LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH:
NOKIAN TYRES PLC

GONÇALO SAMPAIO ROMÃO

NOVEMBER 2020

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SUPERVISOR:
ANA VENÂNCIO

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Abstract

The following document consists on an Equity Research of Nokian Tyres plc for 2020 year-end in accordance with ISEG's Master's in Finance Final Work Project. Only public information was considered during the development of this report available until 30th of October of 2020, thus any circumstances after this date are not considered. The report follows the research report format recommended by the CFA Institute.

Nokian Tyres plc is a Finland-based company active in the tire manufacturing industry, focusing in the winter tyre markets. The Company diversifies its activities into three main business segments: Passenger Car Tires, Heavy Tires and Vianor and into six geographical segments: Finland, Sweden, Norway, Russia, Other Europe, North America.

The reason behind the selection of the company was due to the Equity Research course, where we had to develop an Industry Overview and Competitive Position for the Tyre and Rubber industry.

This report initiates a BUY recommendation for Nokian Tyres Plc, with a 2020YE price target of €31.15/sh using a Discounted Cash Flow model (DCF) and the Free Cash Flow to the Firm method. This valuation implies a 18.02% upside potential from the 30th of October of 2020 share closing price of €26.39, considering a medium risk assessment.

JEL classification: G10; G32; G34.

Keywords: Equity Research; Valuation; Winter Tyre Market; Nokian Tyres.

Resumo

O presente documento consiste numa avaliação detalhada do preço por ação da Nokian Tyres Plc, realizado de acordo com o Trabalho Final de Mestrado do Mestrado em Finanças do ISEG. No desenvolvimento deste relatório foi apenas utlizada informação pública disponível até 30 de Outubro de 2020, pelo que não são considerados quaisquer acontecimentos depois desta data. O relatório segue o formato recomendado pelo CFA *Institute* no que toca à elaboração de relatórios de avaliação do preço de ação de empresas cotadas em bolsa.

A Nokian Tyres plc é uma empresa com a sede na Finlândia e que se encontra presente na indústria dos pneus e borracha, estando presente maioritariamente nos mercados de pneus de inverno. A empresa diversifica as suas atividades em três segmentos de negócios: Pneus de automóveis de passageiros, Pneus Pesados e *Vianor* e em seis segmentos geográficos: Finlândia, Suécia, Noruega, Rússia, Europa e América do Norte.

O motivo pelo qual esta empresa foi escolhida para a elaboração deste relatório foi devido à cadeira de *Equity Research*, onde foi necessário desenvolver uma análise à indústria dos pneus e borracha.

Este relatório inicia uma recomendação de COMPRA para a Nokian Tyres Plc, com um preço por ação projetado para 31 de dezembro de 2020 de € 31.15. Esta avaliação tem por base o modelo de Fluxo de Caixa Descontado (DCF) e o método do “Free Cash Flow to the Firm”, tendo um potencial de valorização de 18.02% em relação ao preço da ação a 30 de outubro de 2020, considerando uma avaliação de risco médio.

Classificação JEL: G10; G32; G34.

Palavras-Chave: Equity Research; Avaliação de Empresas; Mercado de Pneus de Inverno; Nokia Tyres.

Acknowledgements

This project represents the end of my academic life and I could not be happier about the decision of studying in ISEG.

Firstly, I would like to thank to my family, my dad Miguel, my mother Teresa, and my brother Tiago, for always being present when I most needed and for helping me finalizing this chapter of my life.

To my friends, André, Sávio, Rui, Mónica, Mata and Luís, for all the great moments we have experienced together and hopefully much more soon.

To my cousins, Tomás and Guilherme, for their support and investment knowledge.

Finally, a special thanks to Professor Ana Venâncio for all the support provided during the elaboration of this thesis.

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Nokian Tyres Plc

Buy

Medium risk

13th November 2020

Nokian Tyres: Safety and Sustainability Growth

(YE2020 Price Target of € 31.15 (+18.02%); recommendation is to Buy with Medium Risk)

1. Research Snapshot

We initiate a **BUY** recommendation for Nokian Tyres Plc (hereinafter referred to as "Nokian Tyres" or the "Company"), with a 2020YE price target of €31.15 using a Discounted Cash Flow model (DCF), implying a 18.02% upside potential from the October 30th 2020 closing price of €26.39 with a medium risk assessment.

Figure 1. Nokian Tyres Historical share price and DCF target price

Source: Author

The Discounted Cash Flow model (DCF) through the FFCF method was used to achieve the 2020YE target price. Other valuation models were also computed, which contribute to the BUY recommendation (Table 3).

In a highly competitive market environment, Nokian Tyres can benefit from its competitive hedge on the production of winter tyres and overall strong presence in the high margin winter tyre market. Continuous R&D investment in product testing and sustainability will meet consumers preferences and demands. The strategic investment in a new plant in Dayton Tennessee (USA) is expected to contribute to further revenue growth in the North America tyre market. Overall, by focusing in selected tyre segments with high profit margins, the company is able to ask for a high premium on its tires, reflecting a high brand value and the conditions to continue to be one of the most profitable companies fin the world.

Table 1. Risk Assessment

Low	Medium	High

Source: Author

Table 2. Company Market Profile

Nokian Tyres Market Profile	
Share Price at 30th October 2020	€ 26.39
High - Low (52 weeks)	€16.38 - €28.36
Share Outstanding	138.9
Market Capitalization	€ 3,941.20
Index	OMX Helsinki
Ticker	TYRES

Source: Reuters

Table 3. Valuation methods target price summary

Valuation Model	Price Target	Upside/Downside Potential
DCF FCFF	€ 31.15	18.02%
DCF FCFE	€ 28.78	9.05%
DDM	€ 26.48	0.32%
APV	€ 44.57	68.88%
Multiples Average	€ 16.90	-35.82%

Source: Author

Figure 2. Dayton Factory Details

Source: Company

2. Business Description

Nokian Tyres plc (TYRES) is a Finnish company present in the tire manufacturing industry, listed in the Helsinki Stock Exchange. It was founded in 1988 but the company's roots go back to 1898, when Suomen Gummitehdas Oy, or Finnish Rubber Factory, was established. The company headquarters is based in Nokia, Finland, and its mission is to offer peace of mind in all conditions, being one of the most sustainable tire companies in the world, included in DJSI World and DJSI Europe. In 2019YE, Nokian Tyres employed 4,730 people and sold products in 61 countries (Figure 7). The company's primary brand is Nokian Hakkapeliitta, which is recognized as a reputable trademark in Finland.

The company has a niche strategy in the global market, focusing mainly on the high-margin winter tires market. In 2019FY, Nokian's net sales were €1,596 million, a 0.0% change over 2018FY. The company reported an operating margin of 19.8% in 2019FY, a decrease of 3.5% over 2018FY. In 2019FY, Nokian's net profit was €399.9 million, compared to a net profit of €295.2 million in 2018FY.

Figure 3. Nokian Tyres Logo

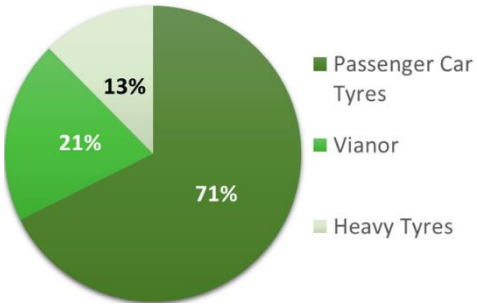
Source: Company

Business Units

The Company diversifies its activities into three main business units: Passenger Car Tires, Heavy Tires and Vianor.

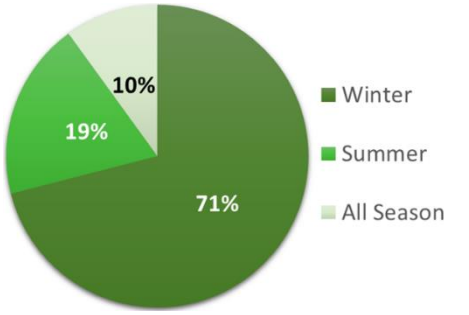
Passenger Car Tires business unit includes the development and production of high-quality summer and winter tires for passenger cars, vans, and SUVs. It is Nokian's core segment since it represents 71% of the company's total revenues (Figure 4). Nokian operates in the premium passenger car tire segment and focus on the replacement tire market, having a competitive edge in the production of winter tires. In 2019YE, the share of winter tires sales was 71% and the share of summer and all season tires sales was 19% and 10%, respectively (Figure 5). **Heavy Tires business segment** comprises tires for forestry machinery, special tires for agricultural machinery, tractors, and industrial machinery as well as retreading and truck tire business. In contrast to the passenger car tires business segment, it is Nokian's smallest segment, since it accounted for 13% of Nokian's total net sales in 2019FY, focusing on both the replacement tire and original equipment markets. **Vianor business segment** consists of a chain of service centers specializing in car maintenance and tire services. It accounted for 21% of the company total net sales in 2019FY. In addition to Nokian brand, Vianor sells other leading tire brands and other automotive products and services. The company's growth is supported by its branded distribution network, which consists of Nokian Tyres' Vianor service centers, the Nokian Tyres Authorized Dealer (NAD) partners, the N-Tyre retailers, and other tire and vehicle retailers, as well as online stores. In 2019YE, the Vianor network represented 1,170 service centers in 24 countries, including 189 own service

Figure 4. Net sales by Business Unit*



* Including internal sales
Source: Company Data

Figure 5. Passenger Car Tires Net Sales by Type



Source: Company Data

centers. The NAD network operated in 26 countries with 2,182 stores, while the N-Tyre network covered 133 stores in Russia and the CIS countries.

Market Regions

Nokian Tyres long-term goal is to be present on all significant winter tire markets, since stringent government norms and harsh winters have led to a high demand for winter tires (Appendix 13, 14 and 15). The company operations are divided into seven geographic regions: Finland, Sweden, Norway, Russia, Other Europe, North America and Other Countries (Figure 6). **Nordic Countries** (Finland, Sweden, and Norway) are the main source of revenues, since accounted for 40% of total net sales in 2019FY. The company is the market leader in premium tires in the Nordic countries, due to a long-time presence in their home market, high brand awareness and solid distribution setup through long-term partners. According to Nokian's estimates, approximately 12 million car and van tires are estimated to be sold each year in the Nordic Countries, of which about half are winter tires. **Other Europe (**Eastern and Central Europe**)** accounted for 26% of total net sales in 2019FY. The region is the world's biggest winter tire market and it is considered a growth market by the company. According to Nokian's estimates, approximately 260 million passenger car and van tires are estimated to be sold each year on the European market, excluding the Nordic Countries sales. In 2019FY, **Russia,** which is the second biggest winter tire market in the world, accounted for 19% of total net sales. The company is the biggest tire manufacturer in Russia and the market leader for A and B segment tires, since it has large-scale and highly efficient local production, strong brand image, country-wide multi-channel distribution coverage and long-term partnership with distributors.

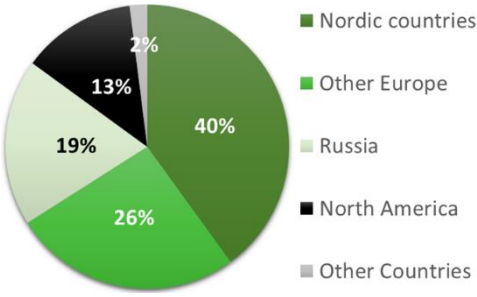
North America accounted for 13% of total net sales. The United States is the world's largest market for vehicles, since according to Nokian's estimates, nearly 260 million tyres are sold each year in the US and Canada. The company is focusing in the all-season market, because of the limited potential growth in winter tires, due to the small scale of the winter market. Finally, **Other Countries** accounted for 2% of total net sales in 2019FY.

Corporate Strategy

To build a foundation for its long-term competitiveness, Nokian Tyres has implemented five on-going strategic ambitions based on high-investment projects:

Being the market leader in selected segments in the Nordic countries and Russia. During 2019FY, the company was able to retain its strong position as the market leader in premium tires, supported by its Vianor retail chain and through close collaboration with their long-term partners. Nokian's production plants are in Finland and Russia, and at the company's headquarters, centralized product development is carried out and prototypes and test runs are completed in the only permanent

Figure 6. Net sales by geographical area

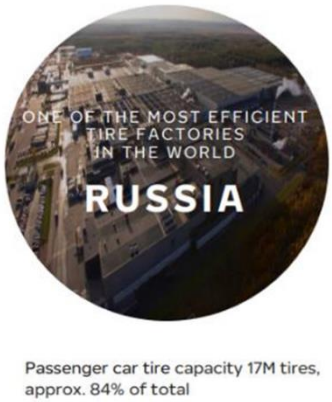


Source: Company Data

Figure 9. Finland Factory

Source: Company

Figure 8. Russia Factory



Source: Company

winter tire testing facility in the world. The **Russian factory** is the biggest facility of Nokian Tyres, having the capacity to manufacture 17 million passenger car tires, in contrast with the 3 million passenger car tires capacity of the **Finnish factory**. Manufacturing in Russia represents a competitive advantage for Nokian Tyres, since labour cost and cost of production are considerably lower in Russia than in Finland and other western countries (Figure 11). For this reason, the company's strategy is to run the Russian factory at full speed all the time and the flexibility comes from adjustments to the production of the Finland factory.

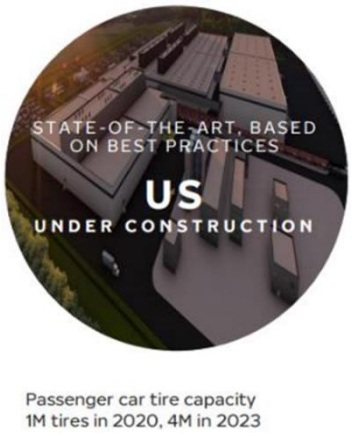
Increase sales by 50% in Central Europe in five years. In 2019FY, the company continued to strengthen its distribution network and product portfolio. In 2018, Nokian started a project to build a new testing center in Spain, which is expected to be fully operational in 2020. This project will accelerate product development and range extension, since it enables the company to test tires all year round in various tracks and conditions.

Double sales in North America in five years. Nokian Tyres is pursuing growth in North America supported by the capacity investment in the new production facility in Dayton, which started the commercial production in 2019, and is expected to operate at full capacity, 4 million passenger car tires, in 2023YE. The Dayton production facility is the most advanced tire factory in the world and it will cover the 2 million shipping tires volume that was arriving from the Russian factory, meaning a surplus of 2 million tires capacity in the Russian factory, which will then be directed to support growth in Russia and Central Europe. The new factory will offset the Russian risk, cut delivery times in North America to weeks, in contrast to current 120 to 180-day lead time, and eliminate the need to hold large inventories. Lastly and foremost, it will broaden the company's focus from snow tires to the big all-season market.

Having tires available in all major winter tire markets. The company is already present in major winter tire markets, such as Central Europe, Russia, North America, and North Europe.

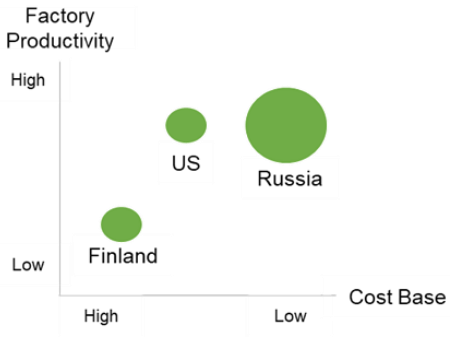
Increase sales of Heavy Tyres by 50% in four years. In 2018, Nokian Tyres decided to increase production capacity by 50% in Heavy Tyres in the Finnish production facility. In addition, a new Heavy Tyres' R&D center was built in 2019, accelerating the testing phase of new tire models and the launch of new products.

Figure 10. USA Factory



Source: Company

Figure 11. Factories productivity and cost base



* Size of bubble indicates production volume
Source: Company Data

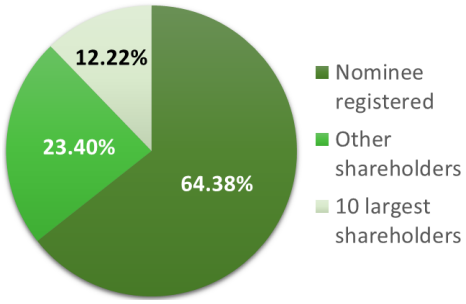
3. Management and Corporate Governance

Ownership Structure

As of 31 of December 2019, the number of Nokian Tyres shares outstanding was 138,921,750, representing a market capitalization of € 3.7 Billion.

The company's top 10 major shareholders (Figure 12) represent roughly 12.22% of the total shares outstanding, being Solidium Oy, a Finnish state-owned investment company, the largest shareholder (Table 4), with a 5.04% stake in the company. The second largest shareholder is Ilmarinen Mutual Pension Insurance Company, a public Finnish pension and insurance company, with a 2.66% stake in Nokian Tyres. Nokian's nominee registered shareholders account for 64.38% of total shares (Figure 12). The largest nominee registered shareholder is Nordea Bank Abp (Table 5), the largest financial services group in the Nordic region, with a 35.45% stake in the company. Skandinaviska Enskilda Banken Ab (publ), a Finnish corporate bank, is the second largest nominee registered shareholder with 23.59%.

Figure 12. Nokian's Total Shareholders



Source: Company Data

Table 4. Major Shareholders*

Shareholders	% of shares capital
Solidium Oy	5.04
Ilmarinen Mutual Pension Insurance Company	2.66
Varma Mutual Pension Insurance Company	0.84
Elo Mutual Pension Insurance Company	0.81
Mandatum Life Insurance Company Ltd.	0.66
The State Pension Fund	0.54
Evli Europe Fund	0.45
Föreningen Konstsamfundet r.f.	0.43
Schweizerische Nationalbank	0.41
Nordea Pro Finland Fund	0.38
Others	**23.4**

* Does not include nominee registered.
Source: Company Data

Corporate Governance

The company follows the Finnish Corporate Governance Code published by the Securities Market Association in its decision-making and administration. In addition, Nokian Tyres adheres to the Finnish Limited Liability Companies Act, the Finnish Securities Markets Act and the rules issued by Nasdaq Helsinki Ltd and Nokian Tyres' Articles of Association. The administrative bodies of the company (Figure 13) include a Board of Directors, a Personnel and Remuneration Committee, an Audit Committee, a Management Team and a Statutory Auditor which are responsible for the administration and operation of the Nokian Tyres Group.

Table 5. Nominee registered shareholders

Shareholders	% of shares capital
Nordea Bank Abp	35.45
Skandinaviska Enskilda Banken Ab (publ) Helsinki Branch	23.59
Clearstream Banking S.A.	2.32
Euroclear Bank SA/NV	1.7
Svenska Handelsbanken AB (publ), Filialverksamheten i Finland	0.55
Danske Bank A/S Helsinki Branch	0.41
Nordnet Bank Ab	0.26
Others	**0.1**

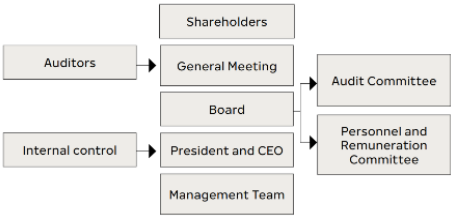
Source: Company Data

Board of Directors

The Board of Directors is responsible for supervising the Management Team, appointing, and dismissing the Company's President and CEO, approving consolidated financial statements, half year reports and interim reports, presenting matters to the General Meeting and the organization of financial control. It has two committees: The Personnel and Remuneration Committee and the Audit Committee. The **Annual General Meeting** decides on the number of members in the Board of Directors, the selection of the board members and their remuneration for a one-year term of office that begins after the closing of the Annual General Meeting and ends at the end of the next Annual General Meeting.

In 2019YE, the Board was composed by 8 members (Table 6) independent of the company and its major shareholders. The Board of Directors appoints a Chairman and a Deputy Chairman from among its members. **Mr. Petteri Walldén** served as Chairman of the Board of Directors. He is a member of the board since 2005 and has a full position as Wapiti Oy's CEO.

Figure 13. Nokian's administrative organization



Source: Company Data

Audit Committee

The Audit Committee assists the Board of Directors in its regulatory duties, controlling that bookkeeping, financial administration, financing, internal control, internal auditing, audit of the accounts, and risk management are appropriately arranged in the Company. At least one member of the Audit Committee must have expertise in accounting or auditing to ensure that the Committee has the expertise and experience required for its tasks. In 2019YE, the Audit Committee was composed by 4 members, Raimo Lind, Heikki Allonen, Inka Mero, and Pekka Vauramo.

Mr. Raimo Lind served as Chairman of the Committee, being member of the board of Directors since 2014. All committee members are independent of the company and of all major shareholders in the company.

Table 6. Board members remuneration

Name	Postion	Remuneration (€)
Petteri Walldén	Chairman	101,400.0
Kari Jordan	Chairman of the Personnel and Remuneration Committee	78,300.0
Heikki Allonen	Member	54,600.0
Raimo Lind	Chairman of the Audit Committee	76,500.0
Veronica Lindholm	Member	56,400.0
Inka Mero	Member	54,600.0
George Rietbergen	Member	54,600.0
Pekka Vauramo	Member	53,400.0
Total		**529,800.0**

Source: Company Data, Author

Personnel and Remuneration Committee

The Personnel and Remuneration Committee is responsible to prepare a proposal to the General Meeting regarding the composition of the Board of Directors and the remuneration to be paid to the Board members. It also prepares a proposal to the Board of Directors on Nokian's President and CEO and its salary and other incentive plans. Furthermore, the Committee prepares a proposal to the Board of Directors on the nominations, salaries, and other incentives of the members of the Management Team. In 2019YE, the Personnel and Remuneration Committee was composed by 3 members, Kari Jordan, Veronica Lindholm, and Petteri Walldén.

Mr. Kari Jordan served as Chairman of the Committee, being member of the Board of Directors since 2018 and having a full-time position as Chairman of the Board of Directors of Outokumpu Oyj. All committee members are independent of the company and of all major shareholders in the company.

Management Team

The company's management team is responsible for assisting the President and CEO in preparing the company strategy and in leading Nokian's operations. The President and CEO is responsible for informing the Board of Directors regarding the development of the Company's business and financial situation. The Management Team is composed by 14 members (Table 7) whose functions are divided by business units and business areas.

Mr. Jukka Moisio was appointed by the Board of Directors as the President and CEO of Nokian Tyres in 27th of May 2020. Previously, he was the President and CEO of Huhtamäki Oyj, a global food packaging specialist, during more than 10 years.

Mr. Andrei Pantioukhov is the company's Vice President and General Manager, being responsible for the Russia and Asia business area and a member of the management team since 2009.

Table 7. Management Team

	Name	Position
	Jukka Moisio	President and CEO
	Andrei Pantioukhov	Executive Vice President & General Manager
	Paivi Antola	Investor Relations & Corporate Communications
	Esa Eronen	Supply Chain & Sustainability
	Anna Hyvönen	Nordics Business Area and Vianor Business Unit
	Adrian Kaczmarczyk	Supply Operations
	Tarja Kaipio	Senior Vice President, Human Resources
	Teemu Kangas-Kärki	CFO
	Jukka Kasi	Products & Marketing
	Bahri Kurter	Central Europe Business Area
	Manu Salmi	Heavy Tyres business unit
	Toni Silfverberg	Marketing & Sales Excellence
	Timo Tervolin	Strategy & M&A
	Frans Westerlund	IT & Processes

Source: Company Data, Author

Corporate Sustainability

The company is commitment to sustainability, having defined clear sustainability goals for 2020 (Appendix 12) and added the 'Leader in sustainability' as a differentiator in the company strategy. Nokian Tyres was included, for the 3rd year in a row, in the DJSI World sustainability index (Figure 14) and the more strictly defined DJSI Europe, meaning the company is among the top 10% of the most sustainable listed companies in the world. The Dow Jones Sustainability Index (DJSI) is an annual corporate sustainability assessment in terms of financial, social, and environmental criteria of large publicly traded companies.

In addition, Nokian Tyres is included in the OMX GES Sustainability Finland GI index, where companies are selected based on their compliance with the requirements that focus on the management of environmental, social, and corporate governance (ESG).

Figure 14. DJSI World sustainability index

Source: Company Data

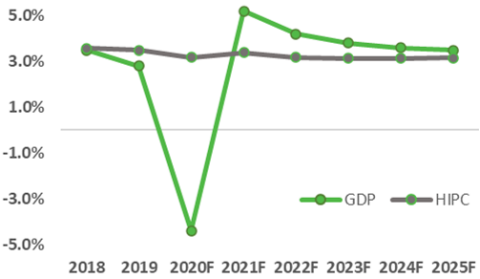
4. Core Markets Economic Outlook

COVID-19: A Long and Difficult Economic Recovery

The global economy is slowly starting to recover from the depths to which it had plunged during the COVIV-19 lockdown in April 2020. But with the pandemic continuing to spread, and in some countries expected to get worse, many countries are adopting partial lockdowns measures to protect the population. Therefore, the reopening of the countries' economies has slowed down and the path to pre-pandemic levels of activity remains uncertain.

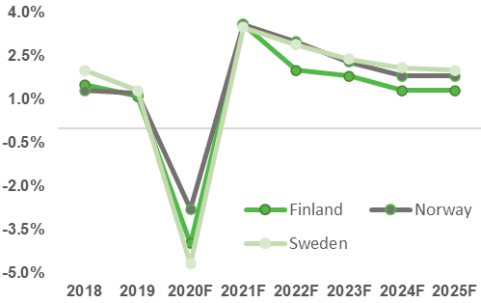
According to the October 2020 IMF World Economic Outlook report, the World's real GDP growth is forecasted at −4.4 % in 2020 (Figure 15), a contraction when compared with the 2.8% growth in 2019. In terms of the medium-term outlook, global growth is forecasted at 5.2% in 2021 and 4.2% in 2022, reflecting the decrease in local transmissions associated with the progress on treatments and vaccines. Afterwards, global growth is expected to gradually slow to about 3.5% with a significant projected increase in the stock of sovereign debt. However, if the virus resurges and progress on treatments and vaccines is slower than anticipated, countries' economies will deteriorate and renewed social distancing and tighter lockdowns will be need, which could lead to rising bankruptcies and job and income losses. As of 20th October 2020, the number of World COVID-19 cases was 40,272.09, from which 27,558,672 people recovered and 1,116,167 died, being United States and Europe two of the largest regions in terms of total and new cases.

Figure 15. World Real GDP growth and Inflation growth



Source: IMF

Figure 16. Nordic Countries Real GDP growth

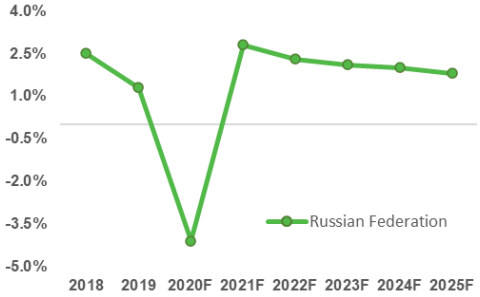


Source: IMF

In the **Nordic Countries**, average GDP growth is expected at -3.8% in 2020 (Figure 16), a decrease of 500 bps from 2019 growth due to the COVID-19 impact in the world's economy. As stated by IMF Economic Outlook, the average gross domestic product is expected to grow at 3.6% and 2.6% in 2021 and 2022, respectively, before stabilizing at around 2% until the end of 2025.

Russia is also expected to follow the same the global COVID-19 economic impact, having a forecasted GDP growth of -4.1% in 2020 (Figure 17), a 5.4% decrease in relation to 2019YE. As mentioned in the October 2020 IMF World Economic Outlook report, Real GDP growth is expected at 2.8% in 2021 and 2.3% in 2022. Thereafter, it is projected to stabilize at around 2% until the end of 2025.

Figure 17. Russia Real GDP growth

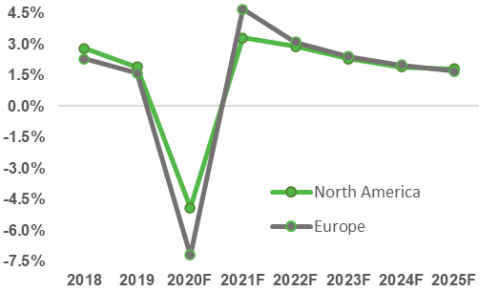


Source: IMF

In the **North America** Region, average GDP growth is expected at -4.9% in 2020 (Figure 18Figure 16), a decrease in GDP growth when compared to the 1.3% growth in 2019. According to IMF, the GDP is expected to grow at 2.8% and 2.3% in 2021 and 2022, respectively, before decreasing to roughly 2% until the end of 2025.

Europe is projected to be the most negatively impacted region from the ones analysed with a forecasted GDP growth of -7.2% in 2020 (Figure 18), a decrease of 880 bps from 2019YE. IMF forecasts a 4.7% Real GDP growth in 2021 and 3.1% in 2022, before stabilizing at around 2% until the end of 2025.

Figure 18. North America and Europe Real GDP growth



Source: IMF

5. Industry Overview and Competitive Positioning

The global tyre market can be segmented by type of vehicle into light-vehicle tires (Passenger car and Light truck tires), truck tires and specialty tires such as mining tires, agricultural and construction tires, two-wheel tires and aircraft tires. In 2019, light-vehicle tires accounted for 60% of the market total sales, truck tires and specialty tires accounted for around 30% and 10%, respectively (Figure 19). In terms of volume, it represented roughly 1.563 billion car and light truck tires and around 221 million truck and bus tires.

Regarding sales channels, the global tyre market can be divided into two segments, Original Equipment (OE) or Original Equipment Manufacturers (OEMs) and the Replacement Tire (RT) or Aftermarket. OE consists of the sales of tires that are initially installed in new cars, which accounted for around 25% of the total market volume in 2019 (Figure 20). The Replacement market consists of tire sales other than the original tires such as winter tires, for those markets where they are a requirement, or to replace old and worn-out tyres. RT accounted for 75% of the total market volume in 2019 (Figure 20). According to Bryan Garnier & Co research, the OE market is highly correlated with GDP growth and automobile demand, while the RT market shows a weaker correlation with macroeconomic factors.

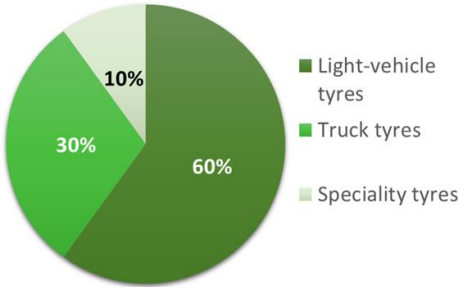
The tyre market can also be divided into segments relative to their price and quality. The segment A consists of premium, B of economy, and C of budget tires. From these, Nokian Tyres focuses on the first two segments and does not sell any C segment tires.

The Tyre Global Industry is expected to grow at a CAGR of 3.1% from 2019YE to 2024F (Figure 21), reaching a forecasted volume of 2.75 billion units in 2024. The industry is on a mature market phase, characterized by having high entry barriers, which leads to a high market concentration. In fact, the five major companies accounted for roughly 49% of the market share in terms of sales in 2019YE (Figure 22), while Nokian Tyres' market share was around 1%.

Political tensions limit industry profitability

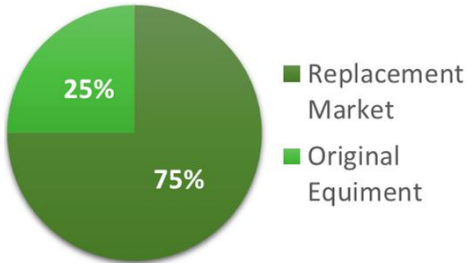
Traditional players are based in developed countries, mainly in Europe and North America, where there is a minimal political risk factor due to a stable governmental activity. Nonetheless, manufacturers are being attracted towards the developing markets, as India and China, due to attractive opportunities of increased tyre demand and lower production costs. In these regions, there is evidence of significant political risk related to unstable government actions, that often leads to trade wars, unemployment, and high inflation levels. Overall, political tensions, such as the United States trade war with China and the Brexit can jeopardise the industry profitability with tariffs burdens.

Figure 19. Global Tyre market sales by vehicle type



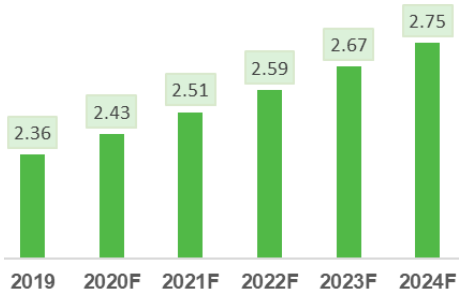
Source: Michelin Universal Registration Document

Figure 20. RT and OE tyre market segmentation



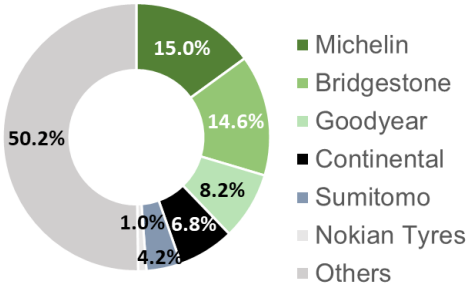
Source: Michelin Universal Registration Document

Figure 21. Global tyres sales volume (in BN units)



Source: Smithers

Figure 22. Global Tyre Market Share



Source: Tire Business − Global Tire Company Rankings, 2019

Asia Pacific economic expansion provides positive outlook for demand

The Global Tyre Industry growth is expected to be highly influenced by the mature and traditionally technologically advanced markets, such as the United States and Europe. However, economic development in the Asia Pacific Region, primarily China and India, is anticipated to hold a major influence in future year by providing lower production costs, lower regulation, high investment in innovation and an enhanced customer base for tyre manufacturers.

Market protected by no close substitutes

Consumer preferences are moving towards more ecological vehicles and car-sharing mobility, because of cultural and lifestyle changes. Nevertheless, demand for tyres is shielded due to the crucial role tyres have as a component of social cultural changing trends.

Technological Innovation to Provide Momentum

Investment and advancements in the tyre manufacturing technology are expected to drive the global market demand by making the tyres more durable and enhancing their performance and safety features. The development of synthetic rubber has allowed to reduce the dependence on the natural rubber, contributing to significant advantages in terms of strength and abrasion resistance. Nanotechnology is used to reduce the rate of wear and tear of tires, allowing the tyres to function in an extensive range of temperatures. The introduction of the “discolor tyre”, a tyre that turns orange when the tear of tyre wears down to the lowest safety level, could impact and change the industry, since this colour recognition procedure provides additional safety to customers (Figure 23). In addition, the Run-Flat tyre technology (RFT), which allows drivers to continue to drive after a puncture (Figure 24), is also contributing to increase drivers’ safety, thus increasing their willingness to buy new tyres.

Sustainability and Environmental awareness shape the future

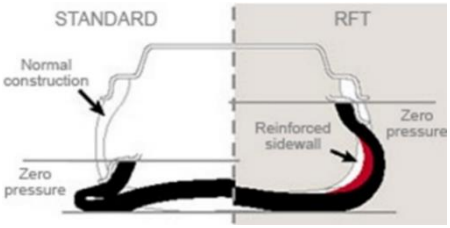
Manufacturing tyre process involves the use of many chemicals, leading to potential environmental hazards. Companies are making efforts to incorporate bio-based materials into the raw materials without losing efficiency and performance of the tires. In addition, efforts have been made towards the decrease in waste from dismantling and recycling of end of life vehicles (ELVs) and production more environmentally friendly.

In response to the demand of car manufacturing clients, the tyre producers make regular improvement on the rolling resistance of their products, energy lost when a tire rolls against the road surface. Lowering the rolling effort of the tire leads to reduce fuel consumption (increase fuel efficiency), which is the direct cause of CO2 emissions. Nokian Tyres has reduced rolling resistance by 8% on average in the period between 2013 and 2019.

Figure 23. Discolor Tyre

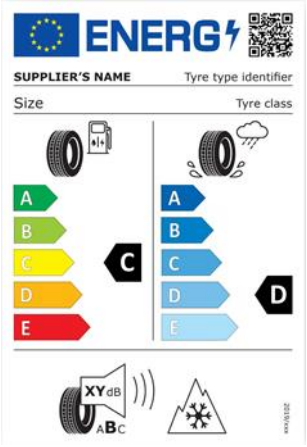
Source: Yanko Design

Figure 24. RFT and Standard Technology



Source: Bridgestone

Figure 25. Mandatory label tyre sticker



Source: European Commission

Higher Regulatory requirements improve transparency

An increasing regulation and transparency over the last 10 years towards safety concerns. Requirements regarding tyre labelling such as the European Regulation (EC) No 1222/2009 (Figure 25) allow for comparison between different tyres on measures like performance, fuel efficiency and noise. Regulatory requirements make it harder for low cost competitors to penetrate and survive on the market.

Key Drivers

As mentioned previously, tyre sales can be divided into two segments, Original Equipment and Replacement Tyres. The OE segment, as a crucial component of newly supplied vehicles, is expected to follow the overall trend of the motor vehicles sales. From 2015YE to 2019YE global demand for automobiles grew at 0.47% CAGR (Figure 26), mainly driven by emerging markets, where countries like China have experienced a growth of 24.87% CAGR from 2005YE to 2019YE (Figure 27). Despite the positive CAGR in the period under analysis, 2019 marked the end of 10 years of continuous growth with a decline of more than 5% in world auto production (down to 91.4 million vehicles).

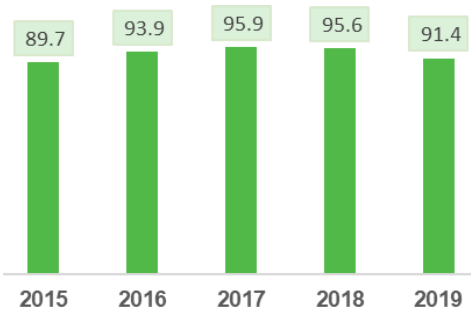
On the other hand, the most important factors that drive the RT sales are related to the number of vehicles in use (fleet size), the average annual vehicle mileage, the life expectancy of tyres (usage patterns), price and the weather when considering winter tyres. Global car fleet in circulation is following a similar growth trend as the one observed in the automotive global demand, which is forecasted to grow at a 1.58% CAGR (Figure 28). Higher income levels and expanding economic are responsible for the increase in average annual vehicle mileage, which leads to a decrease in the life expectancy of tyres caused by the increase wear and tear of tyres, boosting tyre replacement rates. However, improvements in rubber quality and better road conditions will offset the decrease in the life expectancy of tyres, 30,000 km for automobiles tyres (Table 8), leading to a decrease of the replacement turnover and making it necessary to replace tyres on average every 22 months.

The main drivers of costs are natural rubber and synthetic rubber. Natural rubber is obtained through rubber trees, which requires warm climates. While, synthetic rubber can be produced from petrochemical feedstock with crude oil as the main input. Accordingly, an increase in the oil price leads to more costly synthetic rubber, which increases demand for natural rubber and makes it more expensive.

Peer Analysis

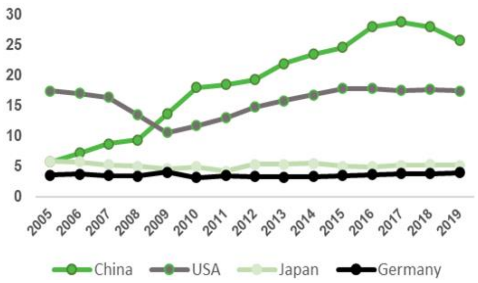
The companies more representative of the Tyre and Rubber Industry, ranked by market share and size, are: (1) Michelin, (2) Bridgestone, (3) Goodyear, (4) Continental, (5) Sumitomo, (6) Pirelli and (7) Hankook (Figure 22). In 2004YE, the main 3 tyre manufacturers (Bridgestone, Michelin and Goodyear) accounted for 54% of the total market share (Figure 29), whereas in 2019YE the industry top 3 players

Figure 26. World Motor Vehicle Sales (in million units)



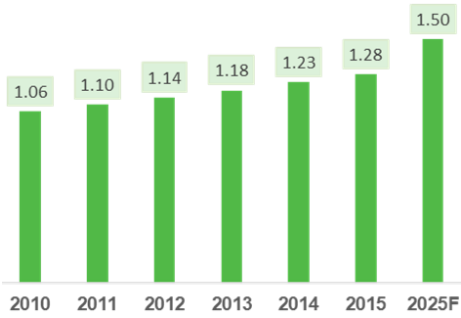
Source: The international Organization of Motor

Figure 27. Motor Vehicle Sales in selected countries (in million units)



Source: The international Organization of Motor

Figure 28. World vehicles in use (in billion units)



Source: The international Organization of Motor

market share decreased to 37.8% (Figure 30), due to the entry of new players from emerging countries, as a result of an Asia and Pacific economic expansion. The traditional players are investing in a product differentiation strategy, focusing on brand recognition, product quality and safety. This leads to a loyal customer base through more reliable and above-average products, which is reflected into a corresponding ASP 31% higher than Low Cost companies (Table 9). Therefore, to protect gross margins of 30%, traditional players are moving towards the premium segment of tyres, where product quality is in high demand.

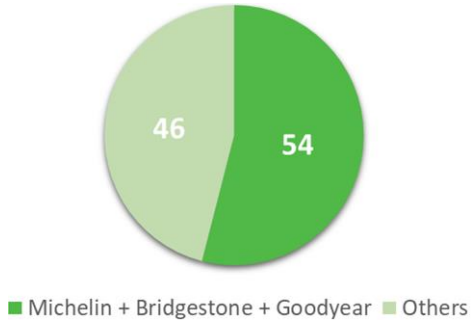
By opposition, the low-cost players follow a cost efficiency strategy, which allows them to deliver the product at an ASP of € 58 and still be profitable. Gross margins of 21.9% are established trough a light cost structure. Activities based on emerging economies allow labour expenditures to be lower. Additionally, Asian companies tend to produce tyres with a smaller percentage of natural rubber, thus more synthetic rubber, at the expense of the overall product quality.

Table 8. Average expected life of a tyre

	US	China	Brazil	Europe
Road condition Ponderator	100%	100%	80%	100%
Mid-range life expectancy (km)	30000	30000	24000	30000
Average km driven per year per vehicle	21700	19000	10000	15000
Tyre life expectancy (years)	1.38	1.58	2.40	2.00

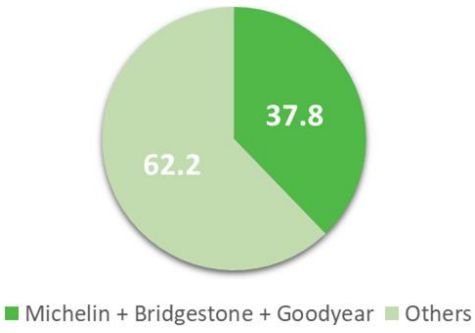
Source: Bryan Garnier & Co, Student Computations

Figure 29. Industry top 3 players market share in 2004 (%)



Source: Companies data

Figure 30. Industry top 3 players market share in 2019 (%)



Source: Companies data

Porter's Five Forces (Figure 31)

Competition within the industry (High)

Moderately concentrated industry, with top 5 market companies having a concentration ratio of roughly 50%. Low levels of product differentiation, within each segment, translates in competition on prices. Companies are now trying to gain advantage over competitors by investing in other parameters such as performance, reputation, safety, and customer service. Decreasing operating margins due to the competitive environment and growing influence of low-cost Asian competitors, means the industry profitability is dependent on input prices. Industry sales are expected to grow at a slower pace when compared to the historical values, leading the market players to be more aggressive to gain market share, which contributes for the overall high level of competition within the industry.

Bargaining Power of Buyers (Moderate)

Contractual agreements for OEM's influence positively the bargaining power of suppliers. Not only the price of tires remains stable, irrespectively of market price, but also OEM´S are able to negotiate prices due to their scale. Additionally, on the RT market, large retail chains can put pressure to lower prices when buying in larger quantities. However, dispersed small size buyers cannot achieve such bargaining power. Overall, buyers do not have viable substitute products to tyres, but low switching costs makes it easy for them to change between different tire brands, resulting in a moderate bargaining power.

Bargaining Power of Suppliers (High)

The manufacturing and processing of both natural and synthetic rubber is dominated by few large world players. Hence, the existence of cartels for natural rubber and

petroleum such as OPEC, translates in higher bargaining power of suppliers. Tyre production is highly sensitive to price fluctuations of rubber and other petroleum derivatives since it is dependent on large amounts of those raw materials. To mitigate the dependence on few providers of raw materials, some manufactures started to perform backward integration, as in the case of Goodyear, where the company produces some percentage of its rubber needs. Accordingly, this leads to a high bargaining power of suppliers.

Table 9. Comparison of retail prices of replacement tyres - 2017 (EUR inclu. VAT)

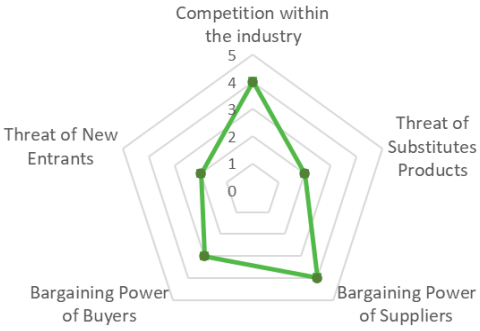
	Low Price	High Price	Average Price
Historical Brands	60	122	76
Asian low-cost brands	46	74.00%	58
Gap	30.80%	66.30%	32.60%

Source: Bryan Garnier & Co

Threat of New Entrants (Low)

The industry has high barriers to entry. In general terms, most tires are relatively undifferentiated, meaning that companies to be profitable, need to produce in large quantities to achieve economies of scale. High capital expenditures are required, so it is challenging 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. Brand recognition makes it difficult to enter in the market with an unknown product, contributing to a low threat of new entrants.

Figure 31. Porter's 5 Forces



Source: Student Computations

Threat of Substitutes Products (Low)

There are no viable substitutes for tires. However, it is necessary to take in consideration that a higher environmental awareness could lead individuals towards the usage of public transportation, which would affect the number of vehicle usage, leading to a respective decrease in demand for tires. Counterfeit tires small market share and low expectations of growth do not represent a significant threat to the industry.

Industry SWOT Analysis

The tyre and rubber industry is a mature industry that does not seem to suffer great changes during decades. The industry is characterized by high economies of scale, countless capital spilled on technology and the lack of substitutes, which prevent less experienced players to enter the market. The global trend of emerging markets growth and infrastructures development, the electrical cars and even safety regulations are opportunities on a reinsuring future for the organisations. Due to a highly competitive industry environment, arising from low product diversification and significant exit barriers, profitability margins tend to be low. The current industry profitability levels can be impacted by higher regulatory pressures and legal requirements derived from growing global environmental awareness. In addition, the double effect of oil, both as a key driver for car usage and as raw material input for synthetical rubber and, constitutes a threat to the industry.

6. Investment Summary

Following an in-depth analysis, we issue a BUY recommendation with a target price of €31.15/sh for Nokian Tyres at 2020YE (Table 10). This valuation represents an upside potential of 18.02% when compared with the company share price of €26.39/sh at 30th of October of 2020, with a medium risk assessment.

Nokian Tyres has a niche strategy in the global market, focusing mainly on the high-margin winter tires market, being able to have a competitive edge in the production of winter tires and having established a strong brand around Europe and Russia winter tires markets.

Table 10. DCF model - FCFF method

DCF - Price Target	EUR million
Enterprise Value	4,231.6
Net Debt	-
Excess Cash	95.3
Equity Value	4,326.9
Share Outstanding	138.9
Equity Value per Share	31.15
Price on 31st Dec. 2020	31.15
Price on 30th October. 2020	26.39
Upside Potential	**18.02%**

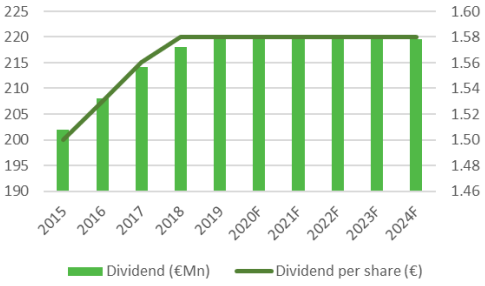
Source: Author

Earnings Forecast

The Company has a solid track-record of annual growth in earnings and dividends. Dividend per share has increased from €1.50/sh in 2015YE to €1.58/sh in 2019YE and is expected to remain at the 2019YE value during the forecasted period. Total dividend amount increased from €202Mn in 2015YE to €219.5Mn in 2019YE, reflecting an increase of the number of shares outstanding from 134.4 Mn to 138.Mn.

In terms of the earnings per share (EPS), it has increased from €1.79/sh in 2015YE to €2.88/sh in 2019YE. The abnormal increased verified in 2019YE is explained by the returned €115.2 Mn punitive interest related to previous fiscal years tax disputes, which contribute to an abnormal increase in Net Profit Earnings. During the forecasted period, EPS are expected to decrease in 2020F, and from then onwards to grow at 3.80% CAGR.

Figure 32. Dividend per share and total dividend distributed

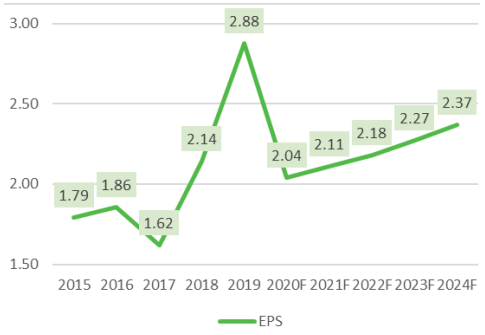


Source: Author

Valuation Methodologies

The €31.15/sh price target was estimated using the Discount Cash Flow Model and the Free Cash Flow to the Firm (FCFF) method. Other valuation models were also computed to give other perspectives on the company value, including the Free Cash Flow to Equity (FCFE) method, Adjusted Present Value (APV), Dividend Discount Model (DDM) and a market based valuation through the use of multiples from a selected peer group.

Figure 33. Earnings per Share (EPS in €)



Source: Author

Investment Risks

Based on the conducted risk analysis, we classified Nokian Tyres has a medium risk investment. This classification is supported by the detailed risk assessment done in chapter 9, regarding market, financial, operational, strategic, reputation and regulatory risks. The company is subject to numerous risks and despite developing rules of conduct and offset strategies, it is not able to prevent all the risks due to uncertainty factors. Regarding the price target, sensitivity analyses were developed which supported the BUY recommendation.

7. Valuation

To value Nokian Tyres, two approaches of valuation were used to compute the equity value of the Company: an absolute valuation and a relative valuation. Regarding the first approach, absolute valuation, three different models were considered: Discounted Cash Flow Model (DCF), Dividend Discount Model (DDM) and the Adjusted Present Value Model (APV). In terms of the relative valuation, it was used the Market-Based Valuation based on 3 multiples of a selected peer group.

Our BUY recommendation is based on the DCF model and Free Cash Flow to Firm method since it was the one who seemed more reliable, representing the total amount of cash flow from operations available for distribution after taxes, Depreciation and Amortization, Capital Expenditure and changes in the Net Working Capital.

Forecast Analysis

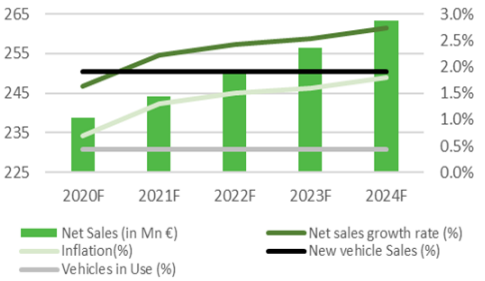
Net Sales

Nokian Tyres Net Sales can be divided into Market Regions or Business Units. To forecast the Net Sales for the period between 2020F to 2024F, it was used the division by geographical areas, since the public information regarding the company business units was very limited. From aggregation of the forecast of each individual market region, total forecasted net sales were calculated.

Nokian Tyres focus its activity on the replacement tyre market, meaning that the key drivers of volume sales should be both the number of vehicles in use (fleet size) and replacement cycles, influenced by the average annual vehicle mileage and the life expectancy of tyres (usage patterns). The growth in the replacement cycles was assumed to be zero because the increase in miles driven will be offset by rising tire quality. In addition, 70% of the company' net sales are winter tyres, which are highly correlated to the new car sales, since in major winter tyre markets, when people buy new cars, they also buy a set of new winter tyres because the car does not come with winter tyres. Therefore, the estimation of the net sales growth by market area was computed using the same methodology for the different regions: the average selling price will grow at the IMF's forecasted region's inflation rates and the volume of tyres sales will increase by the average historical increase in the sales of new vehicles (1/3) and the average historical increase of the number of vehicles in use (2/3), following the company information.

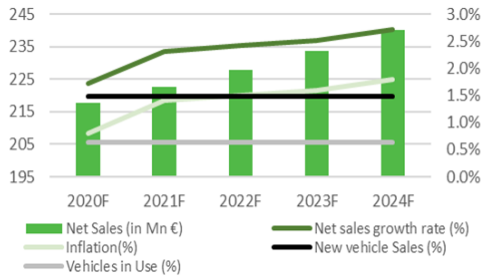
Finland Net Sales are expected to grow at a CAGR of 2.31% from 2019YE to 2024F, with inflation rate being on average 1.4%, a 1.9% growth of new vehicles sales and a 0.4% average growth of vehicles in use (Figure 34). **Sweden** Net Sales are expected to grow at a CAGR of 2.34% from 2019YE to 2024F, with inflation rate

Figure 34. Finland Net Sales Forecast



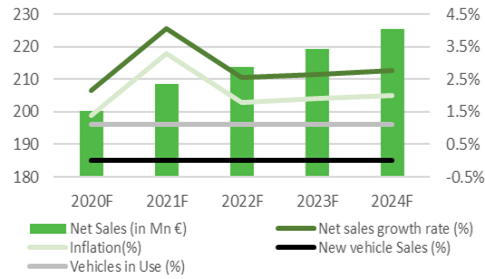
Source: Author

Figure 35. Sweden Net Sales Forecast



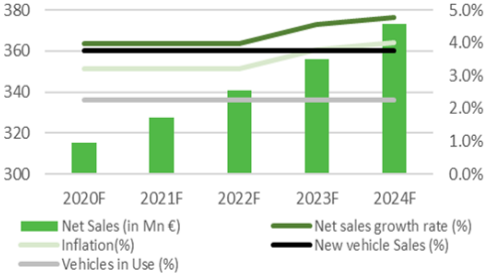
Source: Author

Figure 36. Norway Net Sales Forecast



Source: Author

Figure 37. Russia Net Sales Forecast

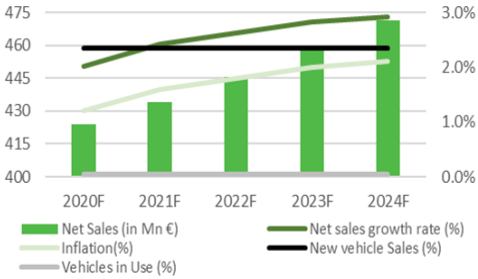


Source: Author

being on average 1.4%, a 1.5% growth of new vehicles sales and a 0.6% average growth of vehicles in use (Figure 35). **Norway** Net Sales are expected to grow at a CAGR of 2.83% from 2019YE to 2024F, with inflation rate being on average 2.1%, zero growth of new vehicles sales and a 1.1% average growth of vehicles in use (Figure 36). **Russia** Net Sales are expected to grow at a CAGR of 4.25% from 2019YE to 2024F, with inflation rate being on average 3.5%, a 3.8% growth of new vehicles sales and a 2.3% average growth of vehicles in use (Figure 37). **Other Europe** Net Sales are expected to grow at a CAGR of 2.60% from 2019YE to 2024F, with inflation rate being on average 1.7%, a 2.4% growth of new vehicles sales and a 0.1% average growth of vehicles in use (Figure 38). **North America** Net Sales are expected to grow at a CAGR of 4.27% from 2019YE to 2024F, with inflation rate being on average 1.8%, a zero growth of new vehicles sales and a 0.7% average growth of vehicles in use (Figure 39). **Other Countries** Net Sales are expected to grow at a CAGR of 3.74% from 2019YE to 2024F, with inflation rate being on average 2.1%, a negative 0.6 growth of new vehicles sales and a 2.8% average growth of vehicles in use.

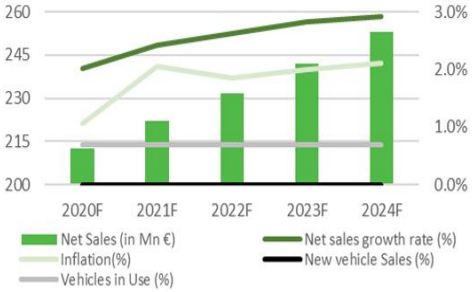
Overall, Nokian Tyres Net Sales are expected to grow at a CAGR of 3.11% from 2019YE to 2024F (Figure 40).

Figure 38. Other Europe Net Sales Forecast



Source: Author

Figure 39. North America Net Sales Forecast



Source: Author

Cost of Sales

Over the historical period observed from 2015YE to 2019YE, the Cost of Sales as a percentage of Net Sales was constant, fluctuating from 52% to 57% in 2019YE. Therefore, it was assumed a constant 54.2% ratio between Net Sales and Cost of Sales, computed as the historical 5-year average ratio.

In 2019YE, **Raw materials** costs accounted for 38.9% of cost of sales and are expected to slightly decrease in 2020F. The price of vehicle tyres is mostly driven by the individual raw materials prices, being natural rubber, the main raw material consumed (Figure 41). According to Marisa Lifschutz, a lead industry analyst at research firm IBISWorld, the world price of rubber is expected to increase at 2% YoY over the next five years (2020-2025).

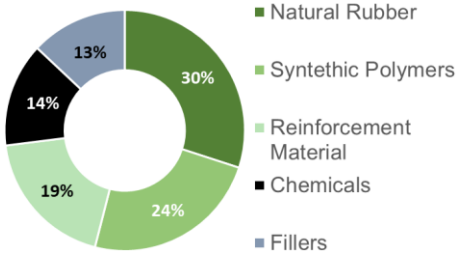
Figure 40. Net Sales and Cost of Sales (in Mn€)

Source: Author

Capital Expenditures (CapEX)

In the last 3 years, the company has more than double its gross investments from €134.9 Mn in 2017YE to roughly €300 Mn in 2019YE. The main reason behind the massive increase in CapEX was the development of 3 main projects: Dayton factory construction, $360 Mn, test center in Spain, around €60 Mn; and the heavy tires manufacturing expansion in Finland, about €70 Mn. During the forecasted period, the CapEX is expected to decrease to an average of €200Mn, in accordance with the Company expectations (Figure 42). In terms of the maintenance CapEX, it is expected to be on a level of €125Mn during the forecasted period, increasing from the €100Mn during the historical period.

Figure 41. Value of raw material consumption



Source: Company

Depreciation and Amortizations (D&A)

D&A is anticipated to follow the increase in CapEX, being separated by item: Property, Plant and Equipment (PP&E) and Other Intangible Assets. For both items, it was considered the historical 5-Year average of the depreciation rate as percent of Net PP&E and Intangible Assets, meaning a D&A rate of 13.2% for PP&E and 28.0% for Other Intangible Assets for 2020F-2024F (Figure 43).

Research and Development (R&D)

R&D costs are anticipated to grow at a CAGR of 5.74% during the forecasted period, leveraging the investments in the new heavy tyres R&D center in Filand and in the new test center in Spain, which will contribute to accelerate the testing phase of new tyre models (Figure 44). Innovation and the development of new products is the core of the company, with approximately 50% of R&D investments allocated to product testing.

Net Working Capital (NWC)

During the historical period, NWC has increased from €460Mn in 2015 to €696.2Mn in 2019YE. The level of **Inventories**, which was estimated using a historical 3-year average inventory turnover, is expected to increase in the forecasted period due to less favourable market conditions. During 2019, **Receivables** accounted for an increase of roughly €80Mn, as the Russian market declined. In 2020F, it is estimated a decrease of €30Mn and afterwards to increase by the historical 5-Year average of trade and other receivables as percentage of net sales. **Payables** had a volatile behaviour in historical years and are expected to increase at the historical 5-Year average of trade and other payables as percentage of cost of sales. All in all, NWC is anticipated to decrease in 2020F and to increase thereafter, reaching the €733.4 Mn in 2024F.

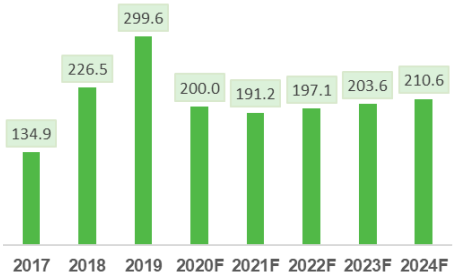
Debt

Nokian Tyres has not issued any bonds during the historical period and currently has no credit ranking. In 2019 the company signed a €100 million loan agreement and it is not expected to issue bonds during the forecasted period. The average interest rate of interest-bearing financial liabilities was 2.4%. Gross debt values are estimated to be constant during 2020F-2024F, meaning the continuation of the negative net debt historical trend due to high cash and cash equivalents levels.

Discounted Cash Flow Valuation (DCF)

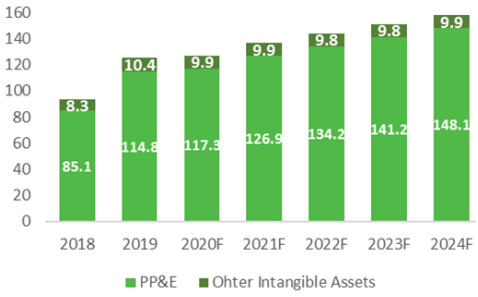
The period considered for the valuation was from 31st December 2020 to 31st December 2024, a 5-year forecast with a Terminal Value calculated afterwards.

Figure 42. Capital Expenditures (in €Mn)



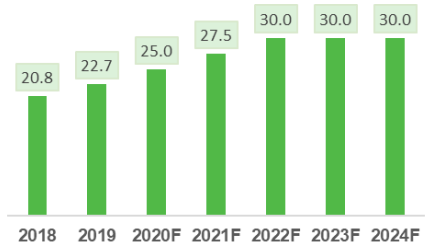
Source: Author

Figure 43. D&A by item (in €Mn)



Source: Author

Figure 44. R&D Costs (in €Mn)



Source: Author

Figure 45. Cash, Debt and Net Debt (in €Mn)

Source: Author

Capital Structure

The company capital structure is exclusively formed by Equity since we must consider net debt and not gross debt for the equity to debt ratio (E/D) and debt to equity ratio (D/E), meaning a 100% E/D ratio and a 0% D/E ratio. As previously mentioned, the gross debt value is assumed to be constant during the forecasted period, which translates in constant negative net debt values from 2020F to 2024F. In terms of valuation, when net debt is negative, we use net debt = 0 and consider the excess cash as we would in using gross debt, adding to the present value of free cash flows.

Cost of Equity (R[E])

The Cost of Equity was estimated using the Capital Asset Pricing Model (CAPM). The **risk-free rate R[F]** used for the forecasted period was 0.17%, which resulted of the average between the yield of the 10-year U.S. Treasury Bonds and the yield of the 10-year Germany Government Bonds measured at the November 11th of 2020. Regarding the Terminal value risk-free rate of 0.76%, it was used the average yield of the 30-year Government Bonds.

The **Levered Beta ß(e)** was computed using a regression of Nokian tyres share monthly returns on the OM Helsinki_PI index market monthly returns for a period of 10 years, which resulted in a ß(e) of 0.93, meaning the company is less riskier than the market.

In terms of the **Market Risk Premium (MRP)** and **Country Risk Premium (CRP)**, the global presence of the company was analysed and taken into consideration by considering the MRP and CRP for each market area based on Aswath Damodaran's calculations as of January 2020. Nokian Tyres Market Risk Premium of 6.50% (Table 13) and Country Risk Premium of 1.27% (Table 12) were derived from the relative weight of each market area on the company Net Sales.

Lastly, the **cost of equity** can be computed by multiplying the **ß(e)** and the **MRP,** and then adding the **CRP** and the **R[F].** For the forecasted period and the Terminal Value, it was considered a 7.36% and 7.95% **R[E])**, respectively.

Cost of Debt (R[D])

Despite Nokian Tyres not having a positive net debt in the observed historical period, the Cost of Debt was estimated because if it was necessary it could be used for the Terminal Value and for the APV Method. Two approaches were considered, the first one was relative to the interest rate by dividing the Interest Expense over Gross Debt meaning a 5.62% cost of Debt. The second approach, and the one used in the valuation, was the credit spread computation by taking into consideration the risk-free rate, the company default spread, and the country default spread. The **R[F]** was already previously computed, the **country default spread** was calculated using the same methodology of the CRP and MRP computations, which translated into a value

Table 11. Cost of Equity

Cost of Equity	2020F - 2024F	Terminal Value
Risk Free Rate R[F]	0.17%	0.76%
Beta levered ß(e)	0.9	0.9
Market Risk Premium (MRP)	6.50%	6.50%
Country Risk Premium (CRP)	1.27%	1.27%
Cost of Equity R[E]	7.36%	7.95%

Source: Author

Table 12. Country Risk Premium

Market Area	% of Net Sales	Country Risk Premium
Finland	16.6%	0.6%
Sweden	14.6%	0.0%
Norway	12.7%	0.0%
Russia	17.5%	3.2%
Other Europe	26.0%	2.3%
North America	11.7%	0.0%
Other Countries	0.8%	0.5%
Nokian Tyres	**100.0%**	**1.27%**

Source: Author

Table 13. Market Risk Premium

Market Area	% of Net Sales	Market Risk Premium
Finland	16.6%	5.8%
Sweden	14.6%	5.2%
Norway	12.7%	5.2%
Russia	17.5%	8.5%
Other Europe	26.0%	7.5%
North America	11.7%	5.2%
Other Countries	0.8%	5.7%
Nokian Tyres	**100.0%**	**6.50%**

Source: Author

Table 14. Cost of Debt

Cost of Debt	2020F - 2024F	Terminal Value
Risk Free Rate R[F]	0.17%	0.76%
Default Spread (Country)	1.01%	1.01%
Default Spread (Company)	0.76%	0.76%
Cost of Debt R[D]	1.94%	2.53%

Source: Author

of 1.01% and **Nokian's default spread** of 0.76% was obtained using Aswath Damodaran's (2018) synthetic rating estimator after the estimation of the company interest coverage ratio of 36.0 (Appendix 16). Finally, the Cost of Debt value, of 1.94% for the forecast period and 2.53% for the Terminal Value, was computed by adding the risk-free rate, country default spread and Nokian's default spread (Table 14).

Table 15. WACC Summary Computations

WACC	2020F	2021F	2022F	2023F	2024F	Terminal Value
Cost of Equity R[E]	7.36%	7.36%	7.36%	7.36%	7.36%	7.95%
After-ta cost of debt R[D]'	1.6%	1.6%	1.6%	1.6%	1.6%	2.0%
Weight of Equity	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Weight of Debt	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%
Pre-ta WACC R[U]	7.36%	7.36%	7.36%	7.36%	7.36%	8.0%
WACC	**7.36%**	**7.36%**	**7.36%**	**7.36%**	**7.36%**	**7.95%**

Source: Author

Weighted average cost of capital (WACC)

After the computation of the capital structure, cost of equity and cost of debt, the WACC can be calculated and it is used to discount the Free Cash Flow to the Firm (FFCF Method). Since the capital structure of Nokian Tyres is 100% Equity, only the cost of equity will impact the WACC. A 20% **marginal tax rate** is assumed for the forecasted period, in accordance with the company estimates and Deloitte computations for Finland. In conclusion, a 7.36% and 7.95% WACC was used to discount the FCFF of the forecasted periods and Terminal Value, respectively (Table 15).

Table 16. FCFF Enterprise Value

Enterprise Value	EUR million
Terminal Growth Rate	1.90%
Perpetuity WACC	7.95%
Terminal Value	4,242.5
PV of Terminal Value	3,123.6
PV of FCFF	1,108.0
Enterprise Value	**4,231.6**

Source: Author

Terminal Value Assumptions

The Terminal Value (TV) was estimated by using the Gordon's Growth Model to compute a 1.9% growth rate in perpetuity, assuming a perpetual dividend growth rate and a constant rate of return over time. In terms of the Terminal WACC, it was already explained the computed value of 7.95% and the forecasted reinvestment and payout ratio can be consulted in appendix 17.

Table 17. FCFF – Price Target

FCFF- Price Target	EUR million
Enterprise Value	4,231.6
Net Debt	-
Excess Cash	95.3
Equity Value	4,326.9
Share Outstanding	138.9
Equity Value per Share	31.15
Upside Potential	**18.02%**

Source: Author

Free Cash Flow to Firm

Through the FCFF method, and using the previously calculated assumptions, we compute an enterprise value of €4,231.6 Mn by discounting and adding the FCFF's from the forecasted period (2020F – 2024F) and the Terminal Value using the Weighted average cost of capital (see appendix 18 for computations). The equity value of €4,326.9 Mn is then derived from the enterprise value by subtracting the net debt, which in this case is zero. However, we must sum the excess of cash of €95.3 Mn used to equal net debt to zero. Finally, the estimated Equity Value is divided by the outstanding 138.9 Mn shares, leading to a target price of €31.15/sh for 2020YE, meaning that Nokian's Share value is currently undervalued (Table 17).

Table 18. FCFE - Price Target

FCFE- Price Target	EUR million
Equity Value	3,997.8
Share Outstanding	138.9
Equity Value per Share	28.78
Price on 31st Dec. 2020	28.78
Price on 30th October. 2020	26.39
Upside Potential	**9.05%**

Source: Author

Free Cash Flow to Equity

The FCFE method was computed to value Nokian Tyres by assessing its net borrowing. However, since it is assumed that the company is not borrowing more money in the forecasted period, the only difference between the FCFF and the FCFE will be the use of Net Income values instead of EBIT (1-tc). To compute the FCFE, the cost of equity was used to discount all Free Cash Flows, reaching an equity value

of €3,997.8 Mn and a price target of €28.78/sh with an upside potential of 9.05%, which gives an HOLD recommendation (Table 18).

Adjusted Present Value (APV)

The APV method was also computed since it represents the Net Present Value (NPV) of a company if it was only financed by equity plus the Present Value of any financing benefits such as the value of interest tax shield.

Firstly, it is necessary to compute the unlevered enterprise value, meaning that we need to estimate the **unlevered cost of capital R[U]** by adding the previously calculated risk-free rate to the result of the multiplication between the Market Risk Premium and the unlevered Beta. The unlevered Beta can be obtained by the following formula:

$$\text{Unlevered beta (asset beta)} = \frac{\text{Levered beta (equity beta)}}{\left(1+\frac{(1-\text{tax rate})*\text{Debt}}{\text{Equity}}\right)}$$

However, since the Debt to Equity Ratio (D/E) is zero, the unlevered beta is equal to the levered beta which is 0.93 (Table 19). Therefore, the **R[U]** was estimated to be 6,19% for the 2020F-2024F period and 6.78% for the Terminal Value. Afterwards, the previously computed FCFF are discount at calculated unlevered cost of capital, leading to an unlevered enterprise value of €6,142.7 Mn (Table 20). Equity value of €6,190.7 Mn is computed by adding the Present Value of the Interest Tax Shield and subtracting the net debt. APV price target is €44.57/sh, representing an upside potential of 68.88%, which also supports the BUY recommendation (Table 20) but is not a reliable figure.

Dividend Discount Model (DDM)

Given Nokian Tyres historical behaviour on payout ratios, it was assumed a constant payout ratio for the forecasted period and computed the Dividend Discount Model. The estimated DDM price target is €26.48/sh, reflecting an upside potential of 0.32%, which gives a REDUCE recommendation (Table 21).

Market-Based – Multiples Valuation

To compute a Multiples Valuation, it was necessary to define two enterprise-value multiples and one equity-value multiple: EV/Sales, EBTIDA/Sales and P/E. After the selection of the multiples, it was selected the peer group, which consisted of 5 companies present in the tyres and rubber industry, with similar margins and market position (Table 23). The median of the three multiples of the peer group companies was calculated to be able estimate Nokian Tyres target price based on a relative valuation.

Table 19. Unlevered cost of capital

Unlevered Cost of Capital	2020F - 2024F	Terminal Value
Risk-Free Rate R[F]	0.17%	0.76%
Beta levered ß(e)	0.9	0.9
Beta unlevered ß(u)	0.9	0.9
Market Risk Premium (MRP)	6.50%	6.50%
Weight of Debt	0.00%	0.00%
Unlevered Cost of Capital R[U]	6.19%	6.78%

Source: Author

Table 20. APV Price Target

APV - Price Target	EUR million
Unlevered Enterprise Value	6,142.7
PV (ITS)	48.0
Enterprise Value	**6,190.7**
Net Debt	0.8
Equity Value	6,191.5
Share Outstanding	138.9
Equity Value per Share	44.57
Price on 31st Dec. 2020	44.57
Price on 30th October. 2020	26.39
Upside Potential	**68.88%**

Source: Author

Table 21. DDM Price Target

DDM - Price Target	EUR million
Equity Value	3,678.0
Share Outstanding	138.9
Equity Value per Share	26.48
Price on 31st Dec. 2020	26.48
Price on 30th October. 2020	26.39
Downside Potential	**0.32%**

Source: Author

Table 22. EV/Sales Price Target

Mutliple: EV/Sales	MN EUR
EV/SALES PEERS	0.93
Nokian Tyres Sales	1,595.8
Nokian Tyres EV	1,489.41
Net Debt	41.2
Equity Value	1,448.2
No. of issued Shares	138.92
Equity Value per Share	10.4
Price on 31st Dec. 2020	10.4
Price on 30th October. 2020	26.39
Downside Potential	**-60.50%**

Source: Author

Table 23. Peer Group Selection

Comapny Name	Peer	EV/EBTIDA	EV/SALES	P/E
Nokian Tyres plc		**8.70**	**2.51**	**14.86**
Goodyear	NO	5.30	0.68	6.32
Continental AG	NO	5.56	0.76	1.54
Bridgestone	YES	5.38	0.88	11.63
Sumitomo Rubber Industries Ltd	YES	5.44	0.69	16.71
Yokohama Rubber	YES	6.60	0.93	9.52
Pirelli & C SpA	YES	7.64	1.76	19.97
Michelin	YES	5.10	0.97	11.12
Hankook	NO	4099.67	776.00	10.24
Average		**6.03**	**1.05**	**13.79**
Median		**5.44**	**0.93**	**11.63**

Source: MarketScreener

For the **EV/Sales**, the multiple median value of 0.93 led to a target price of €10.4/sh, representing a downside potential of -60.50% (Table 22). In terms of the **EV/EBITDA**, the multiple median value of 5.44 led to a target price of €17.1/sh, representing a downside potential of -35.27% (Table 24). Lastly, for the **P/E**, the multiple median value of 11.63 led to a target price of €23.3/sh, representing a downside potential of -11.70% (Table 25).

Overall, the market base valuation results do not seem to be reliable since we are comparing firms, which despite being the best peer companies are very different in comparison with Nokian Tyres, excluding the case of Pirelli, which seems to be the only true peer company.

Table 24. EV/EBITDA Price Target

Mutliple: EV/EBITDA	MN EUR
EV/EBITDA PEERS	5.44
Nokian Tyres EBITDA	443.5
Nokian Tyres EV	2,414.37
Net Debt	41.2
Equity Value	2,373.2
No. of issued Shares	138.92
Equity Value per Share	17.1
Price on 31st Dec. 2020	17.1
Price on 30th October. 2020	26.39
Downside Potential	**-35.27%**

Source: Author

Table 25. P/E Price Target

Mutliple: P/E	MN EUR
P/E PEERS	11.63
Nokian Tyres EPS	281.8
Nokian Tyres EV	3,278.51
Net Debt	41.2
Equity Value	3,237.3
No. of issued Shares	138.92
Equity Value per Share	23.3
Price on 31st Dec. 2020	23.3
Price on 30th October. 2020	26.39
Downside Potential	**-11.70%**

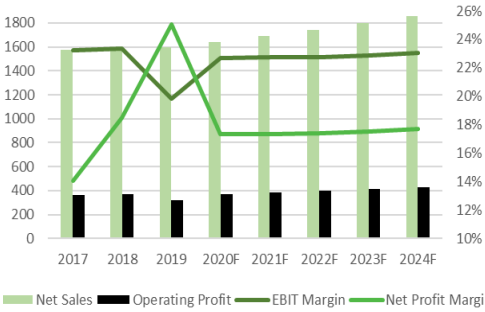
Source: Author

8. Financial Analysis

Focusing in the profitable Premium Segments

Nokian Tyres' **Net Sales** grew at 4.08% CAGR during the historical period between 2015YE and 2019YE. From 2019YE to 2024F, net sales are expected to grow at 3.11% CAGR, driven by the increase in the number of vehicles in use and new car sales. **Cost of sales** are historically quite stable, having a maximum variation of 4% as percentage of Net Sales. High net profit margins of around 17% to 18% are expected in the forecasted period due to the continuous investment in high profitable premium segments and the competitive advantage in the production of winter tires (Figure 46). In 2019YE, it was registered an impressive increase in the net income, which is however explained by the positive tax expense of €63.1 Mn, influenced by the returned €115.2 Mn punitive interest related to previous fiscal years tax disputes.

Figure 46. Net Sales (€Mn), Operating Profit (€Mn), Ebit Margin (%) and Net Profit Margin (%)

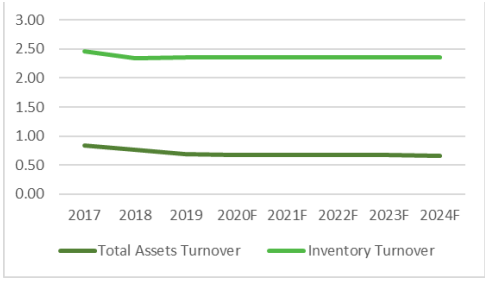


Source: Author

Stable Operational Efficiency

Total Assets Turnover and Inventory Turnover TATR) are expected to remain stable in the forecasted period, around 0.7 and 2.4, respectively (Figure 47). In 2018 and 2019, TATR recorded a small due to significant expansion CAPEX in new facilities expansion. Average collection period is anticipated to decrease from roughly 128 days in 2019YE, which was influenced by the increase in the Russian Market Receivables, to 118 days in the forecasted period, while payables period is expected to increase from 102 days in 2019YE to 109 days in 2020F and thereafter.

Figure 47. Total Assets and Inventory Turnover

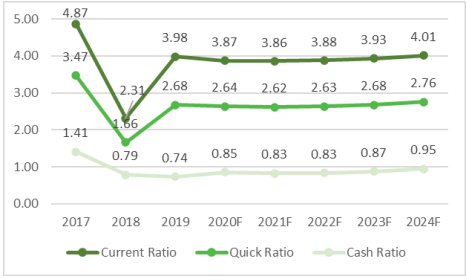


Source: Author

Continuous Favourable Liquidity Position

While observing in 2019YE a current ratio of 3.98, quick ratio of 2.68 and cash ratio of 0.74, the increase in cash after 2019YE will enhance these ratios to 4.01, 2.76 and 0.95 in 2024F (Figure 48). This demonstrates a high liquidity as Nokian Tyres can cover current liabilities by current assets and meet its short-term financial obligations. However, by holding large amounts of excess cash, it imposes high opportunity costs for the company.

Figure 48. Current, Quick and Cash Ratio.

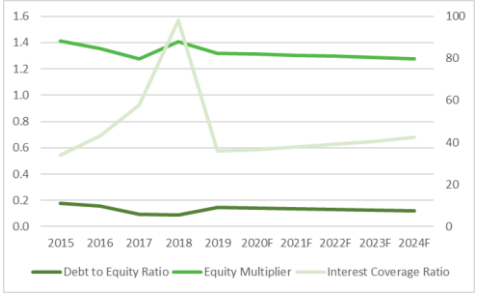


Source: Author

Strong Solvency in the Future

During the forecasted period, it assumed total debt to be constant at the 2019YE nominal value. An increase of net profit by 3.54% CAGR and total equity by 6.54% CAGR from 2015YE to 2024F and an increase of total liabilities by 1.88% CAGR, we expect a small decrease of the debt ratio from 17.7% in 2015YE to 11.8% in 2024F (Figure 49). Thus, a growing interest coverage ratio from 34.02 to 42.39 during the same period is consistent (Figure 49). Nokian Tyres reduced the level of financial risk and ensured future solvency by the ability to meet its long-term financial obligations.

Figure 49. Debt to Equity, Equity Multiplier and Interest Coverage Ratio

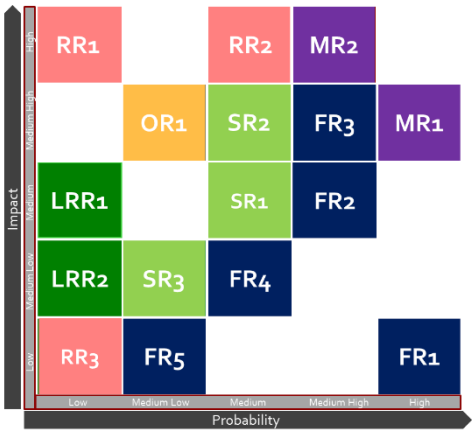


Source: Author

9. Investment Risks

Nokian Tyres' business and financial performance may be affected by significant risks, several uncertainties, and ongoing disputes. The company has adopted a risk management policy, which supports the achievement of strategic goals and ensures business continuity.

Figure 50. Risk Matrix



Source: Author

Market Risk | Raw material prices fluctuations (MR1)

In 2019YE, Raw materials costs accounted for 38.9% of cost of sales, being natural rubber the most significant raw material. Operating margins are negatively affected by raw material price increases since the companies do not have substitutes for the inputs.

Market Risk | Heavy expose to automobile industry (MR2)

Not only a decline on vehicles demand will impact revenues from cars manufactures but also the replacement market that heavily relies on national trends, such as consumer spending, fuel prices and local market variables.

Reputation Risk | Product Defects (RR1)

Nokian Tyres' success is correlated with its ability to innovate and develop new products and services. Despite extensive product testing, there is always the chance of product quality issues, compromising the performance and safety of the products, which could harm Nokian Tyres' reputation. Any recalls or defects will originate not only practical damages, litigation costs and replacement costs but will also have a huge impact on companies' reputation.

Reputation Risk | Supply Chain Reputational Risk (RR2)

Nokian Tyres natural rubber suppliers are in Indonesia and Malaysia. The company despite having policies and processes to monitor the working conditions, it cannot fully control the actions of its suppliers. The violation of laws, regulations, or standards by its suppliers, could have a material adverse effect on Nokian Tyres' reputation.

Reputation Risk | Corporate Social Responsibility risks (RR3)

Nokian Tyres' brand image is highly correlated to the way the company manages information security, data protection, and customer information.

Financial Risk | Foreign currency risk (FR1)

The Nokian Tyres Group is present in the world's major regions, being exposed to the possible changes in the base currency (EUR) against the quote currency (CAD,

CZK, NOK, RUB, SEK, UAH, USD). The company performs a sensitivity analysis for the foreign currency risk, considering a possible change of 10% base currency appreciation or depreciation against the quote currency. The exchange rate between Euro and Rouble is the one with higher impact, a €0.5Mn impact in the income statement if the base currency appreciates 10% and a negative €0.5Mn, otherwise.

Financial Risk | Transaction risk (FR2)

The group's transactions between the parent company and the foreign subsidiaries carry substantial transaction risk, which is carried by the parent company. Hedging instruments such as Currency forwards, currency options and cross-currency swaps are used for hedging the currency exposure of the subsidiary. In 2019, EUR to USD and EUR to RUB net exposure were -€26.5Mn and -€15.4Mn, respectively.

Financial Risk | Translation risk (FR3)

The group's financial statements result from the translation into EUR of the foreign subsidiaries financial statements by using the European Central Bank's closing rates. In 2019, the Group's total comprehensive income was positively affected by translation differences by €90.2 Mn, comparing to an impact of €-67.8 Mn in 2018.

Financial Risk | Interest rate risk (FR4)

The interest rate risk consists mainly of borrowing, which is divided in floating and fixed rate instruments, and it is managed by using interest rate derivatives. The company tests the sensitivity of the profit before tax through the impact of a change of 1% increase or decrease of the market interest rates. The estimated impact for 2019YE was that an increase of 1% of the interest rate would result in an increase in Equity of €4.5Mn and a decrease of €1.5Mn on the Income Statement.

Financial Risk | Credit risk (FR5)

Customers' trade receivables and deposits and derivative transactions with different banks and financial institutions are the main sources of the group exposure to credit risk. By only doing business with banks and financial institutions with high credit ratings, the exposure to credit risk is controlled. The country risk is also monitored, and credits are limited in countries where political or economic environment is unstable.

Strategic Risk | Macroeconomic and Geopolitical Risks (SR1)

The Group is subject to risks related to macroeconomic and geopolitical conditions. Nokian Tyres sales and credit risk can be negatively influence by political uncertainties, which could cause serious disruption and additional trade barriers.

Economic downturns may increase trade customers' payment problems, leading the company to recognize additional impairment losses of trade receivables.

Strategic Risk | Changing consumer needs (SR2)

New technologies and increasing digitalization are contributing to changes in the tire wholesale and retail landscape, which is continuously adapting to face changing consumer preferences. Climate-related demands for new tire technology such as requirements for non-renewable material replacements could drive the industry. Failure to adapt to this changing environment could lead to a decrease in Net Sales values.

Strategic Risk | Climate Change and Sustainability risks (SR3)

Climate change can influence the industry, such as changes in consumer tire preferences, regulatory changes, or impact of extreme weather events on natural rubber producers.

Operational Risk | Operations Disruptions (OR1)

Nokian Tyres' production is concentrated in Finland, Russia, and the United States. An unexpected interruption on the production or on the delivery at these facilities would have a negative impact on the company's business.

Legal and Regulatory Risk | Changes in regulation (LRR1)

New or revised laws, as the ones for labelling systems and regulations regarding tire performance, limit and change the scope of business activities, while raising operating costs. Overall, operating margins will struggle.

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

Heavy investments on R&D to improve the competitive position and to keep up the market innovations. On that regard, intellectual property is an important business resource and the risk of infringement on other company's property rights needs to be well managed to avoid compensatory damages and extra costs.

Sensitivity Analysis

In this section, different sensitivity analysis was performed to better understand the combined impact of certain inputs variables on the Discounted Free Cash Flow to Firm price target of €31.15/sh.

Terminal Growth and Perpetuity WACC

Firstly, it was computed a sensitivity analysis using the Terminal growth rate and the Weighted Average Cost of Capital in Perpetuity.

Table 26. Sensitivity Analysis - Terminal growth rate and WACC in perpetuity

Perpetuity WACC \ Terminal Growth Rate	31.15 €	0.9%	1.1%	1.3%	1.5%	1.7%	1.9%	2.1%	2.3%	2.5%	2.7%	2.9%
	6.70%	32.99	33.91	34.90	35.96	37.11	38.35	39.70	41.18	42.79	44.57	46.53
	6.95%	31.77	32.61	33.50	34.47	35.50	36.62	37.83	39.14	40.57	42.14	43.86
	7.20%	30.65	31.41	32.23	33.11	34.04	35.05	36.14	37.32	38.60	39.99	41.51
	7.45%	29.61	30.31	31.06	31.86	32.72	33.63	34.61	35.67	36.82	38.06	39.41
	7.70%	28.66	29.30	29.99	30.72	31.50	32.33	33.23	34.19	35.22	36.34	37.54
	7.95%	27.77	28.37	29.00	29.67	30.38	31.15	31.96	32.83	33.77	34.77	35.86
	8.20%	26.94	27.50	28.08	28.70	29.36	30.06	30.80	31.60	32.45	33.36	34.34
	8.45%	26.18	26.69	27.23	27.80	28.41	29.05	29.73	30.46	31.24	32.07	32.96
	8.70%	25.46	25.94	26.44	26.97	27.53	28.12	28.75	29.42	30.13	30.89	31.70
	8.95%	24.79	25.23	25.70	26.19	26.71	27.26	27.84	28.46	29.11	29.80	30.54
	9.20%	24.16	24.58	25.01	25.47	25.95	26.46	27.00	27.56	28.17	28.81	29.49

Source: Author

As observed in Table 26, the higher the Terminal Growth Rate is the higher will be the Price Target. On the other hand, since the Perpetuity WACC is used to discount the FCFF, the higher the Perpetuity WACC is the lower the Price Target will be. In conclusion, both variables create significant changes on the price target.

Market Risk Premium and Levered Beta

Given the significant changes caused by the Perpetuity WACC, it is important to analyse the impact on the price target generated by two of the WACC inputs: Market Risk Premium and Levered Beta.

Table 27. Sensitivity Analysis – Market Risk Premium and Levered Beta

Market Risk Premium \ Beta Levered	31.15 €	0.68	0.73	0.78	0.83	0.88	0.93	0.98	1.03	1.08	1.13	1.18
	4.00%	73.15	66.24	60.57	55.84	51.83	48.39	45.40	42.79	40.49	38.44	36.62
	4.50%	64.52	58.68	53.85	49.81	46.36	43.39	40.81	38.54	36.54	34.76	33.16
	5.00%	57.78	52.74	48.55	45.02	42.00	39.40	37.13	35.13	33.36	31.78	30.37
	5.50%	52.37	47.95	44.26	41.13	38.46	36.14	34.12	32.33	30.75	29.34	28.07
	6.00%	47.95	44.01	40.71	37.92	35.52	33.43	31.61	30.00	28.57	27.29	26.14
	6.50%	44.26	40.71	37.74	35.21	33.04	31.15	29.49	28.03	26.72	25.56	24.51
	7.00%	41.14	37.92	35.21	32.91	30.92	29.19	27.68	26.34	25.14	24.08	23.12
	7.50%	38.46	35.52	33.04	30.92	29.10	27.51	26.11	24.87	23.78	22.79	21.90
	8.00%	36.14	33.43	31.15	29.19	27.51	26.04	24.74	23.60	22.58	21.67	20.85
	8.50%	34.12	31.61	29.49	27.68	26.11	24.74	23.54	22.48	21.53	20.68	19.91
	9.00%	32.34	30.00	28.03	26.34	24.88	23.60	22.48	21.48	20.60	19.80	19.09

Source: Author

As observed in Table 27 , the lower the Beta Levered and the Market Risk Premium are the higher will be the Price Target. On the other hand, the higher the Beta Levered and the Market Risk Premium are the lower will be the Price Target. In conclusion, both variables create significant changes on the price target.

Risk-free rate and EBIT (1-tc)

In the two previous analyses, it was understood how the discount input affect the Price Target. It also important to understand how a change in the Terminal Value of EBIT after taxes could impact the Price Target.

Table 28. Sensitivity Analysis – Terminal Risk-free rate and EBIT (1-Tc)

Ebit (1-tc) \ Terminal Risk Free-Rate	0.26%	0.36%	0.46%	0.56%	0.66%	0.76%	0.86%	0.96%	1.06%	1.16%	1.26%
31.15 €											
568.72	58.41	57.34	56.32	55.33	54.38	53.46	52.57	51.70	50.87	50.06	49.28
518.72	53.45	52.49	51.57	50.68	49.82	48.99	48.19	47.42	46.67	45.94	45.23
468.72	48.50	47.65	46.83	46.03	45.27	44.53	43.82	43.13	42.46	41.81	41.19
418.72	43.54	42.80	42.08	41.39	40.72	40.07	39.45	38.84	38.26	37.69	37.14
368.72	38.59	37.95	37.33	36.74	36.16	35.61	35.07	34.55	34.05	33.57	33.10
318.72	33.63	33.10	32.58	32.09	31.61	31.15	30.70	30.27	29.85	29.44	29.05
268.72	28.68	28.25	27.84	27.44	27.06	26.68	26.33	25.98	25.64	25.32	25.00
218.72	23.72	23.40	23.09	22.79	22.50	22.22	21.95	21.69	21.44	21.20	20.96
168.72	18.77	18.55	18.34	18.14	17.95	17.76	17.58	17.40	17.24	17.07	16.91
118.72	13.81	13.70	13.60	13.49	13.39	13.30	13.21	13.12	13.03	12.95	12.87
68.72	8.86	8.85	8.85	8.84	8.84	8.84	8.83	8.83	8.83	8.82	8.82

Source: Author

As observed in Table 28, the lower the Terminal Risk-free rate is the higher will be the Price Target. On the other hand, the higher the EBIT (1-Tc) is the lower will be the Price Target. In conclusion, only the EBIT variable creates significant changes on the price target.

Monte Carlo Simulation

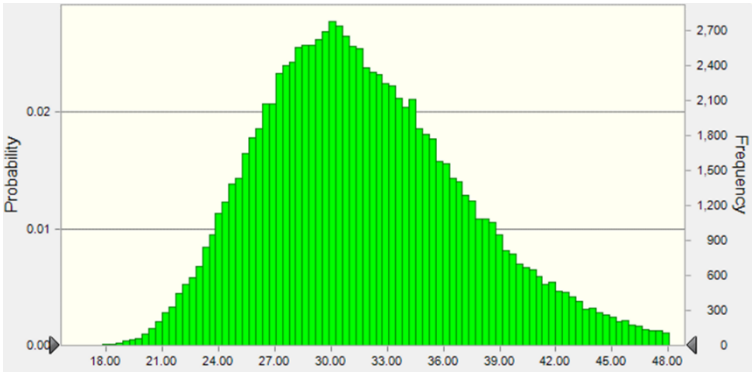
To perform a complementary sensitivity analysis, to further study the changes on the price target obtained from the DCF FCFF model, the Monte Carlo Simulation was executed in ORACLE Crystal Ball Software. The simulation was executed 100,000 times (Table 29), with seven variables being tested (Figure 52). The average Price Target obtained was €31.9/sh, supporting our BUY Recommendation, with a 20.88% upside potential.

Table 29. Monte Carlo Simulation Statistics

Statistic	Forecast values
Trials	100,000
Base Case	31.15
Mean	31.9
Median	31.2
Mode	-
Standard Deviation	5.76
Variance	33.22
Skewness	0.7755
Kurtosis	4.2
Coeff. of Variation	0.1807
Minimum	16.36
Maximum	80.08
Mean Std. Error	0.02

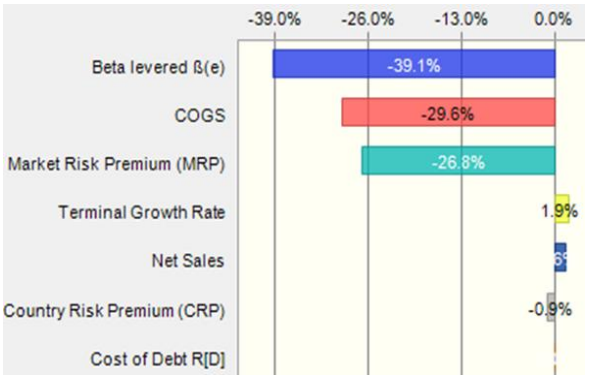
Source: Author, Crystal Ball

Figure 51. Monte-Carlo simulation on the Price Target.



Source: Author, Crystal Ball

Figure 52. Monte Carlo - Sensitivity analysis on the Price Target.



Source: Author, Crystal Ball

Appendices

Appendix 1: Statement of Financial Position

Balance Sheet (EUR million)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
Property. plant and equipment	485.0	542.3	554.1	647.3	885.0	957.8	1,012.6	1,065.6	1,117.9	1,169.8
Goodwill	79.2	86.5	83.3	83.6	84.4	84.4	84.4	84.4	84.4	84.4
Other intangible assets	19.4	37.1	35.6	33.6	35.3	35.4	35.1	35.1	35.5	36.1
Investments in associates	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Right of use assets	0.0	0.0	0.0	0.0	122.9	122.9	122.9	122.9	122.9	122.9
Non-current financial investments	0.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other receivables	8.8	10.4	8.9	7.3	7.7	8.6	8.6	8.6	8.6	8.6
Deferred tax assets	7.5	12.4	9.2	9.3	15.9	15.9	15.9	15.9	15.9	15.9
Total non-current assets	**600.2**	**689.5**	**691.9**	**781.9**	**1,152.0**	**1,225.8**	**1,280.3**	**1,333.4**	**1,386.0**	**1,438.6**
Inventories	271.2	304.3	340.1	369.2	387.0	375.8	387.7	399.6	412.7	427.0
Trade and other receivables	441.1	452.6	489.6	481.3	559.1	528.1	544.8	561.5	580.0	600.1
Current tax assets	13.0	16.1	12.3	13.0	15.6	15.6	15.6	15.6	15.6	15.6
Cash and cash equivalents	429.3	513.2	343.4	447.5	218.8	259.2	258.1	267.8	288.7	321.5
Total current assets	**1,154.6**	**1,286.2**	**1,185.4**	**1,311.0**	**1,180.5**	**1,178.6**	**1,206.2**	**1,244.5**	**1,297.1**	**1,364.2**
Total Assets	**1,754.8**	**1,975.7**	**1,877.4**	**2,092.9**	**2,332.6**	**2,404.5**	**2,486.5**	**2,577.9**	**2,683.0**	**2,802.7**
Deferred tax liabilities	25.7	50.6	30.4	32.5	36.4	36.4	36.4	36.4	36.4	36.4
Provisions	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest-bearing liabilities	199.7	137.0	134.4	6.3	229.1	229.1	229.1	229.1	229.1	229.1
Other liabilities	2.1	1.0	0.4	0.5	1.0	1.0	1.0	1.0	1.0	1.0
Total non-current liabilities	**228.0**	**188.7**	**165.3**	**39.3**	**266.5**	**266.5**	**266.5**	**266.5**	**266.5**	**266.5**
Trade and other payables	242.4	219.4	231.5	430.5	255.9	263.7	272.1	280.4	289.6	299.6
Current tax liabilities	20.0	16.8	6.9	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Provisions	2.8	3.5	4.4	4.4	5.0	5.0	5.0	5.0	5.0	5.0
Interest-bearing liabilities	19.9	88.8	0.8	126.0	30.9	30.9	30.9	30.9	30.9	30.9
Total current liabilities	**285.1**	**328.5**	**243.6**	**567.4**	**296.4**	**304.2**	**312.6**	**320.9**	**330.1**	**340.1**
Total Liabilities	**513.2**	**517.2**	**409.0**	**606.8**	**562.9**	**570.7**	**579.1**	**587.4**	**596.6**	**606.6**
Share capital	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
Share premium	181.4	181.4	181.4	181.4	181.4	181.4	181.4	181.4	181.4	181.4
Treasury shares	(8.6)	(6.7)	(20.3)	(11.4)	(8.0)	(8.0)	(8.0)	(8.0)	(8.0)	-8.0
Translation reserve	(385.9)	(264.1)	(297.6)	(365.4)	(278.8)	-278.8	-278.8	-278.8	-278.8	-278.8
Fair value and hedging reserves	(2.9)	(3.1)	(1.8)	(0.6)	(1.8)	-1.8	-1.8	-1.8	-1.8	-1.8
Paid-up unrestricted equity reserve	133.0	168.9	203.9	222.6	238.2	238.2	238.2	238.2	238.2	238.2
Retained earnings	1,299.2	1,356.6	1,377.4	1,434.1	1,613.3	1,677.4	1,751.0	1,834.1	1,930.0	2,039.7
Non-controlling interest	0	0	0	0	0	0	0	0	0	0
Total Equity	**1,241.6**	**1,458.4**	**1,468.4**	**1,486.1**	**1,769.7**	**1,833.8**	**1,907.4**	**1,990.5**	**2,086.4**	**2,196.1**
Total Equity and Liabilities	**1,754.8**	**1,975.7**	**1,877.4**	**2,092.9**	**2,332.6**	**2,404.5**	**2,486.4**	**2,577.9**	**2,683.0**	**2,802.7**

Appendix 2: Income Statement

Profit & Loss (EUR million)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
Net Sales	1,360.1	1,391.2	1,572.5	1,595.6	1,595.8	1,637.0	1,688.9	1,740.6	1,798.0	1,860.1
Cost of Sales	(733.7)	(724.2)	(838.8)	(865.5)	(912.9)	(886.6)	(914.7)	(942.7)	(973.8)	(1,007.4)
Gross Profit	**626.4**	**667.0**	**733.7**	**730.1**	**682.9**	**750.4**	**774.2**	**797.9**	**824.2**	**852.7**
Other operating income	3.7	3.9	5.8	2.5	3.6	3.6	3.6	3.6	3.6	3.6
Selling and marketing expenses	(256.2)	(267.6)	(294.3)	(286.4)	(288.9)	(295.1)	(304.5)	(313.8)	(324.1)	(335.3)
Administration expenses	(35.3)	(49.4)	(52.7)	(47.9)	(45.4)	(48.9)	(48.9)	(48.9)	(48.9)	(48.9)
Other operating expenses	(42.6)	(43.4)	(27.0)	(25.9)	(35.8)	(38.2)	(40.7)	(43.2)	(43.2)	(43.2)
Operating Profit (EBIT)	**296.0**	**310.5**	**365.5**	**372.4**	**316.4**	**371.9**	**383.8**	**395.7**	**411.7**	**428.9**
Financial income	200.9	140.1	118.3	83.3	67.3	89.2	89.2	89.2	89.2	89.2
Financial expenses	(222.7)	(151.8)	(151.3)	(94.0)	(47.0)	(106.7)	(106.7)	(106.7)	(106.7)	(106.7)
Profit before Ta (EBT)	**274.2**	**298.8**	**332.5**	**361.7**	**336.7**	**354.4**	**366.4**	**378.3**	**394.2**	**411.5**
Tax expense	(33.5)	(46.9)	(111.0)	(66.5)	63.1	(70.9)	(73.3)	(75.7)	(78.8)	(82.3)
Net Income	**240.7**	**251.9**	**221.5**	**295.2**	**399.8**	**283.6**	**293.1**	**302.6**	**315.4**	**329.2**

Appendix 3: Cash Flow Statement

Cash Flows (EUR million)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
EBIT	296.0	310.5	365.5	372.4	316.4	371.9	383.8	395.7	411.7	428.9
Depreciations & Amortizations	82.6	84.7	96.9	93.4	125.2	127.1	136.8	144.0	151.0	158.0
Income Tax	(33.5)	(46.9)	(111.0)	(66.5)	63.1	(70.9)	(73.3)	(75.7)	(78.8)	(82.3)
Change in NWC	0.0	(73.3)	(65.9)	177.2	(274.2)	50.0	(20.3)	(20.2)	(22.4)	(24.3)
Other non-cash adjustments	(61.7)	89.3	(51.4)	(39.6)	(10.7)	(0.9)	0.0	0.0	0.0	0.0
Cash Flow from Operations Activities	**283.4**	**364.4**	**234.1**	**536.9**	**219.8**	**477.3**	**427.1**	**443.8**	**461.4**	**480.4**
CAPE	(101.7)	(105.6)	(134.9)	(226.5)	(299.6)	(200.0)	(191.2)	(197.1)	(203.6)	(210.6)
Other Investments	(3.6)	(7.4)	1.4	(0.6)	2.4	0.0	0.0	0.0	0.0	0.0
Cash Flow from Investing Activities	**(105.3)**	**(113.0)**	**(133.5)**	**(227.1)**	**(297.2)**	**(200.0)**	**(191.2)**	**(197.1)**	**(203.6)**	**(210.6)**
Interest expense	(21.8)	(11.7)	(33.0)	(10.7)	20.3	(17.4)	(17.4)	(17.4)	(17.4)	(17.4)
Dividends Paid	(193.5)	(202.0)	(208.0)	(214.2)	(218.1)	(219.5)	(219.5)	(219.5)	(219.5)	(219.5)
Change in Debt	2.1	6.2	(90.6)	(2.9)	127.7	0.0	0.0	0.0	0.0	0.0
Other financial adjustments	23.0	39.4	59.0	22.7	(84.4)	0.0	0.0	0.0	0.0	0.0
Cash Flow from Financing Activities	**(190.2)**	**(168.1)**	**(272.6)**	**(205.1)**	**(154.5)**	**(236.9)**	**(236.9)**	**(236.9)**	**(236.9)**	**(236.9)**
Net Change in Cash	**(12.1)**	**83.2**	**(172.0)**	**104.7**	**(231.9)**	**40.3**	**(1.1)**	**9.8**	**20.9**	**32.8**
Cash and Cash Equivalents in the beginning of the period	439.8	429.3	513.2	343.4	447.5	218.8	259.2	258.1	267.8	288.7
Effect of echange rate fluctuations on cash held	1.6	0.7	2.1	(0.5)	3.2	0.0	0.0	0.0	0.0	0.0
Cash and Cash Equivalents in the end of the period	**429.3**	**513.2**	**343.4**	**447.5**	**218.8**	**259.2**	**258.1**	**267.8**	**288.7**	**321.5**

Appendix 4: Key Financial Ratios

Key Financial Ratios	Unit	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Liquidity Ratios											
Current Ratio	(x)	4.05	3.92	4.87	2.31	3.98	3.87	3.86	3.88	3.93	4.01
Quick Ratio	(x)	3.10	2.99	3.47	1.66	2.68	2.64	2.62	2.63	2.68	2.76
Cash Ratio	(x)	1.51	1.56	1.41	0.79	0.74	0.85	0.83	0.83	0.87	0.95
Efficiency Ratios											
Total Assets Turnover	(x)	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Accounts Receivables Turnover	(x)	3.1	3.1	3.2	3.3	2.9	3.1	3.1	3.1	3.1	3.1
Collection Period (days)	days	118.4	118.7	113.6	110.1	127.9	117.7	117.7	117.7	117.7	117.7
Inventory Turnover	(x)	2.7	2.4	2.5	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Days in Inventory (days)	days	134.9	153.4	148.0	155.7	154.7	154.7	154.7	154.7	154.7	154.7
Payables Turnover	(x)	3.0	3.3	3.6	2.0	3.6	3.4	3.4	3.4	3.4	3.4
Payables Period (days)	days	120.6	110.6	100.7	181.6	102.3	108.6	108.6	108.6	108.6	108.6
Operating Cycle (days)	days	253.3	272.1	261.6	265.8	282.6	272.5	272.5	272.5	272.5	272.5
Cash Cycle (days)	days	132.7	161.5	160.9	84.2	180.3	163.9	163.9	163.9	163.9	163.9
Assets Turnover	(x)	0.8	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Profitability Ratios											
Gross Profit Margin	%	46.1%	47.9%	46.7%	45.8%	42.8%	45.8%	45.8%	45.8%	45.8%	45.8%
EBITDA Margin	%	27.8%	28.4%	29.4%	29.2%	27.7%	30.5%	30.8%	31.0%	31.3%	31.6%
EBIT Margin	%	21.8%	22.3%	23.2%	23.3%	19.8%	22.7%	22.7%	22.7%	22.9%	23.1%
Net Profit Margin	%	17.7%	18.1%	14.1%	18.5%	25.1%	17.3%	17.4%	17.4%	17.5%	17.7%
ROA	%	13.7%	12.7%	11.8%	14.1%	17.1%	11.8%	11.8%	11.7%	11.8%	11.7%
ROCE	%	20.1%	18.9%	22.4%	24.4%	15.5%	17.7%	17.7%	17.5%	17.5%	17.4%
ROE	%	19.4%	17.3%	15.1%	19.9%	22.6%	15.5%	15.4%	15.2%	15.1%	15.0%
EPS	€	1.79	1.86	1.62	2.14	2.88	2.04	2.11	2.18	2.27	2.37
SG&A/Sale	%	21.4%	22.8%	22.1%	21.0%	20.9%	21.0%	20.9%	20.8%	20.7%	20.7%
Solvency Ratios											
Short-term Debt Ratio (%)	%	11.4%	6.9%	7.2%	0.3%	9.8%	9.5%	9.2%	8.9%	8.5%	8.2%
Long-term Debt Ratio (%)	%	1.1%	4.5%	0.0%	6.0%	1.3%	1.3%	1.2%	1.2%	1.2%	1.1%
Debt to Equity Ratio	(x)	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Equity Multiplier	(x)	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3
Debt to EBITDA		0.6	0.6	0.3	0.3	0.6	0.5	0.5	0.5	0.5	0.4
Interest Coverage Ratio	(x)	34.0	43.1	58.0	98.0	36.0	36.7	37.9	39.1	40.7	42.4

Appendix 5: Common-Size Statement of Financial Position

Balance Sheet (% of Total Assets)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
Property. plant and equipment	27.6%	27.4%	29.5%	30.9%	37.9%	39.8%	40.7%	41.3%	41.7%	41.7%
Goodwill	4.5%	4.4%	4.4%	4.0%	3.6%	3.5%	3.4%	3.3%	3.1%	3.0%
Other intangible assets	1.1%	1.9%	1.9%	1.6%	1.5%	1.5%	1.4%	1.4%	1.3%	1.3%
Investments in associates	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Right of use assets	0.0%	0.0%	0.0%	0.0%	5.3%	5.1%	4.9%	4.8%	4.6%	4.4%
Non-current financial investments	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other receivables	0.5%	0.5%	0.5%	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%	0.3%
Deferred tax assets	0.4%	0.6%	0.5%	0.4%	0.7%	0.7%	0.6%	0.6%	0.6%	0.6%
Total non-current assets	**34.2%**	**34.9%**	**36.9%**	**37.4%**	**49.4%**	**51.0%**	**51.5%**	**51.7%**	**51.7%**	**51.3%**
Inventories	15.5%	15.4%	18.1%	17.6%	16.6%	15.6%	15.6%	15.5%	15.4%	15.2%
Trade and other receivables	25.1%	22.9%	26.1%	23.0%	24.0%	22.0%	21.9%	21.8%	21.6%	21.4%
Current tax assets	0.7%	0.8%	0.7%	0.6%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%
Cash and cash equivalents	24.5%	26.0%	18.3%	21.4%	9.4%	10.8%	10.4%	10.4%	10.8%	11.5%
Total current assets	**65.8%**	**65.1%**	**63.1%**	**62.6%**	**50.6%**	**49.0%**	**48.5%**	**48.3%**	**48.3%**	**48.7%**
Total Assets	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Deferred tax liabilities	1.5%	2.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.4%	1.4%	1.3%
Provisions	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Interest-bearing liabilities	11.4%	6.9%	7.2%	0.3%	9.8%	9.5%	9.2%	8.9%	8.5%	8.2%
Other liabilities	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total non-current liabilities	**13.0%**	**9.6%**	**8.8%**	**1.9%**	**11.4%**	**11.1%**	**10.7%**	**10.3%**	**9.9%**	**9.5%**
Trade and other payables	13.8%	11.1%	12.3%	20.6%	11.0%	11.0%	10.9%	10.9%	10.8%	10.7%
Current tax liabilities	1.1%	0.9%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Provisions	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Interest-bearing liabilities	1.1%	4.5%	0.0%	6.0%	1.3%	1.3%	1.2%	1.2%	1.2%	1.1%
Total current liabilities	**16.2%**	**16.6%**	**13.0%**	**27.1%**	**12.7%**	**12.7%**	**12.6%**	**12.4%**	**12.3%**	**12.1%**
Total Liabilities	**29.2%**	**26.2%**	**21.8%**	**29.0%**	**24.1%**	**23.7%**	**23.3%**	**22.8%**	**22.2%**	**21.6%**
Share capital	1.4%	1.3%	1.4%	1.2%	1.1%	1.1%	1.0%	1.0%	0.9%	0.9%
Share premium	10.3%	9.2%	9.7%	8.7%	7.8%	7.5%	7.3%	7.0%	6.8%	6.5%
Treasury shares	-0.5%	-0.3%	-1.1%	-0.5%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%	-0.3%
Translation reserve	-22.0%	-13.4%	-15.9%	-17.5%	-12.0%	-11.6%	-11.2%	-10.8%	-10.4%	-9.9%
Fair value and hedging reserves	-0.2%	-0.2%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Paid-up unrestricted equity reserve	7.6%	8.5%	10.9%	10.6%	10.2%	9.9%	9.6%	9.2%	8.9%	8.5%
Retained earnings	74.0%	68.7%	73.4%	68.5%	69.2%	69.8%	70.4%	71.1%	71.9%	72.8%
Non-controlling interest	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Equity	**70.8%**	**73.8%**	**78.2%**	**71.0%**	**75.9%**	**76.3%**	**76.7%**	**77.2%**	**77.8%**	**78.4%**
Total Equity and Liabilities	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Appendix 6: Common-Size Income Statement

Profit & Loss (% of Net Sales)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
Net Sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of Sales	-53.9%	-52.1%	-53.3%	-54.2%	-57.2%	-54.2%	-54.2%	-54.2%	-54.2%	-54.2%
Gross Profit	**46.1%**	**47.9%**	**46.7%**	**45.8%**	**42.8%**	**45.8%**	**45.8%**	**45.8%**	**45.8%**	**45.8%**
Other operating income	0.3%	0.3%	0.4%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Selling and marketing expenses	-18.8%	-19.2%	-18.7%	-17.9%	-18.1%	-18.0%	-18.0%	-18.0%	-18.0%	-18.0%
Administration expenses	-2.6%	-3.6%	-3.4%	-3.0%	-2.8%	-3.0%	-2.9%	-2.8%	-2.7%	-2.6%
Other operating expenses	-3.1%	-3.1%	-1.7%	-1.6%	-2.2%	-2.3%	-2.4%	-2.5%	-2.4%	-2.3%
Operating Profit (EBIT)	**21.8%**	**22.3%**	**23.2%**	**23.3%**	**19.8%**	**22.7%**	**22.7%**	**22.7%**	**22.9%**	**23.1%**
Financial income	14.8%	10.1%	7.5%	5.2%	4.2%	5.4%	5.3%	5.1%	5.0%	4.8%
Financial expenses	-16.4%	-10.9%	-9.6%	-5.9%	-2.9%	-6.5%	-6.3%	-6.1%	-5.9%	-5.7%
Profit before Ta (EBT)	**20.2%**	**21.5%**	**21.1%**	**22.7%**	**21.1%**	**21.7%**	**21.7%**	**21.7%**	**21.9%**	**22.1%**
Tax expense	-2.5%	-3.4%	-7.1%	-4.2%	4.0%	-4.3%	-4.3%	-4.3%	-4.4%	-4.4%
Net Income	**17.7%**	**18.1%**	**14.1%**	**18.5%**	**25.1%**	**17.3%**	**17.4%**	**17.4%**	**17.5%**	**17.7%**

Appendix 7: Common-Size Cash Flow Statement

Cash Flows (% of Operational CF)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
	31-Dec-15	31-Dec-16	31-Dec-17	31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24
EBIT	104.4%	85.2%	156.1%	69.4%	143.9%	77.9%	89.9%	89.2%	89.2%	89.3%
Depreciations & Amortizations	29.1%	23.3%	41.4%	17.4%	57.0%	26.6%	32.0%	32.4%	32.7%	32.9%
Income Ta	-11.8%	-12.9%	-47.4%	-12.4%	28.7%	-14.9%	-17.2%	-17.0%	-17.1%	-17.1%
Change in NWC	0.0%	-20.1%	-28.2%	33.0%	-124.7%	10.5%	-4.8%	-4.6%	-4.9%	-5.1%
Other non-cash adjustments	-21.8%	24.5%	-21.9%	-7.4%	-4.9%	-0.2%	0.0%	0.0%	0.0%	0.0%
Cash Flow from Operations Activities	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
CAPE	-35.9%	-29.0%	-57.6%	-42.2%	-136.3%	-41.9%	-44.8%	-44.4%	-44.1%	-43.8%
Other Investments	-1.3%	-2.0%	0.6%	-0.1%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash Flow from Investing Activities	**-37.1%**	**-31.0%**	**-57.0%**	**-42.3%**	**-135.2%**	**-41.9%**	**-44.8%**	**-44.4%**	**-44.1%**	**-43.8%**
Interest expense	-7.7%	-3.2%	-14.1%	-2.0%	9.2%	-3.7%	-4.1%	-3.9%	-3.8%	-3.6%
Dividends Paid	-68.3%	-55.4%	-88.9%	-39.9%	-99.2%	-46.0%	-51.4%	-49.5%	-47.6%	-45.7%
Change in Debt	0.7%	1.7%	-38.7%	-0.5%	58.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Other financial adjustments	8.1%	10.8%	25.2%	4.2%	-38.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash Flow from Financing Activities	**-67.1%**	**-46.1%**	**-116.4%**	**-38.2%**	**-70.3%**	**-49.6%**	**-55.5%**	**-53.4%**	**-51.4%**	**-49.3%**
Net Change in Cash	**-4.3%**	**22.8%**	**-73.5%**	**19.5%**	**-105.5%**	**8.5%**	**-0.3%**	**2.2%**	**4.5%**	**6.8%**
Cash and Cash Equivalents in the beginning of the period	155.2%	117.8%	219.2%	64.0%	203.6%	45.8%	60.7%	58.1%	58.1%	60.1%
Effect of echange rate fluctuations on cash held	0.6%	0.2%	0.9%	-0.1%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash and Cash Equivalents in the end of the period	**151.5%**	**140.8%**	**146.7%**	**83.4%**	**99.6%**	**54.3%**	**60.4%**	**60.4%**	**62.6%**	**66.9%**

Appendix 8: Forecasting Assumptions

Income Statement	Unit	2020F	2021F	2022F	2023F	2024F	Assumption
Net Sales	Mn €	1,637.0	1,688.9	1,740.6	1,798.0	1,860.1	See Revenue Forecast Assumptions (Appendix).
Cost of Sales	% Net Sales	54.2%	54.2%	54.2%	54.2%	54.2%	Historical 5-Year average relationship between Cost of sales and Net Sales (2015-2019).
Other operating income	YoY (%)	0.0%	0.0%	0.0%	0.0%	0.0%	Equal to 2019 nominal value.
Selling and marketing expenses	% Net Sales	18.0%	18.0%	18.0%	18.0%	18.0%	Historical 5-Year average relationship between Seeling and Marketing expenses and Net Sales (2015-2019).
Administration expenses	Mn €	48.85	48.85	48.85	48.85	48.85	Historical 4-Year average (2015-2019).
Other operating expenses	Mn €	38.2	40.7	43.2	43.2	43.2	Equal to the sum of the 4 items below.
Losses on sale of property. plant and equipment and other disposals	Mn €	0.40	0.40	0.40	0.40	0.40	Equal to 2019 nominal value.
R&D Costs	Mn €	25.0	27.5	30.0	30.0	30.0	Approimately 50% of R&D investments are allocated to product testing. (2019 Nokian's Annual Report. page 10). R&D costs are expected to increase due to the investment into new testing facilities: A testing center in Spain, which is epected to to be in full operation at the end of 2020, and a Heavy Tyres R&D center, which is epected to accelerate the testing phase of new tire models.
Quality Control	Mn €	3.8	3.8	3.8	3.8	3.8	Equal to 2019 nominal value.
Ohter expenses	Mn €	9.0	9.0	9.0	9.0	9.0	Equal to 2019 nominal value.
Depreciation and Amortization (D&A)	Mn €	127.1	136.8	144.0	151.0	158.0	See appendix "Depreciation and Amortization"
Financial income		89.2	89.2	89.2	89.2	89.2	Equal to the sum of the 4 items below.
Interest Income	Mn €	2.4	2.4	2.4	2.4	2.4	Equal to the item below.
Financial assets measured at amortized cost	Mn €	2.4	2.4	2.4	2.4	2.4	Historical 5-Year average (2015-2019).
Dividend income	Mn €	0.0	0.0	0.0	0.0	0.0	Equal to the item below.
Non-current financial investments measured at fair value through other comprehensive income	Mn €	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Echange rate gains and changes in fair value	Mn €	86.6	86.6	86.6	86.6	86.6	Equal to the 2 items below.
Financial assets and liabilities at amortized cost	Mn €	21.7	21.7	21.7	21.7	21.7	Historical 3-Year average (2017-2019).
Foreign currency derivatives	Mn €	64.9	64.9	64.9	64.9	64.9	Historical 3-Year average (2017-2019).
Other financial income	Mn €	0.2	0.2	0.2	0.2	0.2	Equal to 2019 nominal value.
Financial expenses		-106.7	-106.7	-106.7	-106.7	-106.7	Equal to the sum of the 3 items below.
Interest expenses	Mn €	-10.1	-10.1	-10.1	-10.1	-10.1	Equal to the 3 items below. The average interest rate of interest-bearing financial liabilities in 2019 was 2.4%.
Financial liabilities measured at amortized cost	Mn €	-5.4	-5.4	-5.4	-5.4	-5.4	Historical 5-Year average (2015-2019).
Interest rate derivatives designated as hedges	Mn €	-0.9	-0.9	-0.9	-0.9	-0.9	Equal to 2019 nominal value.
Lease liabilities	Mn €	-3.8	-3.8	-3.8	-3.8	-3.8	Equal to 2019 nominal value.
Echange rate losses and changes in fair value	Mn €	-95.1	-95.1	-95.1	-95.1	-95.1	Equal to the 2 items below.
Financial assets and liabilities at amortized cost	Mn €	-36.0	-36.0	-36.0	-36.0	-36.0	Historical 3-Year average (2017-2019).
Foreign currency derivatives	Mn €	-59.1	-59.1	-59.1	-59.1	-59.1	Historical 3-Year average (2017-2019).
Other financial expenses	Mn €	-1.4	-1.4	-1.4	-1.4	-1.4	Financial expenses 2019 contain returned EUR 34.4 million punitive interest related to tax disputes that were booked in previous fiscal years based on ta reassessment decisions. Therefore is is assumed the 2018 nominal value.
Tax rate	%	20.0%	20.0%	20.0%	20.0%	20.0%	Conference Call (17-12-2018). Teemu Kangas-Kärki (CFO): "And then regarding the tax rates, at the current level around 20% as a tax rate is a good epectation for the near years." 2019 Ta expense contain returned EUR 115.2 million additional taxes and punitive increases that were booked in previous fiscal years based on tax reassessment decisions.

Balance Sheet	Unit	2020F	2021F	2022F	2023F	2024F	Assumption
Non-Current Assets							
Property, plant and equipment	Mn €	957.8	1012.6	1065.6	1117.9	1169.8	See appendix "Depreciation and Amortization".
Goodwill	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Other intangible assets	Mn €	35.4	35.1	35.1	35.5	36.1	See appendix "Depreciation and Amortization".
Investments in associates	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Right of use assets	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value. Nokian Tyres has adopted the new IFRS 16 effective January 1. 2019 using the modified retrospective approach and the comparative figures have not been restated.
Non-current financial investments	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Other receivables	Mn €	8.6	8.6	8.6	8.6	8.6	Historical 5-Year average (2015-2019).
Deferred tax assets	YoY (%)	0.0	0.0	0.0	0.0	0.0	Due to being a difficult item to forecast it was assumed to be equal to 2019 nominal value.
Current Assets							
Inventory Turnover	Value	4.4	4.4	4.4	4.4	4.4	Historical 3-Year average (2017-2019). since the value of inventory has been increasing due to less favourable market conditions.
Trade and other receivables	% Net Sales	0.3	0.3	0.3	0.3	0.3	Historical 5-Year average of trade and other receivables as percentage of net sales (2015-2019).
Current tax assets	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Cash and cash equivalents	Mn €	259.2	258.1	267.8	288.7	321.5	See Cash Flow Statment computations
Non-Current Liabilities							
Deferred tax liabilities	YoY (%)	0.0	0.0	0.0	0.0	0.0	Due to being a difficult item to forecast it was assumed to be equal to 2019 nominal value.
Provisions	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Interest-bearing financial liabilities	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value. Nokian Tyres has adopted the new IFRS 16 effective January 1. 2019 using the modified retrospective approach and the comparative figures have not been restated.
Other liabilities	Mn €	1.0	1.0	1.0	1.0	1.0	Historical 5-Year average (2015-2019).
Current Liabilities							
Trade and other payables	% of Cost of Sales	29.7%	29.7%	29.7%	29.7%	29.7%	Historical 5-Year average of trade and other payables as percentage of cost of sales (2015-2019).
Current tax liabilities	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Provisions	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Interest-bearing financial liabilities	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value. Nokian Tyres has not issued any bonds. and company currently has no credit ranking.
Equity attributable to equity holders of the parent							
Share capital	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Share premium	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Treasury shares	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Translation reserve	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Fair value and hedging reserves	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Paid-up unrestricted equity reserve	YoY (%)	0.0	0.0	0.0	0.0	0.0	Equal to 2019 nominal value.
Retained earnings	Mn €	1677.4	1751.0	1834.1	1930.0	2039.7	
Dividend per share	€	1.6	1.6	1.6	1.6	1.6	Assumed to be equal to the dividend paid in 2018 and 2019.
Dividend	Mn €	219.5	219.5	219.5	219.5	219.5	The company epects to keep the payout ratio constant and above 50% of net earnings.
Shares Outstanding	Units	138.9	138.9	138.9	138.9	138.9	Assumed that new share will not be issued in the forecasted period and thus equal to the number of shares outstanding in 2019.
Non-controlling interest	YoY (%)	0%	0%	0%	0%	0%	Equal to 2019 nominal value.

Appendix 9: Amortization, Depreciation, Impairment and CAPEX

D&A (EUR million)	Unit	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	Assumption
Other adjustments												
Depreciation for the period	Mn €	-8.5	0.9	1.3	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	
Right of Use asset												
Depreciation for the period	Mn €	0.0	0.0	0.0	0.0	-31.1	0.0	0.0	0.0	0.0	0.0	
Ohter Intangible Assets - Depreciation												
Other Intangible assets. Net	Mn €	19.4	37.1	35.6	33.6	35.3	35.4	35.1	35.1	35.5	36.1	
Depreciation rate	% of Other Int. Assets	32.5%	18.9%	34.6%	24.7%	29.4%						
Average Depreciation rate	%					**28.0%**						
Impairment	Mn €	0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.0	
Depreciation for the period	Mn €	-6.3	-7.0	-12.3	-8.3	-10.4	-9.9	-9.9	-9.8	-9.8	-9.9	Historical 5-Year average of the depreciation rate as % of Net Intangible Assets (2015-2019).
PP&E - Depreciation												
PP&E. Net	Mn €	485.0	542.3	554.1	647.3	885.0	957.8	1,012.6	1,065.6	1,117.9	1,169.8	
Depreciation rate	% of PP&E	14.0%	14.5%	15.5%	12.8%	9.5%						
Average Depreciation rate	%					**13.2%**						
Depreciation for the period	**Mn €**	**-67.8**	**-78.6**	**-85.9**	**-82.9**	**-83.7**	**-117.3**	**-126.9**	**-134.2**	**-141.2**	**-148.1**	Historical 5-Year average of the depreciation rate as % of Net PP&E (2015-2019).
Total D&A												
Depreciation & Amortization (Total)		**-82.6**	**-84.7**	**-96.9**	**-93.4**	**-125.2**	**-127.1**	**-136.8**	**-144.0**	**-151.0**	**-158.0**	

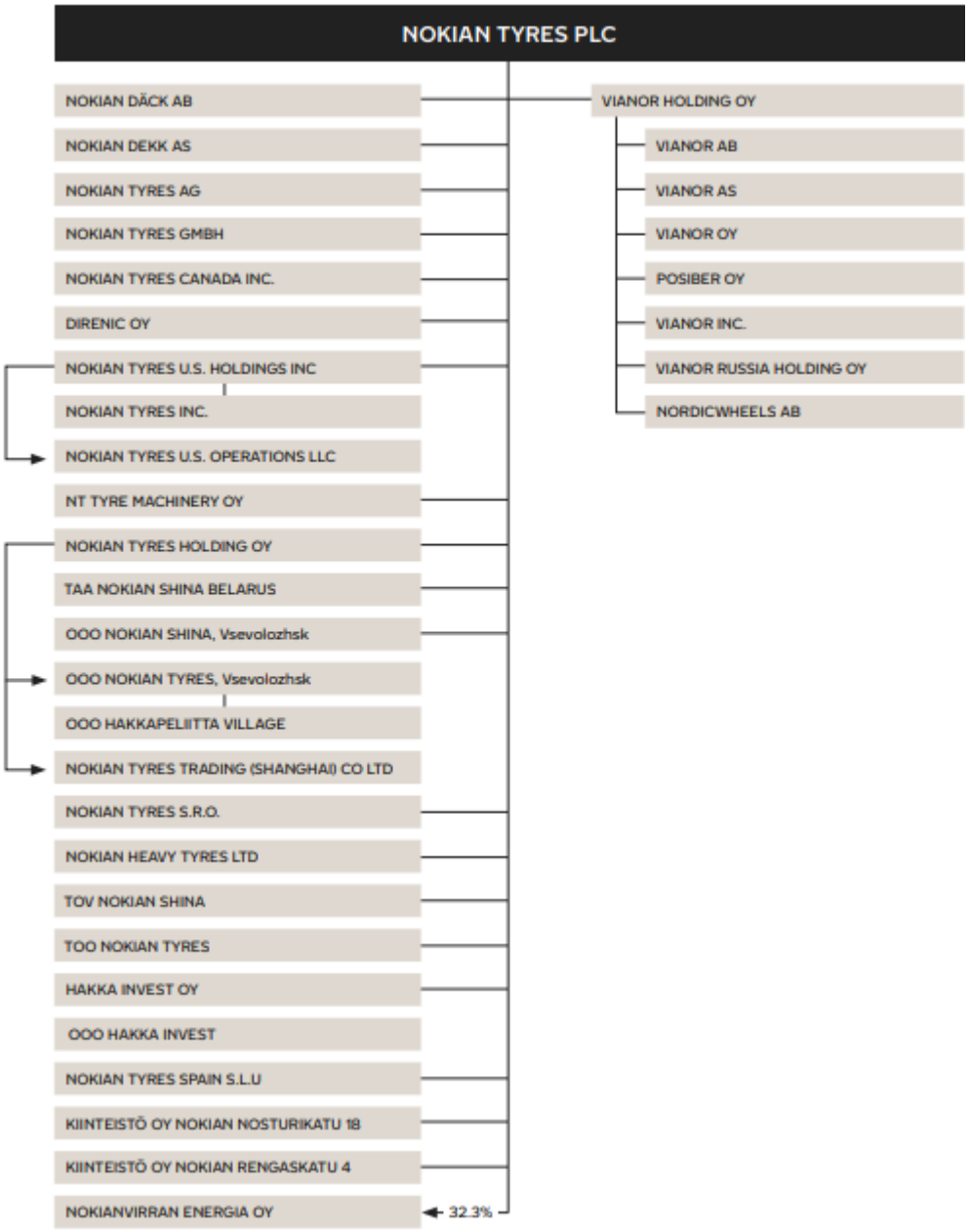
CAPE (EUR million)	Unit	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	Assumption
CAPE PP&E	Mn €						190.0	181.7	187.2	193.4	200.1	Assumed to be 95% of total CapE.
CAPE Other Intangible Assets	Mn €						10.0	9.6	9.9	10.2	10.5	Assumed to be 5% of total CapE.
Cape	% of Net Sales	7.5%	7.6%	8.6%	14.2%	18.8%						
Forecast Assumption	%					**11.3%**						Cape it is assumed as the 5-year average % of Net Sales (2015-2019).
CAPE Total		**101.7**	**105.6**	**134.9**	**226.5**	**299.6**	**200.0**	**191.2**	**197.1**	**203.6**	**210.6**	The Cape level will decrease this year from a level of 300 million, where rouglhy 50% was allocated to the Dayton Factory, to the level of 200 million in 2020. (Financial statement release 2019. conference call transcript. page 8). From 2021 onwards it was assumed that the CapEX will be 11.3% of Net Sales.

Appendix 10: Revenues by Market Area

Net Sales by Market Area (EUR million)	Unit	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	Assumption
Finland		**226.4**	**220.2**	**221.5**	**233.8**	**235.0**	**238.8**	**244.1**	**250.1**	**256.4**	**263.4**	
Services	**Mn €**	**25.9**	**30.5**	**30.4**	**33.7**	**33.4**	**33.9**	**34.7**	**35.5**	**36.4**	**37.4**	
Sales of goods	**Mn €**	**200.5**	**189.8**	**191.1**	**200.1**	**201.6**	**204.9**	**209.4**	**214.5**	**220.0**	**226.0**	
	% of group total	16.6%	15.8%	14.1%	14.7%	14.7%	14.6%	14.5%	14.4%	14.3%	14.2%	
Revenue Growth rate	YoY (%)						**1.6%**	**2.2%**	**2.4%**	**2.5%**	**2.7%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation	YoY (%)	-0.2%	0.4%	0.8%	1.2%	1.1%	0.7%	1.3%	1.5%	1.6%	1.8%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles	Mn €	0.12	0.14	0.14	0.16	0.16						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	10.5%	0.1%	19.4%	-4.8%	1.9%	1.9%	1.9%	1.9%	1.9%	Forecasted growth base on the historical 4-Year average growth. excluding the outlier 2018. (2016-2019).
Vehicles in Use	Mn Units	2.71	2.72	2.73	2.74	2.76						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	0.4%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Sweden		**198.2**	**200.8**	**214.3**	**204.1**	**213.9**	**217.6**	**222.6**	**228.0**	**233.7**	**240.1**	
Services	**Mn €**	**21.9**	**21.2**	**58.2**	**20.6**	**20.1**	**20.4**	**20.9**	**21.4**	**21.9**	**22.5**	
Sales of goods	**Mn €**	**176.3**	**179.5**	**156.2**	**183.5**	**193.9**	**197.2**	**201.7**	**206.6**	**211.8**	**217.6**	
	% of group total	14.6%	14.4%	13.6%	12.8%	13.4%	13.3%	13.2%	13.1%	13.0%	12.9%	
Revenue Growth rate	YoY (%)						**1.7%**	**2.3%**	**2.4%**	**2.5%**	**2.7%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation	YoY (%)	0.7%	1.1%	1.9%	2.0%	1.6%	0.8%	1.4%	1.5%	1.6%	1.8%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles	Mn €	0.40	0.43	0.44	0.42	0.42						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	8.9%	2.6%	-5.6%	0.1%	1.5%	1.5%	1.5%	1.5%	1.5%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use	Mn Units	5.28	5.29	5.34	5.38	5.42						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	0.3%	0.8%	0.8%	0.7%	0.6%	0.6%	0.6%	0.6%	0.6%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Norway		**172.5**	**178.8**	**189.4**	**191.4**	**196.1**	**200.3**	**208.4**	**213.8**	**219.4**	**225.5**	
Services	**Mn €**	**20.3**	**23.6**	**26.7**	**29.8**	**31.7**	**32.4**	**33.7**	**34.6**	**35.5**	**36.5**	
Sales of goods	**Mn €**	**152.2**	**155.3**	**162.7**	**161.6**	**164.4**	**167.9**	**174.8**	**179.2**	**184.0**	**189.0**	
% of group total	% of group total	12.7%	12.9%	12.0%	12.0%	12.3%	12.2%	12.3%	12.3%	12.2%	12.1%	
Revenue Growth rate	YoY (%)						**2.2%**	**4.1%**	**2.6%**	**2.7%**	**2.8%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation	YoY (%)	2.2%	3.6%	1.9%	2.8%	2.2%	1.4%	3.3%	1.8%	1.9%	2.0%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles	Mn €	0.19	0.20	0.20	0.19	0.19						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	4.1%	2.0%	-4.3%	-1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use	Mn Units	3.18	3.21	3.25	3.29	3.33						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	1.0%	1.2%	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Russia		**238.2**	**223.1**	**325.5**	**305.5**	**303.0**	**315.0**	**327.5**	**340.6**	**356.1**	**373.1**	
Services	**Mn €**	**0.2**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	
Sales of goods	**Mn €**	**238.0**	**222.9**	**325.5**	**305.5**	**303.0**	**315.0**	**327.5**	**340.6**	**356.1**	**373.1**	
% of group total	% of group total	17.5%	16.0%	20.7%	19.1%	19.0%	19.2%	19.4%	19.6%	19.8%	20.1%	
Revenue Growth rate	YoY (%)						**4.0%**	**4.0%**	**4.0%**	**4.6%**	**4.8%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation	YoY (%)	15.5%	7.0%	3.7%	2.9%	4.5%	3.2%	3.2%	3.2%	3.8%	4.0%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles	Mn €	1.44	1.40	1.66	1.82	1.78						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	-2.5%	18.0%	9.9%	-2.3%	3.8%	3.8%	3.8%	3.8%	3.8%	Forecasted growth base on the historical 2-Year average growth (2017-2019), since market conditions in Russia have been deteorating.
Vehicles in Use	Mn Units	51.36	52.56	53.79	55.00	56.18						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	2.3%	2.3%	2.2%	2.1%	2.3%	2.3%	2.3%	2.3%	2.3%	Forecasted growth base on the historical 4-Year average growth (2015-2019).

Net Sales by Market Area (EUR million)	Unit	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F	Assumption
Other Europe		**353.8**	**407.5**	**438.6**	**436.9**	**414.6**	**423.9**	**434.1**	**445.5**	**458.1**	**471.4**	
Services	**Mn €**	**1.5**	**1.6**	**0.9**	**0.0**	**0.0**	**0.9**	**0.9**	**1.0**	**1.0**	**1.0**	
Sales of goods	**Mn €**	**352.3**	**405.9**	**437.7**	**436.9**	**414.6**	**423.0**	**433.2**	**444.5**	**457.1**	**470.4**	
% of group total	% of group total	26.0%	29.3%	27.9%	27.4%	26.0%	25.9%	25.7%	25.6%	25.5%	25.3%	
Revenue Growth rate	**YoY (%)**						**2.0%**	**2.4%**	**2.6%**	**2.8%**	**2.9%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation	YoY (%)	3.0%	1.5%	2.2%	2.2%	2.0%	1.2%	1.6%	1.8%	2.0%	2.1%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles	Mn €	19.04	20.13	20.76	20.81	20.87						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	5.8%	3.1%	0.3%	0.3%	2.4%	2.4%	2.4%	2.4%	2.4%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use	Mn Units	48.43	48.22	48.33	48.43	48.53						International Organization of Motor Vehicle Manufactures. It was used data from Germany as a proy.
Growth rate	YoY (%)	0.0	-0.4%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
North America (USA + Canada)		**159.7**	**149.8**	**172.0**	**194.5**	**205.4**	**212.6**	**222.2**	**231.7**	**242.1**	**253.1**	
Services	**Mn €**	**2.3**	**2.4**	**2.4**	**2.6**	**2.8**	**2.9**	**3.0**	**3.2**	**3.3**	**3.5**	
Sales of goods	**Mn €**	**157.4**	**147.5**	**169.6**	**191.9**	**202.6**	**209.7**	**219.1**	**228.6**	**238.8**	**249.7**	
	% of group total	11.7%	10.8%	10.9%	12.2%	12.9%	13.0%	13.2%	13.3%	13.5%	13.6%	
Revenue Growth rate	**YoY (%)**						**3.5%**	**4.5%**	**4.3%**	**4.5%**	**4.6%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation - USA	YoY (%)	0.1%	1.3%	2.1%	2.4%	1.8%	1.5%	2.8%	2.1%	2.1%	2.2%	International Monetary Fund forecast - Inflation rate. average consumer prices
Inflation - Canada	YoY (%)	1.1%	1.4%	1.6%	2.3%	1.9%	0.6%	1.3%	1.6%	1.9%	2.0%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles - USA	Mn €	17.85	17.87	17.55	17.70	17.48						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	0.1%	-1.8%	0.9%	-1.3%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Sales of new vehicles - Canada	Mn €	1.94	1.98	2.04	2.04	1.98						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	2.3%	2.8%	0.1%	-3.2%	0.5%	0.5%	0.5%	0.5%	0.5%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use - USA	Mn Units	264.2	263.9	265.5	267.0	268.5						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	-0.1%	0.6%	0.6%	0.6%	0.4%	0.4%	0.4%	0.4%	0.4%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use - Canada	Mn Units	23.2	23.4	23.7	23.9	24.1						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	0.8%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Other Countries (China + Australia)		**11.4**	**11.0**	**11.1**	**29.5**	**27.9**	**28.8**	**29.9**	**31.0**	**32.2**	**33.5**	
Services	**Mn €**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	
Sales of goods	**Mn €**	**11.4**	**11.0**	**11.1**	**29.5**	**27.9**	**28.8**	**29.9**	**31.0**	**32.2**	**33.5**	
	% of group total	0.8%	0.8%	0.7%	1.8%	1.7%	1.8%	1.8%	1.8%	1.8%	1.8%	
Revenue Growth rate	**YoY (%)**						**3.4%**	**3.6%**	**3.7%**	**3.9%**	**4.0%**	Q3 2018 Company Conference Call - Page 12 - New car sales impact on replacement tire market. it's representing 1/3 of the market. So 2/3 of the replacement market is driven by replacement cycle.
Auiliar Forecast Items												
Inflation - China	YoY (%)	1.4%	2.0%	1.6%	2.1%	2.9%	2.9%	2.7%	2.6%	2.6%	2.6%	International Monetary Fund forecast - Inflation rate. average consumer prices
Inflation - Australia	YoY (%)	1.5%	1.3%	2.0%	1.9%	1.6%	0.7%	1.3%	1.5%	1.9%	2.2%	International Monetary Fund forecast - Inflation rate. average consumer prices
Sales of new vehicles . China	Mn €	24.7	28.0	28.9	28.1	25.8						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	13.7%	3.0%	-2.8%	-8.2%	**1.4%**	1.4%	1.4%	1.4%	1.4%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Sales of new vehicles - Australia	Mn €	1.16	1.18	1.19	1.12	1.03						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	2.0%	0.9%	-5.7%	-7.8%	**-2.6%**	-2.6%	-2.6%	-2.6%	-2.6%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use - China	Mn Units	162.8	167.5	176.2	184.8	193.1						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	2.9%	5.2%	4.8%	4.5%	**4.4%**	4.4%	4.4%	4.4%	4.4%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Vehicles in Use - Australia	Mn Units	17.2	17.4	17.6	17.8	18.0						International Organization of Motor Vehicle Manufactures
Growth rate	YoY (%)	0.0	0.9%	1.3%	1.2%	1.2%	**1.2%**	1.2%	1.2%	1.2%	1.2%	Forecasted growth base on the historical 4-Year average growth (2015-2019).
Group Total	**Mn €**	**1,360.1**	**1,391.2**	**1,572.5**	**1,595.6**	**1,595.8**	**1,637.0**	**1,688.9**	**1,740.6**	**1,798.0**	**1,860.1**	

Appendix 11: Business and Corporate Structure



Appendix 12: Nokian Tyres' Sustainability and Goals for 2020 and their progress

Area of sustainability	Goal	Progress in 2019
MANAGING SUSTAINABILITY	• We will improve our Dow Jones Sustainability Index assessment.	• We were again selected to Dow Jones' DJSI World sustainability index and to the more strictly defined DJSI Europe index. • We rose to the Silver Class in the RobecoSAM Sustainability Yearbook 2019.
PRODUCTS	• Reducing the rolling resistance of the product range by 7% from 2013 to 2020, thereby creating a decrease of 500 million kg in CO_2 emissions from traffic. • Each new product generation will have a lower rolling resistance compared to the previous one.	• We reached the goal already in 2017. In 2019, the rolling resistance remained on the level of 2018: 8.3% lower compared to 2013 (8.2% in 2018). • We have launched new products with a lower rolling resistance than the previous products.
PEOPLE	• Occupational health and safety: A 70% improvement in the LTIF injury frequency rate tracking from 2015 to 2020. • Everyone gets to go home healthy every day.	• The LTIF injury frequency improved and was 4.3 in 2019 (13,9 in 2015). This is a 69% improvement compared to 2015. • No severe accidents occurred in the Group during the year. • In 2019, Nokian Heavy Tyres achieved a milestone in industrial safety: a year with zero occupational accidents leading to absences.
ENVIRONMENT	• Energy efficient production: decreasing energy consumption annually by 1% from 2016 to 2020. • A 20% reduction in CO_2 emissions from production (kg CO_2 kg product) from 2013 to 2020 (scope 1 and scope 2). • Reducing the use of municipal water by 25% compared to the 2013 baseline (m^3/product ton). • Utilizing 100% of production waste and taking no production waste to landfills; Finland 2016, Russia 2020. • Zero environmental accidents.	• No reduction in 2019. Energy consumption in production increased by 0.4% from the previous year. However, the total energy reduction was 10.4% between 2016 and 2019. • The actual reduction of CO_2 emissions from production was 44% in 2013-2019. • In 2019, the consumption of municipal water was approximately 38% lower than in 2013, which means that the target was met and exceeded. • In Nokia, Finland, 100% of production waste was recycled (100% in 2018) and the recycling rate was 90% in Vsevolozhsk, Russia. (88% in 2018). • No environmental accidents occurred in 2019. • In 2019, we set our strict Science Based Targets to lower greenhouse gas emissions in line with climate science. The proposal is in the validation process.
ECONOMY	• Our financial target is to earn good returns for our shareholders: dividend above 50% of net earnings.	• In 2019, we paid a divident of EUR 1.58 per share (EUR 1.56 in 2018), which was 73.9% of our net earnings (2018: 96.7%).
SUPPLY CHAIN	• All of our raw material suppliers will have conducted a sustainability self-assessment in 2017. • We will have audited all of our major rubber processor partners (at least 80% of our natural rubber purchasing volume) by 2020. • At least two thirds of our raw material suppliers will have ISO 14001 certification in 2020.	• 89.6% of our raw material suppliers have responded to the sustainability self-assessment survey (86.8% in 2018). • We achieved our goal of auditing at least 80% of our major rubber processor partners. By the end of 2019, we had audited 90%. • In 2019, 73.3% of our raw material suppliers had ISO 14001 certification (72% in 2018).

Appendix 13: Winter tyre regulation in Europe and Russia

	Austria	Bosnia Herzegovina	Croatia	Czech Republic	Estonia	Finland	France	FYR of Macedonia	Germany	Hungary	Iceland	Italy	Latvia	Lithuania	Luxembourg	Montenegro	Norway	Poland	Portugal	Romania	Russian Federation	Serbia	Slovakia	Slovenia	Spain	Sweden	Switzerland	Turkey
Within a specified time frame		●	● 1)		●	●		●			●		●	●			● 3)				●	●	●	●				●
Within a specified time frame and during specified weather conditions	●		● 1)	● 2)					●						●	●				●						●		
When indicated by a road sign (winter tyre and/or snow chain)				● 2)			●			●		●						●	●						●		●	

1) On major roads, regardless of weather conditions, on other roads, in wintry weather conditions

2) Both equally valid

3) Sufficient grip requirement; de facto mandatory winter tyres

Appendix 14: Winter tyre regulation in USA

	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delware	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Luisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri
Winter tyres are legally mandatory																									
Winter tyres are recommended		●				●	●	●				●	●	●	●				●	●	●	●	●		
Winter tyres are mandatory if there is a specific road sign						●																			
Studded tyres are permitted		●	●	●	●	●	●	●		●		●	(*)	●	●	●	●		●	(*)	●		(*)		●

	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming
Winter tyres are legally mandatory																									
Winter tyres are recommended	●	●		●	●		●		●	●		●	●	●		●			●	●		●	●	●	●
Winter tyres are mandatory if there is a specific road sign																									
Studded tyres are permitted	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●		●

(*) The use is restricted on special use / special regions.

Appendix 15: Winter tyre regulation in Canada

	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland and Labrador	Northwest Territories	Nova Scotia	Nunavut	Ontario	Prince Edward Island	Quebec	Saskatchewan	Yukon
Winter tyres are legally mandatory											●		
Winter tyres are recommended	●	●	●	●	●	●	●	●	●	●	●	●	●
Winter tyres are mandatory if there is a specific road sign		○											
Studded tyres are permitted	●	●	●	●	●	●	●	●		●	●	●	●

Appendix 16: Aswath Damodaran's (2018) synthetic rating estimator

For smaller and riskier firms

If interest coverage ratio is			
greater than	≤ to	Rating is	Spread is
-100000	0.499999	D2/D	21.66%
0.5	0.799999	C2/C	16.25%
0.8	1.249999	Ca2/CC	12.38%
1.25	1.499999	Caa/CCC	11.75%
1.5	1.999999	B3/B-	10.08%
2	2.499999	B2/B	8.25%
2.5	2.999999	B1/B+	4.31%
3	3.499999	Ba2/BB	2.95%
3.5	3.9999999	Ba1/BB+	2.32%
4	4.499999	Baa2/BBB	1.81%
4.5	5.999999	A3/A-	1.34%
6	7.499999	A2/A	1.19%
7.5	9.499999	A1/A+	1.08%
9.5	12.499999	Aa2/AA	0.86%
12.5	100000	Aaa/AAA	0.76%

Appendix 17: Terminal growth rate – Gordon Growth Model

Growth Rate - Gordon Model							
(EUR million)	2019	2020F	2021F	2022F	2023F	2024F	Terminal Value
CAPE	299.6	200.0	191.2	197.1	203.6	210.6	200.5
D&A	125.2	127.1	136.8	144.0	151.0	158.0	158.0
ΔNon-Cash NWC	-274.2	50.0	-20.3	-20.2	-22.4	-24.3	-24.3
EBIT	316.4	371.9	383.8	395.7	411.7	428.9	398.4
Tc	-18.74%	20%	20%	20%	20%	20%	20%
EBIT*(1-Tc)	375.7	297.5	307.1	316.6	329.3	343.1	318.7
Reinvestment Rate	**-26.5%**	**41.3%**	**11.1%**	**10.4%**	**9.1%**	**8.2%**	**5.7%**
Dividend(t+1)	214.2	218.1	219.5	219.5	219.5	219.5	219.5
Net Income(t)	399.8	283.6	293.1	302.6	315.4	329.2	329.2
Payout Ratio	**53.6%**	**76.9%**	**74.9%**	**72.5%**	**69.6%**	**66.7%**	**66.7%**
Growth Rate	**-12.3%**	**9.5%**	**2.8%**	**2.9%**	**2.8%**	**2.7%**	**1.9%**

Appendix 18: FCFF Computations

EUR million	2020F	2021F	2022F	2023F	2024F	Terminal Value
EBIT*(1-Tc)	297.5	307.1	316.6	329.3	343.1	318.7
D&A	127.1	136.8	144.0	151.0	158.0	158.0
ΔNWC	-50.0	20.3	20.2	22.4	24.3	24.3
CAPEX	200.0	191.2	197.1	203.6	210.6	200.5
FCFF	**274.7**	**232.3**	**243.2**	**254.3**	**266.3**	**252.0**
Terminal Value						4242.5
PV(FCFF) by WACC	**274.7**	**216.4**	**211.0**	**205.5**	**200.4**	**3123.6**

Appendix 19: FCFE Computations

EUR million	2020F	2021F	2022F	2023F	2024F	Terminal Value
Net Income	283.6	293.1	302.6	315.4	329.2	304.8
D&A	127.1	136.8	144.0	151.0	158.0	158.0
ΔNWC	-50.0	20.3	20.2	22.4	24.3	24.3
CAPEX	200.0	191.2	197.1	203.6	210.6	200.5
Net Borrowing	0.0	0.0	0.0	0.0	0.0	0.0
FCFE	**260.7**	**218.4**	**229.3**	**240.4**	**252.3**	**238.0**
Terminal Value						4007.6
PV(FCFE) by R[E]	**260.7**	**203.4**	**198.9**	**194.2**	**189.9**	**2950.7**

Appendix 20: APV Computations

Unlevered Cost of Capital	2020F	2021F	2022F	2023F	2024F	Terminal Value
Risk-Free Rate R[F]	0.17%	0.17%	0.17%	0.17%	0.17%	0.76%
Beta levered ß(e)	0.9	0.9	0.9	0.9	0.9	0.9
Beta unlevered ß(u)	0.9	0.9	0.9	0.9	0.9	0.9
Market Risk Premium (MRP)	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%
Weight of Debt	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Marginal ta rate T[C]	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
Unlevered Cost of Capital R[U]	6.19%	6.19%	6.19%	6.19%	6.19%	6.78%

FCFF (EUR million)	2020F	2021F	2022F	2023F	2024F	Terminal Value
EBIT*(1-Tc)	297.5	307.1	316.6	329.3	343.1	318.7
D&A	127.1	136.8	144.0	151.0	158.0	158.0
ΔNWC	-50.0	20.3	20.2	22.4	24.3	24.3
CAPEX	200.0	191.2	197.1	203.6	210.6	200.5
FCFF	**274.7**	**232.3**	**243.2**	**254.3**	**266.3**	**252.0**
Unlevered Cost of Capital		6.19%	6.19%	6.19%	6.19%	6.78%
Terminal Value						5264.2
PV(FCFF)	**274.7**	**218.8**	**229.0**	**239.5**	**250.8**	**4929.9**

Determining the Interest Tax Shield	2020F	2021F	2022F	2023F	2024F	Terminal Value
Interest Payments	10.1	10.1	10.1	10.1	10.1	
Marginal tax rate T[C]	20%	20%	20%	20%	20%	
Interest Tax Shield (ITS)	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**42.3**
Cost of Debt R[D]	1.94%	1.94%	1.94%	1.94%	1.94%	2.53%
PV(ITS)	**2.0**	**2.0**	**1.9**	**1.9**	**1.9**	**38.3**

Appendix 21: DDM Computations

Dividend Discount Model (EUR million)	2020F	2021F	2022F	2023F	2024F	Terminal Value
Cost of Equity R[E]	7.36%	7.36%	7.36%	7.36%	7.36%	7.95%
Dividend	219.5	219.5	219.5	219.5	219.5	3695.8
PV(DIVt)	219.5	204.4	190.4	177.4	165.2	2721.1
Total PV(DIVt)	3678.0					

Appendix 22: Beta Leverage Computations

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.525629606
R Square	0.276286483
Adjusted R Square	0.270100897
Standard Error	0.068377086
Observations	119

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.208833419	0.208833	44.66618	8.35217E-10
Residual	117	0.547024835	0.004675		
Total	118	0.755858254			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2.1581E-05	0.00628786	-0.00343	0.997267	-0.012474357	0.012431195	-0.012474357	0.012431195
X Variable 1	0.926386108	0.138612573	6.683276	8.35E-10	0.65187117	1.200901046	0.65187117	1.200901046

Appendix 23: Net Working Capital Computations

NWC (EUR million)	2015	2016	2017	2018	2019	2020F	2021F	2022F	2023F	2024F
Current Assets										
Inventories	271.2	304.3	340.1	369.2	387.0	375.8	387.7	399.6	412.7	427.0
Trade and other receivables	441.1	452.6	489.6	481.3	559.1	528.1	544.8	561.5	580.0	600.1
Current tax assets	13.0	16.1	12.3	13.0	15.6	15.6	15.6	15.6	15.6	15.6
Total current assets (net of cash)	**725.3**	**773.0**	**842.0**	**863.5**	**961.7**	**919.5**	**948.1**	**976.7**	**1,008.4**	**1,042.6**
Current Liabilities										
Trade and other payables	242.4	219.4	231.5	430.5	255.9	263.7	272.1	280.4	289.6	299.6
Current tax liabilities	20.0	16.8	6.9	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Provisions	2.8	3.5	4.4	4.4	5.0	5.0	5.0	5.0	5.0	5.0
Total current liabilities (net of short-term financial obligations)	**265.2**	**239.7**	**242.8**	**441.4**	**265.5**	**273.3**	**281.7**	**290.0**	**299.2**	**309.2**
NWC	460.0	533.3	599.2	422.1	696.2	646.2	666.5	686.7	709.1	733.4
Δ NWC	**0.0**	**73.3**	**65.9**	**-177.2**	**274.2**	**-50.0**	**20.3**	**20.2**	**22.4**	**24.3**

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Abbreviations

ASP	Average Selling Price
Bn	Billions
Bus	Business Units
CAGR	Compounded Annual Growth Rate
DPS	Dividends Per Share
DCF	Discounted Cash Flow
EPS	Earnings per Share
ELVs	End of Life Vehicles
EV	Enterprise Value
ESG	Environmental Social and Governance
FCFF	Free Cash Flow to the Firm
GDP	Gross Domestic Product
MRP	Market Risk Premium
MN	Millions
OE	Original Equipment
OEM´s	Original Equipment Manufactures
OPEC	Organisation of the Petroleum Exporting Countries
RF	Risk Free
RE	Replacement Equipment
RT	Replacement Tires
R&D	Research and Development
TREAD	Transportation Recall Enhancement, Accountability and Documentation
WC	Working Capital
YE	Year End
YoY	Year on Year

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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%