

**MASTERS IN
FINANCE**

**MASTERS FINAL WORK
PROJECT**

**EQUITY RESEARCH:
JOHNSON & JOHNSON**

JOÃO AIRES MARINHO MARREIROS LEITE

OCTOBER 2023

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**SUPERVISOR:
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Abstract

This paper, "Equity Research: Johnson & Johnson", is according to ISEG's guidelines for a Master's Final Work, includes different valuation techniques, and brings awareness to potential investment risks. Johnson & Johnson is the third largest pharmaceutical company by market capitalization. The company was founded more than 130 years ago with the intent of improving healthcare. Since then, the company pioneered many products and innovations in the field, with the introduction to the market of products like band-aids and first-aid kits. Today, the company advances the progress made in the pharmaceutical sector.

After researching and valuing the company, I conclude that the decision for investment is to HOLD, with a price target of \$180.62 per share by 2023 YE, indicating an upside potential of 14.6%, when compared with the closing price of \$157.64 on the 6th of October 2023, by using the Discounted Cash Flow (DCF) approach, Weighted Average Cost of Capital (WACC), Flow to Equity (FTE), and Adjusted Present Value (APV) methods. During the analysis, other methods were used, such as Dividend Discount Model (DDM), and Relative Valuation.

I also assessed Johnson & Johnson's investment risk as Medium, and the reports further explain this decision.

The data used in this report was used until the date of 6th of October 2023.

JEL classification : G10 ; G17 ; G28 ; G31 ; G32 ; G34 ; G35

Keywords: Johnson & Johnson; Pharmaceutical Industry; Research and Development; Risk; Valuation;

Resumo

Este artigo, “Equity Research: Johnson & Johnson”, está de acordo com as orientações do ISEG para um Trabalho Final de Mestrado, inclui diferentes técnicas de avaliação, e alerta para os potenciais riscos de investimento. A Johnson & Johnson é a terceira maior empresa farmacêutica em capitalização de mercado. A empresa foi fundada há mais de 130 anos com a intenção de melhorar a saúde. Desde então, a empresa foi pioneira em muitos produtos e inovações na área, com a introdução no mercado de produtos como band-aids e kits de primeiros socorros. Hoje, a empresa avança o progresso do setor farmacêutico.

Após pesquisar e avaliar a empresa, concluo que a decisão de investimento é MANTER, com preço-alvo de \$ 180.62 por ação até 2023 YE, indicando um potencial de valorização de 14.6%, quando comparado ao preço de fecho de \$ 157.64 em 6 de outubro de 2023, utilizando a abordagem de Fluxo de Caixa Descontado (DCF), o Custo Médio Ponderado de Capital (WACC), o Fluxo para o Patrimônio Líquido (FTE) e o Valor Presente Ajustado (APV). Durante a análise, foram utilizados outros métodos, como o Modelo de Desconto de Dividendos (DDM) e a Avaliação Relativa.

Também avaliei o risco de investimento da Johnson & Johnson como Médio, e os relatórios explicam melhor essa decisão.

Os dados utilizados neste relatório foram utilizados até a data de 6 de outubro de 2023.

Classificação JEL : G10 ; G17 ; G28 ; G31 ; G32 ; G34 ; G35

Palavras-chave: Johnson & Johnson; Equity Research; Indústria Farmacêutica; Investigação e Desenvolvimento; Risco; Avaliação

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Words cannot express my gratitude to my parents, as without them nothing would be possible. Thank you for your unconditional support and for never doubting me.

A special thanks to my sister, Inês, for always being present, for believing in me, and for all the encouragement during this period.

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Abbreviations

CAGR - Compound Annual Growth Rate

CEO - Chief Executive Officer

DCF - Discounted Cash Flow

DDM - Dividend Discount Model

EBITDA - Earnings Before Interest, Taxes, Depreciation & Amortization

ERP - Equity Risk Premium

ESG - Environmental Social and Governance

EU - European Union

F – Forecast

FTE - Flow to Equity

FCFF - Free Cash Flow to Firm

GDP - Gross Domestic Product

GGM - Gordon Growth Model

IMF - International Monetary Fund

JNJ - Johnson & Johnson

Kd - Cost of Debt

Ku - Unlevered Cost of Capital

M&A - Mergers and Acquisitions

NWC -Net Working Capital

PPI - Producer Price Index

Q2 - 2nd Quarter

R&D - Research and Development

ROA - Return on Assets

ROIC - Return on Invested Capital

SDG - Sustainable Development Goals

US - United States

UN - United Nations

WACC - Weighted Average Cost of Capital

YE - Year End

YoY- Year on Year

INVESTMENT RECOMMENDATION

Price target (2023YE)	\$ 180.6
Upside	14.6%
Closing Price (Oct 06, 2023)	\$ 157.64
Industry	Pharmaceutical
Ticker (Bloomberg)	JNJ:US
52w Price Range (\$)	150.11 - 181.04
52w Daily Volume	22.5 M
Shares Outstanding <small>Source: Refinitiv and own calculations</small>	2.408B
Market Cap (Oct 12, 2023)	380B

JNJ: Driving Growth Through Innovation

1. Research Snapshot

HOLD is my recommendation for Johnson & Johnson with a price target for 2023 YE of **\$180.6/sh**, evaluated by using the Discounted Cash flow (DCF) methods, indicating an upside potential of **14.6%**, when compared with the current price of \$157.64 per share on October 6, 2023. The risk level is assessed as Medium for investment purposes. The price target is also solidified by the results from other Valuation methods (Figure 1).

New products in the Pipeline

The recommendation is further justified by Johnson & Johnson’s commitment to remain a market leader and bring innovation into the sector. The pharmaceutical sector is highly research and development (R&D) intensive, and the company has demonstrated its ability to introduce new disruptive products to the market.

2. Business Description

Johnson & Johnson (NYSE: JNJ) is an American company with origins tracing back to 1887 when three brothers decided to start mass-producing sterile surgical supplies. **The little startup began by providing medicinal plasters and sterile surgical dressings to relieve patients from pain and suffering. The company continued to grow and expand its product line, even providing tooth creams to the population.** Currently, Johnson & Johnson is a prominent player offering life-enhancing products in the pharmaceutical industry. The products developed by the company have revolutionized the market with the introduction of products such as band-aids, first-aid kits, and even baby powder.

The company has an extensive track record with more than 250 subsidiaries and 155,800 employees operating in over 60 countries, selling its products in practically every corner of the world. Johnson & Johnson achieved sales of \$94.9 billion in 2022, with the United States contributing \$48.6 billion and the European market contributing \$23.4 billion accounting for more than 75% of the total revenue (Figure 2).

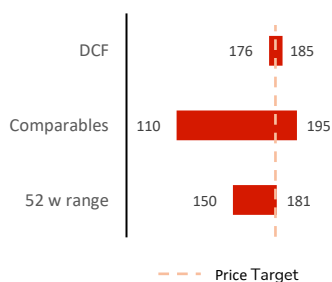
Business Segments

Johnson & Johnson can be divided into three main business segments: Consumer Health, Medical Devices, and Pharmaceuticals. The Pharmaceutical segment is the largest contributor, accounting for more than 55% of total sales. In 2022, the MedTech segment generated \$27.4 billion accounting for 28.8% of total sales. The Consumer Health segment, known for its popular day-to-day products, achieved \$15.0 billion in revenue in 2022 (Figure 3).

Consumer Health: focused on providing personal healthcare products used in Skin Health/Beauty, Over-the-Counter medicines, Baby Care, Oral Care, Women’s health, and Wound Care markets.

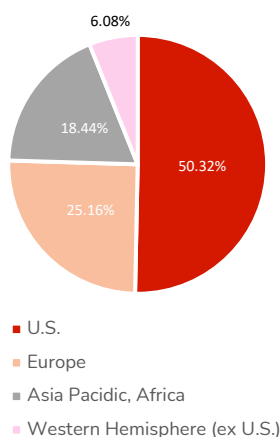
- **Skin Health/Beauty:** Provides products to improve skin and hair health, with brands such as AVEENO, NEUTROGENA, and CLEAR & CLEAR. In 2022 generated \$4.4 billion in sales.
- **Over-the-counter medicines:** Focuses on medicines to help with allergies, colds, flu, and many other conditions. It includes brands such as TYLENOL, BENADRYL, and SUDAFED. In 2022 generated \$6.0 billion in sales.
- **Baby Care:** Includes the famous JOHNSON’S brand and AVEENO Baby. It represented \$1.5 billion in sales in 2022.
- **Oral Care:** Represented by the LISTERINE product line and generated \$1.5 billion in sales in 2022.

Figure 1 - Football Field Chart



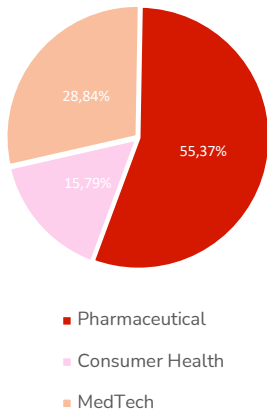
Source: Refinitiv and own calculations

Figure 2 - Revenue by Region (%)



Source: Own calculations

Figure 3 - Revenue by Segment (%)



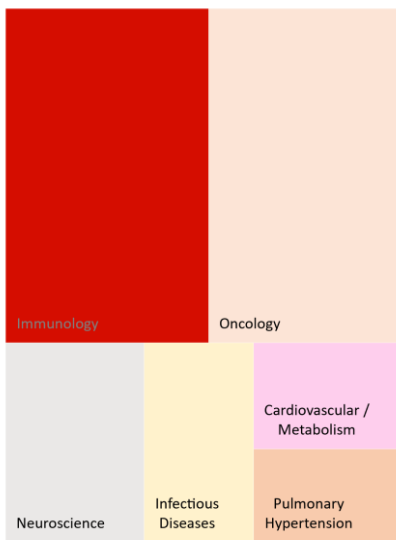
Source: Own calculations

- Women’s Health: Includes products such as sanitary pads and tampons. In 2022, generated \$ 904 million in sales.
- Wound Care brands: This segment focuses on adhesive bandages and first-aid products, representing \$700 million in sales in 2022.

MedTech: This segment focuses on developing and providing products that help patients recover and are used in health fields by physicians, nurses, hospitals, eye care professionals, and clinics. Medical Devices can be divided into:

- Interventional Solutions: These solutions are used for treating cardiovascular diseases and hemorrhagic and ischemic stroke and providing neurovascular care. In 2022, generated \$4.3 billion in sales.
- Orthopedics: Providing products to support hips, knees, trauma, spine, and others. In 2022, generated \$8.6 billion in sales.
- Surgery: Providing solutions to general, advanced, and cosmetic surgical procedures. In 2022, generated \$9.7 billion in sales.
- Vision: It offers disposable contact lenses and ophthalmic products. In 2022, generated \$4.8 billion in sales.

Figure 4 - Revenue by Therapeutic Division



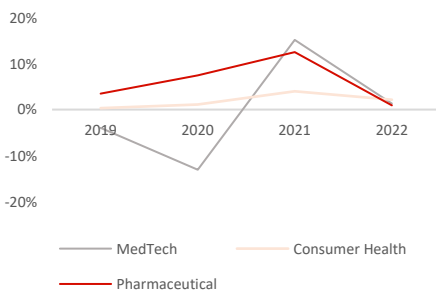
Source: Own calculations

Pharmaceutical: This segment focuses on providing solutions in six therapeutic areas (Figure 4):

- Immunology: Focused on providing solutions for rheumatoid arthritis, psoriatic arthritis, inflammatory bowel disease, and psoriasis. Products such as REMICADE, SIMPONI, STELARA, and TREMFYA, generated \$16.9 billion in sales in 2022.
- Infectious Diseases: Providing solutions for diseases like HIV and COVID-19. In 2022, generated \$5.4 billion in sales.
- Neuroscience: focused on developing products to help with mood disorders, neurodegenerative disorders, and schizophrenia. In 2022, generated \$6.9 billion in sales.
- Oncology: represents a big part of revenue and helps treat prostate cancer, hematologic malignancies, lung cancer, bladder cancer, and others. Its portfolio includes but is not limited to DARZALEX, ERLEADA, IMBRUVICA, and ZYTIGA. In 2022, generated \$16.0 billion in sales.
- Cardiovascular and Metabolism: Focused on helping conditions like thrombosis, diabetes, and macular degeneration. To help combat them, Johnson & Johnson developed XARELTO, INVOKANA, PROCIT, and others. In 2022, generated \$3.4 billion in sales.
- Pulmonary Hypertension: In 2022, generated \$3.9 billion in sales.

The Consumer Health sector led Johnson & Johnson’s growth for 2022, increasing its revenue by 2.1% from 2021 to 2022. The MedTech and Pharmaceutical segments also saw an increase in their sales by 1.3% and 0.9%, respectively, during the same period (Figure 5).

Figure 5 - Revenue YoY Change



Source: Own calculations

Johnson & Johnson recently underwent a significant corporate restructuring by spinning off its consumer health segment into a new, independent company named Kenvue. This strategic move aimed to streamline the operations of both entities and unlock value for shareholders by allowing each company to focus on their respective core competencies and changing the companies’ structure. Thus, it’s important to note that at the time of preparing this report, a separate valuation analysis of both Johnson & Johnson and Kenvue was not feasible due to time constraints.

Company Strategy

Johnson & Johnson looks to keep growing sustainably in the future. To ensure this healthy growth, the company has detailed some strategies. The company wishes to drive growth through innovation. The expectancies from customers in the sector are changing, and Johnson & Johnson wants to be a leader in this aspect, by providing goods and services that are more personalized and of immediate access. Joaquin Duato, Johnson & Johnson’s CEO believes there is the opportunity to advance more “in health in this decade than we have seen in the last 100 years”. The company looks to implement new technologies such as Artificial intelligence and automation into the sector.

Furthermore, the introduction of new products in this segment requires substantial investments in research and typically spans several years from project inception to the product’s release. This process can take anywhere from 10 to 15 years (Figure 6), limiting market access to only a few key players.

Figure 6 - Estimated Drug Development Time



Source: BioStock

Regarding the Medical Devices segment, there is a strong belief that it will grow significantly. To stride towards this goal the company is looking to:

- Launching new products.
- Advancing Pipelines.
- Expanding Global Presence

Human Capital Strategy

Johnson & Johnson has sustained a presence in the pharmaceutical industry for over a century. The company understands that a great part of this success is due to the many brilliant minds that the company allowed to be heard. As such Johnson & Johnson continues to invest in recruiting and developing their employees as part of their long-term strategy. Believing that the employees' triumph will also be the company's triumph, and vice-versa. Thus, the company's human capital management strategy is seen as of most extreme importance, and, as such, it focuses on three main pillars:

- Attracting and recruiting the best talent.
- Developing and retaining talent.
- Empowering and inspiring talent

Figure 7 - J&J's M&A Transactions

Year	Acquired Company	Amount
2010	Micrus Endovascular	\$480 million
2010	Crucell	\$2.3 billion
2012	Synthes	\$19.7 billion
2017	Abbott Medical Optics	\$4.33 billion
2019	Auris Health	\$3.45 billion
2021	OrthoSpin	\$79.5 million
2022	Abiomed	\$16.6 billion

Source: Tracxn

To ensure that these areas are at the forefront of the company's day-to-day philosophy, Johnson & Johnson has created policies and processes that give birth to such an environment:

- Culture and Employee Engagement: employees adopt Johnson & Johnson's which makes the company accountable to every stakeholder. Employees can also expect to be guided regarding business conduct in every market the company operates. The company is keen on getting feedback from its employees and acting upon it to improve the work environment.
- Growth and Development: Johnson & Johnson understands that it must promote the constant pursuit of knowledge and skills of its employees providing opportunities for them to grow their careers;
- Diversity, Equity, and Inclusion: Johnson & Johnson strives to have a more diverse workforce.
- Compensation and Benefits: to retain the best talent, the company knows that it must offer competitive compensation and benefits, offering programs to support its employees in all areas of their lives.
- Health, Wellness, and Safety: With Johnson & Johnson having such an active role in enhancing global health, the company understands the duty it has to its employees regarding the offering of solutions for their health and well-being.

Figure 8 - Top 5 companies by J&J's share held



Source: Nasdaq

M&A Strategies

The company has a track record of acquisitions and has made some acquisitions in the past 10 years (Figure 7). Johnson & Johnson is keen on maintaining this strategy with an aggressive M&A strategy, especially in the MedTech segment.

Johnson & Johnson has always used mergers and acquisitions to further enhance its growth opportunities, with more than 40 acquisitions and major licensing, The largest acquisition to date was in 2017, buying Actelion for \$30 billion.

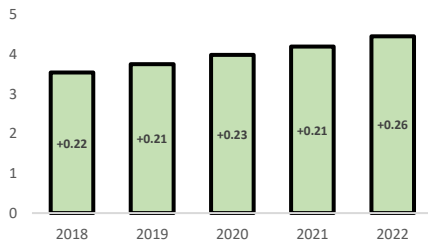
Shareholder Structure

As of October 6 2023, Johnson and Johnson had 2.41 billion shares outstanding. The Directors and Executive Officers own less than 1% of the total outstanding shares. Furthermore, Institutional investors have a majority position in Johnson & Johnson owning more than 75% of the total outstanding shares with the five major players being The Vanguard Group, Blackrock, State Street Corporation, Geode Capital Management, and Morgan Stanley owning almost 30% of the entire float (Figure 8).

Dividend Policy

Johnson & Johnson currently pays a quarterly dividend of \$1.19 (Figure 9). This amount has recently increased (Q2 2023) from \$1.13, which represents a 5% increase. Johnson's dividends have seen constant growth with a 50-year CAGR of 7.08%. This growth has slowed down but remained constant near the 6% mark over the last 10 years.

Figure 9 - Yearly DPS (\$), 2018 - 2022



Source: Own calculations

Figure 10 - UN's SDGs followed by J&J



Source: United Nations

3. ESG

The company's Credo, published more than 75 years ago, determines that its main responsibility is to its key stakeholders: patients, healthcare providers, employees, communities, and, finally, its shareholders. Thus, Johnson & Johnson understands the role businesses must play in advancing a healthier world, especially as one of the world's largest healthcare companies. Its ESG strategy is centered on:

- Championing global health equity.
- Empowering its employees.
- Advancing environmental health

According to MSCI, Johnson & Johnson is rated A, the average among 80 companies in its industry. This rating has seen improvement over the last year, being promoted from a BBB rating. The areas where the companies lack the most, regarding ESG are Corporate Governance and Behavior while it exceeds compared to its peers in Human Capital Development, Access to Healthcare, and Toxic Emissions & Waste.

Sustainalytics also rates the company as medium risk regarding ESG, ranking 142nd out of 962 in the pharmaceutical sector and 6522nd out of 14794 companies. It is also regarded as a company with high controversy levels.

The company's ESG strategy also supports 11 out of the 17 United Nations Sustainable Development Goals, which range from promoting good health and well-being to providing quality education (Figure 10).

Environmental

Johnson & Johnson is focused on reducing its carbon footprint by investing and transitioning to renewable electricity and carbon neutrality in its operations. Its main goals regarding this issue are to:

- By 2030, achieve carbon neutrality in its operations, reducing emissions by 60% compared to its 2016 levels.
- And by 2030, reduce its upstream value chain emissions by 20% when compared with 2016 levels.

Social

The company strives for the ongoing battle to create a more accessible and affordable health environment. Johnson & Johnson addresses the challenge of creating a more robust healthcare system by closing the worker shortage in the sector while providing them with the necessary equipment. To ensure a healthier future the company commits to:

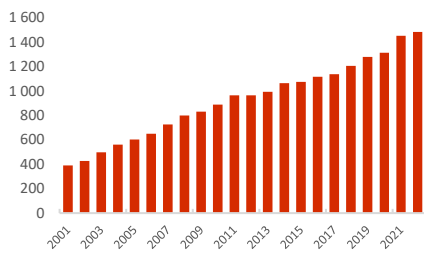
- Creating global access plans for endemic diseases.
- By 2030, support one million health workers with growth opportunities.

Corporate Governance

Johnson & Johnson is committed to empowering its employees and cultivating a healthy and inspired workforce. The company aims to, by 2025:

- Have a gender balance in management positions;
- Increase racial diversity to 35% in management positions.
- Achieve a growth of 50% in its Black and African American employees in management positions.

Figure 11 - Pharmaceutical Revenues, 2001 – 2022 (billions of \$)



Source: Statista

Board of Directors

The Board of Directors is composed of 14 members and six Committees (the Audit Committee; the Compensation & Benefits Committee; the Nominating & Corporate Governance Committee; the Finance Committee; the Regulatory, Compliance & Government Affairs Committee; and the Science, Technology & Sustainability Committee).

This hierarchical division within Johnson & Johnson ensures clear lines of responsibility and accountability throughout the organization. It also enables the company to effectively address the diverse needs of the healthcare industry and to remain a global leader in the sector.

4. Industry Overview & Competitive Position

Pharmaceutical Industry

The pharmaceutical industry is one of the fastest growing and developed economic sectors that have the potential for high profits. This industry is responsible for the search, development, production, distribution, and marketing of the medicines used in health care to treat and cure several diseases. Additionally, contributes to the increase in the quality of life of the patients.

During the past two decades, the market presented significant growth and in 2022, the pharmaceutical revenues worldwide were approximately 1.5 trillion USD (Figure 11). Factors such as the aging of the population, COVID-19 (vaccines and COVID tests), and the increase in chronic diseases have contributed to this positive evolution of revenues.

In 2019, the oncology area had revenues of around 146 billion USD, and it is considered the largest source of revenues, followed by anti-rheumatics and anti-diabetics (Figure 12).

According to the paper *Pharmaceutical Industry in Figure 2021*, the North American pharmaceutical market (the USA and Canada) represents almost half of the worldwide revenues, followed by the European market with almost 24% of the market share. Other markets that have emerged over the past few years include China, Russia, Brazil, and India (Figure 13).

Key Drivers of Profitability

In the pharmaceutical industry, several drivers boost profitability such as the increase of the worldwide aging population that will require more medical care and services. Innovation is another important issue for the industry that allows the discovery of new medicines for the market. For the past few years, there has been major growth in the technology field, such as artificial intelligence or blockchain, which contributed to an acceleration in the development, production, and distribution processes. Furthermore, it is important to emphasize the contribution of expected growth, alliances, and licensing agreements on the growth of revenues.

R&D is an important factor that influences the revenues from pharmaceutical companies due to the high amount of capital spent. The pharmaceutical industry is considered the industry that spends more on R&D when compared with other manufacturing industries (Figure 14). Through the years, the costs have increased and are expected to continue to grow to reach more than 213 billion USD by 2024 (Figure 15).

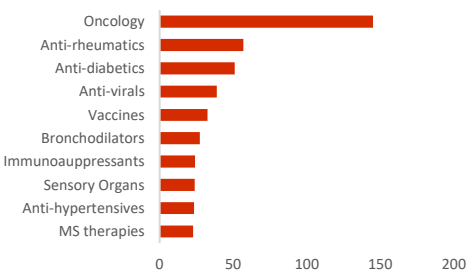
In 2020, R&D spending in the pharmaceutical industry totaled almost 200 billion USD globally (Figure 15). This represents around 20% of the total worldwide revenues of the pharmaceutical market. Other drivers such as the competition with generic medicines and biosimilars, income taxes, or cost of debt negatively affect the revenues of the pharma companies.

Competitive Environment of Industry

Global economic outlook

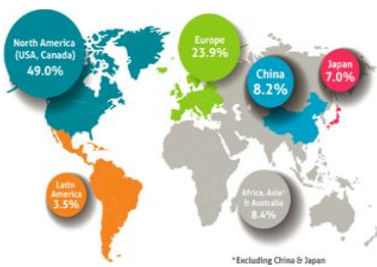
The world economy was looking to regain its momentum after the COVID-19 pandemic, but the current situation in Ukraine has created instability once again. According to the most recent World Economic Outlook report from IMF, the global recovery is projected to continue with global GDP growth moderating over time, from 5.9% in 2021 to 4.9% in 2022 and 3.3% in 2023. However, due to the disruption of supply for advanced economies and the worsening pandemic situation in low-income developing countries, the world economy still faces a lot of uncertainties.

Figure 12 - Pharmaceutical Market Size by Segment (billions of \$)



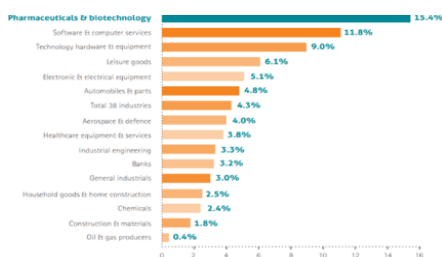
Source: Statista

Figure 13 - Breakdown of the Pharmaceutical Market by Region



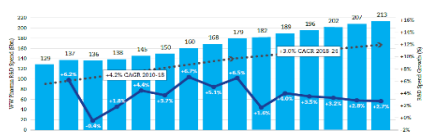
Source: EFPIA

Figure 14 - Profitability of the Pharmaceutical Industry among Others



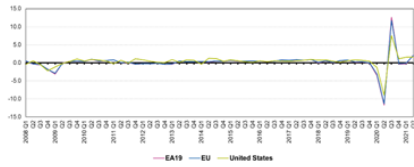
Source: EFPIA

Figure 15 - Biopharma R&D Spending (\$)



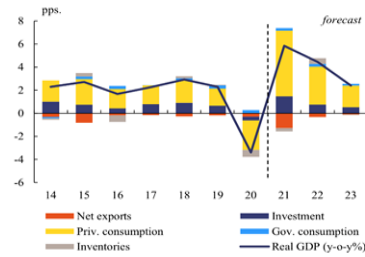
Source: *The Pharmaceutical Industry and Global Health: Facts and Figures 2021*

Figure 16 - GDP growth rate, 2000 - 2021,



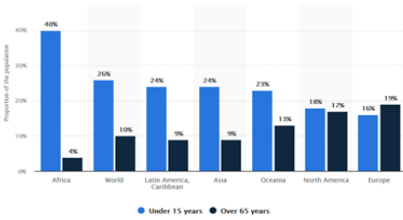
Source: EUROSTAT

Figure 17 - Real GDP growth in the U.S.



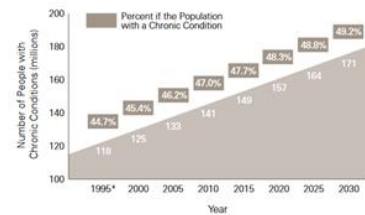
Source: Statista

Figure 18 - Proportion of Population by Age



Source: Statista

Figure 19 - Percentage of the population suffering from a chronic disease in the U.S.



Source: *Projection of Chronic Illness Prevalence and Cost Inflation*

Figure 20 - PPI of India by September of 2021



Source: TradingEconomics

European Union's economic outlook

With the ease of pandemic restrictions, the economy of the EU has been rebounding from the pandemic recession. The GDP growth rate increased by 13.7 % in the EU in the second quarter of 2021 compared with the same quarter of the previous year 2020 (Figure 16). However, as of the end of 2021, growth is considered to slow down due to increasing energy costs, supply chain disruptions, and the threat of a new potential variant of the virus and a new wave of the pandemic. According to the European Economic Forecast Autumn 2021, the GDP growth for the EU is projected to be 5% in 2021, 4.3% in 2022, and a decline to 2.5% in 2023. It also indicates that by early 2023, the real GDP will be expected to converge to the steady growth path and follow before the pandemic.

United States economic outlook

The economy of the US recovered rapidly in late 2020 and early 2021. As private consumption grew strongly, the GDP reached the pre-pandemic level in Q2 of 2021. However, with the supply disruptions, the low vaccination rates (less than 60%) and new COVID-19-related cases surged rapidly over the summer, leading to a slow recovery of the economy. Based on the European Economic Forecast Autumn 2021 report, the GDP growth for the US is projected to be 5.8% in 2021, 4.5% in 2022, and a decline to 2.4% in 2023 (Figure 17).

Demand and supply analysis

Demand driver | Aging population

The market share of the pharmaceutical industry by region in 2020, North America and Europe occupy about 72.9% of the total market share of the pharmaceutical industry. However, we can see that both markets are facing a series of problems of population aging (Figure 18). Based on these facts, we infer that in the coming future, there will be a significant increase in demand for medical products and treatments which will lead to a high future growth for the pharmaceutical industry.

Demand driver | Increase in chronic disease

With the aging population and the change of lifestyle, since more and more people are getting accustomed to the sedentary lifestyle and lack of physical activity, an increasing number of people suffering from chronic diseases, for instance, diabetes, heart disease, cancer, etc. We can see that a rapidly increasing percentage of the population suffering from a chronic disease in the US (Figure 19). By 2030, it is predicted to have about 49.2% of the total population with a chronic problem. This will also lead to a high demand in the pharmaceutical industry.

Demand driver | New type of disease

The new types of disease, like the COVID-19 pandemic, resulted in high demand for more efficient and innovative treatment which will push the companies in the pharmaceutical industry to change traditional medical methods and spend more investment in research and development sectors.

Supply driver | Expiration of the patents

In most cases, drug patents are awarded protection about 20 years after the drug's invention. The patent will give the original inventor the exclusive right to research, develop, and sell the brand-name drug. However, with the expiration of the patent, the company inventor will lose the exclusivity, which will lead to an increasing supply of generic drugs and a potential decline in the drug price and bring negative effects to the company's profitability.

Supply driver | Increase in raw material price

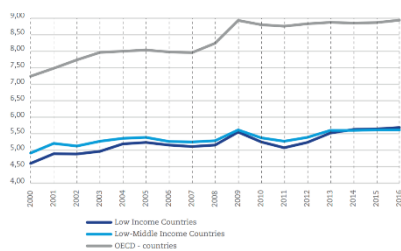
The Active Pharmaceutical Ingredient (API) is a raw material that is included in medicines and is a biologically active component used in drugs. The pharmaceutical industry relies on the supply of this component. Globally, China and India are the key players in the supply of APIs. We can observe the changes in PPI for both China and India, from the beginning of the Pandemic 2020, for both two countries, PPI has a dramatic jump up towards 2021 (Figure 20 and 21). This effect will result in the high cost of manufacturing drugs and other products and decrease the profitability of companies in the pharmaceutical industry.

Figure 21 - PPI of China by October of 2021



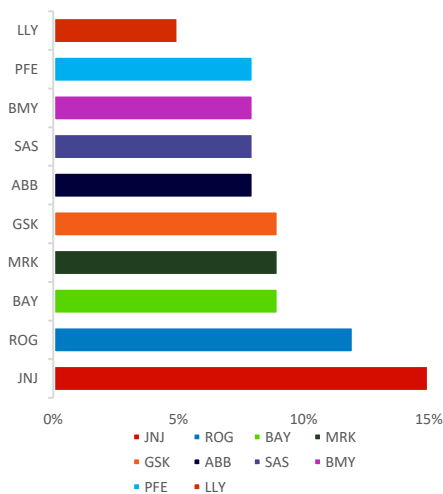
Source: TradingEconomics

Figure 22 - Spending on Health, as % of GDP



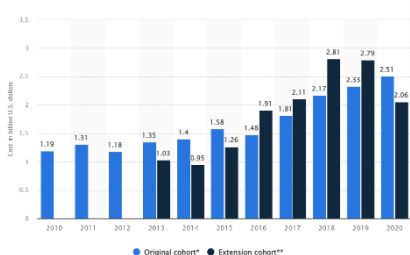
Source: IFPMA (2021)

Figure 23 - Peers by market share



Source: Refinitiv

Figure 24 - Average cycle time, in years



Source: Statista

Table 1 - PESTLE Analysis

Political	Economic	Social
Regulatory frameworks Pricing pressures International trade disputes Public spending in health care Political changes	Growing demand for affordable pharmaceuticals Changes in costs of energy and commodities Changes in economic growth, inflation, and interest rates	Growth in the aging population Increasing health trend Growth in obesity, cancer, mental illnesses, and other diseases Rising consumer expectations
Technological	Legal	Environmental
Growth in innovation Growth in MedTech and Biotech Growth in data usage Growth in online opportunities	Restrictive legal environment High risk of litigation	Increasing environmental concerns

Peer group Analysis

Due to the pandemic of COVID-19, people's health awareness is being raised and the pharmaceutical industry has become the key industry to focus on. This industry has become one of the most developed sectors in recent years and is the major leader in R&D when compared to other manufacturing industries. Pharmaceutical companies are always investing in R&D and researching new medicines in the pipeline, so it is important to know which are the main competitors in the market. Table 2 below shows the major competitors in the industry based in Europe and the United States where they have their core business.

Table 2 - Peer Group

Ticker	Name	Country	Market Cap (\$M)	Revenues (\$M)	EBIT Margin
JNJ	Johnson & Johnson	United States	419 583	82 584	20%
ROG	Roche Holding AG	Switzerland	344 246	65 894	32%
BAY	Bayer AG	Germany	49 125	50 562	-39%
MRK	Merck & Co Inc	United States	185 253	47 994	16%
GSK	GlaxoSmithKline PLC	United Kingdom	102 167	46 623	23%
ABB	Abbvie Inc	United States	210 113	45 804	25%
SAS	Sanofi SA	France	119 743	45 639	38%
BMY	Bristol-Myers Squibb Co	United States	125 010	42 518	-16%
PFE	Pfizer Inc	United States	304 610	41 908	20%
LLY	Eli Lilly and Co	United States	234 920	24 540	25%

Source: Refinitiv (access: 04/12/2021)

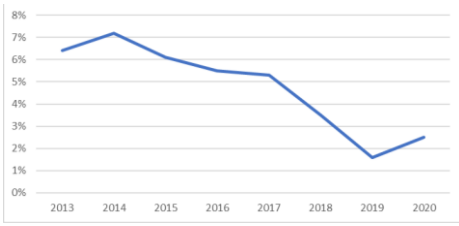
We have selected a peer group from the leading players in the pharmaceutical industry to represent the key developments in this industry. The peer group is Johnson & Johnson, Roche Holding AG, Bayer AG, Merck & Co Inc, GalxoSmithe PLC, Abbvie Inc, Sanofi SA, Bristol-Meyers Squibb Co, Pfizer Inc, and Eli Lilly and Co (Figure 23).

Porter's 5 forces

The threat of entry | Low

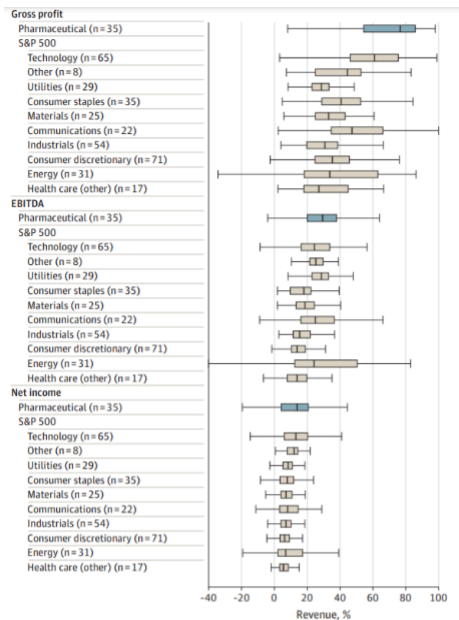
There is a low threat of entry into the pharmaceutical industry because each company incurs extensive costs associated with manufacturing setup, marketing sales and distribution, and I&I, being the latter vital for success in the industry. There is a high risk of little to no return on investment since this industry is highly regulated. For a drug to be approved, it must pass through a lengthy and costly (Figure 24) process with several phases, with high uncertainty in whether it will be approved or not in each one. The return on R&D is also decreasing (Figure 25). The market is characterized by its product differentiation and the presence of major players with established brands that benefit from economies of scale and brand loyalty. The most profitable products from

Figure 25 - Return on R&D for pharma companies



Source: Deloitte

Figure 26 - Profitability of the pharmaceutical sector



Source: Profitability of large Pharmaceutical companies compared with other large Public companies

this industry are patented, and unless the new company enters the highly competitive generic market, it must develop a new medicine from scratch.

Power of suppliers | Low

The power of suppliers is low because the major players buy high quantities of supplies, and this industry mostly requires raw materials (which are commodity products) for the pharmaceuticals, the technology for the production plants, and packaging materials, all of which many suppliers are willing to provide.

Power of Buyers | Medium

The power of buyers is medium because, even though patents for new compounds last around 20 years, large customers such as hospitals, government institutions, plan sponsors and, health insurance providers have some bargaining power. There is a trend of healthcare cost reduction from governments and other third parties that, in turn, apply pricing pressures and restrict market access to both generic and patented drugs. In many countries, doctors are also obligated to prescribe the least expensive medicines in case of the availability of substitutes. Individual customers, on the other hand, have little bargaining power.

Threat of Substitutes | Medium to high

The threat of substitutes is medium to high because, even though some drugs are patented and enjoy market exclusivity until patent expiration when this period ends, generics and “me-too” drugs start to be produced and a large set of substitutes enter the market. Also, technological advancements are making imitation easier. Additionally, there are some alternative medicines, and the world is experiencing a health trend in which diet and exercise are becoming more common in the population.

Rivalry among existing competitors | High

Rivalry among existing competitors is high because the pharmaceutical industry, not only is highly regulated but also because it is one of the most competitive industries in the world, where profit margins are high (Figure 26), where there are many small and large-sized players and is an industry that is experiencing a trend of M&A that can further increase economies of scale, thus allowing companies to charge lower prices, further increasing competition. It is also an industry with high product differentiation induced by substantial R&D investments.

Table 3 - SWOT Analysis

Strengths	Weaknesses
Market Leadership Strong investment in R&D Product Portfolio Stable Market Performance; Brand Recognition	Uneven Revenue distribution Unethical Practices
Opportunities	Threats
Focus on emerging markets Mergers and Acquisitions Partnerships with giant tech companies	Lawsuits Inflation Cybersecurity Government regulation Corporate Espionage Competition

5. Investment Summary

HOLD is my recommendation for Johnson & Johnson with a Price Target for 2023 YE of **\$ 180.6/sh**, evaluated by using the Discounted Cash flow methods (DCF), indicating an upside potential of **14.6%**, when compared with the current price of \$157,64 per share on the October 6 2023. The risk level is assessed as Medium for investment purposes. The Price Target is also solidified by the results from other Valuation methods.

Valuation Result

The valuation was supported by many different methods, but the final valuation consists of an average between the WACC, APV, and FTE methods. The different used methods do not deviate above |20%| in relation to the current price. The average of the methods used in the Relative Valuation reached a price target of \$155.87, which indicates a HOLD for the stock (Figure 27).

Investment Risks

Even though the outlook for the company's share price may be positive, we, as investors, must be aware of the risks when allocating our capital. Although the healthcare giant has an extensive track record as an innovator, the future performance of Johnson & Johnson's share price is also highly correlated to the way the market behaves. Furthermore, the performance of its stock is also affected by an intense competitive and regulatory environment. Thus, investors should maintain a well-informed and prudent approach when deciding to invest in Johnson & Johnson being aware of the downside potential.

6. Valuation

Projection of Sales

In 2022, Johnson & Johnson's revenue totaled \$94.4 billion, reflecting a modest yoy growth of 1.2%. In order to generate a realistic and precise value for this company's revenue, I broke down the projection by each segment (Figure 28).

Consumer Health Segment Sales Projection

The Consumer Health Segment has had the slowest growth out of the three segments over the past 5 years. From 2017 to 2021 the segment grew on average by 3%, but this number does not represent the whole story. The worst performing areas are Women's Health, Wound Care, and Baby Care, experiencing an average decline of -2.8%, -1.5%, and -4.3% over the same periods, respectively. The Baby Care's division decline can be explained due to the negative outlook one of the area's leading products has had in recent years. Baby powder has been the target of accusations claiming that the baby care product is carcinogenic. On the other hand, Oral Care, Skin Health/Care, and OTC medicines have experienced sales growth in the last 5 years. The latter is the clear leader of this segment, with an average increase of 6.3%. I took into consideration these values and estimated future revenue based on the historical average.

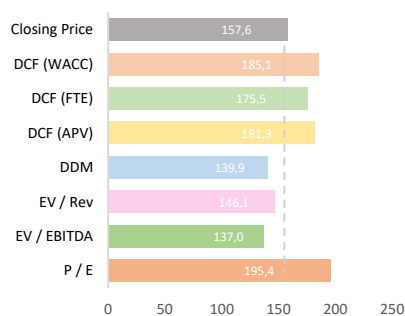
MedTech Segment Sales Projection

The most prominent areas of this segment are Orthopedics and Surgery, both with negative and slow growth. On the other hand, the Vision and interventional Solutions fields have shown more promising values. Especially the latter with a 5-year average of 7.06%. Overall, this segment has shown years of excellent growth, but the overall trend is of a slow decline, with 2021 being an exception due to economic recovery. Orthopedics is the area that has shown a decline in sales in recent years with a 5-year average of -1,49%. Surgery has shown consistency in its revenue with a 5-year average of 0,05%. To model the forecasted years, I used the historical averages, considering the future expectations of each area.

Pharmaceutical Segment Sales Projection

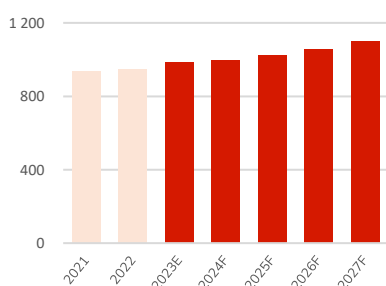
To forecast the revenues of this segment I investigated the patents and their expiration date to analyse for how long each product will keep continuing generating sales for Johnson & Johnson. The company does not have many patents expiring shortly, although one of these is STELARA, which is the product that generates the most revenue, representing almost 10% of the company's total sales in 2022. The expiration is set to be around 2023 and competition is already looming. A great drop in its revenues is expected, but we can also foresee that Johnson & Johnson will deliver to the market its biosimilar. It is obvious that the patent expiry has a great impact on the medicines' revenue, but this number may be hard to quantify. Johnson & Johnson also has more than 90 drugs in its pipeline and is looking to introduce to the market 14 of these drugs in the near future (Figure 29).

Figure 27 - JNJ's Price Target



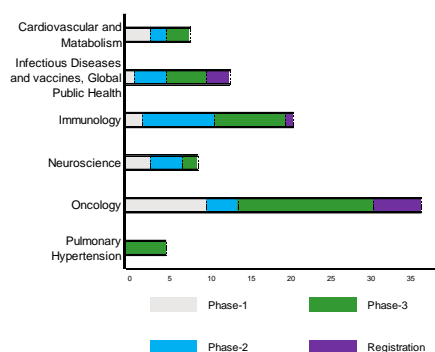
Source: Own Calculations

Figure 28 - Total Revenue (billions of \$)



Source: Own Calculations

Figure 29 – Johnsons & Johnson's Development Pipeline



Source: JNJ Development Pipeline

Table 4 - Equity Risk Premium

Region	ERP	% of sales
US	5.00%	50.32%
EU	6.63%	25.16%
Others	8.13%	24.52%
Weighted ERP	6.18%	

Source: Own calculations and Damodaran

Table 5 - Drivers for WACC

WACC	
Risk-free rate	4.8%
Beta unlevered	0.57
Beta levered	0.74
Market risk premium	6.2%
Ke	9.4%
Weight of Equity	65.9%
Kd	3.0%
Weight of Debt	34.1%
Tax rate	12.9%
WACC	7.07%

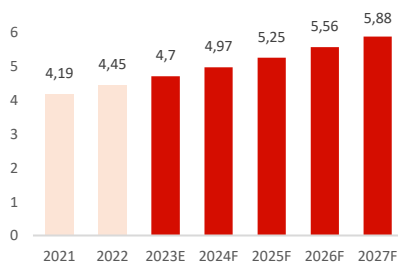
Source: CNBC, Damodaran, and own calculations

Table 6 - Drivers for APV

APV	
Unlevered Ke	7.21%
Corporate tax rate	12.9%
Kd	3.04%
g	1.90%

Source: Own calculations

Figure 30 - DPS (\$)



Source: Own calculations

Valuation Approach

The methods used to reach a valuation for Johnson & Johnson's share price were the Discounted Cash Flow method, the Adjusted Present Value method, Flow to the Equity method, the Dividend method, and Relative Valuation.

WACC Method

To calculate the cost of equity I used the following values:

- For a Risk-free rate, I used the 10-year U.S. treasury bond with a yield of 4.8%
- For the beta, I used Johnson & Johnson's 5-year calculated the beta based on the fluctuations of the price of the stock, which was 0.57
- To calculate the Equity Risk Premium, I used Damodaran's Equity Risk Premium and multiplied each weighted value from each country by its region revenue percentage (Table 4).

These metrics allowed me to reach a value for the cost of equity value of 9.4%.

Then, to get a value for the cost of debt I used the effective interest rate paid by the company for its debt in 2022 (Appendix 17).

With all the numbers computed and researched, I calculated the weighted average of the cost of capital and came up with a value of 7.1% (Table 5).

After computing the WACC, I had to get a value for the terminal growth rate, which will allow me to calculate the Terminal Value. This step is very important because the terminal growth rate is usually responsible for more than 80% of the total enterprise value computed when using the Discounted Cash Flow method. I used the global market economy's long-term growth rate as a conservative estimation method which is between 1,8% and 2%. I chose the 1,9% as the terminal growth rate.

Flow to Equity method

This valuation methodology focuses solely on equity cash flows to derive the Price Target. This method is useful for assessing the value of the company from the shareholders' perspective.

The reached value was \$ 175.52/sh which indicates an upside potential of 11.3% and represents a HOLD recommendation.

APV Method

This method focuses on the impact of financial leverage on the value of the company. This method is particularly valuable when assessing businesses with complex financial structures or when examining the implications of financial decisions on a project's value.

To calculate the price target using this method I had to calculate the unlevered cost of capital, by

The attained value stood at \$181.3/sh, signaling a 15.01% upside potential, and consequently, it suggests a BUY position (Table 6).

DDM Method

This method assumes the value of the company can be derived from the present value of the dividends it will pay to its shareholders. Unlike the DCF methods, it does not take into consideration the forecasted cash flows generated by Johnson & Johnson's operations.

Considering this growth and the consistency in dividends for 59 consecutive years we can expect the dividend to grow at a similar rate in the future. Considering that the dividend will not increase a fraction of a cent, I considered that the dividend will grow at a similar rate than before, increasing from \$0.06 to \$0.08 every Q2 of the forecasted years (Figure 30).

For the cost of equity, I used the value of 9.4%.

The Price Target computed using this method was 11% below the current price which represents a strong SELL recommendation. This differs from other methods due to the current high cost of equity of Johnson & Johnson.

Relative Valuation

The Relative Valuation used the companies selected in the peer group analysis as comparables. The ratios used to achieve a final value for this method were Enterprise Value to Revenue, Enterprise Value to EBITDA, Return on Invested Capital, Price to Earnings ratio and, Price to Book ratio. The valuations using the comparables varied from \$110.4 (ROIC) to \$195.2 (P/E). The overall valuation using the comparables method is \$155.9, which is the average of the 5 different valuations. It represents a REDUCE recommendation and a downside potential of 1.1%.

7. Financial Analysis

Liquidity Analysis

Over the historical years, Johnson & Johnson's current ratio has displayed a range of fluctuations, varying between 1.21 and 1.47. Looking ahead to the forecasted years, it's expected that this ratio will settle at 1.12 by 2027 (Figure 31). A similar pattern is observed with other liquidity ratios, reflecting a consistent trend in the company's financial liquidity.

Profitability Analysis

Here we can take a deeper look into the company's operations health. Most of the margins calculated remain stable throughout the period. The most notable change is the increase in EPS throughout the years.

Operational Efficiency Analysis

As for the efficiency ratios we can observe that the company becomes more efficient in its operations with a tighter cash conversion cycle, it is expected that these metrics have slight variations but remain stable overall.

Solvency Analysis

By analyzing the company's solvency ratios, we can understand if the company will have any financial stress when dealing with debt related expenses. Throughout the period, the company sees its D/E ratio decrease to a less leveraged position (Figure 32).

8. Investment Risks

Operational Risk | R&D Risk

Product development can be an extremely costly and lengthy process, thus ensuring that the Innovation and Investigation investment creates new and innovative products is vital for pharmaceutical companies. A way to mitigate this risk is to analyse and estimate the risk and financial commitment level of developing each drug before starting this process. Then weigh these risks against their potential benefits and likelihood of entering the market.

Operational Risk | Cybersecurity

Cyberattacks have been a growing concern among many sectors. These attacks in the pharmaceutical industry can be a factor of worry since these companies have extensive databases that are paramount to bringing a new product to the market and monitoring the efficacy of old ones. Companies can protect themselves against this uncertainty by investing in secure databases, hiring qualified human resources, or having insurance against this type of information theft.

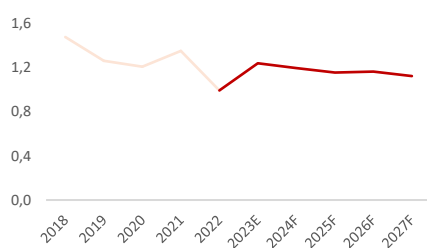
Operational Risk | Supply Chain Disruptions

There are many obstacles beyond regulatory hurdles when introducing a new product in this industry. It is of extreme relevance to ensure that the supply chain is robust and efficient. Companies can have a resilient supply chain and manage inventories to sustain disruptions in the supply chain while also they may find alternative materials to produce the products.

Market Risk | Regulations

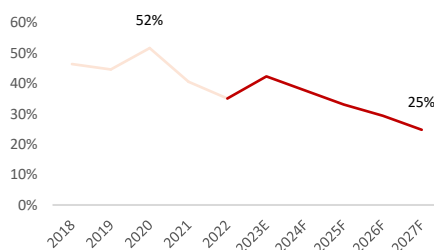
This is a significant and recurrent issue in the pharmaceutical industry. Companies face this risk because their products may have undesired effects creating problems for patients. The process of bringing new products to market can leave the company exposed to costly lawsuits. Test products and guarantee their safety before introducing them to the market.

Figure 31 - Current Ratio, 2018 - 2027F



Source: Own calculations

Figure 32 - D/E Ratio, 2018 - 2027F



Source: Own estimates

Market Risk | Inflation

Not so long ago Inflation was seen as a threat of past times, to which we were immune. However, with recent geopolitical conflicts, inflation has been the number one threat to economies all around the world.

Market Risk | Interest Rates

The inflation driven rise in interest rates across the globe has impacted the investor's sentiment, impacting stock prices, market valuations, and overall capital allocation. Beyond that, companies need to mitigate their internal interest rate risk to maintain financial stability in the most adverse economic climates (Figure 33).

Sensitivity Analysis

To further assess the risk related to Johnson & Johnson's financial forecast I made use of sensitivity analysis, where I tested the effects of changes in the WACC and the terminal growth rate. We can observe that the values decrease as the terminal growth rate decreases and the opposite is true for the weighted average of the cost of capital. This analysis considers values for the terminal growth rate of 1.5% to 2.3% and WACC varying between 6.7% and 7.4% (Table 4).

The prices in the table vary significantly with the highest (\$215.83/sh) being more than 30% higher than the lowest value (163.62/sh). We can see that a 0.1% decrease in the WACC will lead to a price/sh around 2% higher. The inverse relationship is also similar between the terminal growth rate and the price/sh, with a 0.1% increase in the terminal growth rate leading to more than a 2% increase in the price/sh.

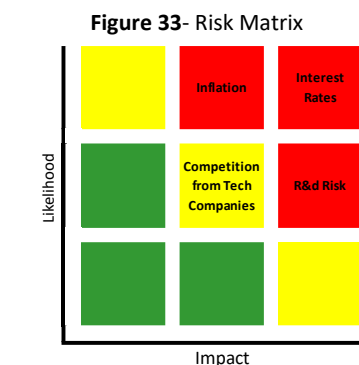
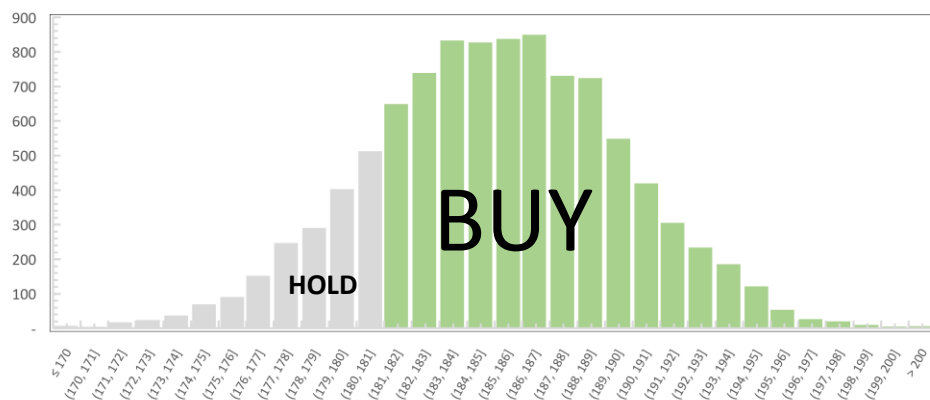
Table 7 – DCF (WACC) Sensitivity Analysis

DCF	WACC	Terminal Growth Rate								
		1.5%	1.6%	1.7%	1.8%	1.9%	2.0%	2.1%	2.2%	2.3%
	6.70%	186.78	189.91	193.17	195.56	200.09	203.78	207.62	211.64	215.83
	6.80%	183.09	186.10	189.22	192.47	195.85	199.37	203.04	206.87	210.87
	6.90%	179.55	182.43	185.42	188.53	191.77	195.13	198.64	202.30	206.11
	7.07%	173.74	176.43	179.21	182.11	185.11	188.24	191.49	194.87	198.39
	7.20%	169.65	172.21	174.86	177.60	180.45	183.41	186.49	189.69	193.02
	7.30%	166.58	169.04	171.59	174.23	176.96	179.80	182.75	185.82	189.00
	7.40%	163.62	165.98	168.43	170.97	173.60	176.32	179.15	182.09	185.14

Monte Carlo Simulation

Using the Monte Carlo Simulation, which changes randomly the input values and calculates a new output, in this case, a new price. This simulation used the Price Target from the DCF WACC Valuation and considered a standard deviation of 2.5% across 10,000 iterations. Notably, the results indicate that the majority of trials fall within the price range of \$181 to \$189. The area highlighted by grey at the left \$181 are trials that would represent a "HOLD" recommendation, on the other hand, the highlighted area at the right of the \$181 level represents the simulations where the recommendation would have been a BUY (Table 4). This approach allows for a more dynamic and probabilistic assessment of the investment recommendation.

Table 8 - Monte Carlo Simulation



Source: Own estimates

Appendices

Appendix 1 - Balance Sheet

Balance Sheet	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
Current Assets										
Cash and Cash Equivalents	18 107	17 305	13 985	14 487	14 127	13 985	15 130	13 985	13 985	13 985
Marketable securities	1 580	1 982	11 200	17 121	9 392	9 392	9 392	9 392	9 392	9 392
Account Receivables	14 098	14 481	13 576	15 283	16 160	16 315	16 605	17 112	17 565	18 301
Inventory	8 599	9 020	9 344	10 387	12 483	11 653	12 002	12 608	12 729	13 325
Other Current Assets	3 649	2 486	3 132	3 701	3 132	3 648	3 549	3 740	3 832	3 918
Total Current Assets	46 033	45 274	51 237	60 979	55 294	54 993	56 678	56 837	57 504	58 921
Non-Current Assets										
Property, Plan and Equipment	17 035	17 658	18 766	18 962	19 803	20 976	22 104	23 231	24 402	25 667
Goodwill	30 453	33 639	36 393	35 246	45 231	45 231	45 231	45 231	45 231	45 231
Intangible Assets	47 611	47 643	53 402	46 392	48 325	48 807	49 288	49 770	50 251	50 733
Other Assets	4 182	5 695	6 562	10 216	9 602	9 494	10 201	10 212	10 499	11 034
Deferred Asset Charges	7 640	7 819	8 534	10 223	9 123	9 785	10 046	10 393	10 692	10 957
Total Non-Current Assets	106 921	112 454	123 657	121 039	132 084	134 292	136 871	138 836	141 076	143 622
Total Assets	152 954	157 728	174 894	182 018	187 378	189 285	193 550	195 673	198 579	202 543
Current Liabilities										
Loans and Notes payable	2 796	1 202	2 631	3 766	12 771	1 392	2 417	2 746	2 271	3 290
Account Payables	7 537	8 544	9 505	11 055	11 703	11 681	11 975	12 329	12 633	13 182
Accrued Liabilities	7 601	9 715	13 968	13 612	11 456	12 719	13 629	14 321	14 170	14 505
Accrued Rebates, Returns and Promotions	9 380	10 883	11 513	12 095	14 417	13 139	13 704	14 123	14 552	15 337
Accrued compensation and employee related obligations	3 098	3 354	3 484	3 586	3 328	3 823	3 897	3 952	4 005	4 161
Accrued Taxes on Income	818	2 266	1 392	1 112	2 127	1 746	1 926	1 802	1 876	2 082
Total Current Liabilities	31 230	35 964	42 493	45 226	55 802	44 500	47 549	49 272	49 507	52 557
Non-Current Liabilities										
Long-Term Debt	27 684	26 494	32 635	29 985	26 888	33 246	30 829	28 083	25 812	22 522
Revolver	--	--	--	--	--	630	630	966	3 127	3 812
Deferred taxes on income	7 506	5 958	7 214	7 487	6 374	6 374	6 374	6 374	6 374	6 374
Employee related obligations	9 951	10 663	10 771	8 898	6 767	9 410	9 302	9 030	8 681	8 638
Long-term taxes payable	8 242	7 444	6 559	5 713	4 306	4 306	4 306	4 306	4 306	4 306
Other Liabilities	8 589	11 734	11 944	10 686	10 437	12 134	12 675	12 646	12 613	13 246
Total Non-Current Liabilities	61 972	62 293	69 123	62 769	54 772	66 100	64 116	61 405	60 913	58 898
Total Liabilities	93 202	98 257	111 616	107 995	110 574	110 600	111 665	110 677	110 420	111 455
Stock Holders Equity										
Common Stock	3 120	3 120	3 120	3 120	3 120	3 120	3 120	3 120	3 120	3 120
Treasury Stock	(34 362)	(38 417)	(38 490)	(39 099)	(41 694)	(46 694)	(51 694)	(56 694)	(61 694)	(66 694)
Othe Comprehensive Income	(15 222)	(15 891)	(15 242)	(13 058)	(12 967)	(14 476)	(14 476)	(14 476)	(14 476)	(14 476)
Retained Earnings	106 216	110 659	113 890	123 060	128 345	136 735	144 935	153 046	161 210	169 138
Total Equity	59 752	59 471	63 278	74 023	76 804	78 685	81 885	84 996	88 160	91 088
Total Liabilities & Equity	152 954	157 728	174 894	182 018	187 378	189 285	193 550	195 673	198 579	202 543

Appendix 2 - Income Statement

Income Statement	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
Total Revenue	81 581	82 059	82 584	93 775	94 943	98 367	99 822	102 178	105 461	109 721
Cost of Sales	(27 091)	(27 556)	(28 427)	(29 855)	(31 089)	(32 617)	(33 090)	(33 782)	(34 581)	(36 187)
Research and Development	(11 901)	(12 245)	(12 340)	(15 614)	(15 386)	(15 209)	(15 609)	(16 123)	(16 818)	(17 342)
Sales, General and Administrative	(22 540)	(22 178)	(22 084)	(24 659)	(24 765)	(26 319)	(26 534)	(27 068)	(27 886)	(29 044)
Operating Income	20 049	20 080	19 733	23 647	23 703	24 222	24 591	25 204	26 177	27 148
Other Income	(1 799)	(2 486)	(2 989)	(619)	(1 657)	(1 285)	(1 237)	(1 200)	(1 174)	(1 276)
Financing costs	(251)	(266)	(247)	(252)	(321)	(321)	(321)	(321)	(321)	(321)
Pre-Tax Income	17 999	17 328	16 497	22 776	21 725	22 617	23 032	23 683	24 683	25 551
Income Tax	(2 702)	(2 209)	(1 783)	(1 898)	(3 784)	(2 909)	(2 864)	(2 930)	(3 131)	(3 463)
Net Income	15 297	15 119	14 714	20 878	17 941	19 707	20 168	20 753	21 552	22 087

Appendix 3 - Common Size Income Statement

Common-Size Income Statement	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
Total Revenue	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cost of Sales	-33%	-34%	-34%	-32%	-33%	-33%	-33%	-33%	-33%	-33%
Research and Development	-15%	-15%	-15%	-17%	-16%	-15%	-16%	-16%	-16%	-16%
Sales, General and Administrative	-28%	-27%	-27%	-26%	-26%	-27%	-27%	-26%	-26%	-26%
Operating Income	25%	24%	24%	25%	25%	25%	25%	25%	25%	25%
Other Income	-2%	-3%	-4%	-1%	-2%	-1%	-1%	-1%	-1%	-1%
Financing costs	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pre-Tax Income	22%	21%	20%	24%	23%	23%	23%	23%	23%	23%
Income Tax	-3%	-3%	-2%	-2%	-4%	-3%	-3%	-3%	-3%	-3%
Net Income	19%	18%	18%	22%	19%	20%	20%	20%	20%	20%

Appendix 4 - Cash Flow Statement

Cash Flow Statement	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
NET CASH FROM OPERATING ACTIVITIES						27 407	29 158	28 421	29 270	30 504
Net Income						19 707	20 168	20 753	21 552	22 087
D&A						7 463	7 507	7 577	7 676	7 803
Account Receivables						(155)	(290)	(507)	(454)	(735)
Inventory						830	(349)	(606)	(121)	(596)
Other Current Assets						(516)	99	(191)	(92)	(86)
Marketable Securities						--	--	--	--	--
Account Payables						(22)	294	353	305	548
Accrued Liabilities						1 263	910	692	(151)	335
Accrued Rebates, Returns and Promotions						(1 278)	566	419	429	785
Accrued compensation and employee related obligations						495	74	55	53	156
Accrued Taxes on Income						(381)	180	(125)	74	206
NET CASH FROM INVESTING ACTIVITIES						(9 672)	(10 085)	(9 543)	(9 915)	(10 349)
Additions to PP&E						(4 118)	(4 116)	(4 185)	(4 329)	(4 550)
Goodwill						--	--	--	--	--
Purchases of Intangible Assets						(5 000)	(5 000)	(5 000)	(5 000)	(5 000)
Other Assets						108	(708)	(11)	(286)	(535)
Deferred Asset Charges						(662)	(261)	(346)	(300)	(264)
NET CASH FROM FINANCING ACTIVITIES						(17 877)	(17 928)	(20 024)	(19 355)	(20 155)
Proceeds from Long-Term Debt						7 750	--	--	--	--
Long-Term Debt Amortization						--	--	--	--	--
Proceeds from Short-Term Debt (Amortization)						(11 379)	1 025	329	(475)	1 019
Short-Term Debt Amortization						(1 392)	(2 417)	(2 746)	(2 271)	(3 290)
Proceeds from Revolver						630	--	336	2 161	685
Revolver Amortization						--	--	--	--	--
Deferred taxes on income						--	--	--	--	--
Employee related obligations						2 643	(108)	(272)	(348)	(43)
Long-term taxes payable						--	--	--	--	--
Other Liabilities						1 697	540	(28)	(34)	633
Issuances of Common Stock						--	--	--	--	--
Repurchases of Common Stock						(5 000)	(5 000)	(5 000)	(5 000)	(5 000)
Other Comprehensive Income						(1 509)	--	--	--	--
Dividends to shareholders						(11 318)	(11 968)	(12 642)	(13 389)	(14 159)
CHANGES IN CASH & EQUIVALENTS						(142)	1 145	(1 145)	--	--
Effect of exchange rate changes on cash						--	--	--	--	--
CASH & EQUIVALENTS (EOP)						13 985	15 130	13 985	13 985	13 985

Appendix 5 - Common-size Cash Flow Statement

Cash Flow Statement	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
NET CASH FROM OPERATING ACTIVITIES						100%	100%	100%	100%	100%
Net Income						72%	69%	73%	74%	72%
D&A						27%	26%	27%	26%	26%
Account Receivables						-1%	-1%	-2%	-2%	-2%
Inventory						3%	-1%	-2%	0%	-2%
Other Current Assets						-2%	0%	-1%	0%	0%
Marketable Securities						0%	0%	0%	0%	0%
Account Payables						0%	1%	1%	1%	2%
Accrued Liabilities						5%	3%	2%	-1%	1%
Accrued Rebates, Returns and Promotions						-5%	2%	1%	1%	3%
Accrued compensation and employee related obligations						2%	0%	0%	0%	1%
Accrued Taxes on Income						-1%	1%	0%	0%	1%
NET CASH FROM INVESTING ACTIVITIES						-35%	-35%	-34%	-34%	-34%
Additions to PP&E						-15%	-14%	-15%	-15%	-15%
Goodwill						0%	0%	0%	0%	0%
Purchases of Intangible Assets						-18%	-17%	-18%	-17%	-16%
Other Assets						0%	-2%	0%	-1%	-2%
Deferred Asset Charges						-2%	-1%	-1%	-1%	-1%
NET CASH FROM FINANCING ACTIVITIES						-60%	-53%	-61%	-58%	-55%
Long-Term Debt						28%	--	--	--	--
Long-Term Debt Amortization						--	--	--	--	--
Short-Term Debt						-42%	4%	1%	-2%	3%
Short-Term Debt Amortization						--	--	--	--	--
Proceeds from Revolver						2%	--	1%	7%	2%
Revolver Amortization						--	--	--	--	--
Deferred taxes on income						--	--	--	--	--
Employee related obligations						10%	0%	-1%	-1%	0%
Long-term taxes payable						--	--	--	--	--
Other Liabilities						6%	2%	0%	0%	2%
Issuances of Common Stock						--	--	--	--	--
Repurchases of Common Stock						-18%	-17%	-18%	-17%	-16%
Othe Comprehensive Income						-6%	--	--	--	--
Dividends to shareholders						-41%	-41%	-44%	-46%	-46%
CHANGES IN CASH & EQUIVALENTS						-1%	4%	-4%	--	--
Effect of exchange rate changes on cash						--	-	-	-	-
CASH & EQUIVALENTS (EOP)						51%	52%	49%	48%	46%

Appendix 6 - Net Working Capital

NWC	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
Inventories	8 599	9 020	9 344	10 387	12 483	11 653	12 002	12 608	12 729	13 325
Accounts receivable	14 098	14 481	13 576	15 283	16 160	16 315	16 605	17 112	17 565	18 301
Accounts payable	7 537	8 544	9 505	11 055	11 703	11 681	11 975	12 329	12 633	13 182
NWC	15 160	14 957	13 415	14 615	16 940	16 287	16 632	17 391	17 661	18 443
Changes in NWC		(203)	(1 542)	1 200	2 325	(653)	345	759	270	782

Appendix 7 - Revenue Forecast

Major Pharmaceutical Franchise Sales: (\$M)	CAGR	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F	Assumption
Total Immunology	5.24%	13 120	13 951	15 055	16 751	16 935	18 072	16 781	15 887	15 368	15 212	
REMICADE®	-15.15%	5 326	4 380	3 747	3 190	2 343	1 988	1 687	1 432	1 215	1 031	5Y CAGR
SIMPONI®/SIMPONI ARIA®	0.94%	2 084	2 188	2 243	2 276	2 184	2 205	2 225	2 246	2 267	2 289	5Y CAGR
STELARA®	13.53%	5 156	6 361	7 707	9 134	9 723	10 695	9 091	7 727	6 568	5 583	1Y:-10%; 2-5Y:-15%
TREMFYA®	37.44%	544	1 012	1 347	2 127	2 668	3 167	3 760	4 464	5 300	6 292	19%
Other Immunology	11.20%	10	10	11	24	17	17	17	17	17	17	Same Level
Total Infectious Diseases	10.52%	3 304	3 412	3 574	5 861	5 448	5 362	5 285	5 216	5 156	5 104	
COVID-19 VACCINE	-4.42%	—	—	—	2 385	2 179	2 083	1 991	1 903	1 819	1 739	2Y CAGR
EDURANT®/nilvavirine	4.32%	816	861	964	994	1 008	1 052	1 097	1 144	1 194	1 245	5Y CAGR
PREZISTA™/DEZAVIRIN®/DEZICITAB®/CVMT17A®	-0.12%	1 955	2 110	2 184	2 083	1 943	1 941	1 938	1 936	1 933	1 931	5Y CAGR
Other Infectious Diseases	-9.81%	533	441	427	399	318	287	259	233	210	190	5Y CAGR
Total Neuroscience	2.55%	6 077	6 328	6 548	7 011	6 892	7 122	7 377	7 658	7 967	8 304	
CONCERTA®/methylphenidate	-0.58%	663	696	622	667	644	640	637	633	629	626	5Y CAGR
INVEGA SUSTENNA™/XEPLION™/INVEGA TARDIATA®/TARDIATA®	7.17%	2 928	3 330	3 653	4 022	4 140	4 437	4 755	5 096	5 462	5 854	5Y CAGR
RISPERDAL CONSTA®	-8.03%	737	688	642	592	485	446	410	377	347	319	5Y CAGR
Other Neuroscience	-1.48%	1 749	1 614	1 632	1 729	1 623	1 599	1 575	1 552	1 529	1 506	5Y CAGR
Total Oncology	10.18%	9 844	10 694	12 367	14 548	15 983	17 416	19 155	21 239	23 712	26 625	
DARZALEX®	31.55%	2 025	2 998	4 190	6 023	7 977	9 235	10 692	12 379	14 331	16 592	16%
ERLEADA®	-6.38%	2 615	332	760	1 291	1 881	1 761	1 649	1 544	1 445	1 353	5Y CAGR
IMBRUVICA®	27.66%	1 116	3 411	4 128	4 369	3 784	4 307	4 903	5 581	6 353	7 232	14%
ZYTIGA®/abiraterone acetate	-12.74%	3 498	2 795	2 470	2 297	1 770	1 545	1 348	1 176	1 026	896	5Y CAGR
Other Oncology ⁽¹⁾	-0.65%	590	1 158	821	568	571	567	564	560	556	553	5Y CAGR
Total Pulmonary Hypertension	5.84%	2 573	2 622	3 148	3 450	3 418	3 646	3 906	4 198	4 524	4 887	
OPSUMIT®	7.97%	1 215	1 327	1 639	1 819	1 783	1 925	2 079	2 244	2 423	2 617	5Y CAGR
UPTRAVI®	14.80%	663	819	1 093	1 237	1 322	1 454	1 600	1 760	1 936	2 129	10%
Other Pulmonary Hypertension	-14.75%	695	476	416	395	313	267	227	194	165	141	5Y CAGR
Total Cardiovascular / Metabolism / Other	-7.74%	5 816	5 191	4 878	4 460	3 887	3 752	3 630	3 520	3 421	3 332	
XARELTO®	-0.03%	2 477	2 313	2 345	2 438	2 473	2 472	2 471	2 471	2 470	2 469	5Y CAGR
INVOKANA®/INVOKAMET®	-12.65%	881	735	795	563	448	391	342	299	261	228	5Y CAGR
PROCRIPT®/EPREX®	-	988	790	552	479	-	-	-	-	-	-	-
Other	-8.05%	1 470	1 353	1 186	981	966	888	817	751	690	635	5Y CAGR
Total Pharmaceutical Sales	5.23%	40 734	42 198	45 572	52 080	52 563	55 370	56 133	57 719	60 148	63 464	
Major Medical Devices Franchise Sales: (\$M)	CAGR	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F	Assumption
Surgery	-0.43%	9 901	9 501	8 231	9 812	9 690	9 670	9 657	9 651	9 653	9 662	
Advanced	2.69%	4 002	4 095	3 839	4 622	4 569	4 692	4 818	4 947	5 080	5 216	5Y CAGR
General	-2.79%	5 899	5 406	4 392	5 190	5 121	4 978	4 839	4 704	4 573	4 446	5Y CAGR
Orthopaedics	-0.68%	8 885	8 839	7 763	8 588	8 587	8 538	8 492	8 450	8 411	8 375	
Hips	1.32%	1 418	1 438	1 280	1 485	1 514	1 534	1 554	1 575	1 595	1 616	5Y CAGR
Knees	-1.98%	1 502	1 480	1 170	1 325	1 359	1 332	1 306	1 280	1 254	1 230	5Y CAGR
Trauma	1.24%	2 699	2 720	2 614	2 885	2 871	2 907	2 943	2 979	3 016	3 054	5Y CAGR
Spine, Sports & Other	-2.74%	3 266	3 201	2 699	2 893	2 843	2 765	2 690	2 616	2 544	2 475	5Y CAGR
Vision	1.27%	4 553	4 624	3 919	4 688	4 849	4 911	4 973	5 036	5 100	5 165	
Contact Lenses/Other	1.42%	3 302	3 392	2 994	3 440	3 543	3 593	3 644	3 696	3 748	3 802	5Y CAGR
Surgical	0.86%	1 251	1 232	925	1 248	1 306	1 317	1 329	1 340	1 352	1 363	5Y CAGR
Interventional Solutions	10.20%	2 646	2 997	3 046	3 971	4 300	4 730	5 203	5 723	6 296	6 925	10%
Diabetes Care	—	1 009	—	—	—	—	—	—	—	—	—	—
Diagnostics	—	—	—	—	—	—	—	—	—	—	—	—
Total Medical Devices Sales	0.32%	26 994	25 961	22 959	27 059	27 426	27 848	28 325	28 861	29 460	30 127	
Major Consumer Health Franchise Sales: (\$M)	CAGR	2018	2019	2020	2021	2022	2023F	2024F	2025F	2026F	2027F	Assumption
OTC	6.83%	4 334	4 444	4 824	5 227	6 031	6 333	6 649	6 982	7 331	7 697	5%
Skin Health/Beauty	-0.14%	4 382	4 593	4 450	4 541	4 352	4 346	4 340	4 334	4 328	4 322	5Y CAGR
Oral Care	-0.65%	1 555	1 528	1 641	1 645	1 505	1 495	1 485	1 476	1 466	1 457	5Y CAGR
Baby Care	-4.69%	1 858	1 675	1 517	1 566	1 461	1 392	1 327	1 265	1 205	1 149	5Y CAGR
Women's Health	-2.93%	1 049	986	901	917	904	877	852	827	803	779	5Y CAGR
Wound Care/Other	0.73%	675	671	720	739	700	705	710	715	721	726	5Y CAGR
Total Consumer Health Sales	1.54%	13 853	13 897	14 053	14 635	14 953	15 149	15 364	15 599	15 854	16 130	

Appendix 8 - Balance Sheet Assumptions

Balance Sheet Assumptions	Unit	2023E	2024F	2025F	2026F	2027F	Note:
Current Assets	\$M						
Cash and Cash Equivalents	\$M	13 985	15 130	13 985	13 985	13 985	From Cash Flow Statement
Marketable securities	\$M	9 392	9 392	9 392	9 392	9 392	Same Level
Account Receivables	DSO	61	61	61	61	61	3Y Moving Average
Inventory	DIO	43	44	45	44	44	3Y Moving Average
Other Current Assets	%	3.7%	3.6%	3.7%	3.6%	3.6%	5Y Moving Average on Revenue
Non-Current Assets	\$M						
Property, Plant and Equipment (PP&E)	\$M	20 976	22 104	23 231	24 402	25 667	PP&Et = PP&Et-1 + CAPEX t - Depreciation t
Goodwill	\$M	45 231	45 231	45 231	45 231	45 231	Constant
Intangible Assets	\$M	48 807	49 288	49 770	50 251	50 733	Intangible Assets t = Intangible Assets t-1 + Purchases of Intangibles t - Amortization t
Other Assets	%	3.7%	3.6%	3.7%	3.6%	3.6%	3Y Moving Average on Revenue
Deferred Asset Charges	%	9.9%	10.1%	10.2%	10.1%	10.0%	5Y Moving Average on Revenue
Current Liabilities	\$M						
Loans and notes payable	\$M	1 392	2 417	2 746	2 271	3 290	In "Schedules" - Debt Schedule
Accounts Payable	DPO	43	44	44	44	44	3Y Moving Average
Accrued Liabilities	%	12.9%	13.7%	14.0%	13.4%	13.2%	5Y Moving Average on Revenue
Accrued Rebates, Returns and Promotions	%	13.4%	13.7%	13.8%	13.8%	14.0%	5Y Moving Average on Revenue
Accrued Compensation and Employee Related Obligations	%	3.9%	3.9%	3.9%	3.8%	3.8%	5Y Moving Average on Revenue
Accrued Taxes on Income	%	1.8%	1.9%	1.8%	1.8%	1.9%	5Y Moving Average on Revenue
Non-Current Liabilities	\$M						
Long-Term Debt	\$M	33 246	30 829	28 083	25 812	22 522	In "Schedules" - Debt Schedule
Deferred Taxes on Income	\$M	6 374	6 374	6 374	6 374	6 374	Constant
Employee Related Obligations	\$M	9 410	9 302	9 030	8 681	8 638	5Y Moving Average
Long-term Taxes Payable	\$M	4 306	4 306	4 306	4 306	4 306	Same Level
Other Liabilities	%	12.3%	12.7%	12.4%	12.0%	12.1%	5Y Moving Average on Revenue
Equity	\$M						
Common Stock	\$M	3 120	3 120	3 120	3 120	3 120	No Stock Issuances assumed
Treasury Stock	\$M	(46 694)	(51 694)	(56 694)	(61 694)	(66 694)	Treasury Stock t = Treasury Stock t-1 - Repurchases
Other Comprehensive Income	\$M	(14 476)	(14 476)	(14 476)	(14 476)	(14 476)	Constant
Retained Earnings	\$M	136 735	144 935	153 046	161 210	169 138	Retained Earnings t = Retained Earnings t-1 + Net Income - Dividends

Appendix 9 - Income Statement Assumptions

Income Statement Assumptions	Unit	2023E	2024F	2025F	2026F	2027F	Assumption	
Revenue	\$M							
		Sum by Segment						
MedTech	\$M	27 848	28 325	28 861	29 460	30 127	In "Revenue Forecast"	
Consumer Health	\$M	15 149	15 364	15 599	15 854	16 130	In "Revenue Forecast"	
Pharmaceutical	\$M	55 370	56 133	57 719	60 148	63 464	In "Revenue Forecast"	
Operating Costs	\$M							
Cost of Sales	%	-33.2%	-33.1%	-33.1%	-32.8%	-33.0%	5Y Moving Average on Revenue	
Research and Development	%	-15.5%	-15.6%	-15.8%	-15.9%	-15.8%	5Y Moving Average on Revenue	
Sales, General and Administrative	%	-26.8%	-26.6%	-26.5%	-26.4%	-26.5%	5Y Moving Average on Revenue	
Other	\$M							
Other Income	\$M	(321)	(321)	(321)	(321)	(321)	Constant	
EBIT	\$M							
Interest Costs	\$M	1 285	1 237	1 200	1 174	1 276	In "Schedules" - Debt Schedule	
Income Tax	%	-12.9%	-12.4%	-12.4%	-12.7%	-13.6%	5Y Moving Average on Revenue	

Appendix 10 - PP&E Schedule

PP&E Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
PP&E - BOP	\$M						19 803	20 976	22 104	23 231	24 402	
CAPEX	%						(4 118)	(4 116)	(4 185)	(4 329)	(4 550)	5Y Moving Average on Revenue
Depreciation	%						2 945	2 988	3 059	3 157	3 285	5Y Moving Average on Revenue
PP&E - EOP	\$M						20 976	22 104	23 231	24 402	25 667	

Appendix 11 - Intangible Assets Schedule

Intangible Assets Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Intangible Assets - BOP	\$M						48 325	48 807	49 288	49 770	50 251	
Purchases of Intangibles	\$M						5 000	5 000	5 000	5 000	5 000	
Amortization	\$M						4 518	4 518	4 518	4 518	4 518	
Intangible Assets - EOP	\$M						48 807	49 288	49 770	50 251	50 733	

Appendix 12 - Debt Schedule

Debt Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Total Borrowings	\$M						35 268	33 876	31 795	31 210	29 625	
Revolver Debt	\$M						630	630	966	3 127	3 812	Sum of all issuances of Revolver Debt
Short-Term Debt	\$M						1 392	2 417	2 746	2 271	3 290	In "Borrowings"
Long-Term Debt	\$M						33 246	30 829	28 083	25 812	22 522	In "Borrowings"
Effective Rate	%						3.64%	3.65%	3.77%	3.76%	4.31%	In "Borrowings"
Interest Costs	\$M						1 285	1 237	1 200	1 174	1 276	Total Borrowings * Effective rate
Mandatory Amortization	\$M						1 392	2 417	2 746	2 271	3 290	Repayments t = Long-Term debt t - Long-Term Debt t-1
Cash & Equivalents after Debt repayment	\$M						13 355	15 130	13 649	11 824	13 300	
Minimum Cash	\$M						(13 985)	(13 985)	(13 985)	(13 985)	(13 985)	Lowest value for last 5Y
Revolver Issuances	\$M						630	0	336	2 161	685	Cash & Equivalents after Debt repayment - Minimum Cash
Cash & Equivalents after Revolver	\$M						13 985	15 130	13 985	13 985	13 985	

Appendix 13 - Common Stock Schedule

Common Stock Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Common Stock - BOP	\$M						3 120	3 120	3 120	3 120	3 120	
New Issuances of Common Stock	\$M						--	--	--	--	--	No Issuance of Common Stock Assumed
Shares Outstanding	M						2 408	2 408	2 408	2 408	2 408	Same Level
Common Stock - EOP	\$M						3 120	3 120	3 120	3 120	3 120	

Appendix 14 - Dividend Schedule

Dividend Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Total DPS	\$						4.70	4.97	5.25	5.56	5.88	In "Dividends"
Dividends to Shareholders	\$M						11 318	11 968	12 642	13 389	14 159	DPS * Shares Outstanding

Appendix 15 - Retained Earnings Schedule

Retained Earnings Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Retained Earnings - BOP	\$M						128 345	136 735	144 935	153 046	161 210	
Net Income	\$M						19 707	20 168	20 753	21 552	22 087	In "Financial Statements" - Income Statement
Dividends to Shareholders	\$M						(11 318)	(11 968)	(12 642)	(13 389)	(14 159)	Dividend Schedule
Retained Earnings - EOP	\$M						136 735	144 935	153 046	161 210	169 138	

Appendix 16 - Treasury Stock Schedule

Treasury Stock Schedule	Unit	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F	Note
Treasury Stock - BOP	\$M						(41 694)	(46 694)	(51 694)	(56 694)	(61 694)	
New Repurchases	\$M						(5 000)	(5 000)	(5 000)	(5 000)	(5 000)	
Treasury Stock - EOP	\$M						(46 694)	(51 694)	(56 694)	(61 694)	(66 694)	

Appendix 17 - Borrowings

Borrowings	Rate	Maturity	2021		2022		2023E		2024F		2025F		2026F		2027F	
			Amount	Effective Rate	Amount	Effective Rate	Amount	Effective Rate	Amount	Effective Rate	Amount	Effective Rate	Amount	Effective Rate	Amount	Effective Rate
(Dollars in Millions)																
0.250% Notes due 2022	0.25%	2022	\$ 1,131	0.26%	--	--	--	--	--	--	--	--	--	--	--	--
2.25% Notes due 2022	2.25%	2022	1,000	2.31	--	--	--	--	--	--	--	--	--	--	--	--
6.73% Debentures due 2023	6.73%	2023	250	6.73	250	6.73	--	--	--	--	--	--	--	--	--	--
3.375% Notes due 2023	3.38%	2023	802	3.18	801	3.17	--	--	--	--	--	--	--	--	--	--
2.05% Notes due 2023	2.05%	2023	499	2.09	500	2.09	--	--	--	--	--	--	--	--	--	--
0.650% Notes due 2024	0.65%	2024	847	0.68	792	0.68	792	0.68	--	--	--	--	--	--	--	--
5.50% Notes due 2024	5.50%	2024	672	6.75	600	6.75	600	6.75	--	--	--	--	--	--	--	--
2.625% Notes due 2025	2.63%	2025	749	2.63	749	2.63	749	2.63	749	2.63	--	--	--	--	--	--
0.55% Notes due 2025	0.55%	2025	983	0.57	918	0.57	918	0.57	918	0.57	--	--	--	--	--	--
5.50% Notes due 2025	5.50%	2025	--	--	--	--	750	5.50	750	5.50	--	--	--	--	--	--
2.45% Notes due 2026	2.45%	2026	1,995	2.47	1,996	2.47	1,996	2.47	1,996	2.47	1,996	2.47	--	--	--	--
5.35% Notes due 2026	5.35%	2026	--	--	--	--	750	5.35	750	5.35	750	5.35	--	--	--	--
2.95% Notes due 2027	2.95%	2027	978	2.96	877	2.96	877	2.96	877	2.96	877	2.96	877	2.96	--	--
0.95% Notes due 2027	0.95%	2027	1,478	0.96	1,394	0.96	1,394	0.96	1,394	0.96	1,394	0.96	1,394	0.96	--	--
1.150% Notes due 2028	1.15%	2028	843	1.21	794	1.21	794	1.21	794	1.21	794	1.21	794	1.21	794	1.21
2.90% Notes due 2028	2.90%	2028	1,495	2.91	1,496	2.91	1,496	2.91	1,496	2.91	1,496	2.91	1,496	2.91	1,496	2.91
5.50% Senior notes due 2028	5.50%	2028	--	--	--	--	1,000	5.50	1,000	5.50	1,000	5.50	1,000	5.50	1,000	5.50
6.95% Notes due 2029	6.95%	2029	298	7.14	298	7.14	298	7.14	298	7.14	298	7.14	298	7.14	298	7.14
1.30% Notes due 2030	1.30%	2030	1,723	1.30	1,607	1.30	1,607	1.30	1,607	1.30	1,607	1.30	1,607	1.30	1,607	1.30
5.00% Notes due 2030	5.00%	2030	--	--	--	--	1,000	5.00	1,000	5.00	1,000	5.00	1,000	5.00	1,000	5.00
4.95% Debentures due 2033	4.95%	2033	498	4.95	498	4.95	498	4.95	498	4.95	498	4.95	498	4.95	498	4.95
4.375% Notes due 2033	4.38%	2033	854	4.24	854	4.24	854	4.24	854	4.24	854	4.24	854	4.24	854	4.24
4.90% Notes due 2033	4.90%	2033	--	--	--	--	1,250	4.90	1,250	4.90	1,250	4.90	1,250	4.90	1,250	4.90
1.650% Notes due 2035	1.65%	2035	1,683	1.68	1,591	1.68	1,591	1.68	1,591	1.68	1,591	1.68	1,591	1.68	1,591	1.68
3.55% Notes due 2036	3.55%	2036	974	3.59	842	3.59	842	3.59	842	3.59	842	3.59	842	3.59	842	3.59
5.95% Notes due 2037	5.95%	2037	993	5.99	993	5.99	993	5.99	993	5.99	993	5.99	993	5.99	993	5.99
3.625% Notes due 2037	3.63%	2037	1,475	3.64	1,336	3.64	1,336	3.64	1,336	3.64	1,336	3.64	1,336	3.64	1,336	3.64
5.85% Debentures due 2038	5.85%	2038	696	5.85	697	5.85	697	5.85	697	5.85	697	5.85	697	5.85	697	5.85
3.400% Notes due 2038	3.40%	2038	992	3.42	992	3.42	992	3.42	992	3.42	992	3.42	992	3.42	992	3.42
4.50% Debentures due 2040	4.50%	2040	540	4.63	540	4.63	540	4.63	540	4.63	540	4.63	540	4.63	540	4.63
2.10% Notes due 2040	2.10%	2040	974	2.14	828	2.14	828	2.14	828	2.14	828	2.14	828	2.14	828	2.14
4.85% Notes due 2041	4.85%	2041	297	4.89	297	4.89	297	4.89	297	4.89	297	4.89	297	4.89	297	4.89
4.50% Notes due 2043	4.50%	2043	496	4.52	496	4.52	496	4.52	496	4.52	496	4.52	496	4.52	496	4.52
5.10% Notes due 2043	5.10%	2043	--	--	--	--	750	5.10	750	5.10	750	5.10	750	5.10	750	5.10
3.70% Notes due 2046	3.70%	2046	1,975	3.74	1,976	3.74	1,976	3.74	1,976	3.74	1,976	3.74	1,976	3.74	1,976	3.74
3.75% Notes due 2047	3.75%	2047	971	3.76	812	3.76	812	3.76	812	3.76	812	3.76	812	3.76	812	3.76
3.500% Notes due 2048	3.50%	2048	743	3.52	743	3.52	743	3.52	743	3.52	743	3.52	743	3.52	743	3.52
2.250% Notes due 2050	2.25%	2050	983	2.29	808	2.29	808	2.29	808	2.29	808	2.29	808	2.29	808	2.29
5.05% Notes due 2053	5.05%	2053	--	--	--	--	1,500	5.05	1,500	5.05	1,500	5.05	1,500	5.05	1,500	5.05
2.450% Notes due 2060	2.45%	2060	1,222	2.49	1,055	2.49	1,055	2.49	1,055	2.49	1,055	2.49	1,055	2.49	1,055	2.49
5.20% Notes due 2063	5.20%	2063	--	--	--	--	750	5.20	750	5.20	750	5.20	750	5.20	750	5.20
Other			7	3	9	3	9	3	9	3	9	3	9	3	9	3
Subtotal			32,116	2.89%	28,439	3.040%	34,638	3.64%	33,246	3.65%	30,829	3.77%	28,083	3.76%	25,812	4.31%
Current Debt			\$ 2,131		\$ 1,551		\$ 1,392		\$ 2,417		\$ 2,746		\$ 2,271		\$ 3,290	
Total long-term debt			\$ 29,985		\$ 26,888		\$ 33,246		\$ 30,829		\$ 28,083		\$ 25,812		\$ 22,522	

Appendix 18- Forecasted Dividend Expense

Dividend Expense	2023	2024	2025	2026	2027
\$M	11,318	11,968	12,642	13,389	14,159

Appendix 19 – Dividends (DPS)

Declared / Forecasted	Ex-Date	Record	Payable	Amount		Type	Total Dividend Increase YoY (%)	Dividend Increase (%)
Q4	--	--	--	1,49		U.S. Currency		
Q3	--	--	--	1,49		U.S. Currency		
Q2	--	--	--	1,49	+0,08\$	U.S. Currency		5,37%
Q1	--	--	--	1,41		U.S. Currency		
Total dividends in 2027 (Expected):				5,88			5,44%	
Q4	--	--	--	1,41		U.S. Currency		
Q3	--	--	--	1,41		U.S. Currency		
Q2	--	--	--	1,41	+0,08\$	U.S. Currency		5,67%
Q1	--	--	--	1,33		U.S. Currency		
Total dividends in 2026 (Expected):				5,56			5,58%	
Q4	--	--	--	1,33		U.S. Currency		
Q3	--	--	--	1,33		U.S. Currency		
Q2	--	--	--	1,33	+0,07\$	U.S. Currency		5,26%
Q1	--	--	--	1,26		U.S. Currency		
Total dividends in 2025 (Expected):				5,25			5,33%	
Q4	--	--	--	1,26		U.S. Currency		
Q3	--	--	--	1,26		U.S. Currency		
Q2	--	--	--	1,26	+0,07\$	U.S. Currency		5,56%
Q1	--	--	--	1,19		U.S. Currency		
Total dividends in 2024 (Expected):				4,97			5,43%	
Q4	--	--	--	1,19		U.S. Currency		
Q3	--	--	--	1,19		U.S. Currency		
Apr 18, 2023	22/05/2023	23/05/2023	06/06/2023	1,19	+0,06\$	U.S. Currency		5,04%
Jan 03, 2023	17/02/2023	21/02/2023	07/03/2023	1,13		U.S. Currency		
Total dividends in 2023 (Expected):				4,7			5,32%	
Oct 19, 2022	21/11/2022	22/11/2022	06/12/2022	1,13		U.S. Currency		
Jul 18, 2022	22/08/2022	23/08/2022	06/09/2022	1,13		U.S. Currency		
Apr 19, 2022	23/05/2022	24/05/2022	07/06/2022	1,13	+0,07\$	U.S. Currency		6,19%
Jan 04, 2022	18/02/2022	22/02/2022	08/03/2022	1,06		U.S. Currency		
Total dividends in 2022:				4,45			5,84%	
Oct 21, 2021	22/11/2021	23/11/2021	07/12/2021	1,06		U.S. Currency		
Jul 19, 2021	23/08/2021	24/08/2021	07/09/2021	1,06		U.S. Currency		
Apr 20, 2021	24/05/2021	25/05/2021	08/06/2021	1,06	+0,05\$	U.S. Currency		4,72%
Jan 04, 2021	22/02/2021	23/02/2021	09/03/2021	1,01		U.S. Currency		
Total dividends in 2021:				4,19			5,01%	
Oct 22, 2020	23/11/2020	24/11/2020	08/12/2020	1,01		U.S. Currency		
Jul 20, 2020	24/08/2020	25/08/2020	08/09/2020	1,01		U.S. Currency		
Apr 14, 2020	22/05/2020	26/05/2020	09/06/2020	1,01	+0,06\$	U.S. Currency		5,94%
Jan 02, 2020	24/02/2020	25/02/2020	10/03/2020	0,95		U.S. Currency		
Total dividends in 2020:				3,98			5,78%	
Oct 17, 2019	25/11/2019	26/11/2019	10/12/2019	0,95		U.S. Currency		
Jul 15, 2019	26/08/2019	27/08/2019	10/09/2019	0,95		U.S. Currency		
Apr 25, 2019	24/05/2019	28/05/2019	11/06/2019	0,95	+0,05\$	U.S. Currency		5,26%
Jan 02, 2019	25/02/2019	26/02/2019	12/03/2019	0,9		U.S. Currency		
Total dividends in 2019:				3,75			5,60%	
Oct 18, 2018	26/11/2018	27/11/2018	11/12/2018	0,9		U.S. Currency		
Jul 16, 2018	27/08/2018	28/08/2018	11/09/2018	0,9		U.S. Currency		
Apr 26, 2018	25/05/2018	29/05/2018	12/06/2018	0,9	+0,06\$	U.S. Currency		6,67%
Jan 02, 2018	26/02/2018	27/02/2018	13/03/2018	0,84		U.S. Currency		
Total dividends in 2018:				3,54			6,21%	

Appendix 20 - DCF (Weighted Average Cost of Capital)

WACC Method	Forecasted Years					
DCF	2023E	2024F	2025F	2026F	2027F	Terminal
Sales	98 367	99 822	102 178	105 461	109 721	
Cost of Sales	32 617	33 090	33 782	34 581	36 187	
Research and development	15 209	15 609	16 123	16 818	17 342	
Sales, General and Administrative	26 319	26 534	27 068	27 886	29 044	
Operating profit before interests and taxes (EBIT)	24 222	24 591	25 204	26 177	27 148	
Effective tax rate	12.86%	12.43%	12.37%	12.68%	13.55%	
EBIT*(1-t) (+)	21 106	21 533	22 086	22 857	23 468	
Depreciation and Amortisation (+)	7 463	7 507	7 577	7 676	7 803	
Changes in Net Working Capital (-)	-653	345	759	270	782	
CAPEX (-)	4 118	4 116	4 185	4 329	4 550	
FCFF	25 105	24 578	24 719	25 934	25 939	511 027
WACC	7.07%					
g	1.9%					
Present value of Terminal Value	363 127					
Present value of cash flows	103 186					
Enterprise value	466 312					
Net debt (-)	25 532					
Cash and cash equivalents (+)	14 127					
Non-operational assets (+)	18 725					
Non-operational liabilities (-)	27 884					
Equity Value	445 748					
Share outstanding	2 408					
Price Target	\$ 185.11					
Current price	\$ 157.64					
Upside Potential	17.43%					

Appendix 21 - DCF (Flow to Equity)

FTE Method	Forecasted Years					
DCF	2023E	2024F	2025F	2026F	2027F	Terminal
FCCF	25 105	24 578	24 719	25 934	25 939	
Interest	3 766	3 766	3 766	3 766	3 766	
Interest after tax (-)	3 282	3 298	3 300	3 288	3 256	
B	11 126	11 126	11 126	11 126	11 126	
FCFE	32 949	32 406	32 545	33 771	33 809	461 897
Ke	9.36%					
g	1.9%					
Present value of terminal value	295 309					
Present value of cash flows to equity	127 339					
Equity Value	422 648					
Share outstanding	2 408					
Price Target	\$ 175.52					
Current price	\$ 157.64					
Upside Potential	11.34%					

Appendix 22 - DCF (Adjusted Present Value)

APV Method	Forecasted Years					
	2023E	2024F	2025F	2026F	2027F	Terminal
DCF						
Free Cash Flow	25 105	24 578	24 719	25 934	25 939	498 051
Financial expenses	(1 285)	(1 237)	(1 200)	(1 174)	(1 276)	
Tax rate	12.86%	12.43%	12.37%	12.68%	13.55%	
Kd	3.64%	3.65%	3.77%	3.76%	4.31%	
Tax shield	162	151	144	134	151	2 894
Present value of tax shield	2 651					
Present value of FCFF unlevered	454 500					
Enterprise value unlevered	457 151					
Net debt (-)	25 532					
Cash and cash equivalents (+)	14 127					
Non-operational assets (+)	18 725					
Non-operational liabilities (-)	27 884					
Equity Value	436 587					
Share outstanding	2 408					
Price Target	\$ 181.31					
Current price	\$ 157.64					
Upside Potential	15.01%					

Appendix 23 - DDM (Gordon Growth Model)

DDM Method (Gordon Growth Model)	Forecasted Years					
	2023E	2024E	2025E	2026E	2027E	Terminal
DPS	4.70	4.97	5.25	5.56	5.88	171.39
g	5.73%					
Ke	9.36%					
Price target	\$ 139.94					
Current price	\$ 157.64					
Downside Potential	-11.23%					

Appendix 24 - Financial Ratios

Financial Ratios	2018	2019	2020	2021	2022	2023E	2024F	2025F	2026F	2027F
Liquidity Ratios										
Current Ratio (x)	1.47	1.26	1.21	1.35	0.99	1.24	1.19	1.15	1.16	1.12
Quick Ratio (x)	1.20	1.01	0.99	1.12	0.77	0.97	0.94	0.90	0.90	0.87
Cash Ratio (x)	0.63	0.54	0.59	0.70	0.42	0.53	0.52	0.47	0.47	0.44
Profitability Ratios										
Gross Margin (%)	67%	66%	66%	68%	67%	67%	67%	67%	67%	67%
Operating Margin (%)	25%	24%	24%	25%	25%	25%	25%	25%	25%	25%
Pre-Tax Margin (%)	22%	21%	20%	20%	20%	20%	20%	20%	20%	20%
Profit Margin (%)	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%
ROE (%)	26%	25%	23%	28%	23%	25%	25%	24%	24%	24%
ROA (%)	14%	13%	12%	17%	14%	15%	15%	15%	15%	15%
Dividend Payout (%)	63%	67%	72%	54%	66%	57%	59%	61%	62%	64%
EPS (\$)	5.6	5.6	5.5	7.8	6.7	8.2	8.4	8.6	9.0	9.2
R&D Intensity (%)	15%	15%	15%	17%	0.2	15%	16%	16%	16%	16%
Efficiency Ratios										
Days Sales Outstanding	63.1	64.4	60.0	59.5	62.1	60.5	60.7	61.1	60.8	60.9
Days Payables Outstanding	33.7	38.0	42.0	43.0	45.0	43.3	43.8	44.0	43.7	43.9
Days Inventory Outstanding	38.5	40.1	41.3	40.4	48.0	43.2	43.9	45.0	44.1	44.3
Cash Conversion Cycle	67.8	66.5	59.3	56.9	65.1	60.4	60.8	62.1	61.1	61.4
Solvency Ratios										
D/E (%)	46%	45%	52%	41%	35%	42%	38%	33%	29%	25%
Equity Multiplier	1.79	1.89	1.95	1.64	1.72	1.71	1.67	1.63	1.60	1.58
Debt to Ebitda (x)	0.23	0.21	0.26	0.23	0.26	0.25	0.25	0.24	0.24	0.23

Appendix 25 - Risk Analysis

Risk	Risk Description	Impact	Likelihood	Risk Mitigation	Type of Risk
R&D Risk	Product development can be an extremely costly and lengthy process, thus ensuring that the Innovation and Investigation investment creates new and innovative products is vital for pharmaceutical companies.	Very High	Medium	Analyze and estimate the risk and financial commitment level of developing each drug before starting this process. Then weigh these risks against their potential benefits and likelihood of entering the market.	Governance
Competition	Competition from generics will lead to a decrease in demand for the original pharmacology product.	High	High	May offer new innovative or reduce the price of their products	Market
Cybersecurity	Cyberattacks have been a growing concern among many sectors. Cyberattacks in the pharmaceutical industry can be a factor of worry since these companies have extensive databases that are paramount to bringing a new product to the market and monitoring the efficacy of old ones.	Medium	Very High	Invest in secure databases, hire qualified human resources, or have insurance against this type of information theft.	Operational
Interest and Exchange Rates	With the pharmaceutical industry being so capital intensive, requiring companies to enter into debt agreements, changes in interest rates can be harmful to companies. These companies have operations worldwide, doing business in many regions with different currencies, meaning that they can be exposed to fluctuations in exchange rates.	Medium	High	Manage the debt levels and hedge against Exchange rate risk.	Market
Covid-19	The pandemic can affect the supply chain causing disruptions in many ways.	Medium	Medium	Have a resilient supply chain, capable of sustaining disruptions.	Operational
Competition from Tech Companies	This new type of competitor can challenge the companies in the industry in different ways, offering a more personalized product with the potential to revolutionize the industry.	Medium	Medium	This may be a threat but, it also provides new opportunities, such as collaboration with this type of company.	Market
M&A Risks	A strategy prevalent in this industry is growth through acquisitions. The acquiring company can sell products without going through the lengthy process of getting approval from Health Government Agencies. Thus, it is relevant to make sure the acquired company is akin to the values and expectations of the company to ensure that the required growth is achieved.	High	Medium	Ensure to properly evaluate the target company, accounting for its risks and possible synergies.	Governance
Regulation	The companies have to comply with the harsh legislation from the different countries in which they operate.	Medium	Medium	Have human resources to guarantee that operations comply with the government's requirements	Regulatory and
Country Stability Risk	The political stability of certain countries will dictate how well businesses will happen in those regions. Countries with higher instability will inherently be riskier for a company's operations.	Low	Medium	Assess a country's risk before engaging in that market.	Operational
Supply Chain Risks	There are many obstacles beyond regulatory hurdles when introducing a new product in this industry. It is of extreme relevance to assure that the supply chain is robust and efficient.	High	Medium	Have a resilient supply chain and manage inventories to sustain disruptions in the supply chain. May find alternative materials to produce the products.	Governance
Pricing Pressure	Due to a large number of the population being dependent on the products this industry produces, there is significant pressure (social and governmental) to make certain drugs and treatments affordable.	Medium	High	The company may focus on increasing/maintaining revenues by increasing the number of products sold at the cost of lowering the price.	Operational
Tax Risk	Rapidly changing tax laws require that companies manage this risk, because the in compliance of such laws will lead to, not only, financial costs, but also, harmful reputational damage.	Low	Low	Have human resources to guarantee that no tax laws are being infringed.	Regulatory and Legal
Counterfeit Products	Counterfeit drugs can compete at a lower price, cutting the demand levels of products that went through the necessary regulatory process before entering the market. Although many people will not choose this cheaper alternative since these types of products are discriminated against because they are seen as more cursory.	Medium	High		Market
New Pandemic	A new pandemic can be extremely harmful to any industry, nonetheless, due to the experience gained in the last years from the Covid-19 pandemic, it is expected that companies are more prepared to deal with such a catastrophic event.	Medium	Very Low	Have cash reserves to outlive black swan events.	Operational
Litigation Risks	This is a significant and recurrent issue in the pharmaceutical industry. Companies face this risk because their products may have undesired effects creating problems for patients. The process of bringing new products to market can leave the company exposed to costly lawsuits.	Medium	High	Test products and guarantee their safety before introducing them to the market.	Regulatory and Legal

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Recommendation System

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