A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

JOHNSON & JOHNSON EQUITY REPORT – J&J FUNDAMENTALLY UNDERAPPRECIATED

GONÇALO BORGES DA COSTA ESPÍRITO ANDRÉ - 23842

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A Project carried out on the Master in Finance Program, under the supervision of:

Filipa Frade de Castro

6th of January, 2019

Abstract

This report was prepared by Gonçalo André and Tomás Branco, two Master in Finance students of Nova School of Business and Economics ("Nova SBE"), within the context of the Field Lab – Equity Research. The goal was to evaluate Johnson & Johnson's intrinsic value. Therefore, a thorough analysis of its operating segments and industries was conducted. Our valuation model resulted in a share price of $166.00, which led to the conclusion that J&J is trading below its fair value. In addition, it was measured how sensitive the model is to changes in its underlying assumptions and to J&J's future operating results.

Keywords: J&J; healthcare; valuation; undervalued; drugs; innovation; R&D; patents; regulation; litigations; oncology; DCF; SOTP

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JOHNSON & JOHNSON

COMPANY REPORT

HEALTHCARE

03 JANUARY 2020

STUDENT: GONÇALO ANDRÉ & TOMÁS BRANCO

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J&J fundamentally underappreciated

Mispriced and as valuable as the sum of its parts

We initiate our coverage with a BUY recommendation. We value J&J at $166.00, meaning total upside potential of 17%. We expect the company to show strong results in its pharmaceutical and medical devices sector, ousting uncertainty on recent opioid and baby powder litigations.

Oncology driving J&J's growth

We expect the oncology division to be the main driver of J&J's growth, with sales evolving at a CAGR of 11.8% and representing 17% of total sales by 2023. Darzalex® to grow 13.7% YoY and Imbruvica® to grow at 12.8%.

Current pipeline enough to outperform

Operational forecast leads to the conclusion that J&J's current pipeline would be enough to ensure future strong performance. In a scenario in which nearly-approved drugs do not get approved, J&J would still be trading at a discount. This scenario leads to a target price of $155.56, above current market price.

Valuation

Our target price of $166.00 is based on a DCF model (WACC of 6.34% and terminal growth of 3.26%), with expected return of 17%. In a bullish scenario, upside potential is 24%. Main risks regard the settlement of current litigations and the possibility of future law suits.

Company description

Johnson & Johnson is a U.S. based healthcare company engaged in researching, developing and selling pharmaceutical products, consumer healthcare goods and medical devices. In 2018 revenues accounted for roughly $81.6bn.

Recommendation:	**BUY**
Price Target FY20:	**$ 166.00**
Price (as of 22-Jan-20)	**$ 145.87**

Bloomberg: JNJ US EQ

52-week range ($)	125.00 – 147.84
Market Cap ($bn)	384.17
Outstanding Shares (m)	2,635.2

Source: *Bloomberg*

Source: *Bloomberg as of 03/January/2020*

(dollars in billions except per share amounts)	2018	2019E	2020F
Revenues	81.6	82.7	85.7
EBITDA	26.7	25.1	26.0
EBITDA margin	32.8%	30.4%	30.3%
EBIT	19.8	18.3	18.7
Net Profit	14.0	15.5	16.5
EPS	5.6	5.8	6.2

Source: Company information; Analyst estimates

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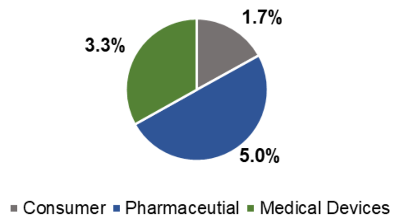
Company Overview

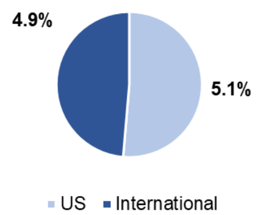
Exhibit 1. Revenue breakdown by segment (2018)



Founded in 1886, in New Jersey, by Johnson brothers, Johnson & Johnson (J&J) started its activity being the first company to produce cotton white, sterile and absorbent for surgery purposes, breaking through the surgical care industry. 134 years later, J&J is one of the biggest companies in the healthcare industry, engaged in research and development, manufacture and sale of products. It employs more than 130,000 people worldwide.

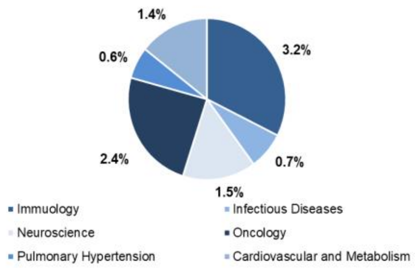
J&J's activities are divided into three different segments: pharmaceutical, medical devices (MD) and consumer products, reporting revenues from U.S and international operations. In 2018, the pharmaceutical segment accounted for c. half of J&J's total revenues, 49.9% ($40.7bn), while MD and consumer products accounted for 33.1% ($27.0bn) and 17.0% ($13.8bn), respectively. Total sales amounted to $81.6bn. During the 1st nine months of 2019, pharmaceutical, medical devices and consumer revenues were $31.7bn, $19.3bn and $10.3bn, respectively, adding up to $61.3bn of total revenues. As such, we expect J&J to generate around $82.6bn in FY 2019.

Exhibit 2. Revenue breakdown by geography (2018)



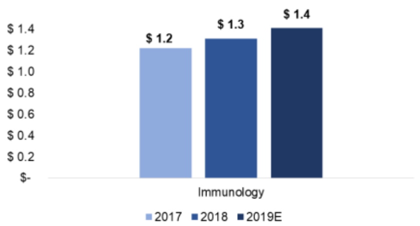
Pharmaceutical

Exhibit 3. Pharmaceutical revenue breakdown by division (2018)



J&J engages in researching and developing drugs to address some of the most devastating diseases. Drugs produced are sold and distributed to hospitals, medical care professionals and retailers, for prescription use. The segment is divided in six different areas: immunology, infectious diseases, neuroscience, oncology, pulmonary hypertension (PH) and cardiovascular/metabolism. In 2019, sales are expected to be $42.7bn, meaning a 5.0% growth year-on-year (YoY).

Exhibit 4. Immunology revenue (2017 - 2019)



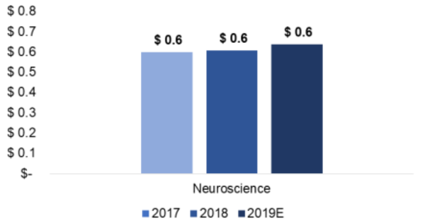
Immunology is the main driver of pharmaceutical revenue, representing 32.4% of the segment's revenue ($13.1bn) and having grown 7.2% in 2018. In 2019 is expected to generate sales of $14.1bn, meaning a growth of 7.7%. Remicade®, J&J's best-selling drug for the last 5 years, is used for treating immunological diseases such as rheumatoid arthritis, ulcerative colitis or Chron's disease. As a consequence of the Food and Drug Administration's (FDA) approvals for the production of biosimilars in 2016 (which resulted in J&J losing its Remicade® patent in 2018), Remicade® sales have been decreasing in the last two years. In 2018, sales decreased by 15.6%. The increasing number of biosimilars entering the market will significantly impact future sales – we expect a decrease from $5.3bn in 2018 to about $4.4bn in 2019, representing a fall of 18.1%. However, immunology sales have been increasing, mostly due to J&J's second best-selling drug, Stelara®, which accounted for $5.2bn, increasing 28% in 2018. Due to further R&D developments, during 2019, an extension to treat patients suffering from Ulcerative Colitis was approved in the E.U. (still filed for approval in the U.S., showing good clinical results). In addition, an extension to be used in patients with Pediatric Psoriasis, was filed. Therefore, we expect Stelara® sales to continue growing. In 2019, revenue should grow 25.6%.

Exhibit 5. Oncology revenue (2017 - 2019)

***LATITUDE findings:** according to cancerNetwork, home of the journal Oncology, the combination of abiraterone acetate plus prednisone along with androgen deprivation therapy resulted in significantly longer survival for patients.*

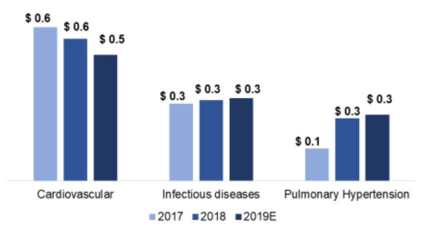
Oncology accounted for 24.3% of total segment's revenue ($9.8bn), growing 35.6% from 2017 to 2018. This growth was mostly supported by Darzalex®, due to the increasing number of patients with multiple myeloma and J&J's market share expansion, resulting in sales growth 63.0%. Growth was also driven by Imbruvica® gaining market share, with revenues growing 38.1% and by Zytiga® sales growing by 39.6%, as a consequence of an increasing market for prostate cancer drugs and LATITUDE findings regarding Zytiga®'s Active Pharmaceutical Ingredient (API). Although at a slower pace, the oncology division is expected to continue growing, as in 2019: two new extensions to Darzalex® approved in the U.S. and filed for approval in the E.U.; two extensions to Imbruvica® approved both in the U.S. and E.U.; and two New Molecular Entities (NMEs) approved in the U.S. – Erleada®, used on metastatic castrate sensitive prostate cancer and Balversa™, used on urothelial cancer. Together with the increase of the market for oncology drugs, J&J's revenue is expected to grow 11.7% in 2019.

Exhibit 6. Neuroscience revenue (2017 - 2019)



Neuroscience represents 15.0% of the segment's sales, growing 1.5% in 2018, from $6.0bn to $6,1bn, following 3 years with decreasing sales. This was mostly due to Invega® drugs sales growth. In the first three quarters of 2019, sales amounted to $4.8bn, expected to be $6.4bn by year-end. Growth in 2019 is mostly because of the increasing market for mood disorders drugs (growing 11.8% YoY) and the launch of a NME, Spravato™.

Exhibit 7. Cardiovascular, infectious diseases, PH revenue (2017 - 2019)

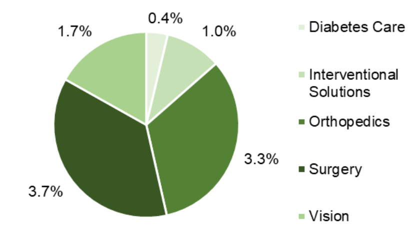


As for the remaining three divisions, **cardiovascular/metabolism/other** sales decreased from 2017 to 2018 by 7.5%. This was mainly due to the decrease in the market share of Invokana®, Invokamet® and Xarelto®. This trend is expected to continue in 2019, as the two new extensions for Xarelto® and Invokana® approved in the U.S., are not likely to overcome the continuous decrease of both market shares. On the other hand, **infectious diseases** sales increased 4.8% from 2017 to 2018, being expected to grow 2.6% by the end of 2019. **Pulmonary hypertension**, a reporting segment established in June 2017, following the acquisition of Actelion, reported full year sales for the first time in 2018, which amounted to $2.6bn. In 2019 revenues are expected to reach $2.7bn, (5.4% YoY growth), as a result of Opsumit®'s extension approved in the U.S..

Pharmaceutical activity highly depends on pipeline performance and patents protecting intellectual property. The future impact of both in J&J's valuation is further discussed on this report.

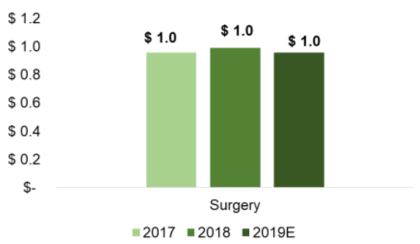
Medical Devices

Exhibit 8. Medical devices revenue breakdown by division (2018)



The MD segment is, in terms of revenue, J&J's 2nd largest segment. It is responsible for the research, production and sale of medical devices, that are distributed to wholesalers, healthcare providers and hospitals around the world. The segment is divided in diabetes care, interventional solutions, orthopaedics, surgery supplies and vision care. In 2014 the diagnosis division was divested, reporting sales until 2017, which referred to a transactional services agreement, concluded in that same year. In 2018, MD revenues grew by 1.5%, amounting to $27.0bn and representing 33.1% of J&J's total revenues. Until the 3rd quarter of 2019, revenues were $19.3bn and are expected to be around $26.0bn by year-end, decreasing 3.7% YoY. This poor performance can be explained by recent divestitures and by the loss of market share in orthopaedics and surgery.

Exhibit 9. Surgery revenue (2017-2019)



Surgery sales increased 3.6% from 2017 to 2018, being the largest division in MD. Nonetheless, we expect this increase to be reverted, with a decrease of 3.5% in sales by the end of 2019. J&J is being negatively affected, as competitors are selling digital surgery robots. With the acquisition of Auris in April 2019 (surgery robots) and because of the success of gastric and thoracic surgery innovation (endocutter stapler), we expect surgery's sales to recover from 2020 onwards, as it is further discussed in the revenue drivers' section.

Exhibit 10. Orthopaedics revenue (2017-2019)

Orthopaedics revenue, following the trend of the last years, decreased by 1.9% between 2017 and 2018, as a consequence of recent divestitures. Orthopaedics is divided in four divisions: hips, knees, trauma and spine & other. During 2018, spine & other sales decreased due to the divestiture of Codman Neurosurgery and market share loss due to digital surgery robots, as they are used in spine interventions. Sales in knees division also decreased, consequence of competitive pressure on U.S. prices. In 2019, revenues are expected to continue decreasing, at -0.9% YoY, as J&J's orthopaedics segment will keep being affected by not having implemented digital robot surgeries. However, as in surgery, from 2019 onwards, we expect sales to recover and grow (see valuation chapter).

Exhibit 11. Vision revenue (2017-2019)

Vision segment experienced growth of 12.1% in 2018 (16.9% of 2018 revenues). Between 2016 and 2017 sales grew 45.9%. The segment reports sales from two different divisions: contact lenses and surgical. Recent growth is consequence of three factors: the continuous growth in contact lenses and related products' revenues under Acuvue brand – the top-selling contact lenses brand; the reallocation of vision surgery revenues from the surgical division to the vision one, in 2017; and cataract surgery's performance outside the US. We expect the trend to be maintained in 2019, at a slower pace, with revenue growing 1.8%, mostly supported by increasing market share in contact lenses.

Exhibit 12. Interventional solutions revenue (2017-2019)

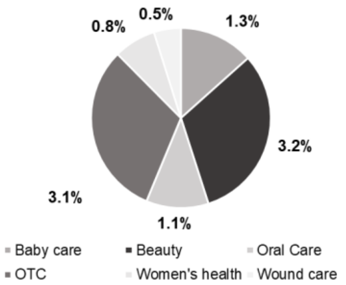
Regarding **interventional solutions**, sales grew 15.2% on 2018, mostly due to market growth for Atrial Fibrillation procedure and continued uptake from previously launched Contact Force Sensing Catheter. In 2019 we expect sales to increase 13.4%, continuing to benefit from market growth.

Diabetes care division, representing 3.7% of total medical devices sales, decreased by 37.5% in 2018. This decrease was consequence of J&J's divestiture of Animas and Lifescan. With this, J&J completed the sale of its diabetes care portfolio.

The results of J&J's MD segment are highly correlated with the launch of new products and the ability of competitors to do so, as well. Our thought on the impact on J&J's future results is further discussed on the drivers' chapter.

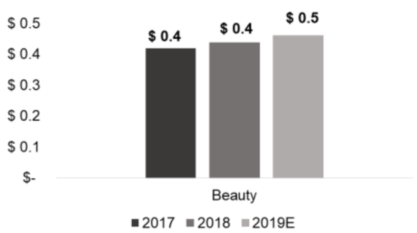
Consumer Goods

Exhibit 13. Consumer goods revenue breakdown by division (2018)



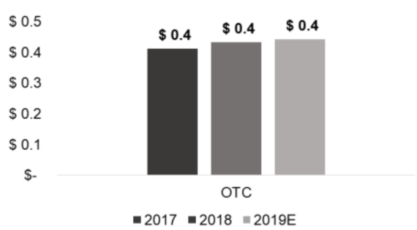
Consumer goods is J&J's smallest reporting segment. It is responsible for the development and marketing of many well-known household products, sold to distributors and retailers around the globe. Consumer products are divided in six different areas: baby care, beauty, oral care, over-the-counter (OTC), women's health and wound care. In 2018, consumer sales grew by 1.8% from 2017, amounting to $13.9bn. In the 1st nine months of 2019 it reported revenues of $10.3bn and is expected to achieve $13.8bn by the end of the year (YoY growth of 0.1%). Low growth in this segment results from decreasing sales in baby care, women health and wound care.

Exhibit 14. Beauty revenue (2017 – 2019)



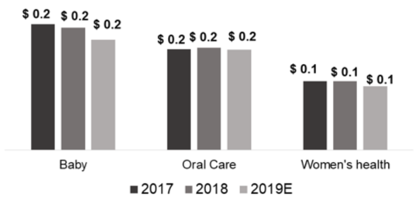
Beauty sub-segment, the main revenue driver within the segment, represented 31.6% of total sales. This division has been facing growth in the last years, mostly due to an increasing market for beauty products, mainly in emerging markets. From 2017 to 2018, sales grew by 4.3% driven by its Neutrogena®, OGX, Aveeno® and Dr.CI: Labo products, whose international market share grew by 1.9%, overcoming the decrease in U.S.' market share by 1.16%. In 2019 we expect this upward trend to continue, with sales growing 5.2%.

Exhibit 15. OTC revenue (2017 – 2019)



OTC sales accounted for 31.3% of the segment's revenue in 2018. It is the division showing higher growth, as sales grew by 5.0% in 2018, supported by: growth of 4.0% in the market for OTC products, mostly outside the U.S.; increase of J&J's market share on products such as Zyrtec®, Tylenol® and Motrin®; and acquisition of Zarbee's Inc. (that made OTC sales grow 0.9%). In 2019, sales are expected to continue growing, for the same reasons, around 2%.

Exhibit 16. Oral care, baby care, women's health revenue (2017 – 2019)



In 2018, **Oral care** sales increased by 1.6%, accounting for 11.2% of the segment's total sales. Growth was mostly driven by strong marketing campaigns and the launch of new LISTERINE® products. In 2019, sales should decrease 1.8%, as a consequence of market share loss both in international and U.S. markets. However, we do not expect further revenue decreases, due to J&J's strong brands within oral care, as it is further explained.

Sales of the remaining divisions decreased in 2018. **Baby care** sales fell by 3.0%, as a consequence of decreasing market for baby care products in the U.S., together with findings of asbestos in J&J's baby powder products, which caused reputational damage and decreased the company's market share. In 2019, revenues are expected to continue decreasing, by 9.5%, following consumers' awareness on J&J's baby powder case. Regarding **women's health** and wound care divisions, sales decreased by 0.1% and 13.3%, respectively. J&J has been losing market share on these two markets in the past years, as products are also suffering from reputation damage due to baby powder litigations. As such, we expect sales to continue decreasing in 2019.

Consumer Healthcare, is J&J's smallest segment and it is expected to grow at a lower pace than the other segments, following J&J's market share loss in recent years and most recently, due to litigations on products within the segment. Further impact on J&J's future financials and valuation are discussed ahead.

Shareholder Structure

Exhibit 17. Shareholder Structure

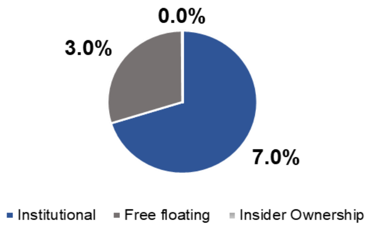
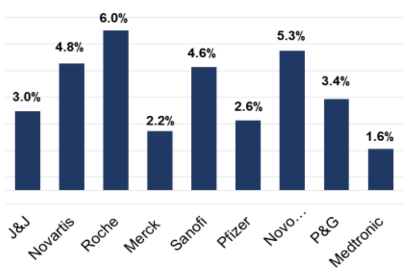


Exhibit 18. Peers' shareholder structure



Johnson & Johnson is a publicly traded company, listed in the NYSE since 1944. J&J's common shares amount to 3.2bn with 457.5m being held in treasury.

Institutional shareholders such as big pension and investment funds, hold 70.2% of the market's floating stocks. Top 3 institutional shareholders are The Vanguard Group, Inc. (8.5%), SSgA Funds Management, Inc. (5.8%) and BlackRock Fund Advisors (4.9%). Moreover, 0.1% of total shares outstanding are held by insiders. The remaining 29.7% are free floating stocks, being traded daily on the stock exchange. The average trading volume for the last 3 months was 7.2m. By comparing free floating shares of J&J and its peers (excluding institutional shareholders), we were able to conclude on the volatility of J&J's stock. As observed, J&J has a lower percentage of free floating shares (29.7%) than the average of its peers' (37.2%). As such, J&J's stock should be more volatile, since by having a lower number of shares that can be bought or sold, in case of a major event happening, share price will vary in higher proportions.

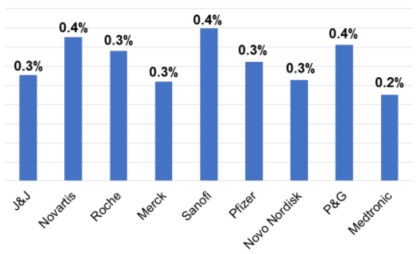
Stock Performance

Exhibit 19. J&J and S&P500 returns (2017 – 2018)

By analysing J&J's stock in the last year, we can see that legal liability and uncertainty regarding litigations have dominated J&J's investment debate. In the beginning of December 2018, J&J's stock was trading at a relative price 5.4% above S&P500. In late October 2019, after months of discussions and lawsuits regarding J&J's baby powder and following the intensification on opioid talks, J&J's share was trading at a relatively low record of 15.6% below the S&P500. After J&J's SEC filing on the 26^{th} of October 2019, stating an agreement in principle to settle opioid litigation at $4.0bn, J&J's price started recovering, going from $128.35 to $145.75, currently trading 10.6% below the S&P500.

Dividend Policy

Exhibit 20. J&J and eers' dividend yield



J&J has defined a fixed policy regarding dividends, being paid on a quarterly basis. Dividends per share have been increasing (DPS) YoY, going from 2.8$ in 2014, to $3.5 in 2018. This is the result of a dividend payout ratio between 47.6% and 62.1%. In 2017, when J&J's net income fell by 92.1%, from $16.5bn in 2016 to $1.3bn (due to Tax Cut and Job Act implemented in 2017) J&J's DPS increased, leading to an abnormal payout ratio of 687.9%. Following that, we can conclude that J&J is keen in increasing its DPS, even when results decrease. During 2019, the four dividend payments amounted to a total of $3.75 per share. We expect DPS in 2020 to increase by $0.05 following past years, to $1 DPS per quarter.

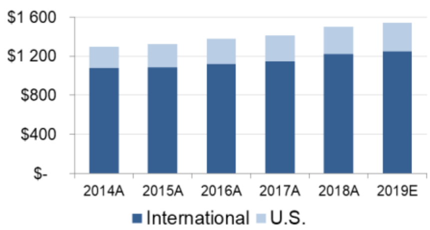
When comparing J&J's dividend yield in 2018 with its peers', we can observe that Johnson & Johnson's stock is yielding a return below its peers' average – dividend yield of 2.8% versus peers' average of 3.1%.

Industry Overview & Revenue Drivers

In the following sections, we discuss how J&J's market share in each segment has evolved and how we expect it to change. Moreover, we present our estimates on how the different markets will evolve and how that impacts J&J.

Pharmaceutical

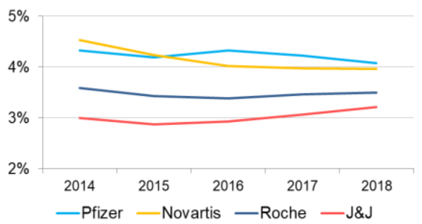
Exhibit 21. Global pharmaceutical market revenue (2014 – 2019)



Source: Passport (Euromonitor)

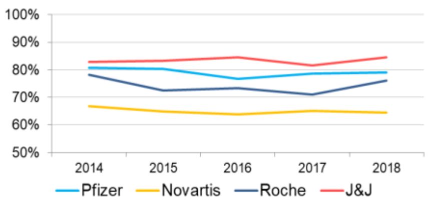
The pharmaceutical industry is responsible for the development, production and marketing of medications. Between 2014 and 2018, worldwide industry sales recorded a CAGR of 3.7%, with annual turnover always exceeding $1.3tn. In 2019, worldwide sales are expected to be $1.5tn, with ~19% happening in the U.S.. In the U.S. alone, annual turnover increased 6.2% per year, on average, with revenues expected to be $289.1bn in 2019. The U.S. is the leading country in this market, with its companies accounting for ~47% of total sales. Yet, the Chinese and Brazilian pharmaceutical sectors recorded the largest growth in the last 5 years, growing on average 9.6% and 8.7% per year, respectively. China's largest pharmaceutical company (Sinopharm Group) recorded sales growth of 14.6%, with revenue in 2018 of $48.5bn. Such companies have been claiming a larger market share. However, most innovative medicines still come from the U.S..

Exhibit 22. Global pharmaceutical market shares - Pfizer, Novartis, Roche, J&J



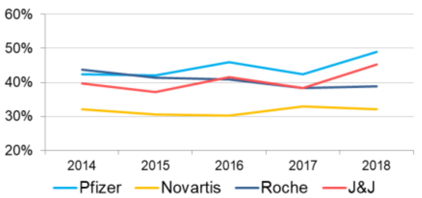
Johnson & Johnson is the 4th largest global player regarding revenue, with turnover of $40.7 bn in 2018 and market share of ~2.7%, only surpassed by: Pfizer (U.S.) with market share of ~3.6%, Novartis (Switzerland) with market share of ~3.5% and Roche (Switzerland) with market share of ~3.0%. Regarding the U.S., J&J's market share is 8.0%, with sales of $23.3 bn. Since 2015, J&J is the company recording the largest revenue growth, as its market share has been increasing, while that of Pfizer and Novartis has been decreasing. Other relevant players include Merck & CO (U.S.), Sanofi (France), Abbvie (U.S.) and GlaxoSmithKline (U.K.), all recording sales above $30bn in 2018. J&J recorded the largest net income in 2018 ($15.3 bn) and is the largest in terms of market capitalization - about $383.6bn, substantially above the 2nd largest, Roche Holding AG with a market cap of $280.3 bn.

Exhibit 23. Gross profit margin - Pfizer, Novartis, Roche, J&J



Out of the four leading pharmaceutical companies, J&J has clearly the best gross profit margin, consistently above 81.5% in the last 5 years (83.3% on average). During that period, Pfizer's average margin was 79.1%, Novartis' 65.0% and Roche's 74.2%. Even with higher production efficiency, J&J's average EBITDA margin of 40.4% is below that of Pfizer (44.3%) and very close to Roche's (40.6%). This is mainly due to J&J's large R&D expenses, which is one of the main drivers of J&J's value. J&J's R&D charges are ~21.2% of total revenue, while Pfizer only spends ~14.8% of sales revenues in R&D.

Exhibit 24. EBITDA margin - Pfizer, Novartis, Roche, J&J



The pharmaceutical industry is probably the most R&D-dependent industry. As science develops and the investment in the treatment of rare diseases increases, it is expected that more innovative and effective drugs arise, which will lead to an industry expansion. In 2018, J&J was the world's 2nd largest spender in R&D, with expenses of $8.4bn in its pharmaceutical segment, which represented 20.7% of the segment's revenue. Roche was the largest spender, with $9.7bn in R&D costs. Due to all the efforts in R&D, patents play a major role in the pharmaceutical industry. In the U.S., patents typically last for 20 years. However, after a company files for a patent, the FDA's approval may take many years. This means that, as the product starts to be sold, companies will have less than 20 years of exclusivity. Yet, most of J&J's drugs have been approved in less than a year. Even if a drug is already on the market, companies can file for patent extensions and expand the drug's medical use. Compensating the expiration of a certain patent with the creation of a new one (through NMEs), or the extension of an existing one, is crucial to ensure sustainability and growth. A study by the *University of Groningen* in July 2018[1] determined that after a patent expires, prices usually go down up to 66%, five years after expiration. Moreover, a study by the *National Bureau of Economic Research* in August 2014[2], estimated that 3 - 5 new players usually enter the market after patent expiration, with global revenue actually increasing after the price drops, as a result of higher demand. However, profit margins decrease and global revenue is divided amongst the original patent owner and the new entrants. The impact of patent losses in J&J's sales was estimated in accordance with these studies.

Together with governments, the FDA, the World Health Organization (WHO) and the Medicines and Healthcare Products Regulatory Agency (MHRA) have been tightening pharmaceutical companies' pricing strategies, as pressure for price decreases keeps surging. The goal is to have a balance between rewarding and enhancing medical innovation, while making medicines accessible for everyone. The U.S. president Donald Trump announced in early 2019 that he intended to lower drug prices in the U.S., following policies that already exist in many European countries. Some measures included making it more difficult for drug manufacturers to raise prices, while others make sure information regarding negotiations between firms, health insurers and pharmacy benefit managers are disclosed. Thus, even though U.S. drug prices are still fairly unregulated, there are signs of that changing in the near future. After analysing pharmaceutical spending in European countries with strict price regulation (Austria, Belgium, France, Germany, Spain, Greece, Italy and Ireland), we could conclud that drug prices in the U.S. are ~54% higher. As price regulation intends to make medicines more accessible for people, we believe that revenue will not decrease as prices get lower, since demand increases. Therefore, we expect gross profit margins of pharmaceutical companies to suffer as regulation tightens. In our estimates, we assume that by 2030, U.S. drug prices will be between current levels and European prices (meaning U.S. prices ~27% higher than in Europe). As a result of that, we estimate J&J's U.S. gross profit margins to have decreased 3.6*pps* by 2030 (from 2019's margin of 83.2%).

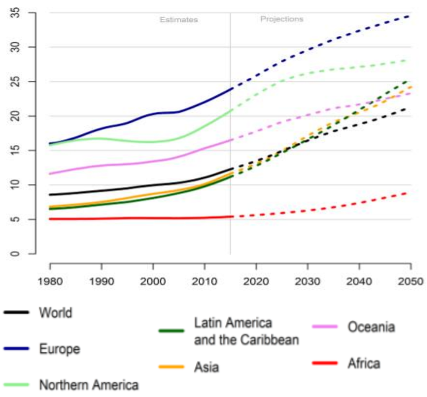
Exhibit 25. Pharmaceutical spending per capita – U.S. vs European countries

Austria	$	646
Belgium	$	689
France	$	653
Germany	$	823
Greece	$	603
Ireland	$	599
Italy	$	601
Spain	$	598
U.S.	**$**	**1 220**

The industry's major segments are oncology, antidiabetics, respiratory and autoimmune diseases, which combined turnover exceeded $290bn in 2018.

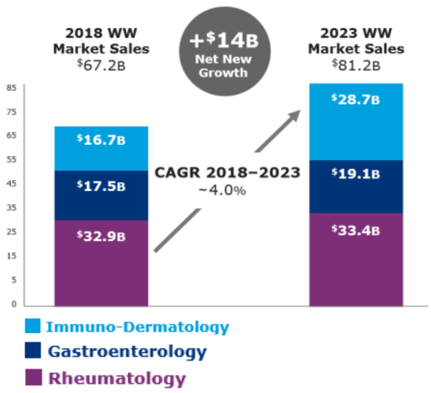
[1] Vondeling, Gerard T; Cao, Qi; Postma, Maarten J and Rozenbaum Mark H. 2018. "The Impact of Patent Expiry on Drug Prices". Applied Health Economics and Health Policy, 16(5), 653-66.
[2] Rena, M. Conti, and Ernst R. Berndt. 2014. "Specialty drug prices and utilization after loss of U.S. patent exclusivity, 2001-2007". Measuring and Modeling Health Care Costs

Exhibit 26. Percentage of people over 60 years of age



Source: United Nations (2017).

Exhibit 27. Worldwide immunology drugs market revenue (2018 – 2023)



Source: J&J Investor Presentation (May, 2019).

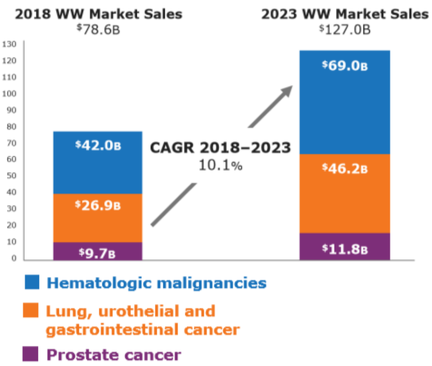
Branded, patented medications represent the largest portion of the pharma industry - around 78.7% in 2018 - while unbranded generics accounted for 11.7% and branded generics for 9.6%. Ageing populations, driven by decreasing fertility rates and increased life expectancy, will drive up the demand for pharmaceutical products. The percentage of people over 60 years of age is expected to grow at a fast pace, going from ~12% in 2017 to over 16% in 2030. A study by *Mercer Capital* in 2016 found that, on average, people above 65 years of age spend 3x more on healthcare than other adults and 5x more than children. Thus, as populations get older, the average revenue per capita of pharmaceutical companies increases. Another factor driving the demand for pharmaceutical products is the growing disposable income of low and middle class families, as drugs become more accessible. Below we discuss our beliefs on how J&J's pharmaceutical divisions will evolve.

Immunology: estimates by *EvaluatePharma* state global annual sales will grow at 3.9% until 2023, reaching $81.2bn. We believe that afterwards, growth will slow down to 3.8% as a result of a decrease in dermatology's growth rate, from 11.4% (*EvaluatePharma*'s growth estimate until 2023) to 7.7%. We predict growth in dermatology to reduce, as opportunities to serve unmet needs through innovative drugs will decrease, and growth will mostly be due to increases of market reach. We expect annual global dermatology sales to achieve $28.7bn by 2023. J&J serves two other immunology divisions – gastroenterology and rheumatology. Global rheumatology market is forecasted to expand only 0.3% per year until 2023, as current drugs fulfil patients' needs, achieving $33.4bn. We believe growth will be the same after 2023. Worldwide gastroenterology revenue is forecasted to grow 1.8% per year until 2023. Even if the number of gastric diseases is expected to increase at 6.5%, according to *Mayo Clinic*, the shift towards surgery and bacterial transplants will continue (according to *Zion Market Research*), lowering the demand for non-post-surgery recuperation drugs. After that, we believe growth will increase to 2.6%, more in line with the number of gastric diseases. Thus, gastric global market turnover will expand from $17.5bn in 2018 to $19.1bn in 2023.

J&J's market share in the immunology market, in 2018, was 19.6%, expected to rise to 20.4% in 2019. This is due to Stelara®'s success in the gastric division, following an increase in sales due to an extension approval in 2016 (representing 36.4% of global gastric drugs' revenue) and because Tremfya®'s market share keeps increasing, after the drug's approval in 2017. Even if we believe these drugs will continue to increase in sales and gain market share, we expect that the expiration of Remicade®'s patent in 2018 (J&J's most sold drug) will ultimately lead to a decline in J&J's immunology market share. We expect J&J's market share to have decreased to 16.5% by 2023 and to slightly reduce afterwards, as we do not predict new approvals in this division, reaching 15.6% in 2030. As such, we expect J&J's immunology sales to evolve as follows:

Immunology	**2018A**	**2019E**	**2020F**	**2021F**	**2022F**	**2023F**	**...**	**2030F**
Market size ($bn)	$ 67.1	$ 69.4	$ 72.0	$ 74.8	$ 77.8	$ 81.2	...	$105.1
J&J market share	19.6%	20.4%	19.1%	17.8%	17.2%	16.5%	...	15.6%
J&J revenue ($bn)	**$ 13.1**	**$ 14.1**	**$ 13.8**	**$ 13.3**	**$ 13.4**	**$ 13.4**	**...**	**$ 16.4**

Exhibit 28. Worldwide oncology drugs market revenue (2018 – 2023)



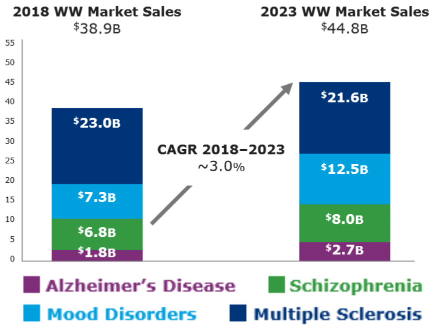
Source: J&J Investor Presentation (May, 2019).

Oncology: global market is expected to grow 10.1% per year until 2023, with hematology growing 10.4% and prostate cancer medicines growing 4.0%, according to *EvaluatePharma*'s estimates. This expansion is mainly due to the increasing number of new cancer cases worldwide, resulting mostly from ageing populations (*17M cases in 2018, expected to reach 27.5M by 2040 – data from Cancer Research U.K.*), and due to the development of new drugs to fulfil unmet needs. As both population ageing and drug innovation are expected to continue, we expect growth to slightly decrease after 2023, to 8.2%. As such, global oncology turnover should increase from $78.6bn in 2018 to $127.0bn in 2023. We believe hematology will keep growing above the remaining divisions, at a pace of 8.5% after 2023, as innovation should continue. Thus, global hematology revenue is predicted to grow from $42.0bn in 2018 to $69.0bn in 2023. As for prostate cancer, we believe growth will stay the same after 2023, at 4.0%, expanding from $9.7bn in 2018 to $11.8bn in 2023. With the introduction of Balversa™ in 2019, J&J entered the market for urothelial cancer drugs, a reasonably smaller market. Yet, annual revenue is expected to experience large growth, reaching $2.9bn by 2023 (from $1,051m in 2018).

With the approvals of Erleada® for the treatment of prostate cancer and Balversa™ in 2019, J&J's share of oncology drugs' revenue should rise to 12.7% in 2019 (0.2pps above 2018). We believe both drugs will experience high revenue growth, with Erleada® sales representing 8.1% of prostate cancer drugs and Balversa™ representing 9.0% of global urothelial cancer drugs' market, by 2023. We also expect recently-approved Darzalex® to continue growing in sales and become a best-seller. Together with Imbruvica®, we believe these drugs may represent 15.6% of the hematologic market by 2023 and 16.6% by 2030. Therefore, we believe J&J will increase its share of global oncology drugs' revenue to 13.5% by 2023 and 13.7% by 2030. All things considered, we estimate J&J's oncology revenue to be:

Oncology	**2018A**	**2019E**	**2020F**	**2021F**	**2022F**	**2023F**	**...**	**2030F**
Market size ($bn)	$ 78.6	$ 86.5	$ 95.2	$104.8	$115.4	$127.0	...	$221.1
J&J market share	12.5%	12.7%	12.9%	13.1%	13.4%	13.5%	...	13.7%
J&J revenue ($bn)	**$ 9.8**	**$ 11.0**	**$ 12.3**	**$ 13.8**	**$ 15.4**	**$ 17.2**	**...**	**$ 30.2**

Exhibit 29. Worldwide neuroscience drugs market revenue (2018 – 2023)



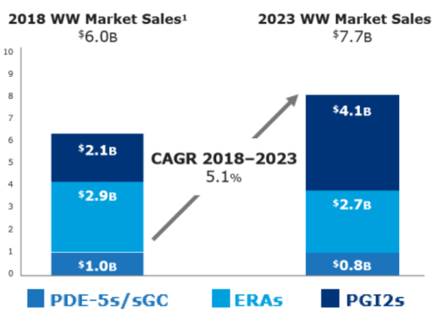
Source: J&J Investor Presentation (May, 2019).

Neuroscience: according to *EvaluatePharma*, schizophrenia global revenue is expected to grow 3.3% per year, reaching $8.0bn in 2023. The disease affects ~23m people worldwide, with most facing multiple relapses and shifting towards long-acting injectable medicines such as J&J's Invega®, which will drive up the market's total revenue. J&J joined the mood disorders market with the introduction of Spravato™ in March 2019, a drug for adults suffering from depression. We believe this drug can have a large impact, since depression affects more than 300M people worldwide. According to the WHO, about 800k people suicide every year because of depression. The mood disorders market should grow 11.4% per year, until 2023, reaching $12.5bn, as a result of people's increasing concern and as innovative drugs such as Spravato™ are developed. Afterwards, we predict growth to slow down to 7.6%. J&J is set to enter multiple sclerosis market as a result of Ponesimod's approval, which is expected to happen in 2021. Worldwide multiple sclerosis turnover is expected to grow 0.2%, reaching $23.2bn by 2023, according to *iHealthcareAnalyst*. We believe growth will be sustained afterwards. Overall, global neuroscience sales are expected to grow 2.9% per year, reaching $44.8bn in 2023.

With the approval of Spravato™ in 2019 and the expected approval of Ponesimod for treating multiple sclerosis in 2020, we expect J&J to increase its market share in the neuroscience division, in spite of litigations related to Risperdal Consta®. We believe it will increase from 15.6% in 2018, to 18.2% by 2023, with Spravato™ representing 8.5% of global mood disorder sales and Ponesimod representing 1.9% of worldwide multiple sclerosis revenue. However, after that, we expect J&J's market share to decrease following patents expiration for Risperdal Consta® in 2023 and Concerta® in 2022. Following these patent losses, we believe J&J's market share will gradually fall to 17.6%. Overall, we expect J&J's neuroscience revenue to be as follows:

Neuroscience	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 38.9	$ 40.0	$ 41.2	$ 42.3	$ 43.6	$ 44.8	...	$ 54.6
J&J market share	15.6%	15.9%	16.6%	17.5%	18.2%	18.2%	...	17.6%
J&J revenue ($bn)	**$ 6.1**	**$ 6.4**	**$ 6.8**	**$ 7.4**	**$ 7.9**	**$ 8.1**	**...**	**$ 9.6**

Exhibit 30. Worldwide PH drugs market revenue (2018 – 2023)



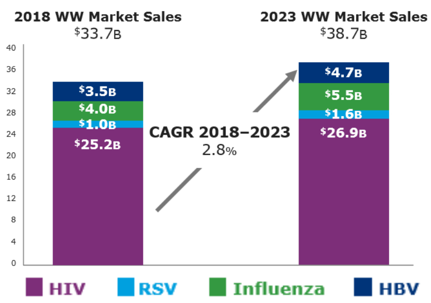
Source: J&J Investor Presentation (May, 2019).

Pulmonary hypertension (PH): annual turnover is expected to increase 5.1% per year, until 2023, reaching $7.7bn. PH is a deadly disease with 1 out of 3 patients dying within 5 years of diagnosis. Main reasons for the market's expansion are: late diagnosis is reducing (as awareness is increasing) and because 2/3 of all PH patients are only using a single drug in their treatments, still not benefiting from the advantages of combined treatments. As such, we expect growth to be sustained after 2023, around 5.1%.

Johnson & Johnson leads the market for PH drugs, as sales in 2018 accounted for 42.9% of global revenue. Since J&J's Uptravi® continues to gain market share, we believe that until 2022, J&J will increase its total share of PH drugs market, to 44.5%. Yet, with the expiration of Tracleer®'s patent in 2022, J&J's market share should gradually decrease to 43.0%. As such, we estimate J&J's PH sales as:

PH	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 6.0	$ 6.3	$ 6.6	$ 7.0	$ 7.3	$ 7.7	...	$ 10.9
J&J market share	42.9%	43.0%	43.8%	44.4%	44.5%	44.4%	...	43.0%
J&J revenue ($bn)	**$ 2.6**	**$ 2.7**	**$ 2.9**	**$ 3.1**	**$ 3.3**	**$ 3.4**	**...**	**$ 4.7**

Exhibit 31. Worldwide infectious diseases drugs market revenue (2018 – 2023)

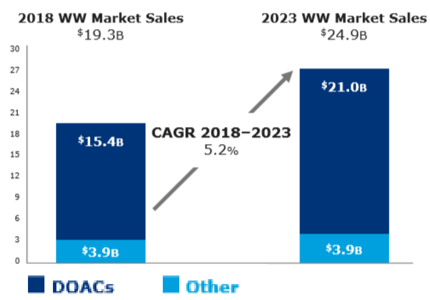


Source: J&J Investor Presentation (May, 2019).

Infectious diseases: global sales are expected to increase 2.8% per year as a result of the continuous development of therapeutics and vaccines to treat life-threatening diseases. Drugs for treating of HIV represent most of the market, as 8M new infections occur every year. We expect global infectious diseases revenue to reach $38.7bn by 2023 ($33.7bn in 2018). J&J has kept a share in the infectious diseases market of around 9.8%. We expect a slight decrease in J&J's market share as its "*other infectious diseases drugs*" revenue keeps decreasing. By 2025 we expect the company's market share to be around 9.4%. In 2026, with the expiration of PREZISTA®'s patent, we believe J&J's market share to fall, reaching 7.4% by 2030. We forecast the company's revenue to be:

Infectious Diseases	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 33.7	$ 34.6	$ 35.6	$ 36.6	$ 37.6	$ 38.7	...	$ 47.0
J&J market share	9.8%	9.8%	9.7%	9.7%	9.6%	9.6%	...	7.4%
J&J revenue ($bn)	**$ 3.3**	**$ 3.4**	**$ 3.5**	**$ 3.6**	**$ 3.6**	**$ 3.7**	**...**	**$ 3.5**

Exhibit 32. Worldwide cardiovascular and metabolism drugs revenue (2018 –



Source: J&J Investor Presentation (May, 2019).

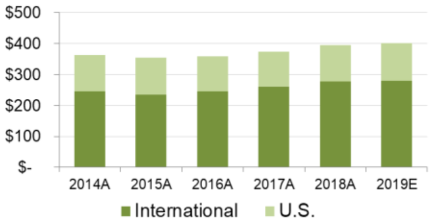
Cardiovascular, metabolism and others: global annual revenue is expected to increase 4.8% each year until 2023 (reaching $41.3bn), after the U.S. government's health insurer, Medicare, decided to increase spending in this division and as the expansion of new-generation anti-coagulants continues.

J&J's market share is expected to fall in 2019, to 15.1% (17.8% in 2018), following the success of Pfizer's and Bristol-Myers Squibb's drug, Eliquis. This drug competes directly with Xarelto® and is clearly reducing its market share, as it is sold at a lower price. Eliquis' sales have been growing ~20% per year. We expect Eliquis to continue gaining market share over Xarelto®. However, we expect Invokana®'s market share to recover to 2018's level of 2.7%, as a new extension was approved in October 2019. Still, this should be partially offset by the expiration of Procrit®'s patent. Overall, we estimate J&J's market share to have decreased to 13.1% by 2022. With the approval of Aprocitentan in 2022, we believe J&J will start to recover market share. Following that, we predict J&J's market share will be 13.8% from 2026 onwards, and sales in this division to be:

Cardiac/Metabolism/Other	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 32.6	$ 34.2	$ 35.8	$ 37.5	$ 39.4	$ 41.3	...	$ 57.3
J&J market share	17.8%	15.1%	13.9%	13.4%	13.1%	13.2%	...	13.8%
J&J revenue ($bn)	**$ 5.8**	**$ 5.2**	**$ 5.0**	**$ 5.0**	**$ 5.2**	**$ 5.4**	**...**	**$ 7.9**

Medical Devices

Exhibit 33. Global medical devices revenue (2014 – 2019)

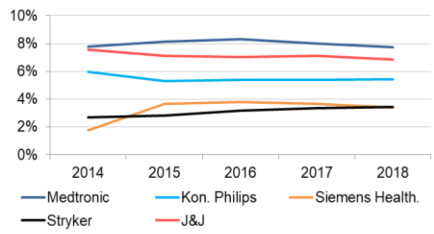


Source: Passport (Euromonitor)

The medical devices industry is broad, ranging from large imagology devices to pacemakers and surgical instruments. Between 2014 and 2018, worldwide sales recorded a CAGR of ~2.1%, with revenue in 2018 exceeding $394.5bn. The U.S. market did not grow during the period, but is expected to grow ~2.8% in 2019.

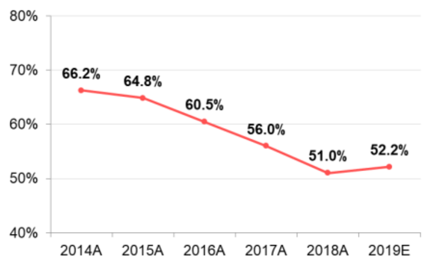
J&J is one of the industry's main players, alongside Medtronic (U.S.), the largest in terms of sales, with market share of 7.7% in 2018; Koninklijke Philips NV (The Netherlands) with market share of 5.4%; Siemens Healthineers AG (Germany) with market share equal to 3.4% and Stryker (U.S.) also with 3.4%. These are J&J's main competitors in the medical devices segment. J&J's market share has fallen below 7% for the 1st time since 2014, being 6.8% in 2018 and expected to be 6.5% in 2019. Yet, J&J still has the industry's 2nd largest market share.

Exhibit 34. Global medical devices market shares – Medtronic, Koninklijke Philips, Siemens Healthineers, Stryker,



Most medical devices customers are healthcare systems such as Medicare (U.S.), who buy these appliances for patients and hospitals. Since healthcare insurers are almost only focused on lowering costs, sellers are forced to compete mostly based on prices. A study by *The Commonwealth Fund* in September, 2017[3], concluded that health insurers will increasingly have bargaining power to reduce prices. We believe that price decreases and increased shopping efficiency will not lower revenues, as demand increases should compensate lower prices. This should cause operating margins to fall. Yet, we expect this to be compensated following the firm's restructuring program and the increase in the use of new production technologies such as 3D printing. However, investing in 3D printers will lead to higher capital expenditures.

Exhibit 35. J&J gross profit margin



Ageing populations and the overall evolution of science will continue to drive up the medical devices market, as innovative products are developed. Moreover, according to the WHO, government health expenditure in developing countries per capita has doubled since the year 2000. However, companies from emerging economies have been claiming a larger share of the medical device industry. According to *Statista*, Chinese companies' sales should grow at a CAGR of 14.0% between 2013 and 2020. As for other emerging regions, revenue should grow at 9.9%. As for U.S. companies, revenue growth is expected to be 3.5%.

Exhibit 36. Medical devices industry revenue (2013 – 2020)

	2013	2020	*CAGR*
U.S.	$ 137	$ 174	*3.5%*
Japan	$ 41	$ 49	*2.6%*
Germany	$ 26	$ 29	*1.6%*
China	$ 22	$ 55	*14.0%*
Other emerging	$ 17	$ 33	*9.9%*
Rest of the world	$ 97	$ 130	*4.3%*
Total	**$ 340**	**$ 470**	***4.7%***

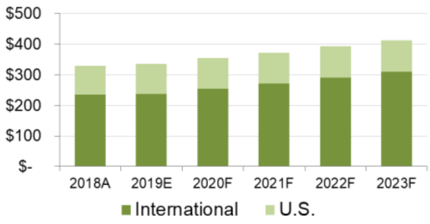
Source: Statista

Medical and surgical equipment: the U.S. market is expected to continue growing. According to *Passport (Euromonitor)*, sales will grow 2.0% per year until

[3] Scheffler, Richard. 2017. Insurer Market Power Lowers Prices in Numerous Concentrated Provider Markets. The Commonwealth Fund

2023, with total revenue reaching $104.7bn. After that, annual revenue should grow at 1.8%. In international markets, growth is expected to be superior, as healthcare spending and disposable income in emerging countries keeps increasing. Thus, sales should increase 5.6% YoY, reaching $308.5bn in 2023.

Exhibit 37. Worldwide medical/surgical equipment revenue (2018 – 2023)



Source: Passport (Euromonitor)

J&J's U.S. market share in this division has increased between 2014 and 2017, but fell to 6.7% in 2018 being expected to decrease further, to 6.0% in 2019. International market share decreased from 3.7% in 2017 to 3.6% in 2018 and 3.3% (expected) in 2019. This is due to the discontinuation of diabetes care and due to poor performance in specialty surgery equipment. Yet, J&J's products remain the best in treating and preventing strokes and the company is set to launch in the next 18 months a smart micro-catheter that will decrease the average surgery time in half. Also, J&J is investing in innovative solutions for gastric and thoracic surgery, which we believe will cause J&J to gain market share in the surgery division. All things considered, we trust that by 2023 J&J's U.S. market share will be 6.4% and in international markets, 3.4%. From then on, we believe these will stay the same. Therefore, we estimate sales to be:

Medical/Surgical Equipment	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$329.5	$334.9	$354.1	$372.5	$392.3	$413.2	...	$570.3
J&J market share	4.5%	4.1%	4.1%	4.2%	4.2%	4.2%	...	4.0%
J&J revenue ($bn)	**$ 14.8**	**$ 13.8**	**$ 14.6**	**$ 15.5**	**$ 16.4**	**$ 17.2**	**...**	**$ 22.7**

Exhibit 38. Worldwide orthopaedic devices revenue (2018 – 2023)

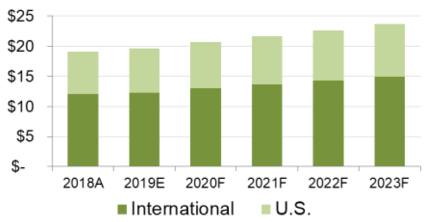
Source: Passport (Euromonitor)

Orthopaedic devices: sales in the U.S. are estimated to grow 1.7% per year, according to *Passport (Euromonitor)*. As such, revenue should reach $16.7bn by 2023. Again, international markets are expected to increase at a faster pace (4.5%), reaching $37.9bn by 2023.

In the U.S., J&J is the leading player, with market share consistently above 32.6% since 2014. Still, J&J's market share decreased in 2018 to 34.4% and is expected to decrease again in 2019, to 33.8%, due to poor sales of its spine-related products. The company's spine division will be underperforming until 2021, as digital surgery at J&J is still not fully developed. Following the company's partnerships with *Brainlab*, with China's #1 robotic surgery company and the acquisition Auris, by 2021 digital surgery should be fully operational. From then on, we believe J&J will recover some of its U.S. market share, increasing it from 33.6% in 2021 to 34.8% by 2026. In international markets all divisions have been performing worse, as players from emerging economies continue to gain market share. J&J's market share reduced from 14.1% in 2014 to 11.8% in 2018. In 2019, J&J's share in international markets will decrease to 11.6%. We expect further losses in market share until 2021, to 11.1%. Following the development of digital surgery in 2021, we believe J&J will be able to sustain its market share, from then onwards. As such, we forecast revenue as:

Orthopaedics	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 45.8	$ 45.8	$ 48.2	$ 50.2	$ 52.4	$ 54.6	...	$ 70.3
J&J market share	19.4%	19.2%	18.8%	18.4%	18.3%	18.2%	...	17.4%
J&J revenue ($bn)	**$ 8.9**	**$ 8.8**	**$ 9.0**	**$ 9.2**	**$ 9.6**	**$ 9.9**	**...**	**$ 12.2**

Exhibit 39. Worldwide contact lenses revenue (2018 – 2023)



Source: Passport (Euromonitor)

Contact lenses: global turnover is expected to grow at a similar pace in the U.S. and in international markets. According to *Grand View Research*, innovation will continue to drive up the market, together with rising disposable income levels and the tendency to wear contact lenses instead of glasses. As such, global revenue should grow 4.4% per year, until 2023. After that, we believe that growth in the U.S. will decrease to 4.1%, as the effect of the shift in preferences fades. Therefore, we expect U.S. revenue to be $8.7bn in 2023. In international markets, annual sales are estimated to reach $15.0bn by 2023.

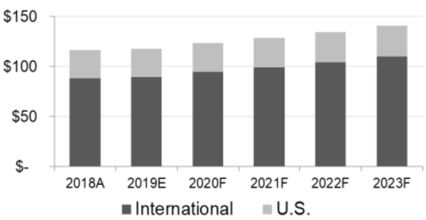
J&J's U.S. market share has been increasing since 2016, from 15.7% to 17.6% in 2018 and 2019. As for international markets, J&J's market share is increasing since 2014, from 14.4% to 17.1% in 2018 and 2019. With the launch of Acuvue® Oasys (innovative contact lenses that adapt to light conditions), we expect J&J to keep increasing its global market share. Therefore, we believe J&J will have increased its U.S. market share to 18.9% and to 18.5% in international markets, by 2023. Thus, we believe revenue will evolve as follows:

Contact Lenses	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 19.1	$ 19.7	$ 20.7	$ 21.7	$ 22.7	$ 23.7	...	$ 31.8
J&J market share	17.3%	17.3%	17.7%	18.1%	18.4%	18.7%	...	18.7%
J&J revenue ($bn)	**$ 3.3**	**$ 3.4**	**$ 3.7**	**$ 3.9**	**$ 4.2**	**$ 4.4**	**...**	**$ 5.9**

Consumer Goods

All consumer goods' industry considerations in this report only account for J&J's divisions of the consumer goods segment – beauty and women care, baby care, OTC drugs, wound care and oral care. Since each division's revenue drivers and trends are different, these were analysed separately, as follows:

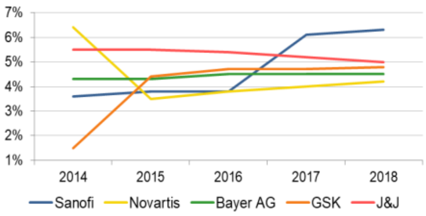
Exhibit 40. Worldwide OTC drugs & wound care revenue (2018 – 2023)



Source: Passport (Euromonitor)

OTC Drugs & Wound Care: wound care includes bandages, tapes, patches and other products, while OTC medicines are drugs sold without the need for a prescription from a healthcare professional. Drivers of the demand for wound care include the growing need for faster wound recovery and increase in the number of surgeries. Estimates by *Passport (Euromonitor)* state that the U.S. market will grow less than international markets (at 0.7% per year), reaching $1.0bn in 2023. In the remaining countries, revenue is expected to grow at 3.9%, going from $2.4bn in 2018 to $2.8 in 2023. The market for OTC drugs should expand fast, mainly due to a growing number of patent expirations on prescription drugs that emerge as OTC. The U.S. market is projected to grow 2.1% per year, from $26.8bn in 2018 to $29.8bn in 2023. As for international markets, growth is projected to be 5.4%, with annual revenue reaching $107.4bn in 2023.

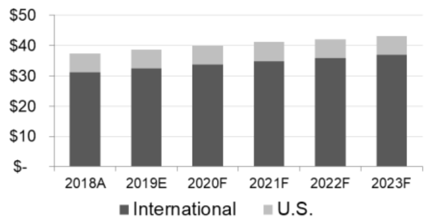
Exhibit 41. Global OTC/wound care market share – Sanofi, Novartis, Bayer AG, GSK, J&J



J&J is a leading player in OTC and wound care, with market share of ~5.0% in 2018. J&J's main competitors are multinational pharmaceutical companies, such as Sanofi (market share of 6.3%), GlaxoSmithKline (4.8%), Bayer AG (4.5%) and Novartis (4.2%). J&J recorded the largest revenue in 2015 and 2016, but since then has been surpassed by Sanofi. J&J's global market share has been decreasing because of international sales. In the U.S., the company's market share has been increasing due to its best-selling products such as Zyrtec®, Benadryl® or Nicorette®, with sales growing for the last 4 years. Following this, and the acquisition of Zarbee's™ in 2018, we believe J&J's market share will keep increasing. J&J's U.S. market share in 2019 is expected to rise to 7.3% (from 6.9%) and by 2023 it should be about 8.0%. Moreover, J&J's share in international markets is expected to slightly decrease from 2.9% to 2.8%. After that, we expect the company's share to continue decreasing as the impact of Zarbee's™ on revenue will happen mostly in the U.S. and as pharmaceutical companies from emerging markets continue to gain ground. We expect J&J's international market share to reach 2.7% by 2023. We estimate OTC drugs and wound care revenue to be as follows:

OTC Drugs & Wound Care	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$116.4	$117.9	$123.7	$129.0	$134.8	$141.1	...	$201.7
J&J market share	4.3%	4.3%	4.2%	4.2%	4.1%	4.1%	...	3.7%
J&J revenue ($bn)	**$ 5.0**	**$ 5.1**	**$ 5.2**	**$ 5.4**	**$ 5.5**	**$ 5.7**	**...**	**$ 7.5**

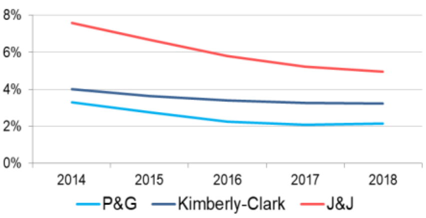
Exhibit 42. Worldwide baby care market revenue (2018 – 2023)



Source: Orbis

Baby Care: products include wipes, feeding accessories, disposable diapers, soaps, shampoos, body care products and others. It has been verified an increase in baby care products due to rising concerns on child and baby health protection. Even though global fertility rates have been decreasing for many years, being at all-time low levels, the above-mentioned concerns are expected to increase the global market for baby products. However, in the U.S. alone, low fertility rates are expected to dictate a shrinking market. Following *Orbis'* estimates, we believe annual U.S. sales will decrease 0.3% per year, remaining at $6.1bn by 2023. On the other hand, global international sales are expected to rise 3.2% a year, reaching $37.0bn in 2023 (from 2018's turnover of $31.1bn).

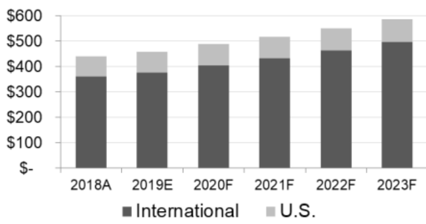
Exhibit 43. Global baby care market shares – P&G, Kimberly-Clark, J&J



The three main players are Johnson & Johnson (leader with market share equal to 5.0% in 2018), Kimberly-Clark (3.2%) and Procter & Gamble (2.1%). J&J's market share has been decreasing since 2014 (from 7.6% in 2014 to 5.0% in 2018). This is mainly due to J&J's recent law suits regarding its baby powder products. It is clear that those litigations are causing reputational damage that is impacting J&J's performance. However, the negative effect of law suits is happening mostly in the U.S.. In international markets, market share loss is mainly driven by the entrance of new players from emerging markets (such as Brazil's Natura&Co who entered the baby care market in 2017, and in 2018 its global market share was ~1.6%). We expect that, companies from emerging economies continue to gain market share worldwide, since most growth expected for the baby care market growth will happen in those countries. Thus, we believe J&J's U.S. market share will stabilize around 5.8% by 2021, as reputational damage dissipates, while in international markets it should keep decreasing. We expect J&J's international market share to fall to 3.2% by 2023 and to 2.7% by 2030, after which we expect it to stabilize. As such, we forecast sales to be:

Baby Care	**2018A**	**2019E**	**2020F**	**2021F**	**2022F**	**2023F**	**...**	**2030F**
Market size ($bn)	$ 37.4	$ 38.7	$ 39.9	$ 41.1	$ 42.2	$ 43.2	...	$ 51.7
J&J market share	5.0%	4.3%	4.0%	3.8%	3.7%	3.6%	...	3.1%
J&J revenue ($bn)	**$ 1.9**	**$ 1.7**	**$ 1.6**	**$ 1.6**	**$ 1.6**	**$ 1.6**	**...**	**$ 1.6**

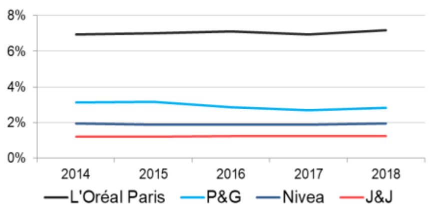
Exhibit 44. Worldwide beauty & women care revenue (2018 – 2023)



Source: Passport (Euromonitor)

Beauty & Women Care: the industry is mostly dominated by large multinationals such as J&J itself (market share of 1.2% in 2018), L'Oréal Paris (leading company with market share of 7.2%), P&G (2.8%), Nivea (1.9%) and Chanel (*undisclosed revenue*). Global beauty products sales in 2018 were $441.9bn, meaning a CAGR of 0.6% since 2014. According to *Passport* (*Euromonitor*), U.S. revenue will grow 1.9% per year, while international markets will expand 6.6% per year, until 2023, mostly due to the increase in the average disposable income of populations and due to the effect of climate changes that are driving up the need for skin care products and sunscreens. Moreover, there has been a recent increase in the use of beauty and care products for men. As such, we believe that, after 2023, growth will stay the same, as the above-mentioned drivers should continue. U.S. should reach $89.1bn by 2023. As for international markets, we expect annual turnover to be $497.4bn in 2023.

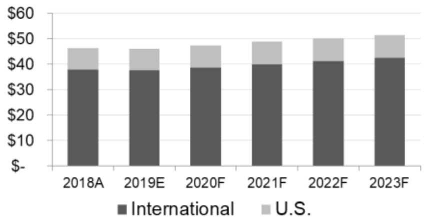
Exhibit 45. Global beauty & women care market shares – L'Oréal Paris, P&G Nivea, J&J



J&J's market share has been the same for the last 5 years. Nivea has also kept its share during the period, while P&G has lost some market share (-0.3pps when compared to 2014), and L'Oréal Paris, has consolidated its position (+0.2pps than in 2014). J&J's U.S. international market share has been increasing due to Dr.Ci:Labo's success in Japan (most sold medical cosmetic skincare brand in Japan with ~40% of market share) and due to the success of the company's anti-ageing products. We expect J&J's international market share to increase to 0.6%. In the U.S., we expect J&J's market share to return to 3.0% by 2022 as the reputational damage of the company's law suits in relation to asbestos findings in baby powder, dissipates. Overall, we estimate sales to be as follows:

Beauty & Women Care	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$441.9	$459.7	$489.1	$518.4	$550.9	$586.6	...	$880.0
J&J market share	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	...	1.1%
J&J revenue ($bn)	**$ 5.4**	**$ 5.6**	**$ 5.8**	**$ 6.1**	**$ 6.5**	**$ 6.8**	**...**	**$ 9.4**

Exhibit 46. Worldwide oral care market revenue (2018 – 2023)



Source: Passport (Euromonitor)

Oral Care: J&J's oral care division relies on LISTERINE®, the world's most sold mouthwash product. The leading players worldwide are P&G's Oral-B brand and Colgate-Palmolive. However, even if these companies sell mouthwash elixirs that directly compete with LISTERINE®, their products focus mostly on toothpastes and toothbrushes. According to *Passport (Euromonitor)*, revenue will grow 1.3% per year in the U.S., until 2023. In other markets, revenue is expected to fall 0.9% in 2019, but to grow afterwards, 3.2% per year as a result of growing concerns regarding oral hygiene. We believe that, afterwards, growth may continue the same. U.S. annual revenue should achieve $9.1bn by 2023, while international turnover should reach $42.5bn.

LISTERINE®'s market share in the U.S. is expected to fall to 7.2% in 2019, after being above 7.3% for the past 5 years. We believe the brand might recover some share, to 7.4% from 2021 onwards. Expectation is that LISTERINE® will remain as the #1 mouthwash product, due to its effectiveness and brand reputation. In international markets, LISTERINE® is also the leading brand. Yet, its market share has been decreasing every year, as private label products keep increasing their share of the market. Still, in 2019, expectation is that market share will be the same as in 2018 – 2.4%. We believe that, after having experienced a decrease in market share, J&J will be able to sustain its share of 2.4% in international markets, retaining its position as the world's most sold oral care brand. We forecast J&J's oral care revenue to be as follows:

Oral Care	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Market size ($bn)	$ 46.4	$ 46.2	$ 47.5	$ 48.9	$ 50.2	$ 51.6	...	$ 62.8
J&J market share	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	...	3.2%
J&J revenue ($bn)	**$ 1.6**	**$ 1.5**	**$ 1.6**	**$ 1.6**	**$ 1.7**	**$ 1.7**	**...**	**$ 2.0**

Intrinsic Valuation

Our fundamental valuation was performed by estimating the firm's cash flows until 2030. By then, we expect J&J to have achieved a mature state in which the return on invested capital (ROIC) and growth are very stable. The DCF model resulted in a share price of $166.00, defined as our target price and meaning that J&J is trading at a discount. We decided to compute a sum-of-the-parts (SOTP) DCF model, to assess if the sum of J&J's segments, valued individually, was different from J&J's value as a whole. The outcome of the SOTP DCF model was very close to that of the DCF, a price of $164.07 per share. From this, we could conclude that there is no conglomerate premium or discount.

Model Description

In addition to J&J's three operating segments, a 4th one was added, that regards centralized matters of operations which cannot be allocated to any particular segment (general corporate).

- ### Revenue

Exhibit 47. Revenue breakdown by segment (2018 – 2023)

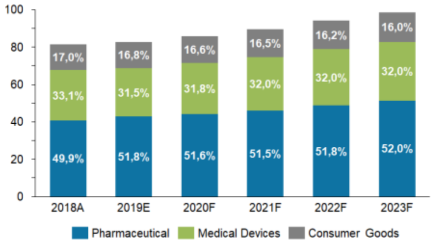


Exhibit 48. Revenue CAGR (2019 – 2030)

Pharmaceutical	4.9%
Medical Devices	4.2%
Consumer Goods	3.6%
Total	**4.5%**

Following the estimation of revenues for all of J&J's division within each segment, presented in the Industry Overview section, we believe J&J's revenue from core operations will evolve as such:

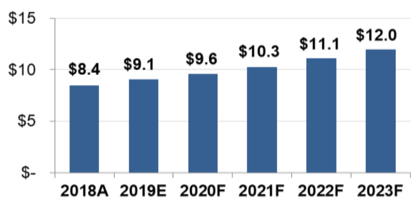
Revenues Forecast	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Pharmaceutical								
Market size ($bn)	$1 500	$1 539	$1 637	$1 731	$1 834	$1 941	...	$2 839
J&J market share	2.7%	2.8%	2.7%	2.7%	2.7%	2.6%	...	2.5%
J&J revenue ($bn)	**$ 40.7**	**$ 42.8**	**$ 44.2**	**$ 46.1**	**$ 48.8**	**$ 51.3**	**...**	**$ 72.3**
Medical Devices								
Market size ($bn)	$ 394	$ 400	$ 423	$ 444	$ 467	$ 492	...	$ 672
J&J market share	6.8%	6.5%	6.4%	6.4%	6.4%	6.4%	...	6.1%
J&J revenue ($bn)	**$ 27.0**	**$ 26.0**	**$ 27.3**	**$ 28.6**	**$ 30.1**	**$ 31.6**	**...**	**$ 40.9**
Consumer Goods								
Market size ($bn)	$ 642	$ 663	$ 700	$ 737	$ 778	$ 823	...	$1 196
J&J market share	2.2%	2.1%	2.0%	2.0%	2.0%	1.9%	...	1.7%
J&J revenue ($bn)	**$ 13.9**	**$ 13.9**	**$ 14.2**	**$ 14.7**	**$ 15.2**	**$ 15.8**	**...**	**$ 20.5**
Total Revenue	**$ 81.6**	**$ 82.6**	**$ 85.7**	**$ 89.4**	**$ 94.1**	**$ 98.6**	**...**	**$133.7**

- ### Operating Costs

Pharmaceutical: gross profit margin is expected to be 16.8% in 2019. We expect this margin to get lower as a result of stricter U.S. drug price regulation and patent losses that drive prices down. We estimate gross profit margin of U.S. operations to have decreased 1.1pps by 2023 and 3.6pps by 2030. In addition, we believe a patent loss will decrease the drug's gross profit margin in 5.4pps, four years after expiration. We expect that four years after patent expiration, all new entrants to be successfully producing the drug. Therefore, we forecast J&J's pharmaceutical gross profit margins and COGS to evolve as follows:

Pharmaceutical	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Revenues ($bn)	$ 40.7	$ 42.8	$ 44.2	$ 46.1	$ 48.8	$ 51.3	...	$ 72.3
Gross Profit Margin	84.5%	83.2%	83.0%	82.9%	82.6%	82.5%	...	81.2%
COGS ($bn)	**$-13.2**	**$-12.4**	**$-13.1**	**$-13.7**	**$-14.5**	**$-15.2**	**...**	**$-19.7**

Exhibit 49. Pharmaceutical segment R&D expenses forecast ($bn)



Regarding R&D, in the 3rd quarter earnings report, J&J's management stated that investment in R&D would increase in the next years, to ensure the continuous discovery of innovative solutions. As such, we expect R&D expenses to continue growing faster than revenues, on average, 7.2% per year until 2023. After that, we predict them to grow at the same pace as revenues. Since we do not expect any restructuring program in this segment, we assume no future charges. D&A

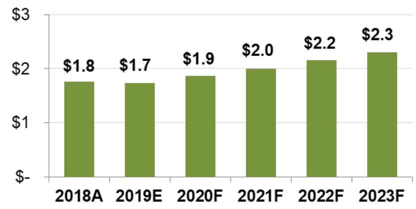
expenses were forecasted based on PP&E and intangible assets, while SM&A expenses were estimated as a constant % of revenues (21.8%). The same rationale was used for the remaining segments. Therefore, we expect J&J's pharmaceutical operating results to be as follows:

dollars in billions	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Gross Profit	$ 34.4	$ 35.6	$ 36.7	$ 38.2	$ 40.3	$ 42.3	...	$ 58.7
EBITDA	$ 17.3	$ 16.8	$ 17.0	$ 17.5	$ 18.2	$ 18.8	...	$ 25.7
EBIT	$ 13.5	$ 13.0	$ 13.0	$ 13.2	$ 13.7	$ 14.0	...	$ 19.3

Medical devices: in 2015 Johnson & Johnson started a restructuring program to eliminate 4% to 6% of its MD workforce and increase the availability of resources to invest in new and innovative solutions. The program finished in 2018 with total restructuring costs reaching $2.5 bn. The program led to pre-tax annual savings of $0.7 bn in 2018, expected to be 0.8bn to $1bn from 2019 onwards. We believe that operating margins will not decrease after 2019, following health insurers' pressure for lower prices, since J&J (and its MD competitors) are investing in 3D printers to maximize production efficiency. As such, we estimate COGS as:

Medical Devices	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Revenues ($bn)	$ 27.0	$ 26.0	$ 27.3	$ 28.6	$ 30.1	$ 31.6	...	$ 40.9
Gross Profit Margin	51.0%	52.2%	52.1%	52.1%	52.0%	52.0%	...	51.8%
COGS ($bn)	**$-13.2**	**$-12.4**	**$-13.1**	**$-13.7**	**$-14.5**	**$-15.2**	**...**	**$-19.7**

Exhibit 50. Medical devices segment R&D expenses forecast ($bn)



In the medical devices segment, J&J's management also expects to increase its levels of R&D charges, growing on average 5.7% per year, until 2023. Moreover, we do not expect any relevant impairments or restructuring charges. All things considered, we forecast J&J's medical device results to be as such:

dollars in billions	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Gross Profit	$ 13.8	$ 13.6	$ 14.2	$ 14.9	$ 15.7	$ 16.4	...	$ 21.2
EBITDA	$ 6.8	$ 6.2	$ 6.4	$ 6.7	$ 6.9	$ 7.2	...	$ 9.2
EBIT	$ 4.7	$ 4.1	$ 4.2	$ 4.3	$ 4.5	$ 4.6	...	$ 5.7

Consumer goods: the gross profit margin has been decreasing since 2016, when it was 49.7%. In 2019, we expect it to be the same as in 2018, 45.5%. In the 3rd quarter earnings release, J&J's management stated that margins would start improving in the coming year, following increases in competitiveness of the products' portfolio. As such, we believe the gross profit margin will gradually increase, reaching 48.8% by 2023, and COGS to be as follows:

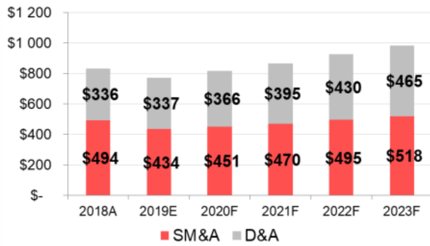
Exhibit 51. Consumer goods segment R&D expenses forecast ($M)

Consumer Goods	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Revenues ($bn)	$ 13.9	$ 13.9	$ 14.2	$ 14.7	$ 15.2	$ 15.8	...	$ 20.5
Gross Profit Margin	45.5%	45.5%	46.4%	47.2%	48.0%	48.8%	...	48.8%
COGS ($bn)	**$ -7.5**	**$ -7.6**	**$ -7.6**	**$ -7.8**	**$ -7.9**	**$ -8.1**	**...**	**$-10.5**

We forecast R&D charges to be 4.3% of revenues and do any restructuring charges. Thus, we estimate J&J's consumer goods future operating results to be:

dollars in billions	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Gross Profit	$ 6.3	$ 6.3	$ 6.6	$ 6.9	$ 7.3	$ 7.7	...	$ 10.0
EBITDA	$ 3.2	$ 2.7	$ 2.9	$ 3.1	$ 3.3	$ 3.6	...	$ 4.6
EBIT	$ 2.5	$ 2.0	$ 2.2	$ 2.4	$ 2.5	$ 2.8	...	$ 3.5

Exhibit 52. General corporate D&A and SM&A expenses forecast ($M)



General corporate: in 2018 the company announced a restructuring of its global supply chain to enable the focus on critical processes and technologies. The company expects to generate annual pre-tax savings of $0.6bn to $0.8bn, while total restructuring costs should remain below $2.3 bn. This segment includes the above-mentioned restructuring expenses and the savings that arise from this program, together with SM&A and D&A expenses that are not allocated to any of the remaining operating segments. Moreover, we considered operating cash taxes in accordance with *Mckinsey & Company's Valuation (2015)*[4].

Overall, we forecast J&J's consolidated results from core operations to be:

dollars in billions	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
Revenues	$ 81.6	$ 82.6	$ 85.7	$ 89.4	$ 94.1	$ 98.6	...	$133.7
Gross Profit	$ 54.5	$ 55.6	$ 57.8	$ 60.5	$ 64.0	$ 67.2	...	$ 90.7
Gross Profit margin	*66.8%*	*67.2%*	*67.4%*	*67.7%*	*67.9%*	*68.2%*	*...*	*67.9%*
EBITDA	$ 26.7	$ 25.1	$ 26.0	$ 27.1	$ 28.5	$ 29.9	...	$ 39.7
EBITDA margin	*32.8%*	*30.4%*	*30.3%*	*30.3%*	*30.3%*	*30.3%*	*...*	*29.7%*
EBIT	$ 19.8	$ 18.3	$ 18.7	$ 19.4	$ 20.3	$ 21.2	...	$ 28.0
EBIT margin	*24.3%*	*22.1%*	*21.8%*	*21.7%*	*21.6%*	*21.5%*	*...*	*20.9%*
NOPLAT	**$ 14.0**	**$ 15.5**	**$ 16.5**	**$ 17.1**	**$ 18.0**	**$ 18.8**	**...**	**$ 24.8**
growth YoY		*10.9%*	*6.3%*	*3.8%*	*4.9%*	*4.3%*	*...*	*3.8%*

- Net Working Capital & Capital Expenditures

Exhibit 53. Average inventory holding period

Inventory	2015	2016	2017	2018
# days	138	136	121	117

Exhibit 54. Average collection period

Receivables	2015	2016	2017	2018
# days	57	57	60	62

Exhibit 55. Average payable period

Payables	2015	2016	2017	2018
# days	113	116	119	104

To forecast inventories, accounts payable and accounts receivable, we analysed the evolution of the average holding period, collection period and payable period, respectively, with 2018's value being assumed from 2019 onwards. Operating cash was assumed to be 3.1% of revenues, the average of previous years. The remaining captions were forecasted based on revenues, purchases or SM&A expenses. As J&J does not disclose information on production capacity, we forecasted PP&E as a % of revenues. As we expect J&J to keep investing in 3D printers to maximize production efficiency in the MD segment, we expect PP&E in proportion to sales to have increased to 23.6% by 2023, following larger CAPEX in the next few years. Intangible assets will change as patents are approved and expire, so they were forecasted based on revenue, as revenue drivers account for patent additions and losses. The table below summarizes our forecast for NWC, PP&E and intangible assets:

[4] Koller, Tim, Goedhart, Marc and David Wessels. 2015. Valuation "Measuring and managing the value of companies". New Jersey: John Wiley & Sons, Inc. and Hoboken.

dollars in billions	2018A	2019E	2020F	2021F	2022F	2023F	...	2030F
NWC	$ 2.7	$ -1.1	$ 3.6	$ 3.7	$ 3.8	$ 4.0	...	$ 5.5
Δ NWC	$ -1.4	$ -3.8	$ 4.7	$ 0.0	$ 0.1	$ 0.2	...	$ 0.2
PP&E + intangible assets	$ 64.6	$ 64.9	$ 68.6	$ 72.2	$ 76.7	$ 81.1	...	$109.9
CAPEX	$ 1.3	$ 7.1	$ 11.0	$ 11.3	$ 12.7	$ 13.1	...	$ 13.4

- Target D/E Ratio

Exhibit 56. Target D/E ratio

Target D/E (book value)	27%
Debt book-to-market	1.1x
Equity book-to-market	6.6x
WACC D/E	**4.5%**

In 2017 J&J's D/E ratio was 31.3%, while in 2018 it was 22.5%. As for its peers, the median D/E ratio is 34.9%. We believe that the average D/E ratio between 2017 and 2018 is a fair assumption for J&J's target capital structure, being also similar to its peers' capital structure. Therefore, we assume a target D/E ratio of 27% from 2019 onwards. After determining J&J's debt repayment schedule, and in order to maintain the target D/E ratio, we assume the company will keep issuing debt. Having defined the target D/E ratio (in book values), we were able to compute the D/E ratio to use in our WACC computations (in market values), using J&J's book-to-market ratios. As such, J&J's target D/E in market values is 4.5%.

- Discount Rates

Exhibit 57. Cost of Debt (r^D)

YTM - LGD*P(D) Approach	
Weighted-average YTM	2.00%
LGD	53.90%
Default Probability	0.00%
Cost of Debt	**2.00%**

YTM - LGD*P(D) Approach	
U.S. 10-y Treasury yield	1.92%
AAA Credit Spread	0.75%
Cost of Debt	**2.67%**
Average Cost of Debt	**2.33%**

CAPM estimations were based on a MRP of 5.96% retrieved from *Damodaran's MRP database*, updated on January 2019[5]. The 10-year U.S. treasury yield was used as the risk-free rate, as J&J is a U.S. based company (1.92%).

Cost of debt: to estimate the cost of debt we used two different approaches. The first was to estimate the weighted-average yield-to-maturity from the company's outstanding debt and subtract J&J's *probability of default * LGD.* The default probability was retrieved from *Bloomberg* (0.0001%). As for the LGD, we used a standardized value for large cap firms: 53.90%. The weights for the YTM were computed using the market value of outstanding debt. The result was a cost of debt equal to 2.00%. The second approach was to retrieve the credit spread that should be applied to J&J's debt, given that its AAA rating: 0.75%. Afterwards, we applied the spread to the current risk-free rate (1.92%) and reached cost of debt for J&J equal to 2.67%. Even if the first approach is the most accurate approach for determining J&J's cost of debt, we believe that a r^D of 2.0% might be too low to use in perpetuity, as it might be driven down by the low current interest rate environment. For instance, some of J&J's European peers have current costs of debt that are clearly not to be sustained in perpetuity (Novo-Nordisk's r^D = -0.18% and Sanofi's r^D = 0.02%). Therefore, we decided to use the average between the two approaches: **r^D equal to 2.33%**, which implies a **β^D of 0.07**. This cost of debt

[5] NYU Stern School of Business. 2019. "Country Risk Premiums". Aswath Damodaran. Accessed December 27.

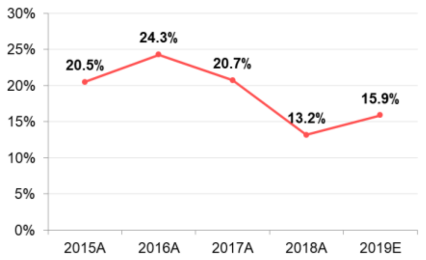
Exhibit 58. J&J's peer group unlevered β

Johnson & Johnson	0.70
Novartis	1.01
Roche Holding	1.05
Merck & Co. Inc.	0.69
Sanofi	0.78
Pfizer	0.74
Novo Nordisk	1.01
Procter & Gamble	0.55
Medtronic	0.75
Median Unlevered β	**0.75**

Exhibit 59. Cost of equity & WACC

Risk-free rate	1.92%
MRP	5.96%
Unlevered β	0.75
Levered β	0.78
rU	**6.37%**
rE	**6.55%**
Cost of debt	2.33%
Tax rate	21.00%
Target D/E ratio	4.5%
WACC	**6.35%**

Exhibit 60. J&J historical ROIC



was used in the WACC estimation and is assumed to be the interest rate for all debt issues happening from 2019 onwards.

Cost of equity and WACC: to estimate J&J's costs of equity, unlevered (r^U) and levered (r^E), we retrieved from *Bloomberg* J&J's and its peers' levered equity β. Peers were selected based on the similarity of operations and market size. Afterwards, we unlevered the βs, to remove the effect of leverage and reflect only the operational risk. The remaining companies included in the peer group were: *Novartis; Roche; Merck & Co.; Sanofi; Pfizer; Novo Nordisk; P&G* and *Medtronic*. We assumed the peer group's median **unlevered β of 0.75** as J&J's unlevered beta and, therefore, we estimate J&J's r^U to be 6.37%. Then, with J&J's D/E ratio of 4.5% and β^D = 0.07, we determined the company's **β^E of 0.78** and **r^E of 6.55%**. Finally, we estimated a **WACC of 6.35%.**

In addition, we regressed J&J's returns on the S&P500. The result was a β^E of 0.72 and r^E equal to 6.22%. The upper and lower values (95% confidence) for the r^E are 6.92% and 5.53%, respectively, which were used in the sensitivity analysis.

DCF Valuation

Having assessed J&J's WACC and FCFs until 2030, the only thing missing to compute the EV was the terminal growth. For the terminal growth we assumed the average growth rate between 2029 and 2030, using *growth = ROIC * Reinvestment rate*, as we believe that RONIC is at times, too dependent on patent approvals and expirations, being less stable through time. Moreover, between 2027 and 2030, growth ranges between 3.23% and 3.29%, being very stabilized. Thus, we computed J&J's terminal value with **growth = 3.26%.** This derives from **ROIC = 17.16% and RR = 18.97%**. The weighted-average inflation rate expected for J&J in 2030 is 2.88%. We believe that, in perpetuity, J&J's growth will be at least 2.88%, as revenue and FCFs should grow at least at the same rate of inflation. As such, we consider 3.26% to be a fair assumption for J&J's terminal growth. In addition, we believe that a terminal ROIC considerably above the company's WACC may be reasonable in this case, as J&J is a mature company, with ROIC consistently around 20%. We believe J&J's capacity to develop innovative solutions, as a result of its rich resources and large R&D investment will continue in the future.

Finally, we reached an Enterprise Value of $494.5bn. Our EQ-EV bridge included the value of financial (net) debt ($25.6bn), the value of non-core operations ($25.8bn), the value of in-the-money stock options ($3.2bn) and J&J's litigation charge expected for 2019 ($2.5bn). Total bridge value is $57.1bn, as there are no minority interests or associates. Therefore, we reached a market value of equity equal to $437.4bn and share price of $166.00.

- SOTP DCF

Exhibit 61. J&J's peer group unlevered β by segment

Pharmaceutical Peers	
Novartis Ag-Reg	1.00
Merck & Co. Inc.	0.69
Pfizer Inc	0.73
Abbvie Inc	0.93
Bristol-Myers Squibb Co	0.85
Novo Nordisk A/S-B	1.02
Astrazeneca Plc	0.68
Median Unlevered β	**0.85**
Medical Devices Peers	
Medtronic	0.75
Siemens Healthineers AG	0.42
Stryker	0.80
Koninklijke Philips NV	0.95
Median Unlevered β	**0.77**
Consumer Peers	
P&G	0.55
Colgate-Palmolive	0.56
Kimberly-Clark	0.48
Estee Lauder Cos	0.77
Median Unlevered β	**0.55**

For our SOTP approach we computed a WACC for each segment. Given J&J's operating segments, peer groups of the most comparable companies were set solely with pure players from each segment. Besides being pure players, peers were also selected according to similarity of product portfolios and market cap. The result was an unlevered *β* of 0.85 for the pharmaceutical segment, 0.77 for the MD and 0.55 for the consumer goods segment. Using J&J's capital structure, we estimate a r^E of 7.17% for the pharmaceutical segment, 6.72% for the MD segment and 5.35% for the consumer goods segment. Finally, the WACC for each segment was computed: 6.94% (pharmaceutical), 6.50% (MD) and 5.20% (consumer goods). Since there is no allocation of NWC and CAPEX per segment, all investment cash flows were discounted at the weighted-average WACC (6.65%) based on the weight of each segment's CF from operations, together with general corporate expenses.

Using the previously mentioned terminal growth rate of 3.26%, we reach an EV equal to $489.4, Equity value of $438.0 and share price of $164.07.

Relative Valuation

Our multiples valuation was performed using EV/EBITDA, through a SOTP approach, as we believe comparable companies for each segment provide a more accurate way to relatively evaluate J&J. Our relative valuation emerges as an attempt to corroborate our price target and to see whether investors might be wrongly positioning J&J. Therefore, the previously mentioned peer groups were used (excluding Estee Lauder and Pfizer, which were clear outliers).

Exhibit 62. Peers' trading multiples

Pharmaceutical	**EV/EBITDA**
Novartis Ag-Reg	**17.6x**
Merck & Co. Inc.	**16.2x**
Bristol-Myers Squibb Co	**19.9x**
Novo Nordisk A/S-B	**18.3x**
Astrazeneca	**21.2x**
Medical Devices	**EV/EBITDA**
Medtronic	**17.6x**
Siemens Healthineers AG	**19.2x**
Stryker	**22.5x**
Koninklijke Philips NV	**15.0x**
Consumer Goods	**EV/EBITDA**
P&G	**19.5x**
Colgate-Palmolive	**15.7x**
Kimberly-Clark	**13.7x**

Peers' multiples were obtained by going from Bloomberg's market caps to the respective Enterprise Values, by summing up net debt and the remaining bridge value, which were derived from the financial reports. EVs were then divided by the 2019E adjusted EBITDA, sourced on broker consensus.

Considering an interval ranging from the 1st quartile to the 3rd quartile for each group multiples, we got the respective ranges for each segment's EVs and J&J's implicit EV, using each segment's 2020F adjusted EBITDAs – Pharma ($17.6bn), MD ($6.4bn) and consumer ($2.9bn). After subtracting J&J's total bridge we reached J&J's implicit market cap. Finally, by dividing it by the number of outstanding shares, we got a share price ranging between $145 and $175.

Focusing on the median price ($159) and comparing it with J&J's current price, we can conclude that, as shown by our DCF, the stock is trading at a discount.

EV/EBITDA				
Range	1st Quartile	Average	Median	3rd Quartile
Pharma	17.6x	18.6x	18.3x	19.9x
MD	16.9x	18.6x	18.4x	20.0x
Consumer	14.7x	16.3x	15.7x	17.6x
Implicit EV range				
Range	1st Quartile	Average	Median	3rd Quartile
Pharma	$ 306 375	$ 324 428	$ 319 065	$ 346 861
MD	$ 108 402	$ 118 859	$ 117 782	$ 128 239
Consumer	$ 42'243	$ 46'856	$ 45'076	$ 50'579
J&J Total				
Range	1st Quartile	Average	Median	3rd Quartile
EV	$ 457 019	$ 490 143	$ 481 923	$ 525 679
Market Cap	$ 399 928	$ 433 051	$ 424 832	$ 468 588
Share Price	**$ 151. 76**	**$ 164. 33**	**$ 161. 21**	**$ 177. 82**

Sensitivity Analysis

The following sensitivity analysis estimates how sensitive the price target is to our terminal growth assumption and how a different correlation between J&J and the S&P500, which impacts the stock's β can affect our price target.

Scenarios	Growth Rate	Price Target
Worst	2.88%	$ 150
Base	3.26%	$ 166
Best	3.76%	$ 195

Our terminal value weights 76% on the total enterprise value. We consider the worst case scenario for the growth rate, to be the weighted-average inflation rate, between the U.S. and the world - 2.88%. For the upside case, we assume the growth rate of our last forecasted years, through RONIC - 3.76%. *Ceteris paribus*, our target price would range from $150 to $195.

Scenarios	Growth Rate	Price Target
Worst	6.91%	$ 137
Base	6.34%	$ 166
Best	5.51%	$ 195

From J&J's regression on the S&P500 we built a range for the WACC, using a 95% confidence interval for the β. The upper value leads to a WACC of 6.91%, while the lower value leads to WACC = 5.51%. *Ceteris paribus*, our DCF target price would be $137 with the largest WACC and $236 with the lowest.

Scenarios	inflation rate	DCF	RONIC
Lower Beta	$ 205	$ 232	$ 296
DCF	$ 150	$ 166	$ 195
Upper Beta	$ 126	$ 137	$ 156

Considering both assumptions to vary along the above-mentioned ranges, our price would range from $125 (worst case scenario) to $296 (best case scenario).

Scenario Analysis

In addition to measuring how sensitive our target share price is to variations in the terminal growth and cost of capital, we decided to analyse how changes in J&J's operating outcomes impact the share price. For that, we defined three scenarios regarding critical aspects of J&J's operations: the success of J&J's nearly-approved drugs and U.S. drug prices regulation. The scenarios were defined are as follows: **Upside -** nearly-approved drugs are approved and perform better than expected; price regulation does not take place and operating margins do not fall; **Base Case -** nearly-approved drugs are approved and perform as expected; price regulation reduces drug prices by 17.5%, on average, until 2030 (disregarding inflation); **Downside -** nearly-approved drugs do not get approved and price regulation levels U.S. drug prices with European prices.

The table below summarizes the target price for each scenario, valued through our DCF model and the expected return in 12 months, accounting for dividends:

Last Price: $145.87	Approvals Success	Price Regulation	Target Price	12m Return
Upside	125%	0.0%	$ 176.75	24%
Base Case	100%	17.5%	$ 166.00	17%
Downside	0%	35.0%	$ 146.89	3%

Even with very strict price regulation and new patents not being approved, we believe J&J is worth more than its current price. We trust that an upside scenario is much more likely to happen than a downside: in addition to nearly-approved drugs not getting approved being an unlikely outcome, we think that in 10 years U.S. drug prices will still be different from European prices. It is important to note that J&J has been conducting a stock repurchase program, which signals that management believes the company is trading below its fair value. This reinforces our idea that J&J is being underpriced by the market.

Investment Risks

Main operating uncertainty lies on the settlement of the opioid dispute and in future law suits, as these lead to reputational damage and litigation charges. Moreover, our DCF model heavily relies on our WACC and growth assumptions. As seen, a higher WACC, together with a terminal growth rate equal to inflation, leads to a share price of $125. Still, we believe J&J will rise above inflation as a result of continuous innovation and advantages that come from J&J's large R&D investments, and that our WACC assumptions are reasonable.

Macroeconomic risks relate to changes in interest rates and in the state of the economy and stock market. The U.S. stock market has been bullish for a long time, with all U.S. indexes reaching record highs in 2019. A stock market crash is an ever-growing concern, mostly due to signs of an inverted yield curve, of an economic slowdown and due to a contracting U.S. manufacturing industry. Moreover, policies increasing interest rates could drive down J&J's value, as its opportunity cost would rise.

Financial Statements

Income Statement - amounts in million $

Core Business	2018	2019E	2020F	2021F	2022F	2023F
Revenues	$ 81 581	$ 82 646	$ 85 736	$ 89 409	$ 94 129	$ 98 626
COGS	$ -27 091	$ -27 089	$ -27 958	$ -28 910	$ -30 170	$ -31 390
Gross Profit	$ 54 490	$ 55 557	$ 57 778	$ 60 499	$ 63 959	$ 67 236
SM&A expense	$ -15 611	$ -18 480	$ -19 171	$ -19 993	$ -21 048	$ -22 054
R&D expense	$ -10 775	$ -11 420	$ -12 093	$ -12 890	$ -13 922	$ -14 945
Impairment and restructuring charges	$ -1 377	$ - 509	$ - 509	$ - 509	$ - 509	$ - 375
EBITDA	$ 26 727	$ 25 147	$ 26 005	$ 27 107	$ 28 480	$ 29 862
D&A expense	$ -6 929	$ -6 889	$ -7 291	$ -7 684	$ -8 175	$ -8 655
EBIT	$ 19 798	$ 18 258	$ 18 714	$ 19 423	$ 20 305	$ 21 207
Operating Cash Taxes	$ -5 791	$ -2 719	$ -2 193	$ -2 275	$ -2 316	$ -2 440
NOPLAT	**$ 14 007**	**$ 15 539**	**$ 16 520**	**$ 17 148**	**$ 17 989**	**$ 18 767**
Non -Core Business						
Other income (expense), net	$ -1 405	$ -2 500	$ - 590	$ - 590	$ - 590	$ - 337
Interest Income	$ 611	$ 583	$ 602	$ 622	$ 649	$ 676
Total Income (expense)	$ - 794	$ -1 917	$ 12	$ 32	$ 59	$ 339
Non-Operating Income Taxes	$ 436	$ 445	$ - 3	$ - 7	$ - 14	$ - 79
Total Other Comprehensive Income (Loss)	$ -1 791	$ -1 684	$ -1 684	$ -1 684	$ -1 684	$ -1 684
Net Non-operating Income	**$ -2 149**	**$ -3 156**	**$ -1 675**	**$ -1 660**	**$ -1 639**	**$ -1 424**
Financing						
Interest expense, net of portion capitalized	$ -1 005	$ - 949	$ -1 038	$ -1 086	$ -1 125	$ -1 196
Tax shield	$ 233	$ 220	$ 241	$ 252	$ 261	$ 277
Net Financing Result	**$ - 351**	**$ - 363**	**$ - 463**	**$ - 595**	**$ - 772**	**$ - 729**

Balance Sheet - amounts in million $

Core Business	2018	2019E	2020F	2021F	2022F	2023F
Operating Cash	$ 2 619	$ 2 667	$ 2 683	$ 2 798	$ 2 946	$ 3 087
Inventories	$ 8 599	$ 9 173	$ 8 960	$ 9 265	$ 9 669	$ 10 060
Accounts Receivable, net	$ 14 098	$ 14 801	$ 14 497	$ 15 118	$ 15 916	$ 16 676
Prepaid expenses and other receivables	$ 2 699	$ 2 220	$ 3 558	$ 3 746	$ 3 921	$ 4 075
Total current assets	$ 28 015	$ 28 861	$ 29 697	$ 30 927	$ 32 451	$ 33 898
PP&E, net of accumulated depreciation	$ 17 035	$ 17 048	$ 18 546	$ 20 011	$ 21 773	$ 23 553
Intangible assets, net	$ 47 611	$ 47 846	$ 50 036	$ 52 179	$ 54 934	$ 57 558
Goodwill	$ 30 453	$ 33 291	$ 33 291	$ 33 291	$ 33 291	$ 33 291
Total non-current assets	$ 95 099	$ 98 185	$ 101 872	$ 105 481	$ 109 998	$ 114 402
Total operating Assets	$ 123 114	$ 127 046	$ 131 570	$ 136 408	$ 142 449	$ 148 300
Accounts payable	$ 7 537	$ 7 491	$ 7 903	$ 8 322	$ 8 709	$ 9 053
Accrued liabilities	$ 7 601	$ 9 004	$ 9 077	$ 9 466	$ 9 965	$ 10 441
Accrued rebates, returns and promotions	$ 9 380	$ 10 977	$ 7 761	$ 8 093	$ 8 520	$ 8 928
Total current liabilities	$ 25 336	$ 29 977	$ 26 081	$ 27 273	$ 28 650	$ 29 942
Total operating liabilities	$ 25 336	$ 29 977	$ 26 081	$ 27 273	$ 28 650	$ 29 942
Net core business	**$ 97 778**	**$ 97 069**	**$ 105 488**	**$ 109 135**	**$ 113 799**	**$ 118 359**
Non-Core Business						
Total non-operating assets	$ 5 132	$ 5 501	$ 4 982	$ 5 195	$ 5 470	$ 5 731
Total non-operating liabilities	$ 29 880	$ 31 590	$ 30 768	$ 30 433	$ 30 234	$ 29 297
Net non-core	**$ -24 748**	**$ -26 089**	**$ -25 786**	**$ -25 238**	**$ -24 765**	**$ -23 566**
Financing and Shareholders Equity						
Excess Cash	$ -15 488	$ -13 582	$ -14 090	$ -14 693	$ -15 469	$ -16 208
Marketable securities	$ -1 580	$ -1 696	$ -1 759	$ -1 835	$ -1 932	$ -2 024
Loans and notes payable	$ 2 796	$ 1 660	$ 1 612	$ 1 612	$ 1 478	$ 1 478
Long-term debt	$ 27 684	$ 26 184	$ 25 134	$ 23 338	$ 21 338	$ 19 785
Debt Issued	$ -	$ 6 520	$ 10 534	$ 14 137	$ 18 525	$ 22 458
Total Financial Liabilities	**$ 13 412**	**$ 19 086**	**$ 21 431**	**$ 22 559**	**$ 23 940**	**$ 25 489**
Total Shareholders' equity	**$ 59 618**	**$ 51 894**	**$ 58 271**	**$ 61 338**	**$ 65 094**	**$ 69 304**

Cash Flows Map - amounts in million $

Core Business	2018	2019E	2020F	2021F	2022F	2023F
EBIT	$ 19 798	$ 18 258	$ 18 714	$ 19 423	$ 20 305	$ 21 207
Operating cash taxes	$ -5 791	$ -2 719	$ -2 193	$ -2 275	$ -2 316	$ -2 440
Noplat	$ 14 007	$ 15 539	$ 16 520	$ 17 148	$ 17 989	$ 18 767
D&A	$ 6 929	$ 6 889	$ 7 291	$ 7 684	$ 8 175	$ 8 655
OCF	**$ 20 936**	**$ 22 428**	**$ 23 811**	**$ 24 833**	**$ 26 164**	**$ 27 422**
Net CAPEX	$ -1 342	$ -7 137	$ -10 978	$ -11 293	$ -12 692	$ -13 060
∆ NWC	$ -1 364	$ -3 795	$ 4 732	$ 39	$ 147	$ 155
Goodwill	$ 30 453	$ 33 291	$ 33 291	$ 33 291	$ 33 291	$ 33 291
∆ Other Operating Assets	$ 1 453	$ -2 838	$ -	$ -	$ -	$ -
Operating FCF	**$ 22 411**	**$ 16 248**	**$ 8 101**	**$ 13 501**	**$ 13 325**	**$ 14 207**
Non-Core Business						
Net Non-operating income	$ -2 149	$ -3 156	$ -1 675	$ -1 660	$ -1 639	$ -1 424
∆ Non-operating Assets, net	$ -797	$ 1 341	$ -303	$ -548	$ -473	$ -1 199
Non-operating FCF	**$ -2 946**	**$ -1 815**	**$ -1 978**	**$ -2 208**	**$ -2 112**	**$ -2 623**
Total FCF	**$ 19 465**	**$ 14 432**	**$ 6 123**	**$ 11 293**	**$ 11 213**	**$ 11 584**
Financing activities						
Tax Shield	**$ 233**	**$ 220**	**$ 241**	**$ 252**	**$ 261**	**$ 277**
Interest expense, net	$ -1 005	$ -949	$ -1 038	$ -1 086	$ -1 125	$ -1 196
∆ Net Debt	$ -5 802	$ 5 674	$ 2 345	$ 1 128	$ 1 381	$ 1 548
Equity CF	$ -12 891	$ -19 377	$ -7 671	$ -11 587	$ -11 730	$ -12 214
Financial FCF	**$ -19 698**	**$ -14 652**	**$ -6 364**	**$ -11 545**	**$ -11 474**	**$ -11 861**

Disclosures and Disclaimers

Report Recommendations

Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

This report was prepared by Gonçalo André and Tomás Branco, two Master in Finance students of Nova School of Business and Economics ("Nova SBE"), within the context of the Field Lab – Equity Research.

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This report was supervised by a Nova SBE faculty member, acting merely in an academic capacity, who revised the valuation methodology and the financial model.

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HOW CHANGES IN INTEREST RATES AND MARKET EXPECTATIONS INFLUENCE JOHNSON & JOHNSON'S VALUATION

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Abstract

Interest rates play a significant role in the determination of Johnson & Johnson's fundamental value through the DCF approach. This analysis estimates how different treasury yields, namely due to changes in interest rate policies and investors' expectations, may impact J&J's WACC and target price. For that, three scenarios were defined based on historical values for the U.S. 10-year treasury yields. The study allowed for the conclusion that even small changes in treasury yields can lead to very different target prices. Assuming equal probabilities of yields going up/down, J&J's target price would be $165.27, reinforcing that the company is being undervalued.

Keywords: J&J; Fed; rates; interest; treasury; yields; target; price; undervalued;

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Interest rate policies and treasury yields

Central banks around the world, and the U.S.'s Federal Reserve (Fed), are responsible for setting monetary policies, which includes setting interest rates. In the U.S., the Federal Open Market Committee (FOMC) determines the federal funds rate – interest rate charged between banks on an overnight basis and the rate at which banks deposit money in the central bank. These rates serve as a target rate for all other interest rates, especially for loans and bonds with short maturities and for the most creditworthy corporate clients.

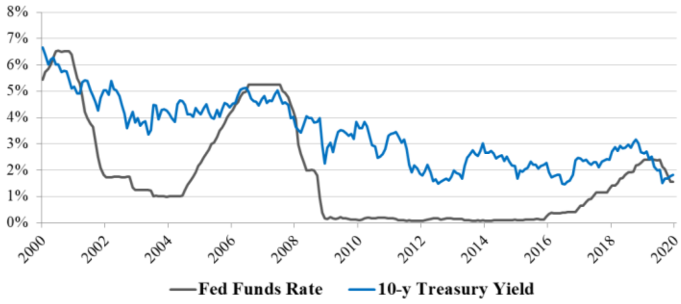
Monetary policy and changes in interest rates are many times used to stimulate the economy in order to avoid economic downturns or to recover from a recession. Yet, it can also be used to prevent rapid increases in inflation and overly strong economic expansions. In an attempt to stimulate the economy after the 2008 financial crisis, many central banks around the world, and the Fed, lowered interest rates. Low interest rates drive up the demand for loans, as these become cheaper, so people and businesses tend to increase their levels of leverage. In addition, people have fewer incentives to save, since returns on deposits are low. With more to spend, and less incentives to save, people tend to consume more goods and services. As spending increases, companies record more revenue and should generate larger cash flows, which drives up the value of businesses and stock prices. From an investor's perspective, low interest rates mean lower returns on bond investments. As such, in a low interest rate environment, investors focus on equities, as their opportunity cost of investing in a safer asset (namely in the risk-free asset), is lower. Our decision was to consider the U.S. 10-year treasury yield as the risk-free rate.

U.S. treasury securities are initially sold at an auction held by the Treasury Department. After the auction, treasury yields continuously change every day, as most investors resell them on the secondary market. Treasury yields go down when investors increase their desire for bonds, over riskier investments such as stocks, or when they expect interest rates to go down in the future and want to lock in on current rates. Contrarily, yields go up when investors' confidence on riskier investments is high, since the demand for treasuries falls. Thus, treasury yields are influenced by the interest rate environment, but also by investors' expectations.

Following the 2008 financial crisis, the Fed lowered interest rates to historically low levels, setting it between 0.00% and 0.25[1]. Those rates were kept until the end of 2015. After that, the Fed gradually raised it to 2.5%, responding to strong gdp growth and in order to stabilize the economy and avoid the rapid increase of inflation. Yet, in 2019 interest rates started going down again. In 2019, the Fed has already dropped its federal funds rate three times, in order to stimulate the economy and avoid an economic slowdown. In addition, President Donald Trump has been pressuring the Fed to lower rates, as he wants the same levels of interest rates that exist in Europe[2]. In Europe, the ECB has imposed negative interest rates on overnight deposits, meaning that banks are actually paying to lend money to the ECB. In addition, many European countries have negative treasury yields. This is true even in longer maturities, meaning that investors believe rates will increase soon.

U.S. 10-year treasury yields have typically been above the federal funds rate, which makes sense as it has a longer maturity[3]. The evolution of both rates since 2000 is presented below:

Exhibit 1. Fed Funds rate and U.S. 10-year Treasury yield (2000 – 2019)



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[3] Yahoo! Finance. 2020. Treasury Yield 10 Years (^TNX). Accessed January 2. https://finance.yahoo.com/quote/%5ETNX?p=%5ETNX&guce_referrer=aHR0cHM6Ly9maW5hbmNlLnlhaG9vLmNvbS9x

Even if it clear that the Fed's rate influences the 10-year yield (correlation of ~76.8%), during times of low interest rates (between 2002 and 2004 and since 2009) the 10-year yield is, on average, 2.09pps higher. In 2019, treasury yields have been decreasing, reaching historically low levels, following the Fed's decisions to lower interest rates, but also due to the slowdown in economic growth and the long-lasting trade tensions between the world's two largest economies (the U.S. and China), which affects investors' confidence in the stock market.

The impact on Johnson & Johnson's valuation

To measure the impact of changes in yields in J&J's target price, three scenarios were defined: two in which future yields are higher and one in which they are lower. Bearing in mind that higher treasury yields lead to a higher WACC and lower share price, it is more important to address the risk of yields increasing, either due to changes in interest policies or market expectations. Still, as we have witnessed the U.S. President asking for lower interest rates, a scenario in which treasury yields are lower was performed. The impact on J&J's price was measured through the DCF model. The scenarios for the future 10-year treasury yields (U.S.) were defined as follows:

- **3.39% -** average yield between 2000 and 2019.
- **2.49% -** average yield after the 2008 financial crisis (between 2009 and 2019).
- **1.46%** - the lowest monthly value for the U.S. treasury yield (July, 2016).

Finally, the WACC and target prices were computed. The return in 12 months was estimated assuming total dividends in 2020, equal to $3.95 per share. The result was the following:

Exhibit 2. Johnson & Johnson's Target Price

Current Price: $145.87	Probability	U.S. 10-year Yield	WACC	Target Price	12m return
Average since 2000	5%	3.39%	7.76%	$ 107.22	-24%
Average 2009 - 2018	20%	2.49%	6.89%	$ 137.97	-3%
Current	50%	1.92%	6.35%	$ 166.00	17%
Lowest	25%	1.46%	5.91%	$ 197.25	38%
Target Price	$ 165.27				

From this analysis, it was possible to conclude that the interest rate environment is, in fact, crucial for the determination of J&J's fair value. With the return on the risk-free asset ranging from 1.46% and 3.39%, J&J's fair price ranges from $107.22 to $197.25 (a $90 range). This shows how sensitive the DCF model is to its underlying WACC assumptions.

As U.S. treasury yields are currently at historically low levels, one can argue that an increase in interest rates is a more likely scenario than interest rates decreasing even further. Still, this has not been the case in 2019, as the Federal Reserve as already lowered interest rates three times and the treasury yield depicts a downward trend. In addition, even if many believed interest in Europe would not stay negative for long, these rates have been around for quite some time. This, combined with President Donald Trump's desire for lower interest rates, leads me to believe that probably treasury yields will not rise any time soon and may even decrease. Still, if the assumption was that the likelihood of treasury yields rising was the same of them going down (25% probability for each of those scenarios), a target price of $165.27 would be attained. This leads to a 12-month return of 16%, with J&J currently being undervalued, and reinforcing our BUY recommendation.

Conclusion

All things considered, I have verified that interest rates can highly impact Johnson & Johnson's intrinsic value, as small variations in the underlying WACC assumptions may cause the company's stock price to significantly diverge. The expected 12-month return for each scenario is given by:

- **U.S. 10-year Treasury yield = 3.39% -** negative return of 24%.
- **U.S. 10-year Treasury yield = 2.49% -** negative return of 3%.
- **U.S. 10-year Treasury yield = 1.92% (current) -** positive return of 17%.
- **U.S. 10-year Treasury yield = 1.46%** - positive return of 38%.

Due to the current economic and political environments, I would predict a positive effect on J&J's price to be more likely than a negative effect, as interest rates and treasury yields can decrease. Still, in the future, it is likely that interest rates will eventually rise again, and that may negatively impact J&J's intrinsic value. Assuming that the probability of treasury yields rising in the future is equal to the probability of yields decreasing, the price target would be $165.27. This leads to a return of 16% over 12 months and reinforces the previous conclusion: buying J&J's stock is a good investment, as it is currently being undervalued by the stock market.