7% CAGR, mainly as result of the positive outlook for the industry in the long term. Furthermore, Continental's financial profile continues solid, where net debt to EBIT is expected to as per the 3 previous years and turn negative in 2021, (Figure 44) [3].

With a light financial cost structure, Earnings Per Share (EPS) are expected to follow operating profitability and decrease by 14% in 2019 down to €12.3/ per sh. This represents a drop 11% higher comparing to YE17-YE18 evolution, explained by the higher effective tax rate at 27% (vs. 23% in 2018), where Germany marginal tax rate stands at 30%. Nonetheless, Dividends Per Share (DPS) are not expected to suffer an impact and continue in line with Continental strategy, growing from € 3.5 per share / 27% pay-out ratio in 2015 up to € 6 per share / 38% pay-out ratio in 2023, (Figure 45 and 46).

Valuation methods

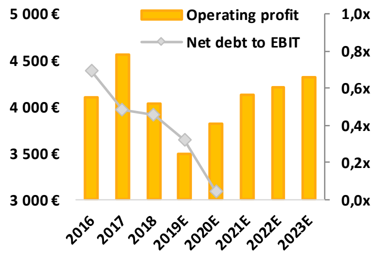
The TP of €167.45/sh was achieved through an intrinsic valuation, based in a DFC method and a FCFF perspective. It was also supported by a relative valuation, which led to a TP of €163.53/sh. Additionally, it was also performed a DFC valuation through a FCFE perspective, which resulted in a TP slightly more conservative at €153.93/sh. Lastly, the consensus (based in 28 analysts of Reuters), also pointed for a hold recommendation, (Table 6).

Table 5 – Valuation summary

Valuation Summary	
Share price at 24th of April	€153.26
Target Price (FCFF)	**€167.45**
Upside potential	**9%**
Target Price (FCFE)	€153.93
Target Price (Multiple Valuation	€163.53

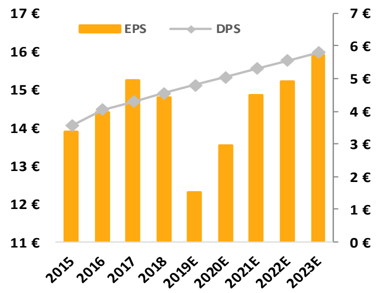
Source: *Author*

Figure 44. Operating profit and net debt to EBIT (without the impact of IFRS 16)



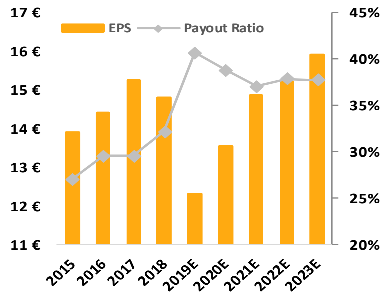
Source: *Author*

Figure 45. Continental's earnings per share (EPS) and dividends per Share (DPS)



Source: *Author*

Figure 46. Continental's earnings per share (EPS) and payout Ratio



Source: *Author*

[3] Please note that IFRS 16 impacts were not considered to allow comparability between the different years.

Key Investment Risks

Investors should be aware that Continental is exposed to market, operational, legal and political risks. To access these risks, it was performed a risk analysis, in which the most relevant ones were analysed individually. It was also performed a complementary analysis through a Monte-Carlo simulation (Figure 47), where it was verified the sensitivity of the most important variables towards the target price. It was concluded that the terminal Growth is the most sensitive variable, having a correlation of 36.2%, followed by the activity of continental, with a correlation of 29.5% and COS, with a negative correlation of 24.3%. (Figure 48).

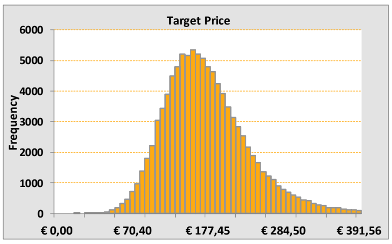
Table 6 – Reuters consensus (scale 1-sell to 5-buy)

Opinion	Number of analysts
Buy	6
Outperform	2
Hold	17
Underperform	2
Sell	1
Average	**2,64**

Hold

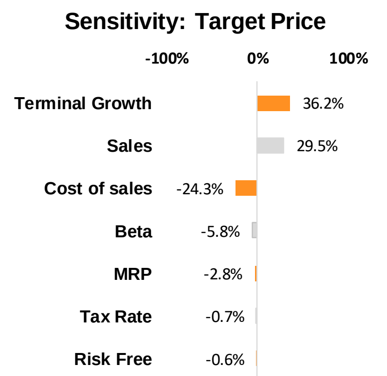
Source: *Thomson Reuters*

Figure 47. Monte-Carlo simulation on the target price of Continental



Source: *Author*

Figure 48. Monte-Carlo – Sensitivity analysis on the Price target

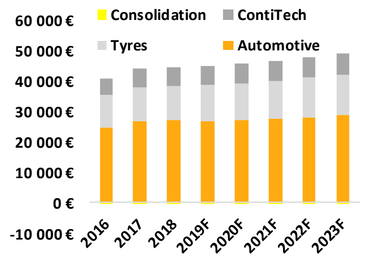


Source: *Author*

8. Valuation

As previously stated, two types of valuation were used to assess the equity value of Continental AG: an absolute valuation through a DFC model trough two different perspectives (FCFF and FCFE) and a relative valuation through market multiples. The absolute valuation was chiefly driven by the following variables:

Figure 49. Continental's revenues evolution 2016-2023F (in M)



Source: *Author*

Revenues

Continental has a unique business model, positioned as a global player both in the OE automotive market and in the tyre and rubber market. The forecast of its activity was based in the sum of all segments, adjusted for consolidation effects. It's worth noting that they were based on a critical analysis of the outlook provided by internal analysis from Continental, (Figure 49).

The Automotive segment of Continental is foreseen to suffer a slowdown in 2019, however not as severe as its industry. To compute its growth, it was used the data provided by Continental in the short term and converged to the GDP of the different regions in the long run. Geography wise, it's forecasted a thin decrease of activity specially in Asia (area that was performing above average in the last years), but generalized throughout all geographies. For YE20-YE23, it's expected a recovery of the sector that will reflect positively in Continental, (Table 7).

Table 7 – Revenues forecast in € M (Automotive segment)

Net sales forecast	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
Automotive								
Europe	*12 311*	*13 100*	*12 784*	*12 784*	*12 912*	*13 041*	*13 172*	*13 369*
America	*6 402*	*6 683*	*6 286*	*6 292*	*6 355*	*6 482*	*6 612*	*6 777*
Asia	*5 171*	*5 881*	*7 430*	*7 392*	*7 540*	*7 691*	*7 845*	*8 002*
Others	*739*	*1 069*	*537*	*536*	*539*	*544*	*555*	*572*
Total Automotive (€M)	**24 622**	**26 734**	**27 036**	**27 005**	**27 346**	**27 759**	**28 183**	**28 720**

Source: *Author*

On the other hand, the tyre segment is less cyclical, foreseen to grow at a 2.1% CAGR in YE19, followed by gain of momentum until YE23 (CAGR of 3%). Its revenues were computed through the multiplication of the volume of tyres for each geography with the ASP of Continental's tyres. Lastly, it was maintained the same percentage between OE and RE in 2018 (28/72 respectively), considering its low historical range in the previous 5 years, (Table 8).

Table 8 – Revenues forecast (Tyre segment)

Net sales forecast	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
Tyres (M un)								
Europe	*71*	*72*	*81*	82	84	86	88	90
America	*37*	*37*	*38*	38	39	40	41	42
Asia	*30*	*32*	*17*	18	18	19	19	20
Others	*4*	*6*	*9*	10	10	10	10	11
Tyres ASP (€)	**75**	**78**	**78**	**79**	**80**	**81**	**82**	**83**
Total tyre (€ M)	**10 717**	**11 326**	**11 352**	**11 690**	**12 077**	**12 489**	**12 967**	**13 520**

Source: *Author*

Despite, ContiTech belong to the Rubber and Tyre group, historically its revenues do not follow the same trend of the Tyre segment, thus, it was treated separately. Regarding its performance, it's foreseen to follow the average activity of Continental and suffer a drop in 2019 followed by a recovery until 2023.

Lastly, Continental's consolidated sales forecasted resulted from the sum of these three segments, adjusted for consolidation effects (to neutralize intra-group activity), (Table 9 and 10). The consolidation effects were computed as a fix percentage of its weight in total consolidated sales (3-year average, 9% of consolidated sales).

Table 10 – Summary of Continental consolidated sales in 2018 and 2019F (in €M)

Sales forecast	2018	2019F
Automotive	27 036	27 005
Tyre	11 352	11 690
ContiTech	6 345	6 340
Consolidation	(328,7)	(358,3)
Total sales	**44 404**	**44 677**

Source: *Author*

Table 9 – Revenues forecast (ContiTech and total sales)

Net sales forecast	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
Contitech								
Europe	2 731	3 061	3 009	3 009	3 039	3 070	3 100	3 147
America	1 420	1 562	1 780	1 782	1 800	1 836	1 873	1 919
Asia	1 147	1 374	1 154	1 148	1 171	1 195	1 219	1 243
Others	164	250	401	401	403	407	415	427
Total ContiTech (€M)	**5 463**	**6 246**	**6 345**	**6 340**	**6 413**	**6 507**	**6 606**	**6 737**
Total Consolidation (€M)	(252,2)	(296,6)	(328,7)	(358,3)	(390,5)	(425,7)	(464,0)	(505,7)
Total sales (€M)	**40 550**	**44 010**	**44 404**	**44 677**	**45 445**	**46 328**	**47 293**	**48 470**

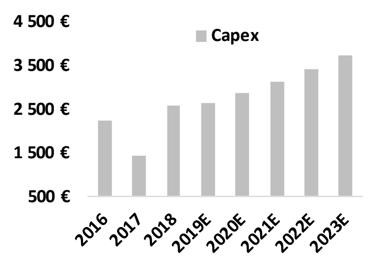
Source: *Author*

Main costs (Cost of Sales and R&D)

COS is the main cost of Continental, representing 80% of total operating costs and showing significant stability in recent years. Thus, it was assumed a constant percentage of sales. Additionally, this item is chiefly driven by the raw materials price (represents 61% of total COS), which is forecasted to have a slight increase in 2019, however mitigated by the reduction of labour costs, inherent from the decentralization of the production in Germany.

R&D represent the second most important cost in the structure of Continental. The company has a strict cost control policy, therefore, in 2019 Continental expects that R&D will grow by 10bps up to 8% of Sales, however it's also foreseen to slightly decrease in the years afterwards, due future synergies by the aggregation of all R&D business units.

Figure 50. Continental's CAPEX evolution 2016-2023F (in M)



Source: *Author*

Capex & acquisitions and D&A

Continental has the goal of maintaining the Capex below 8% of total sales. From 2019 until 2023 it was forecasted that the capex would continue its trend and grow at a CAGR of 6.6%, (Figure 50). During 2018, the main expansion Capex was used to build new factorings in Thailand and to expand the factorings both in China and Portugal (Figure 51), countries with lower labour costs in comparison with Germany. Additionally, the company was also set-up two new factories and expanded one other in the U.S.A.

Concerning acquisitions, they have been growing at a higher rate, which was reflected in the forecasts (CAGR of 10%). During 2018, the main acquisition was The Tyre and Auto Pty Ltd in Melbourne, Australia for a total of €223m (100% of the capital), which is a Tyre and OE manufacture with 1,200 employees.

Figure 51. Continental factoring in Lousado, Portugal (extension of €100m ongoing).

Source: *Website: Revistadospneus.com*

Depreciation and amortization rates were assumed as an average of the last 3 years of historical rate, considering its stability shown in the past. All in all, its foreseen an expansion capex around 20% between YE18 and YE23.

Working capital (WC)

WC is expected to continue to increase, as per the majority of the previous years, meaning that is expected for current assets to grow more than current liabilities. This is justified in the short term by the higher intake of Raw materials made by Continental which resulted in above average levels of storage and by the increase of activity. The main items, which impact the working capital are: Trade account receivables, which were computed through an historical percentage of sales; Trade account payables and inventories, which were calculated through accounting ratios, considering its average stability.

Debt profile

Continental benefits from a significant diversification of debt, (Figure 52), and comfortable access to the market in case of need. Additionally, in YE18, it had € 3.5bn of committed undrawn lines, which represents 8.5% of total Balance sheet. Overall, debt has shown a reducing historical trend, which is expected to continue in the future (in YE21 net debt is expected to turn negative, Figure 53).

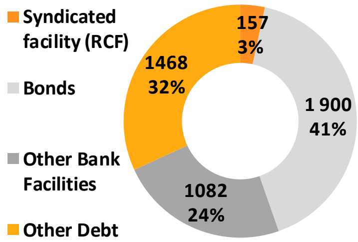
From 2019 to 2023, Continental debt followed the evolution in the Figure 54, where it was considered the following assumptions: (1) Bonds were expected to roll over until 2021, after that no more bonds were forecasted to be issued, considering the levels of cash at that time; (2) the Revolving Credit Facility (RCF) historically has very low utilizations, being used mostly as an committed undrawn liquidity, thus no more draws were assumed; (3) Other bank lines and overdrafts are only short term debt and likely to be renewed every year; and (4) other debt, which is 59% commercial paper, was also assumed to be renewed.

Weighted average cost of capital

The WACC was calculated taking into consideration the geographical distribution of the cashflows from Continental. Thus, with resource to Damodaram data base, the Market Risk Premium (MRP) was calculated for Europe, America and Asia, leading to an average MRP of 6.8%. The rational of the cashflow distribution was also applied for the Risk Free (RF) rate and based in the German, United States and China 10 Year bond, it was achieved an average RF of 1.38%.

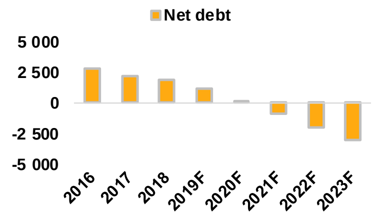
Beta Leverage was settled at 0.78, following the pureplay method, as follows: (1) The beta unleveraged resulted of a weighted average of the betas of the industries where it operates and (2) it was passed to beta leveraged featuring the capital structure of Continental and its effective tax rate. Additionally, two more methods were use as complementary analysis (regression method and Blume adjustment), all the three methods recorded a very low range between them: 0.07.

Figure 52. Continental's debt composition in YE18 (M€ and %)



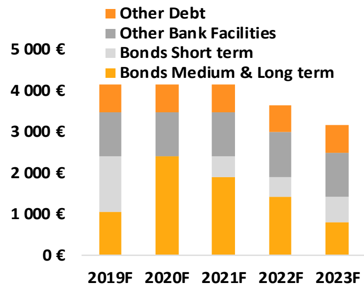
Source: *Author*

Figure 53. Continental's net debt evolution (in M, 2016-2023)



Source: *Author*

Figure 54. Continental's debt evolution (2019-2023)



Source: *Author*

Table 11 – WACC FY19 summary

WACC	2019F
Risk Free (RF)	1.38%
Beta Levered (BL)	0.78
Market Risk Premium (MRP)	6.8%
Cost of Equity (RE)	**6.7%**
Cost of debt (RD)	5.9%
Tax rate	27.0%
Cost of Debt after taxes	**4.32%**
E/EV	0.9
D/EV	0.1
WACC	**6.45%**

Note*: The WACC have a small variation in the different years of the valuation, as result of a dynamic tax rate, which is expected to rise from 27% in FY19 up to 29% in FY23.*

Source: *Author*

All in all, applying the CAPM model, it was reached a cost of equity of 6.70% and an average cost of debt of 4.30%, which led to the average final WACC of 6.45%, (Table 11).

Terminal Value

The terminal value represents the value not captured in the explicit period, in this model it accounted for 74% of the Enterprise value. Furthermore, it was driven by the following variables: (1) the growth rate in perpetuity, which was settled at 1.5%, considering the mature position of the markets where Continental operates, the position of Continental within the market and the stable future perspectives; (2) the RF was based in a higher time frame, thus in 30 year bonds instead of 10 year, arriving at 1.9% and (3) it was forecasted that the target capital structure will stand at debt to value: 0.1. Overall, the terminal WACC was foreseen at 6.95%, (Table 12).

Table 12 – Terminal WACC summary

WACC	**Terminal value**
Risk Free (RF)	1.90%
Beta Levered (BL)	0.78
Market Risk Premium (MRP)	6.8%
Cost of Equity (RE)	**7.22%**
Cost of debt (RD)	6.4%
Tax rate	30.0%
Cost of Debt after taxes	**4.51%**
E/EV	0.9
D/EV	0.1
WACC	**6.95%**

Source: *Author*

Enterprise to equity value

To achieve the equity value of € 33.49bn from the enterprise value € 40.65bn, it was necessary to perform the following subtractions, (Table 13): (1) the market value of the net debt € 865m; (2) the value of the operating leases, which were accounting as off-balance sheet, € 1,730m; (3) the contingent liabilities, as per its accounting value, € 153m; (4) the current undervalued pension fund of € 3,867m and (5) the minority interests, which accounted for € 541m.

Table 13 – Enterprise value to equity value (M€)

Enterprise Value	**40 647 €**
Market value of net debt	(865,0)
Operating leases	(1 730,0)
Contingent liabilities	(153,0)
Pension Fund status	(3 866,8)
Minority interests	(541,4)
Equity Value	**33 491 €**

Source: *Author*

Relative valuation

Continental business model and position both in the Tyre and Automotive OE markets, led to a Sum Of The Parts (SOTP) valuation, where the Automotive segment was valued through multiples of the Automotive peers and the Tyre segment was valued by the multiples of Tyre peers.

From a total of 1056 companies, retrieved from Reuters Thompson terminal, 8 were considered as peers of Continental (4 to the Tyre segment and 4 to the automotive, Table 14), as they were filtered based on the following criteria: (1) belonging to the top 10 of market capitalization within the industry, in order to have significant size; (2) being in a mature business cycle position and (3) having significant global activity. Detailed peer group is presented in Appendix 15.

In this valuation four multiples were chosen to evaluate Continental's Enterprise Value (EV): (EV/ Sales and EV/EBITDA for each segment and P/E; EV/BV and P/CFO per share directly to Continental consolidated figures, considering that the company does not report this metrics per segment). These multiples allowed to evaluate the relationship of the EV with activity, profitability, relation with the book value and cash generation. The following results were achieved:

Table 14 – Final peer group selection

Final Peer Selection
Tyre segment
Bridgestone Corp
Michelin SCA
Pirelli & C SpA
Goodyear Tire & Rubber Co
Automotive segment
Denso Corp
Cummins Inc
Hyundai Mobis Co Ltd
Magna International Inc

Source: *Author*

Table 15 – Relative Valuation calculations

Multiples Automotive	Auto parts insdustry peers	Continental (Automotive) M€	Valuation M€
EV / Sales	0,68	27 036	18 292
EV/ EBITDA	6,12	3 177	19 440
P / E	11,22	N/A	-
EV / BV	1,6	N/A	-
P /CFO per share	6,8	N/A	-

Multiples Tyre and Rubber	Tyre industry (Median)	Continental (Tyre and Rubber) M€	Valuation M€
EV / Sales	1,1	17 697	20 286
EV/ EBITDA	6,0	3 197	19 338
P / E	10,1	N/A	-
EV / BV	1,2	N/A	-
P /CFO per share	5,3	N/A	-

Multiples Adjustment	Weighted average industries	Continental (adjustments) M€	Valuation M€
EV / Sales	0,86	(329)	(283)
EV/ EBITDA	6,08	(138)	(840)
P / E (weighted by EBIT)	10,62	N/A	-
P/ BV (weighted by total Assets)	1,43	N/A	-
P /CFO per share (weighted by EBIT)	5,96	N/A	-

Multiples Continental	Weighted average industries	Continental AG	SOTP Valuation / Valuation M€
EV / Sales			38 295
EV/ EBITDA			37 938
P / E (weighted by EBIT)		14,79	31 409
P / BV (weighted by total Assets)		18 333	26 219
P /CFO per share (weighted by EBIT)		4 977	29 671
Average Valuation			**32 706**

Source: *Author*

Note: It was necessary to perform an adjustment in the multiples EV/Sales (€ 283m) and EV/EBITDA (€840m) to neutralize intra-group activity.

Table 16 – Relative valuation summary

Relative valuation summary	
Market Capitalization (M)	30 652 €
Earnings per share	14.79€
Number of shares (M)	200
Price target for end-2019	163.53€
Price at 24th of April	**153.26€**
Upside potential	**7%**

Source: *Author*

Overall, the relative valuation led to a target price of €163.53/per sh, representing an upside potential of 7%, which supports the HOLD recommendation, (Table 16).

9. Financial Analysis

Tyre division, the source of value creation

Continental main driver of value creation is undisputable the Tyre division, which accounted for solely 25% of the turnover and represented 45% of Continental operating profit in YE18, (Figure 55).

Good historical performance with challenging outlook

Continental sales increased by a CAGR of 6.6% in the last 5 years reaching the historical record €44.4bn turnover in YE18 (Figure 56), however the challenging macro-economic environment leads to an expected growth rate lower than 1% for YE19. In the remaining time window (2020 to 2023), the firm is expected to recover the momentum seen last years and grow at a 2.2% CAGR, mainly as result of the positive outlook for the industry in the long term. It's worth noting that the Tyre and Rubber segment is posting growth rates above the average of the group, which reflects in a higher weight in Continental sales, (Figure 57).

COS is historically very stable (ranging maximum 2% in the last 5 years) and representing on average a weight of 75% of sales.

Operational profit follows almost in the same trend of activity and recorded an average CAGR of 5.1% during 2014-2018. With no special operational expenses, the outlook points for the same trend, (Figure 58).

Light financial structure and low yields

Net financial expenses continue to be light and decreasing over time (in 2018 it decreased by €16m down to € 115m compared to the previous year), chiefly as result of the € 750m bond repayment in July 2018. Average cost of debt stood at 6% in YE18 and is not expected to rise, considering the low yields in Europe.

Overall, the abnormal lower tax income € 892m (23.2% tax rate), almost 7p lower than the German marginal tax rate (30%), partial compensate the lower operational profitability and led to a net profit of € 2.6bn (€ 87m lower compared with YE19).

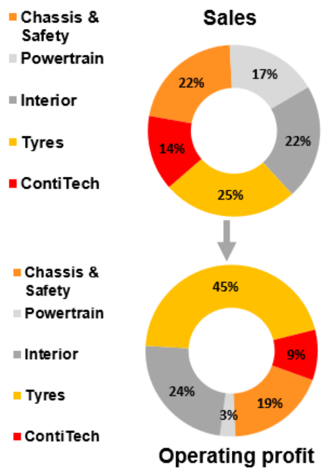
Solid financial profile

Continental has a sounding financial profile, which has been improving in the last years through the partial retention of earning, which led to an increasing equity ratio, 45.3% in YE18 (+8.9% compared to 2014). Furthermore, this retention didn't impact the dividend distribution, which has been historically increasing, from € 650m in 2014 to € 950m in 2018.

Robust and recurring Cash-Flow generation

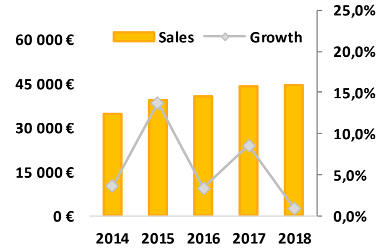
Continental saw its Net Operating Cash Flow (NOCF) reducing by 4.6% Y.o.Y to €5bn in YE18, chiefly due to the lower operating profitability and lower WC changes (€ -117m).

Figure 55. Sales vs. Operating profit per division



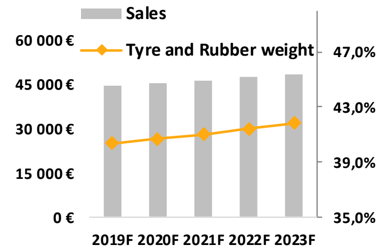
Source: *Author*

Figure 56. Continental historical sales evolution



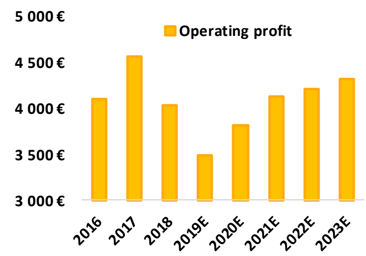
Source: *Author*

Figure 57. Continental historical sales evolution (in M)



Source: *Author*

Figure 58. Historic and outlook of operating profit (in M)



Source: *Author*

The cash outflow from investing activities rose by 4.6% to € 3,6bn, mainly attributed to the Interior (+28%), Chassis & Safety (+10%) and ContiTech (+27%) divisions. The main acquisition during 2018 was the Tyre and Auto Pty Ltd in Australia, which amounted to € 223m.

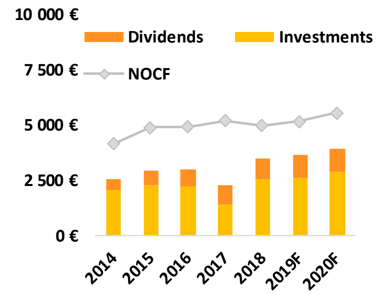
Regarding financing activities, Continental recorded an outflow of € 471m, as result of: (1) Dividend payment of € -900m; (2) the net increase of debt at € 453m (vs € -879 in PY), o/w $ 500m issuance of commercial paper in the United States in the second half of 2018.

All in all, Continental rose the cash at hands by € 879m in YE18 (vs € -126m in YE17), in a year with low operational profitability, but compensated by the net increase of debt.

Continental continues to be able to finance its core investments and provide remuneration to its shareholders with its operational activity (in YE18, NOCF of € 5bn was enough to cover the Investing activities € -3.6bn plus the Dividends payment € -900m), (Figure 59). In the outlook, investments and dividends are expected to continue bellow NOCF.

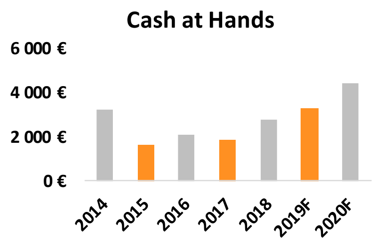
Although, Continental historically presents low levels of Cash & Cash Equivalents (€2,7bn / 6,8% of total balance in YE18, Figure 60), it's comfortable to access the market for extra liquidity, benefiting from more than € 3.5bn of unutilized committed facilities, o/w € 3bn from syndicated revolving credit facility with a thin utilization of € 154m in YE18.

Figure 59. NOCF vs. Investments and shareholder remuneration (in M)



Source: *Author*

Figure 60. Continental cash at hands evolution (in M)



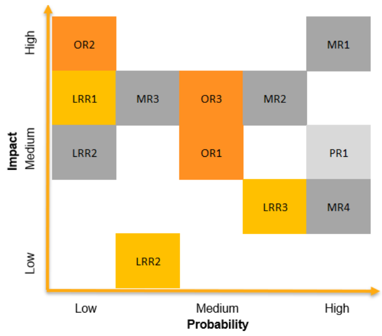
Source: *Author*

10. Investment Risks

Market Risk | Macroeconomic and Automotive slowdown (MR1)

Continental operates under a cyclical industry, having 72% of consolidated sales from OEM, leading to a high dependence on GDP fluctuation. Furthermore, as previously mentioned, the macro economic outlook had recurrent downgrades and points to a downturn. The possible future loss of momentum in GDP is expected to have a significant adverse impact in Continental Activity. Nonetheless, Continental's strategic plan mentions the objective of diminishing its exposure towards OEM down to 40% in 2020, which will reduce its cyclicality.

Figure 61. Risk matrix



Source: *Author*

Market Risk | Raw materials and electronic components prices (MR2)

The company is exposed to changes in raw materials and electronic components, where it does not have an active hedging strategy. Both raw materials and electronic components are indispensable for Continental production, in which TSR20 and Butadiene (raw materials used to produce tyres) are expected to suffer a thin rise in the near future. All in all, if Continental is not able to pass this additional burden to its customers, the company forecasts a potential loss between € 100m to € 200m (4% to 7% net margin drop).

Market Risk | Low-cost competitors (MR3)

Low cost competition is a challenge for all traditional players, as they have lower production costs and respective price advantage in the final product. They achieve it mainly by locating the operating plants in emerging economies, which allows them to decrease labour costs (they represent 72% of total operating costs). In order to minimize this risk, Continental strongly invests in differentiation, brand awareness and R&D.

Market Risk | Exchange rate (MR4)

Continental worldwide presence results on cash flows in multiple currencies, which expose the company to changes in exchange rates. To protect from currency fluctuations, Continental hedges exchange rate risk case by case through currency forwards, currency swaps and cross-currency interest-rate swaps. In sum, in the last 3 years, exchange rate resulted in a cumulative loss lower than 1% of net profit in 2018. Lastly, in an extreme scenario where all external currencies change negatively towards Euro, the current hedging strategy would allow to smooth the impact between 30% to 65%.

Operational Risk | Underfunded pension fund (OR1)

At YE18, Continental's pension plan represented 14.1% of total B/S, which considering the underfunded status (€ -3.8bn in YE18) leads to a significant future needs to refund. Furthermore, a shortfall in the capital markets or the rise of employee's longevity could lead to significant increases of unexpected expenses.

Nevertheless, the management of these pension funds is delegated to external funds and insurances that have a longstanding experience and knowledge in this field.

Operational Risk | Contract agreements and disruption (OR2)

Natural disasters, terrorism, political instability and unavailability of production materials could unfavourable affect the current business operation. Additionally, a disruption in the supply chain could lead to potential order cancelations, claims and a damage Continental's reputation among the OEM. To partial mitigate these risks, the company has a policy to spread its suppliers to diminish consequences of a problem in a specific supplier. Furthermore, it has insurances against events that are beyond its control.

Operational Risk | Possible IPO on the Powertrain division (OR3)

As previously mentioned, Continental announced a possible IPO on the Powertrain division in 2020. A proxy for Powertrain valuation (based in a historical 3-year average of operational profitability) points a value around €2.5bn. Nonetheless, the negative outlook of the sector and the significant investments requirements, due to the electric transformation, might translate in a loss of attractivity for investors and consequent significant haircut value obtained.

Legal and Regulatory Risk | Changes in regulation (LRR1)

Operating under multiple legal frameworks require constant adjustments to local legislations. Recently, due to the increase in environmental awareness the laws have become stricter, translating in additional investments to adapt the current plants and operational procedures (example of new European directive which oblige Tyre manufactures to label all tyres in Europe).

Legal and Regulatory Risk | Loss of intellectual property (LRR2)

Continental is highly dependent on differentiation to compete in the market. To protect the technology know-how, it has a large number of patents. However not all technology and process are in the scope of the industrial property rights and even those that fall under this scope are subject to a long and expensive process or require additional costs in case of patent impingement.

Legal and Regulatory Risk | Warranties and product defect (LRR3)

Defects in the products, poor quality and warranties are risks that Continental closely monitors. It can arise from multiple sources or reasons, nonetheless, they could result in a severe problem in its reputation in the market, order cancelation from the OEMs or lawsuits. To ease it, Continental follows high standards of quality products, have strict policies with all suppliers and cooperate with all stakeholders to improve its products. No worth noting occurrences in the recent years.

Political Risk **| Tariff burdens and country restrictions (PR1)**

Political environment around the globe has shown an increase of the protectionism, which combined with the global presence of Continental, can result in an increase of production costs (due to trade wars), necessity to change suppliers (due to country restrictions) or other changes in the current supply chain.

Appendices

Appendix 1: Statement of Financial Position (in €M)

BALANCE SHEET	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
Goodwill	5769,1	6640,6	6 857,3	7 010,1	7 233,4	7 233,4	7 233,4	7 233,4	7 233,4	7 233,4
Intangible assets, net	443,3	1336,4	1 514,1	1 607,3	1 566,3	1 593,5	1 624,0	1 658,1	1 696,3	1 739,1
Property and equipment, net	8446,4	9538,9	10 538,1	11 202,1	12 375,5	12 901,9	13 475,7	14 101,2	14 783,0	15 526,3
Investment Property	17,5	16	10,3	10,5	12,0	12,0	12,0	12,0	12,0	12,0
Investments in equity-accounted investees	298,5	345,8	384,8	414,8	644,9	644,9	644,9	644,9	644,9	644,9
Other investments	10,7	14,1	43,1	51,0	192,9	192,9	192,9	192,9	192,9	192,9
Deferred tax assets	1573,4	1669,7	1 836,1	1 517,2	1 464,4	1 464,4	1 464,4	1 464,4	1 464,4	1 464,4
Defined benefit assets	1,6	18,9	24,3	16,0	27,8	27,8	27,8	27,8	27,8	27,8
Long-term contract assets	0	0	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1
Long-term derivative instruments	301,2	17,1	19,7	113,3	32,4	32,4	32,4	32,4	32,4	32,4
Long-term other financial assets	41,9	47,6	66,4	68,8	81,4	81,4	81,4	81,4	81,4	81,4
Long-term other assets	19,7	21,5	26,8	27,3	27,6	27,6	27,6	27,6	27,6	27,6
Non-Current Assets	***16 923,3***	***19 666,6***	***21 321,0***	***22 038,4***	***23 658,7***	***24 212,3***	***24 816,6***	***25 476,2***	***26 196,2***	***26 982,3***
Inventories	2987,6	3360,1	3 753,2	4 128,2	4 521,1	4 329,1	4 403,6	4 489,2	4 582,6	4 696,7
Accounts Receivables	5846,2	6722,9	7 392,7	7 669,3	7 631,9	7 863,1	7 998,4	8 153,8	8 323,5	8 530,8
Short-term contract assets	0	0	0,0	0,0	67,4	67,4	67,4	67,4	67,4	67,4
Short-term other financial assets	382,5	434,7	455,5	529,5	320,7	320,7	320,7	320,7	320,7	320,7
Short-term other assets	731,3	803,9	989,0	954,3	1 124,2	1 124,2	1 124,2	1 124,2	1 124,2	1 124,2
Income tax receivables	60,3	149,7	124,7	178,2	208,2	208,2	208,2	208,2	208,2	208,2
Short-term derivative instrument	63,1	64,3	27,8	47,6	151,8	151,8	151,8	151,8	151,8	151,8
Cash and cash equivalents	3243,8	1621,5	2 107,0	1 881,5	2 761,4	3 320,1	4 450,9	5 562,9	6 123,0	6 683,8
Assets held to sale	3	12	4,0	13,5	0,0	0,0	0,0	0,0	0,0	0,0
Current Assets	***13 317,8***	***13 169,1***	***14 853,9***	***15 402,1***	***16 786,7***	***17 384,6***	***18 725,2***	***20 078,2***	***20 901,4***	***21 783,6***
Total Assets	**30 241,1**	**32 835,7**	**36 174,9**	**37 440,5**	**40 445,4**	**41 596,9**	**43 541,7**	**45 554,4**	**47 097,7**	**48 765,9**
Subscribed Capital	512	512	512,0	512,0	512,0	512,0	512,0	512,0	512,0	512,0
Capital reserves	4155,6	4155,6	4 155,6	4 155,6	4 155,6	4 155,6	4 155,6	4 155,6	4 155,6	4 155,6
Retained earnings	7404,3	9481,8	11 534,7	13 669,3	15 697,2	17 426,0	19 188,1	20 997,7	22 823,6	24 737,5
Other comprehensive income	(1 399,8)	(1 363,1)	(1 932,3)	(2 508,5)	(2 514,4)	(2 514,4)	(2 514,4)	(2 514,4)	(2 514,4)	(2 514,4)
Equity attributable to the shareholders of the parent	***10 672,1***	***12 786,3***	***14 270,0***	***15 828,4***	***17 850,4***	***19 579,2***	***21 341,3***	***23 150,9***	***24 976,8***	***26 890,7***
Non-controlling interests	352,5	427,6	464,8	461,9	482,9	541,4	601,8	664,2	728,0	794,8
Total Equity	**11 024,6**	**13 213,9**	**14 734,8**	**16 290,3**	**18 333,3**	**20 120,6**	**21 943,0**	**23 815,1**	**25 704,8**	**27 685,5**
Long term employee benefits	3483,7	3532,7	4 392,3	4 394,1	4 407,0	4 407,0	4 407,0	4 407,0	4 407,0	4 407,0
Deferred tax liabilities	178,5	361,2	371,5	348,5	315,7	315,7	315,7	315,7	315,7	315,7
Long-term provisions for other risks and obligations	306,3	301,5	204,2	139,6	163,7	163,7	163,7	163,7	163,7	163,7
Long-term indebtedness	5077,4	3175	2 803,7	2 017,8	1 449,0	1 050,0	2 400,0	1 900,0	1 400,0	800,0
Long-term other financial liabilities	48,7	94,9	97,1	36,1	38,4	38,4	38,4	38,4	38,4	38,4
Long-term contract liabilities	0	0	0,0	0,0	11,0	11,0	11,0	11,0	11,0	11,0
Long-term other liabilities	46,4	55,7	17,1	25,4	13,4	13,4	13,4	13,4	13,4	13,4
Non-Current Liabilities	***9 141,0***	***7 521,0***	***7 885,9***	***6 961,5***	***6 398,2***	***5 999,2***	***7 349,2***	***6 849,2***	***6 349,2***	***5 749,2***
Short-term employee benefits	0	0	1 314,1	1 490,6	1 454,2	1 454,2	1 454,2	1 454,2	1 454,2	1 454,2
Trade accounts payable	4861,6	5493,8	6 248,0	6 798,5	7 293,0	7 114,1	7 236,5	7 377,1	7 530,7	7 718,2
Short-term contract liabilities	0	0	0,0	0,0	150,2	150,2	150,2	150,2	150,2	150,2
Income tax payables	577,3	719,8	783,6	889,7	750,7	750,7	750,7	750,7	750,7	750,7
Short-term provisions for other risks and obligations	732,7	845,5	1 146,4	943,0	1 066,1	1 066,1	1 066,1	1 066,1	1 066,1	1 066,1
Short-term indebtedness	1354,2	2069,8	2 148,6	2 072,2	3 157,9	3 100,0	1 750,0	2 250,0	2 250,0	2 350,0
Short-term other financial liabilities	1649,2	1968,7	1 187,3	1 276,8	1 275,2	1 275,2	1 275,2	1 275,2	1 275,2	1 275,2
Short-term other liabilities	900,5	1003,2	726,2	717,9	566,6	566,6	566,6	566,6	566,6	566,6
Current Liabilities	***10 075,5***	***12 100,8***	***13 554,2***	***14 188,7***	***15 713,9***	**15 477,1**	**14 249,5**	**14 890,1**	**15 043,7**	**15 331,2**
Total Liabilities	**19 216,5**	**19 621,8**	**21 440,1**	**21 150,2**	**22 112,1**	**21 476,3**	**21 598,7**	**21 739,3**	**21 392,9**	**21 080,4**
Total Equity + Total Liabilities	**30 241,1**	**32 835,7**	**36 174,9**	**37 440,5**	**40 445,4**	**41 596,9**	**43 541,7**	**45 554,4**	**47 097,7**	**48 765,9**

Appendix 2: Income Statement (in €M)

INCOME STATEMENT	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
Sales	34 505,7	39 232,0	40 549,5	44 009,5	44 404,4	44 676,5	45 445,3	46 328,4	47 292,6	48 470,4
Cost of Sales	(25 839,6)	(29 056,8)	(29 783,0)	(32 635,0)	(33 299,5)	(33 507,4)	(34 084,0)	(34 746,3)	(35 469,5)	(36 352,8)
Gross Margin	**8 666,1**	**10 175,2**	**10 766,5**	**11 374,5**	**11 104,9**	**11 169,1**	**11 361,3**	**11 582,1**	**11 823,2**	**12 117,6**
R&D expenses	(2 137,7)	(2 449,6)	(2 811,5)	(3 103,7)	(3 209,2)	(3 574,1)	(3 590,2)	(3 659,9)	(3 736,1)	(3 829,2)
Selling and logistics expenses	(1 840,6)	(2 179,0)	(2 251,0)	(2 430,2)	(2 494,3)	(2 501,9)	(2 544,9)	(2 594,4)	(2 648,4)	(2 714,3)
Administrative expenses	(762,8)	(925,5)	(1 012,6)	(1 144,3)	(1 149,0)	(1 161,6)	(1 181,6)	(1 204,5)	(1 229,6)	(1 260,2)
Income from equity investments	(73,8)	61,4	69,7	76,8	69,6	0,0	0,0	0,0	0,0	0,0
Other income from investments	1,0	0,8	0,5	0,5	0,8	0,0	0,0	0,0	0,0	0,0
Other income and expenses	(507,4)	(567,7)	(665,8)	(212,1)	(295,1)	0,0	0,0	0,0	0,0	0,0
EBIT	**3 344,8**	**4 115,6**	**4 095,8**	**4 561,5**	**4 027,7**	**3 931,5**	**4 044,6**	**4 123,2**	**4 209,0**	**4 313,9**
Interest income	94,5	95,4	101,4	94,4	122,9	132,3	190,4	250,2	288,3	352,4
Interest expenses	(359,8)	(341,0)	(308,8)	(281,5)	(276,2)	(245,6)	(245,6)	(245,6)	(216,0)	(186,4)
Effects from currency translation	0,0	0,0	157,1	(138,8)	(30,4)	0,0	0,0	0,0	0,0	0,0
Effects from changes in fair value in financial instruments	0,0	0,0	(66,7)	40,2	5,9	0,0	0,0	0,0	0,0	0,0
EBT	**3 079,5**	**3 870,0**	**3 978,8**	**4 275,8**	**3 849,9**	**3 818,2**	**3 989,4**	**4 127,9**	**4 281,3**	**4 479,8**
Income Tax expenses	(622,0)	(1 090,4)	(1 096,8)	(1 227,5)	(891,6)	(1 030,9)	(1 117,0)	(1 155,8)	(1 241,6)	(1 299,2)
Net Income	**2 457,5**	**2 779,6**	**2 882,0**	**3 048,3**	**2 958,3**	**2 787,3**	**2 872,4**	**2 972,1**	**3 039,7**	**3 180,7**
Non-Controlling interests	(82,2)	(52,2)	(79,5)	(63,7)	(61,0)	(58,5)	(60,3)	(62,4)	(63,8)	(66,8)
Net income attributable to the shareholders of the parent	2 375,3	2 727,4	2 802,5	2 984,6	2 897,3	2 728,8	2 812,1	2 909,6	2 975,9	3 113,9
Other informations:										
D&A expenses	1 789,0	1 885,8	1 961,6	2 117,4	2 208,0	2 489,6	2 725,2	2 983,5	3 266,6	3 576,8
Amortization expenses	487,5	351,6	276,0	322,0	339,0	380,8	426,5	477,7	535,1	599,3
Depreciation expenses	1 301,5	1 534,2	1 685,6	1 795,4	1 869,0	2 108,7	2 298,7	2 505,8	2 731,5	2 977,6
Dividends paid	650,0	750,0	850,0	900,0	950,0	1 000,0	1 050,0	1 100,0	1 150,0	1 200,0

Appendix 3: Cash Flow Statement (in €M)

CASH FLOW STATEMENT	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
+ EBIT	3 344,8	4 115,6	4 095,8	4 561,5	4 027,7	3 931,5	4 044,6	4 123,2	4 209,0	4 313,9
+ D&A	1 789,0	1 885,8	1 961,6	2 117,4	2 208,0	2 489,6	2 725,2	2 983,5	3 266,6	3 576,8
- Income Tax	(622,0)	(1 015,3)	(1 047,3)	(1 122,1)	(860,8)	(1 030,9)	(1 117,0)	(1 155,8)	(1 241,6)	(1 299,2)
-Δ NWC	(326,0)	(106,7)	(210,1)	(483,8)	136,6	(218,1)	(87,4)	(100,4)	(109,6)	(133,9)
Δ Accounts Receivables	246,6	876,7	669,8	276,6	(37,4)	231,2	135,3	155,4	169,7	207,3
Δ Inventories	20,1	372,5	393,1	375,0	392,9	(192,0)	74,5	85,6	93,4	114,1
Δ Accounts payables	59,3	632,2	754,2	550,5	494,5	(178,9)	122,4	140,6	153,5	187,5
+ - Other non-cash adjustments	(17,5)	36,2	138,1	147,5	(534,3)	0,0	0,0	0,0	0,0	0,0
Operating Activities	**4 168,3**	**4 915,6**	**4 938,1**	**5 220,5**	**4 977,2**	**5 172,1**	**5 565,4**	**5 850,6**	**6 124,4**	**6 457,7**
- CAPEX	(2 045,4)	(2 304,4)	(2 222,7)	(1 421,9)	(2 571,7)	(2 635,1)	(2 872,5)	(3 131,3)	(3 413,3)	(3 720,8)
- Acquisitions	(64,9)	0,0	(352,9)	(340,5)	(283,9)	(408,0)	(457,0)	(511,9)	(573,3)	(642,1)
+ - Other Inv.	(43,1)	(1 167,6)	(591,2)	(1 705,3)	(770,6)	0,0	0,0	0,0	0,0	0,0
Investment Activities	**(2 153,4)**	**(3 472,0)**	**(3 166,8)**	**(3 467,7)**	**(3 626,2)**	**(3 043,2)**	**(3 329,5)**	**(3 643,1)**	**(3 986,6)**	**(4 362,9)**
- Net Interest paid	(265,3)	(245,6)	(207,4)	(187,1)	(153,3)	(113,3)	(55,2)	4,6	72,3	166,0
- Dividends paid	(500,0)	(650,0)	(750,0)	(850,0)	(900,0)	(1 000,0)	(1 050,0)	(1 100,0)	(1 150,0)	(1 200,0)
Δ Debt	(362,6)	(1 186,8)	(292,5)	(862,3)	516,9	(456,9)	0,0	0,0	(500,0)	(500,0)
+ Other Fin.	220,0	(1 015,2)	(4,8)	20,2	65,1	0,0	0,0	0,0	0,0	0,0
Financing Activities	**(907,9)**	**(3 097,6)**	**(1 254,7)**	**(1 879,2)**	**(471,3)**	**(1 570,2)**	**(1 105,2)**	**(1 095,4)**	**(1 577,7)**	**(1 534,0)**
Δ in cash	**1 107,0**	**(1 654,0)**	**516,6**	**(126,4)**	**879,7**	**558,7**	**1 130,7**	**1 112,1**	**560,1**	**560,7**
Begining	2 136,8	3 243,8	1 621,5	2 107,0	1 881,5	2 761,4	3 320,1	4 450,9	5 562,9	6 123,0
End	3 243,8	1 589,8	2 138,1	1 980,6	2 761,2	3 320,1	4 450,9	5 562,9	6 123,0	6 683,8

Appendix 4: Common-Size Statement of Financial Position

Common-Size BALANCE SHEET	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
Goodwill	19,1%	20,2%	19,0%	18,7%	17,9%	17,4%	16,6%	15,9%	15,4%	14,8%
Intangible assets, net	1,5%	4,1%	4,2%	4,3%	3,9%	3,8%	3,7%	3,6%	3,6%	3,6%
Property and equipment, net	27,9%	29,1%	29,1%	29,9%	30,6%	31,0%	30,9%	31,0%	31,4%	31,8%
Investment Property	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Investments in equity-accounted investees	1,0%	1,1%	1,1%	1,1%	1,6%	1,6%	1,5%	1,4%	1,4%	1,3%
Other investments	0,0%	0,0%	0,1%	0,1%	0,5%	0,5%	0,4%	0,4%	0,4%	0,4%
Deferred tax assets	5,2%	5,1%	5,1%	4,1%	3,6%	3,5%	3,4%	3,2%	3,1%	3,0%
Defined benefit assets	0,0%	0,1%	0,1%	0,0%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Long-term contract assets	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Long-term derivative instruments	1,0%	0,1%	0,1%	0,3%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Long-term other financial assets	0,1%	0,1%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%
Long-term other assets	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Non-Current Assets	***56,0%***	***59,9%***	***58,9%***	***58,9%***	***58,5%***	***58,2%***	***57,0%***	***55,9%***	***55,6%***	***55,3%***
Inventories	9,9%	10,2%	10,4%	11,0%	11,2%	10,4%	10,1%	9,9%	9,7%	9,6%
Accounts Receivables	19,3%	20,5%	20,4%	20,5%	18,9%	18,9%	18,4%	17,9%	17,7%	17,5%
Short-term contract assets	0,0%	0,0%	0,0%	0,0%	0,2%	0,2%	0,2%	0,1%	0,1%	0,1%
Short-term other financial assets	1,3%	1,3%	1,3%	1,4%	0,8%	0,8%	0,7%	0,7%	0,7%	0,7%
Short-term other assets	2,4%	2,4%	2,7%	2,5%	2,8%	2,7%	2,6%	2,5%	2,4%	2,3%
Income tax receivables	0,2%	0,5%	0,3%	0,5%	0,5%	0,5%	0,5%	0,5%	0,4%	0,4%
Short-term derivative instrument	0,2%	0,2%	0,1%	0,1%	0,4%	0,4%	0,3%	0,3%	0,3%	0,3%
Cash and cash equivalents	10,7%	4,9%	5,8%	5,0%	6,8%	8,0%	10,2%	12,2%	13,0%	13,7%
Assets held to sale	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Current Assets	***44,0%***	***40,1%***	***41,1%***	***41,1%***	***41,5%***	***41,8%***	***43,0%***	***44,1%***	***44,4%***	***44,7%***
Total Assets	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**
Subscribed Capital	1,7%	1,6%	1,4%	1,4%	1,3%	1,2%	1,2%	1,1%	1,1%	1,0%
Capital reserves	13,7%	12,7%	11,5%	11,1%	10,3%	10,0%	9,5%	9,1%	8,8%	8,5%
Retained earnings	24,5%	28,9%	31,9%	36,5%	38,8%	41,9%	44,1%	46,1%	48,5%	50,7%
Other comprehensive income	-4,6%	-4,2%	-5,3%	-6,7%	-6,2%	-6,0%	-5,8%	-5,5%	-5,3%	-5,2%
Equity attributable to the shareholders of the parent	***35,3%***	***38,9%***	***39,4%***	***42,3%***	***44,1%***	***47,1%***	***49,0%***	***50,8%***	***53,0%***	***55,1%***
Non-controlling interests	1,2%	1,3%	1,3%	1,2%	1,2%	1,3%	1,4%	1,5%	1,5%	1,6%
Total Equity	**36,5%**	**40,2%**	**40,7%**	**43,5%**	**45,3%**	**48,4%**	**50,4%**	**52,3%**	**54,6%**	**56,8%**
Long term employee benefits	11,5%	10,8%	12,1%	11,7%	10,9%	10,6%	10,1%	9,7%	9,4%	9,0%
Deferred tax liabilities	0,6%	1,1%	1,0%	0,9%	0,8%	0,8%	0,7%	0,7%	0,7%	0,6%
Long-term provisions for other risks and obligations	1,0%	0,9%	0,6%	0,4%	0,4%	0,4%	0,4%	0,4%	0,3%	0,3%
Long-term indebtedness	16,8%	9,7%	7,8%	5,4%	3,6%	2,5%	5,5%	4,2%	3,0%	1,6%
Long-term other financial liabilities	0,2%	0,3%	0,3%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%	0,1%
Long-term contract liabilities	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Long-term other liabilities	0,2%	0,2%	0,0%	0,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Non-Current Liabilities	***30,2%***	***22,9%***	***21,8%***	***18,6%***	***15,8%***	***14,4%***	***16,9%***	***15,0%***	***13,5%***	***11,8%***
Short-term employee benefits	0,0%	0,0%	3,6%	4,0%	3,6%	3,5%	3,3%	3,2%	3,1%	3,0%
Trade accounts payable	16,1%	16,7%	17,3%	18,2%	18,0%	17,1%	16,6%	16,2%	16,0%	15,8%
Short-term contract liabilities	0,0%	0,0%	0,0%	0,0%	0,4%	0,4%	0,3%	0,3%	0,3%	0,3%
Income tax payables	1,9%	2,2%	2,2%	2,4%	1,9%	1,8%	1,7%	1,6%	1,6%	1,5%
Short-term provisions for other risks and obligations	2,4%	2,6%	3,2%	2,5%	2,6%	2,6%	2,4%	2,3%	2,3%	2,2%
Short-term indebtedness	4,5%	6,3%	5,9%	5,5%	7,8%	7,5%	4,0%	4,9%	4,8%	4,8%
Short-term other financial liabilities	5,5%	6,0%	3,3%	3,4%	3,2%	3,1%	2,9%	2,8%	2,7%	2,6%
Short-term other liabilities	3,0%	3,1%	2,0%	1,9%	1,4%	1,4%	1,3%	1,2%	1,2%	1,2%
Current Liabilities	***33,3%***	***36,9%***	***37,5%***	***37,9%***	***38,9%***	***37,2%***	***32,7%***	***32,7%***	***31,9%***	***31,4%***
Total Liabilities	**63,5%**	**59,8%**	**59,3%**	**56,5%**	**54,7%**	**51,6%**	**49,6%**	**47,7%**	**45,4%**	**43,2%**
Total Equity + Total Liabilities	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**	**100,0%**

Appendix 5: Common-Size Income Statement

Common-Size INCOME STATEMENT	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
Sales	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Sales	-75%	-74%	-73%	-74%	-75%	-75%	-75%	-75%	-75%	-75%
Gross Margin	**25%**	**26%**	**27%**	**26%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**
R&D expenses	-6%	-6%	-7%	-7%	-7%	-8%	-8%	-8%	-8%	-8%
Selling and logistics expenses	-5%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%
Administrative expenses	-2%	-2%	-2%	-3%	-3%	-3%	-3%	-3%	-3%	-3%
Income from equity investments	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other income from investments	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other income and expenses	-1%	-1%	-2%	0%	-1%	0%	0%	0%	0%	0%
EBIT	**10%**	**10%**	**10%**	**10%**	**9%**	**9%**	**9%**	**9%**	**9%**	**9%**
Interest income	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Interest expenses	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%	0%	0%
Effects from currency translation	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Effects from changes in fair value in financial instruments	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
EBT	**9%**	**10%**	**10%**	**10%**	**9%**	**9%**	**9%**	**9%**	**9%**	**9%**
Income Tax expenses	-2%	-3%	-3%	-3%	-2%	-2%	-2%	-2%	-3%	-3%
Net Income	**7%**	**7%**	**7%**	**7%**	**7%**	**6%**	**6%**	**6%**	**6%**	**7%**

Non-Controlling interests	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net income attributable to the shareholders of the parent	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%

Other informations:										
D&A expenses	5%	5%	5%	5%	5%	6%	6%	6%	7%	7%
Amortization expenses	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Depreciation expenses	4%	4%	4%	4%	4%	5%	5%	5%	6%	6%
Dividends paid	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%

Appendix 6: Common-Size Cash Flow Statement

Common-Size CASH FLOW STATEMENT	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019	31-Dec-2020	31-Dec-2021	31-Dec-2022	31-Dec-2023
+ EBIT	80%	84%	83%	87%	81%	76%	73%	70%	69%	67%
+ D&A	43%	38%	40%	41%	44%	48%	49%	51%	53%	55%
- Income Tax	-15%	-21%	-21%	-21%	-17%	-20%	-20%	-20%	-20%	-20%
- Δ NWC	-8%	-2%	-4%	-9%	3%	-4%	-2%	-2%	-2%	-2%
Δ Accounts Receivables	6%	18%	14%	5%	-1%	4%	2%	3%	3%	3%
Δ Inventories	0%	8%	8%	7%	8%	-4%	1%	1%	2%	2%
Δ Accounts payables	1%	13%	15%	11%	10%	-3%	2%	2%	3%	3%
+ - Other non-cash adjustments	0%	1%	3%	3%	-11%	0%	0%	0%	0%	0%
Operating Activities	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
- CAPEX	-49%	-47%	-45%	-27%	-52%	-51%	-52%	-54%	-56%	-58%
- Acquisitions	-2%	0%	-7%	-7%	-6%	-8%	-8%	-9%	-9%	-10%
+ - Other Inv.	-1%	-24%	-12%	-33%	-15%	0%	0%	0%	0%	0%
Investment Activities	**-52%**	**-71%**	**-64%**	**-66%**	**-73%**	**-59%**	**-60%**	**-62%**	**-65%**	**-68%**
- Net Interest paid	-6%	-5%	-4%	-4%	-3%	-2%	-1%	0%	1%	3%
- Dividends paid	-12%	-13%	-15%	-16%	-18%	-19%	-19%	-19%	-19%	-19%
Δ Debt	-9%	-24%	-6%	-17%	10%	-9%	0%	0%	-8%	-8%
+ Other Fin.	5%	-21%	0%	0%	1%	0%	0%	0%	0%	0%
Financing Activities	**-22%**	**-63%**	**-25%**	**-36%**	**-9%**	**-30%**	**-20%**	**-19%**	**-26%**	**-24%**
Δ in cash	**27%**	**-34%**	**10%**	**-2%**	**18%**	**11%**	**20%**	**19%**	**9%**	**9%**
Begining	51%	66%	33%	40%	38%	53%	60%	76%	91%	95%
End	78%	32%	43%	38%	55%	64%	80%	95%	100%	104%

Appendix 7: Key Financial Ratios

Key Financial Ratios	2014	2015	2016	2017	2018	2019F	2020F	2021F	2022F	2023F
Guidance										
Payables turnover	5,32	5,29	4,77	4,80	4,57	4,71	4,71	4,71	4,71	4,71
Administrative expenses (% of sales)	2,2%	2,4%	2,5%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%	2,6%
Payout ratio	27,4%	27,5%	30,3%	30,2%	32,8%	36,6%	37,3%	37,8%	38,6%	38,5%
COGS										
COGS	25 840	29 057	29 783	32 635	33 300	33 507	34 084	34 746	35 469	36 353
D&A	1 789	1 886	1 962	2 117	2 208	2 490	2 725	2 983	3 267	3 577
COGS w/o R&D	24 051	27 171	27 821	30 518	31 092	31 018	31 359	31 763	32 203	32 776
CAPEX										
Total Capex	2 045	2 304	2 223	1 422	2 572	2 635	2 872	3 131	3 413	3 721
Capex in % of gross PP&E		11,1%	9,6%	5,6%	9,6%	9,0%	9,0%	9,0%	9,0%	9,0%
Depreciations	1 302	1 534	1 686	1 795	1 869	2 109	2 299	2 506	2 732	2 978
Depreciation in % of gross PP&E		6,7%	6,7%	6,7%	6,4%	6,6%	6,6%	6,6%	6,6%	6,6%
Expansion capex	744	770	537	-374	703	526	574	625	682	743
Liquidity Ratios										
Current Ratio (x)	1,3	1,1	1,1	1,1	1,1	1,1	1,3	1,3	1,4	1,4
Quick Ratio (x)	1,0	0,8	0,8	0,8	0,8	0,8	1,0	1,0	1,1	1,1
Cash Ratio (x)	0,3	0,1	0,2	0,1	0,2	0,2	0,3	0,4	0,4	0,4
Efficiency Ratios										
Total Assets Turnover (x)	1,1	1,2	1,1	1,2	1,1	1,1	1,0	1,0	1,0	1,0
Accounts Receivables Turnover (x)	5,9	5,8	5,5	5,7	5,8	5,7	5,7	5,7	5,7	5,7
Collection Period (days)	61,8	62,5	66,5	63,6	62,7	64,2	64,2	64,2	64,2	64,2
Inventory Turnover (x)	11,5	11,7	10,8	10,7	9,8	10,3	10,3	10,3	10,3	10,3
Days in Inventory (days)	31,6	31,3	33,8	34,2	37,2	35,4	35,4	35,4	35,4	35,4
Payables Turnover (x)	7,1	7,1	6,5	6,5	6,1	6,3	6,3	6,3	6,3	6,3
Payables Period (days)	51,4	51,1	56,2	56,4	59,9	58,1	58,1	58,1	58,1	58,1
Operating Cycle (days)	93,4	93,8	100,3	97,8	99,9	99,6	99,6	99,6	99,6	99,6
Cash Cycle (days)	42,0	42,7	44,1	41,5	39,9	41,5	41,5	41,5	41,5	41,5
Cash / Assets	0,1	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Profitability Ratios										
Gross Profit Margin (%)	25,1%	25,9%	26,6%	25,8%	25,0%	25,0%	25,0%	25,0%	25,0%	25,0%
EBITDA Margin (%)	14,9%	15,3%	14,9%	15,2%	14,0%	14,4%	14,9%	15,3%	15,8%	16,3%
EBIT Margin (%)	9,7%	10,5%	10,1%	10,4%	9,1%	8,8%	8,9%	8,9%	8,9%	8,9%
Net Profit Margin (%)	7,1%	7,1%	7,1%	6,9%	6,7%	6,2%	6,3%	6,4%	6,4%	6,6%
ROA (%)	8,1%	8,5%	8,0%	8,1%	7,3%	6,7%	6,6%	6,5%	6,5%	6,5%
ROCE (%)	19,8%	21,5%	20,0%	21,3%	18,3%	17,2%	16,3%	16,4%	16,2%	16,1%
ROE (%)	22,3%	21,0%	19,6%	18,7%	16,1%	13,9%	13,1%	12,5%	11,8%	11,5%
Solvency Ratios										
Gross debt (M€)	6 432	5 245	4 952	4 090	4 607	4 150	4 150	4 150	3 650	3 150
Net debt (M€)	3 188	3 623	2 845	2 209	1 846	830	(300,9)	(1 412,9)	(2 473,0)	(3 533,8)
Long- and short-term Debt Ratio (%)	58,3%	39,7%	33,6%	25,1%	25,1%	20,6%	18,9%	17,4%	14,2%	11,4%
Long-term Debt Ratio (%)	26,4%	16,2%	13,1%	9,5%	6,6%	4,9%	11,1%	8,7%	6,5%	3,8%
Debt to Equity Ratio (x)	0,6	0,4	0,3	0,3	0,3	0,2	0,2	0,2	0,1	0,1
Debt to EBIT	1,9	1,3	1,2	0,9	1,1	1,1	1,0	1,0	0,9	0,7
Interest Coverage Ratio (x)	9,3	12,1	13,3	16,2	14,6	16,0	16,5	16,8	19,5	23,1

Appendix 8: Forecasting Assumptions

Assumptions	Notes	2019F	2020F	2021F	2022F	2023F	Assumption
INCOME STATEMENT							
Sales							
Vehicle production							Data based into Continental outlook in 1Q2019 report for 2019 and the rest of the forecast are in line with the industry outlook.
Europe	YoY	0,0%	1,0%	1,0%	1,0%	1,5%	
America	YoY	0,1%	1,0%	2,0%	2,0%	2,5%	
Asia	YoY	-0,5%	2,0%	2,0%	2,0%	2,0%	
World wide	YoY	-0,1%	0,5%	1,0%	2,0%	3,0%	
Tyres							
Europe	YoY	1,6%	2,0%	2,1%	2,5%	3,0%	
America	YoY	1,3%	1,8%	2,2%	2,6%	3,1%	
Asia	YoY	3,3%	3,0%	2,5%	3,0%	3,0%	
World wide	YoY	2,1%	2,3%	2,3%	2,7%	3,0%	
Average selling Price (ASP) - Tyres	YoY	1,2%	1,2%	1,2%	1,2%	1,2%	Average 5Year historical ASP on tyres
Other effects / Consolidation	YoY	9,00%	9,00%	9,00%	9,00%	9,00%	Historical 3Y growth (9%), which corresponds mainly to intragroup sales
Cost of Sales	% of sales	75,00%	75,00%	75,00%	75,00%	75,00%	It was assumed as a percentage of sales considering that there is a clear relationship between the two items. For 2019 and 2020, it's expected a thin increase due to the rise of raw material prices. However with time is foreseen to reduce to the average COGS/sales ratio mainly due to the cost effciency strategy. the composition of 2018: 61% concerning production materials (in which Natural Rubber (3%); Oil based chemicals (14%); Electronic components (43%); Mechanical components (23%); Steel and metal parts (6%) and others (11%)) and 39% by others.
R&D expenses	% of sales	8,00%	7,90%	7,90%	7,90%	7,90%	2019 is expected to grow by 10bps, nonetheless Continental will aggregate all R&D in just one unit, witch will allow to cut costs, in a sector that demands high R&D inv. Additionally, continental objective is for R&D to maintain above 6% of sales for the outlook
Selling and logistics expenses	% of sales	5,60%	5,60%	5,60%	5,60%	5,60%	Directly linked to the sales. Constant % of 2018
Administrative expenses	% of sales	2,60%	2,60%	2,60%	2,60%	2,60%	This rubric is very stable, having 10 bps of range in the last 3 yrs. As so, it was assumed a constant % of sales.
Income from equity investments	M€	0	0	0	0	0	Equal to 0
Other income from investments	M€	0	0	0	0	0	Equal to 0
Other income and expenses	M€	0	0	0	0	0	Equal to 0
Interest expenses	**% of gross debt**	**5,92%**	**5,92%**	**5,92%**	**5,92%**	**5,92%**	**Cureent Yield= Spread + Risk free**
Risk Free	% interest	1,38%	1,38%	1,38%	1,38%	1,38%	Risk free was forecasted based on the Damodaran Data. Additionally, according to CBO, it's expected to be stable
Spread	% interest	4,54%	4,54%	4,54%	4,54%	4,54%	Historical 3 Yrs. effective interest rate
Interest income	**% of cash**	**4,80%**	**4,80%**	**4,80%**	**4,80%**	**4,80%**	**3 Year historical Rate of interest received. Cash * effective rate of income received**
Effects from currency translation	M€	0	0	0	0	0	Equal to 0
Effects from changes in fair value in financial instruments	M€	0	0	0	0	0	Equal to 0
Income Tax expenses	% of EBT	27,00%	28,00%	28,00%	29,00%	29,00%	Germany tax rate: 30% (source: Delloite), however Continental benefits from tax gains from working in foreign countries. 27% is the forecast from Continental (PY: 23%).
Amortization	% of gross intangibles	10,00%	10,00%	10,00%	10,00%	10,00%	3Y average historical amortization rate.
Depreciation	% of gross PP&E	6,61%	6,61%	6,61%	6,61%	6,61%	3Y average historical depreciation rate.

BALANCE SHEET							
Non-Current Assets							
Goodwill	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Goodwill is regularly subject to impairment tests. It was assumed no impairment gains or losses in the future, which lead to become constant.
Intangible assets, Gross / Acquisitions	YoY	12,00%	12,00%	12,00%	12,00%	12,00%	3Y average historical acquisition rate.
Property and equipment, Gross / Capex	YoY	9,01%	9,01%	9,01%	9,01%	9,01%	4Y average historical Capex rate
Investment Property	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Investments in equity-accounted investees	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Other investments	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Deferred tax assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Defined benefit assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term contract assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term derivative instruments	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term other financial assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term other assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Current Assets							
Inventories	Fix inventory turnover	7,74	7,74	7,74	7,74	7,74	Considering the very stable business, it was assumed a fix inventory turnover of 7.74x (historical 3Y average)
Accounts Receivables	% of revenues	17,60%	17,60%	17,60%	17,60%	17,60%	3 year historical % of sales
Short-term contract assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term other financial assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term other assets	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Income tax receivables	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term derivative instrument	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Cash and cash equivalents							No overdrafts are drawn during the time window under analysis
Assets held to sale	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Equity							
Subscribed Capital	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Capital reserves	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Retained earnings / Dividends	M€	1000,00	1050,00	1100,00	1150,00	1200,00	Continental has a floating dividend policy. It was assumed that continental will continue to increase its dividends by the same rate, considering its robust capital structure.
Other comprehensive income	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Non-controlling interests	% of Total Equity	2,10%	2,10%	2,10%	2,10%	2,10%	Percentage of non-controlling interest in shareholders equity. Rubric with low volatility and limited expression
Non-Current Liabilities							
Long term employee benefits	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Deferred tax liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term provisions for other risks and obligations	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term indebtedness							
Long-term other financial liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term contract liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Long-term other liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Current Liabilities							
Short-term employee benefits	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Trade accounts payable	Fix payables turnover	4,71	4,71	4,71	4,71	4,71	Acc payables historically is not growing at a constant ratio, however payables turnover is relative stable. Historical 3Y average at 4.71x.
Short-term contract liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Income tax payables	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term provisions for other risks and obligations	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term indebtedness							
Short-term other financial liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Short-term other liabilities	YoY	0,00%	0,00%	0,00%	0,00%	0,00%	Equal to 2018's nominal value
Macro Economic							
Global Inflaction	YoY	3,80%	3,80%	3,60%	3,40%	3,40%	Global inflation forecast according to IMF

Valuation		**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**Assumption**
Beta	0,784						Based on the beta sheet
Market Risk Premium	5,30%						
Perpetual tax rate	30,00%						Marginal tax rate in Germany
Perpetual Risk Free	1,90%						

Appendix 9: Free Cash Flow to the Firm

FREE CASH-FLOW to FIRM (M€)	2019F	2020F	2021F	2022F	2023F	Terminal Value
EBIT*(1-t)	2 870	2 912	2 969	2 988	3 063	
D&A	2 490	2 725	2 983	3 267	3 577	
Δ NWC	(218)	(87)	(100)	(110)	(134)	
- CAPEX	(3 043)	(3 330)	(3 643)	(3 987)	(4 363)	
FCFF	**2 098**	**2 220**	**2 209**	**2 159**	**2 143**	
Terminal Value						2 175
PV (FCFF) @ WACC	**2 098**	**2 086**	**1 949**	**1 789**	**1 667**	**31 058**

Valuation	
Enterprise Value (€M)	40 647,0
Adjusted Net debt (€M)	2 748,0
Unfunded Pension Plan (€M)	(3 866,8)
Non-controlling interests (€M)	(541,4)
Equity Value (€M)	33 490,8
Number of shares (M)	200
Price target for end-2019	167,45 €
Price at 24th of April	**153,26 €**
Upside potential	**9,3%**

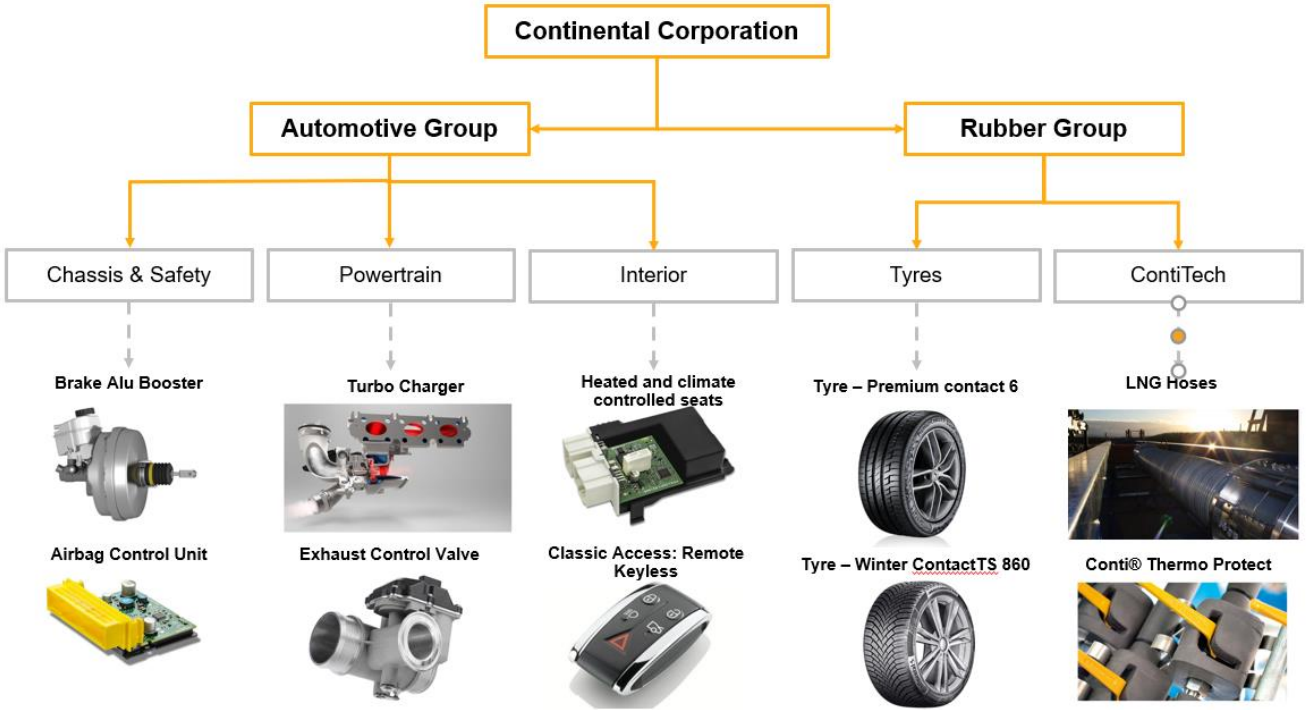
Appendix 10: Free Cash Flow to the Equity

FREE CASH-FLOW to EQUITY (M€)	2019F	2020F	2021F	2022F	2023F	Terminal Value
EBIT*(1-t)	2 870	2 912	2 969	2 988	3 063	
D&A	2 490	2 725	2 983	3 267	3 577	
Δ NWC	(218)	(87)	(100)	(110)	(134)	
- CAPEX	(3 043)	(3 330)	(3 643)	(3 987)	(4 363)	
Δ Net Borrowings	(457)	0	0	(500)	(500)	
FCFE	**1 641**	**2 220**	**2 209**	**1 659**	**1 643**	**0**
Terminal Value						**1 668**
PV (FCFF) @ Re	**1 641**	**2 081**	**1 940**	**1 365**	**1 268**	**22 491**

Valuation	
Equity Value (€M)	30 787
Number of shares (M)	200
Price target for end-2019	153,93 €
Price at 24th of April	**153,26 €**
Upside potential	**0%**

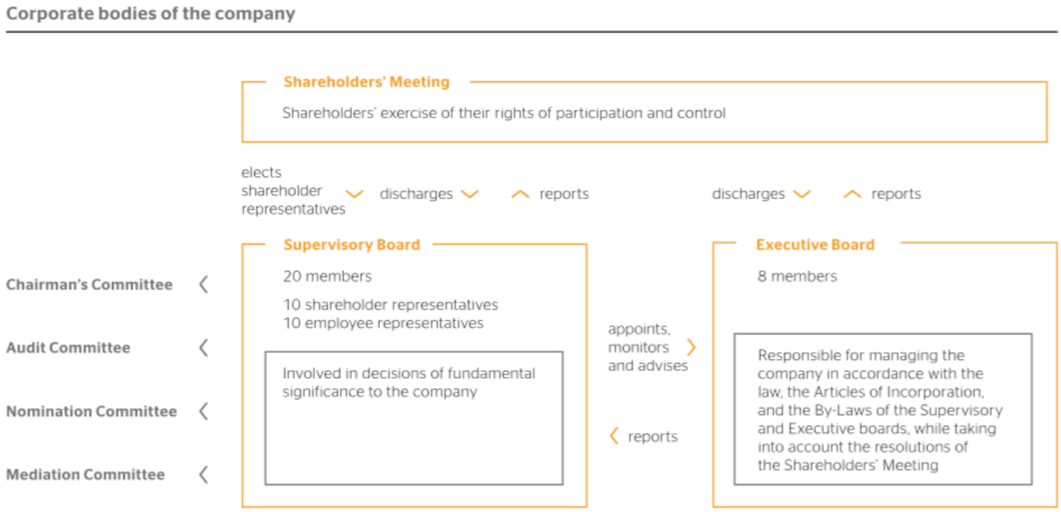
Appendix 11: Organizational Structure and respective products

As previously mentioned, Continental is organized under two segments and five business units with very different activities and respective products, as shown below:



Source: *Author and Continental website*

Appendix 12: Governance model



Executive board detailed composition, respective positions and a short biography of each member:

	Name	Position	Short Biography
	**Dr. Elmar Degenhart**	Chairman of the Executive Board	Dr. Elmar Degenhart has a PhD in mechanical engineering, more than 20 years in top management and joined Continental in 1998. Since 2009, he's Chairman of the executive board and responsible for Communications, Quality and Environment.
	**Hans-Jurgen Duesing**	ContiTech Division	Hans-Jurgen Duesing studied economics in Hanover and entered in Continental as soon as he left university. Since then, it worked in different responsibilities within Continental , in particularly in ContiTech segment. Since 2015, he's member of the executive board and responsible for ContiTech division.
	**Frank Jourdan**	Chassis & Safety Division	Frank Jourdan, graduated in economics, has more than 30 years of experience in the Automotive industry, passing through different companies and different roles within the industry. Since 2013, he's member of the executive board and responsible for the Chassis & Safety Division.
	**Helmut Matschi**	Interior Division	Helmut Matschi studied communication technology and passed most of his professional experience in Siemens (1986-2007). He had different roles and in 2007 was member of the executive board of Siemens. Today, he's a member of the executive board of Continntl and responsible for the Interior Division.
	**Dr. Ariane Reinhart**	Human Relations	Dr. Ariane Reinhart has a PhD in law and worked the majority of her professional path in the Volkswagen Group (1999-2014). Since then, it belonged to the executive board of Continental (being the only woman) and is responsible for Human relations.
	**Wolfgang Schafer**	CFO	Wolfgang Schafer graduated in Business Administration and has a MBA. His professional experience pass by multiple companies (Bosh, Bain & Co, Zapp-Group among others). Since 2010, he's a member of the executive board, CFO and responsible for the Compliance, Law, and IT.
	**Nikolai Setzer**	Central Functions Automotive	Nikolai Setzer, studied Engineering and economy, entered in Continental in 1997. Since then, he worked in different positions, in particularly as head of the Tyre division between 2011 and 2019. Additionally, he's member of the executive board since 2011 and responsible for Central Functions Automotive since April 2019.
	**Christian Kötz**	Tyre Division	Christian Kötz studied Engineering and economy and joined Continental right after finishing his studies. Since April 2019, he's the most recent member of the executive board and replaced Nikolai Setzer as head of the Tyre Division.

Appendix 13: External Agencies Ratings

Continental's rating has been stable during the last years, being rated as an investment grade, reflecting its healthy financial profile.

Continental's credit rating unchanged
The three major rating agencies each maintained their credit ratings for Continental AG during 2017.

December 31, 2017	Rating	Outlook
Standard & Poor's[1]	BBB+	stable
Fitch[2]	BBB+	stable
Moody's[3]	Baa1	stable

December 31, 2016	Rating	Outlook
Standard & Poor's[1]	BBB+	stable
Fitch[2]	BBB+	stable
Moody's[3]	Baa1	stable

1 Contracted rating since May 19, 2000.
2 Contracted rating since November 7, 2013.
3 Non-contracted rating since February 1, 2014.

Appendix 14: Continental Peers

The following four companies were chosen to be the peers for Continental Automotive segment, considering its size, revenue concentration and position within the business cycle. It's worth mentioning, that Robber Bosh (market leader of the OEM of the Auto industry) was not chosen as peer of Continental, due to its activity in different industries that are not related to the OE Automotive.

Table 17 – Peers Automotive segment

Name	Market Cap (€ bn)	Company description	EV / Sales	EV / EBITDA	P / E	EV / BV	EV / CFO
Continental	30.65	Already previously described	0.67	5.05	14.8	1.3	5.2
Denso	31.17	Denso is an independent Japanese group since 1949, after being split from the Toyota group. Today, it's the second larges OEM in the industry, just after Robert Bosh. Furthermore at YE18, it had a turnover of € 43.1bn.	0.67	6.07	16.0	1.0	6.4
Cummins	22.56	Cummins is a US firm, founded 100 years ago, that designs, manufactures and distributes products related to power solutions. In YE18, its activity accounted for €21.6bn.	1.11	7.80	10.3	3.1	8.5
Hyundai Mobis	17.55	Hyundai Mobis is listed group, as a subsidiary of Hyundai Motor. It was founded in 1977 in Korea and in YE18 it recorded € 26bn sales.	0.44	5.44	11.8	0.7	8.1
Magna International	14.61	Magna was founded in 1952 and is the largest OEM in Canada. Despite its activity significantly concentrated in the US, it also exports globaly. In the end-18, its sales accounted to € 37bn	0.49	5.17	6.8	1.4	4.1

Source: *Multiples and market capitalization – Thompson Reuters*

Concerning the Tyre segment, also four companies were chosen as peers following the same criteria, previously mentioned.

Table 18 – Peers Tyre segment

Name	Market Cap (€ bn)	Company description	EV / Sales	EV / EBITDA	P / E	EV / BV	EV / CFO
Continental	30.65	Already previously described	0.67	5.05	14.8	1.3	5.2
Bridgestone	26.88	Bridgestone is the leader in the Tyre industry. It was founded in 1931 and is a Japanese conglomerate. In YE18, it had a turnover equivalent to € 30.4bn solely from Tyres.	0.95	5.94	11.7	1.4	6.2
Michelin	18.01	Michelin is a French tyre manufacture founded in 889. Additionally, as per Bridgestone, it only produces products related to rubber and in YE18 it had turnover of € 22bn.	1.03	5.50	11.5	1.5	6.3
Pirelli	5.53	Pirelli, funded in 1872 in Italy, is a smaller tyre manufacture compared with the previous companies, but in the end-2018 sales amounted to € 5.2bn.	1.99	7.95	10.1	1.2	5.8
Goodyear	2.84	Goodyear is the only US tyre producer in the selected peers of Continental. It was founded in 1898 and today is a globally recognized brand with sales accounting to € 13.89bn at YE18 .	0.61	4.82	7.1	0.7	2.9

Source: *Multiples and market capitalization – Thompson Reuters*

Appendix 15: Recommendation System

Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%

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Abbreviations

ADR - American Depositary Receipts
ASP - Average Selling Price
Bn – American Billion (the concept of billion was choosen to follow the US standards, considering that CFA is an American institution).
BUs - Business Units
CAGR - Compound annual growth rate
CMS - Compliance Management System
CSR - Corporate Social Responsibility
COS - Cost of Sales
DPS - Dividends Per Share
DFC - Discounted Cash Flow
EPS - Earnings Per Share
ELVs – End of Life Vehicles
EV - Enterprise Value
ESSHF - Environment, Safety, Security, Health and Fire protection
ESG - Environmental Social and Governance
FCFF - Free Cash Flow to the Firm
GDP - Gross Domestic Product
GC - Governance Code
MRP - Market Risk Premium
MHCV - Medium and Heavy Commercial Vehicle
NOCF Net Operating Cash Flow
OPEC – Organisation of the Petroleum Exporting Countries
OE - Original Equipment
OEM - Original Equipment Manufacturer
OTC - Over The Counter
PY – Previous Year
RE - Replacement Equipment
ROCE - Return On Capital Employed
RCF - Revolving Credit Facility
RF - Risk Free
SOTP - Sum Of The Parts
WC - Working Capital
YE – Year End
Y.o.Y – Year on Year