INSTITUTO UNIVERSITÁRIO DE LISBOA

Equity Valuation of Johnson & Johnson

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Master in Finance

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BUSINESS
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Department of Finance

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Resumo

Esta tese foi realizada com o intuito de avaliar a Johnson & Johnson, uma empresa líder na indústria farmacêutica e de saúde, no final de 2023, incorporando dois métodos de avaliação. O estudo concentrar-se-á na análise de Fluxo de Caixa Descontado (DCF) e na avaliação relativa utilizando o método dos Múltiplos, para estimar o valor do capital próprio da Johnson & Johnson. A partir destas abordagens, o estudo visa fornecer uma perspectiva precisa e equilibrada sobre a saúde financeira da empresa, o seu potencial de criação de valor futuro e verificar se se encontra sobrevalorizada ou subvalorizada em relação ao valor atual real da ação ($153.15).

A análise também terá em conta de que forma tendências macroeconómicas, como crises de saúde globais e regulamentações na área da saúde, influenciam o desempenho e o valor de mercado da empresa. A pesquisa examinará os desafios e nuances específicos associados à avaliação de empresas do setor farmacêutico, levando em conta fatores e tendências específicos da indústria.

Ao examinar criticamente a literatura existente, relatórios financeiros da empresa e análises de mercado, esta tese pretende contribuir com novas perspetivas sobre as complexidades da avaliação de capital próprio no contexto do ambiente dinâmico de negócios da Johnson & Johnson. Os resultados deste estudo terão relevância para investidores, analistas e todos os interessados na avaliação financeira deste gigante da indústria de saúde.

Palavras-chave: Avaliação de Capital Próprio, Johnson & Johnson, JNJ, Avaliação de Fluxo de Caixa Descontado, Avaliação Relativa, Múltiplos

Abstract

This thesis seeks to value Johnson & Johnson, a leading player in the pharmaceutical and healthcare industry, as of the end of 2023, using a comprehensive approach that incorporates two valuation methods. The study will focus on Discounted Cash Flow (DCF) analysis and relative valuation using multiples, such as Price-to-Earnings (P/E) and EV/EBITDA, to assess the intrinsic worth of Johnson & Johnson's equity. Through these approaches, the study aims to provide an accurate and balanced perspective on the company's financial health, potential for future value creation and verify if it is overvalued or undervalued relatively to the current real share price ($153.15).

The analysis will also consider how macroeconomic trends, such as global health crises and healthcare regulations, influence the company's performance and market value. The research will delve into the specific challenges and nuances associated with valuing companies in the pharmaceutical sector, considering industry-specific factors and trends.

By critically examining existing literature, financial reports, and market analysis, this thesis aims to contribute insights into the complexities of equity valuation within the context of Johnson & Johnson's dynamic business environment. The findings of this research will hold significance for investors, analysts, and stakeholders seeking a nuanced understanding of the financial valuation of a key player in the healthcare industry.

Keywords: Equity Valuation, Johnson & Johnson, JNJ, Discounted Cash Flow Valuation, Relative Valuation, Multiples

Abbreviations

CAPEX: Capital Expenditures

COGS: Cost of Goods Sold

CPI: Consumer Price Index

DCF: Discounted Cash Flow

D&A: Depreciation and Amortization

EBT: Earnings Before Taxes

EBIT: Earnings Before Interest and Taxes

EBITDA: Earnings Before Interest, Taxes, Depreciation, and Amortization

EPS: Earnings Per Share

EV: Enterprise Value

FCF: Free Cash Flow

FCFE: Free Cash Flow to Equity

FCFF: Free Cash Flow to the Firm

GAAP: Generally Accepted Accounting Principles

GDP: Gross Domestic Product

JNJ: Johnson & Johnson

M&A: Mergers and Acquisitions

MRP: Market Risk Premium

NOPAT: Net Operating Profit After Tax

OCF: Operating Cash Flow

P/E: Price-to-Earnings Ratio

PV: Present Value

R&D: Research and Development

SG&A: Selling, General, and Administrative Expenses

TV: Terminal Value

WACC: Weighted Average Cost of Capital

WC: Working Capital

YTD: Year To Date

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1. Introduction

Johnson & Johnson (JNJ), a cornerstone of the pharmaceutical and healthcare sector, stands as a testament to resilience and innovation in the global market. With a rich history dating back to its founding in 1886 by the three brothers Robert, James and Edward Johnson, the company has evolved into a multinational conglomerate, embracing a diverse portfolio of pharmaceuticals, medical devices, and consumer health products.

This thesis embarks on an exploration of the equity valuation of JNJ, combining both the Discounted Cash Flow (DCF) and multiples-based approaches to assess the company's intrinsic worth. We begin with a literature review to explore the theoretical foundations of DCF and multiples, discussing various relevant authors and each method's strengths and applications within the broader field of corporate finance.

Following this, an examination of the current macroeconomic environment will help contextualize how external factors such as interest rates, economic growth, and regulatory changes impact JNJ and the healthcare sector as a whole, focusing also on industry-specific challenges impacting pharmaceutical companies. Examining the valuation of this industry leader becomes especially compelling given the industry's distinctive dynamics and perpetual demand for innovation. Recent global events, notably the COVID-19 pandemic, have underscored the pivotal role of pharmaceutical companies in managing global health challenges. A comprehensive understanding of how these factors impact Johnson & Johnson's equity value is essential for a complete and rich analysis. We then turn to an in-depth analysis of the company, highlighting its financial performance in the last few years.

To evaluate the firm, we will then outline the key assumptions underpinning the valuation models used, providing detailed DCF and multiples-based valuations of JNJ. Finally, a comparison of the outcomes from each valuation model will offer insights into the company's market value, leading to a concluding discussion on the results and their implications for investors and stakeholders.

This project aspires to offer readers an in-depth and nuanced understanding of the intricacies involved in appraising the equity of a healthcare industry leader, as well as gaining insights into the methodologies underpinning equity valuation, contributing new insights and perspectives to the existing body of knowledge.

2. Literature Review

This section aims to examine existing scholarly research, literature, and theoretical frameworks relevant to our topic of research.

Professor Aswath Damodaran, widely recognized for his online contribution in the world of valuation, asserts that valuation is the core of finance. He emphasizes that understanding the factors influencing a firm's value and mastering the assessment process is fundamental for making sound judgments and named the three biggest approaches to consider in company valuation: The Discounted Cash Flow method, the Relative Valuation and Option pricing models. Each model has its strengths and weaknesses, and we should choose the most appropriate one for different situations.

This project will focus on Discounted Cash Flows (DCF) and Multiples. The DCF method, like the name implies, uses the present value of the discounted cash flows generated by the company using an appropriate discount rate to valuate it. Pablo Fernández (2002) is a big supporter of this method, saying it is widely favored due to its conceptual accuracy. On the other hand, in relative valuation the goal is to value a company's assets based on the market value of similar assets and Alford (1992) was one of the first authors to study this subject.

Valuation can be applicable in various scenarios, particularly in the decision of investment in operations. It facilitates negotiations between buyers and sellers, each expressing their acceptable price range. Furthermore, for publicly traded companies, valuation aids in comparing the fair value with the stock market share prices, influencing decisions to sell, buy, or hold shares.

2.1. Discounted Cash Flow (DCF)

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \cdots + \frac{CF_n}{(1+r)^n} \quad (1)$$

CF^n : Cash Flow on period t

r^t : Discount rate on period t

n: period of the last expected cash flow

The Discounted Cash Flow (DCF) method is a type of valuation model that determines whether an investment is profitable based on expected future cash flows. This model is based on the premise that a company's value is determined by how well it can generate cash flows for its investors in the future. Companies typically use the weighted average cost of capital (WACC) to discount cash flows to present value because it accounts for the rate of return expected by shareholders. Below are some relevant basic concepts for this model:

2.1.1. Free Cash Flow to the Firm (FCFF)

FCFF assesses a company's financial health and ability to generate cash. It considers cash flows available to all shareholders after capital expenditures and working capital changes.

$$\text{FCFF} = \text{EBIT} * (1\text{-t}) + \text{D\&A} - \text{CAPEX} - \Delta WC \quad (2)$$

EBIT: Earnings Before Interest and Taxes

t: Corporate Tax Rate

D&A: Depreciation and Amortization

CAPEX: Capital Expenditure

ΔWC: Changes in Working Capital

2.1.2. Enterprise Value (EV)

It is calculated by discounting future cash flows (FCFF) for the initial years, with Terminal Value (TV) considered for an unlimited time horizon. EV reflects the overall value of the company. This measure provides a better understanding of a company's overall market value because it neutralizes the effect of capital structure decisions like leverage, as it encompasses both equity and debt. This way, it provides a more complete picture than just looking at market capitalization (Koller, Goedhart, Wessels, 2020).

$$\text{EV} = \sum \left(\frac{\text{FCFF}_t}{(1+r)^t} \right) + \frac{\text{Terminal Value}}{(1+r)^n} \quad (3)$$

TV: Terminal Value

r: Discount Rate

2.1.3. Terminal Value (TV)

TV, or residual value, is crucial for enterprise valuation models. It assumes steady growth in cash flows, calculated by dividing expected cash flow by the discount rate minus the growth rate and represents the value of a company's cash flows beyond a forecasted period into perpetuity. The terminal value assumes that a company will eventually grow at a stable, sustainable rate (Koller, Goedhart, Wessels, 1990)

To get the terminal value, one has to make assumptions about the future performance of the investment/firm they are valuing. A small change in the assumptions used for the terminal value can lead to a large change in the company's valuation, making it crucial to base the terminal value on grounded assumptions (Fernández, 2001).

According to Aswath Damodaran, the terminal value can often account for more than 50% of the total value of a firm in a DCF model, especially for growth companies.

$$\text{Terminal Value} = \frac{\text{FCFF}_n \times (1+g)}{r-g} \tag{4}$$

g: Perpetual Growth Rate

2.1.4. Equity Value (EQV)

Equity value represents the portion of a company's total value that belongs to its shareholders. It reflects the value of the company after accounting for all its obligations (such as debt) and is often referred to as the market value of equity or market capitalization. EQV is most commonly used on the valuation multiples like the Price-to-Earnings (P/E) ratio, which will be covered ahead.

EQV considers non-operating assets and subtracts non-equity claims from EV. Non-equity claims include debt, preferred stock, expected liabilities, minority interest and other financial obligations. We compute it as per equation 5:

$$\text{Equity Value} = \text{Enterprise Value (EV)} - \text{Net Debt}$$

(5)

Net Debt = Total Debt - Cash and Cash Equivalents

2.1.5. Free Cash Flow to Equity (FCFE)

Free Cash Flow to Equity (FCFE) represents the cash flow available to stockholders after accounting for interest payments, debt repayments, and other non-equity claims. It reflects the actual cash that can potentially be distributed as dividends or reinvested in the company for the benefit of equity holders. By focusing on what remains for shareholders once debt obligations are satisfied, FCFE highlights anticipated returns specific to equity holders and gives insight into the company's capacity to generate value directly for its shareholders.

FCFE is particularly relevant in understanding a company's ability to pay dividends and its financial health from an equity perspective, as it indicates the funds available to shareholders after meeting all prior obligations.

$$\text{FCFE} = \text{FCFF} - \text{Interest} \times (1 - \text{T}) + \text{Net Borrowing}$$

(6)

2.1.6. Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) is a foundational financial model used to determine the expected return on an investment, taking into account both the time value of money and the investment's risk. CAPM was developed to provide a framework for assessing the relationship between risk and expected return, helping investors evaluate if a particular investment offers a reasonable potential return given its level of risk. Treynor, J. L. (1961), Sharpe (1964) and Lintner (1965) were the pioneers of this model, mostly utilized to assess enterprises' cost of capital and appraise the performance of managed portfolios. Moreover, the CAPM is a prospective model that evaluates the compensation equity investors necessitate for time and risk during the specified timeframe. It suggests that investors demonstrate risk aversion and expect greater returns as compensation for taking on additional risk (Chen, 2021).

The equation for the CAPM is:

$$Re = Rf + \beta \times (RM - Rf) \quad (7)$$

Re: Cost of equity;
Rf: Risk free rate is the return on a risk-free investment;
β: Volatility of a security compared to the market;
(Rm – Rf): The market risk premium.

The model is built upon the concept of the market portfolio, which theoretically includes all available assets weighted by their market values. CAPM calculates the expected return by incorporating the risk-free rate (such as the yield on government bonds), the market risk premium (the excess return investors expect from holding the market portfolio over the risk-free rate), and a beta coefficient that measures the sensitivity of the investment to market movements.

2.1.7. Risk Free Rate (Rf)

The risk-free rate represents the return on an investment that carries no risk of financial loss and it is typically sourced from government bonds (such as U.S. Treasury bonds) that are widely considered risk-free. It is essentially the compensation an investor expects for investing in an asset with no risk, serving as the baseline for evaluating all other investments. In theory, the risk-free rate is the minimum return an investor can earn without taking on any risk.

2.1.8. Market Return (Rm) and Market Risk Premium (Rm - Rf)

Rm represents the expected return of the overall market. It is the return that an investor would expect from a broad-based investment in the stock market, often approximated by the performance of a market index such as the S&P 500. It includes all the stocks and reflects the average return that investors expect for holding risky assets over a period of time.

The MRP is the difference between Rm and Rf, representing the excess return an investor expects to earn for taking on the additional risk of investing in the stock market, compared to a risk-free investment.

2.1.9. Beta (β)

Beta measures a stock's volatility or risk compared to the overall market. A higher beta increases the cost of equity because the stock is riskier. This variable helps investors understand how sensitive a stock is to broader market movements.

Levered beta, or equity beta, measures the risk of a company's equity, accounting for the effects of its capital structure, including debt. It reflects the stock's sensitivity to market movements and indicates that a company with more debt is generally riskier due to the financial obligations that amplify its volatility. In contrast, unlevered beta, or asset beta, measures the risk of a company's assets without considering debt, focusing solely on business risk. This allows for a comparison of companies with different capital structures since it isolates the inherent business risk.

2.1.10. Cost of Equity (Re)

From all the above parameters we can retrieve the cost of equity using the CAPM formula. This value, also known as expected return, represents the return that investors require for investing in a company's equity. It reflects the compensation investors demand for taking on the risk of holding equity, rather than a risk-free investment. When the cost of equity is higher, it means investors require more return due to higher perceived risk, making equity financing more expensive and potentially lowering the company's stock value.

2.1.11. Cost of Debt (Rd)

The cost of debt refers to the effective rate that a company pays on its borrowed funds. It is an essential component of a firm's capital structure and is used to evaluate investment opportunities and overall financial health, as a higher cost of debt means that a company has to pay more in interest for any funds it borrows. This situation often indicates that lenders view the company as a higher risk. We calculate the cost of debt by diving the annual interest expense by the total amount of debt of the company.

2.1.12. Weighted Average Cost of Capital (WACC)

WACC, a critical part of DCF, is the discount rate representing the minimum rate of return. It is a weighted average of the cost of equity and after-tax cost of debt, reflecting the company's capital structure decisions. This is the rate we will discount the forecasted cash flows with on the DCF method.

This discount rate is crucial because it represents the blended cost of capital from both equity and debt sources, each weighted according to their proportion in the company's overall capital structure. By incorporating both the cost of equity (which reflects the returns required by shareholders) and the after-tax cost of debt (which accounts for the tax shield from interest expenses), WACC provides a realistic and comprehensive measure of the company's capital costs. This rate aligns with the company's risk profile, as companies with higher debt levels or greater risk may face higher WACC values. In a DCF analysis, using WACC as the discount rate ensures that projected cash flows are adjusted for the firm's specific risk and financing structure, giving a more accurate estimation of the company's intrinsic value. The WACC is computed as per equation 8 below:

$$WACC = E / (E+D) * RE + D * RD * (1-t) / (E+D) \quad (8)$$

D: Value of Debt;
Re: Cost of Equity, required return to levered equity;
E: Value of Equity;
Rd: Cost of debt, required return to debt.

2.2. Relative Valuation (Multiples Valuation)

While for DCF methods, the goal is to find the value of assets based on the associated risk and growth, as well as the cash flows they are capable of generating, in relative valuation the objective is to value a company's assets based on the market value of similar assets. This approach is based on the idea that similar assets sell at similar prices. It assumes that the type of ratio used in comparing firms, such as operating margins or cash flows, is the same across similar firms.

Relative Valuation, also known as Multiples Valuation, involves assessing an asset's worth by comparing its market value to a key statistic, such as cash flow or earnings. This

method, explained by Alford (1992), Péter Harbula (2009) and Suozzo (2001), relies on a correlation between the chosen statistic and observed market value. It gauges how an asset is valued relative to similar assets in the market, often comparing a company to its industry peers to determine its relative value. Damodaran (2006) notes that companies within the same sector, sharing similar risk, growth, and cash flow profiles, can be compared more legitimately. This becomes challenging when there are fewer firms in a specific sector, which is not the case in pharma.

There are two main types of valuation multiples: Equity Multiples and Enterprise Value Multiples. the most commonly used equity multiple is the P/E ratio, as input data is easily accessible, and EV/EBITDA is the most used enterprise value multiple.

2.2.1. P/E ratio

The common approach for determining price-to-earnings (P/E) ratios involves selecting comparable businesses and calculating the median P/E ratio within that group. Both the average and median can be used, but the median is more recommended when the data set has skewed distributions because it is less affected by the outliers (extreme values). A higher P/E ratio signals elevated investor expectations for a company's future growth, indicating a willingness to pay a premium for its stock. Conversely, a lower P/E ratio suggests an undervalued stock or challenges in the company's prospects.

2.2.2. EV/EBITDA

In addition, the Enterprise Value to Earnings Before Interest, Taxes, Depreciation, and Amortization (EV/EBITDA) ratio assesses a company's overall value relative to its operational success. This ratio, excluding taxes, finance expenses, and depreciation, is valuable for comparing businesses with different capital structures. A lower EV/EBITDA ratio may indicate an undervalued firm, while a higher ratio could suggest an overvalued company.

Interpreting both P/E and EV/EBITDA ratios requires considering industry norms and the unique circumstances of each company. These ratios offer a comprehensive perspective on a company's value and financial health, especially in sectors with diverse capital expenditures or varying debt levels.

3. Macroeconomics Overview and the Healthcare Sector

The valuation of JNJ is influenced by a range of macroeconomic factors that impact its operations, profitability, and investor sentiment. As a global leader in pharmaceuticals, medical devices, and consumer health, JNJ's performance is tightly connected to global economic trends, healthcare spending, interest rates, inflation, and government policies. Additionally, the COVID-19 pandemic introduced unprecedented challenges and opportunities, altering the healthcare landscape. This section explores key macroeconomic variables and their effects on JNJ's financial performance, ultimately shaping its equity valuation.

Johnson & Johnson's operations span across numerous countries, making the company highly sensitive to global economic conditions. Economic growth or contraction in major regions such as the U.S., Europe, and emerging markets directly impacts demand for healthcare products and services. The COVID-19 pandemic dramatically disrupted global economic activity, affecting both the supply and demand sides of the healthcare industry. While the economic downturn reduced demand for elective medical procedures (impacting JNJ's medical devices segment), the company also benefited from the accelerated demand for vaccines, introducing its Janssen COVID-19 Vaccine (developed by subsidiary Janssen Pharmaceuticals). The pandemic has had both temporary and long-term implications for JNJ's financial performance, highlighting the importance of agility in healthcare companies when responding to global health crises.

From the below graph we can observe how gross domestic product (GDP) was impacted from 2019-2023 in some relevant countries/regions:



Figure 1: GDP growth (annual %) - United States, European Union, China, World. From World Bank national accounts data, and OECD National Accounts data files.

We can conclude that 2020 was the most negatively impacted by the pandemic, suffering from the worst GDP decline in years, due to business closures, disrupted supply chains, and reduced consumer spending. Global trade and tourism collapsed, unemployment rose, and investment stalled, leading to a sharp economic contraction worldwide.

As for inflation, in 2020, inflation initially dropped due to the economic slowdown caused by COVID-19 lockdowns, reduced consumer demand, and collapsing oil prices. However, by 2021, inflation surged as global supply chains were disrupted, demand rebounded sharply, and governments implemented large-scale stimulus programs. Energy prices, particularly oil and natural gas, also rose significantly, driven by supply shortages and the economic recovery. The situation worsened in 2022 with the Russia-Ukraine war, which further pushed up energy and food prices. Tight labor markets and rising wages added to inflationary pressures. In response, central banks began raising interest rates in 2022-2023 to curb inflation, tightening monetary policies to slow demand and cool rising prices. This progression can be observed in the graphs below:



Figure 2: Inflation, GDP deflator (annual %) - United States, European Union, China, World. From World Bank national accounts data, and OECD National Accounts data files.

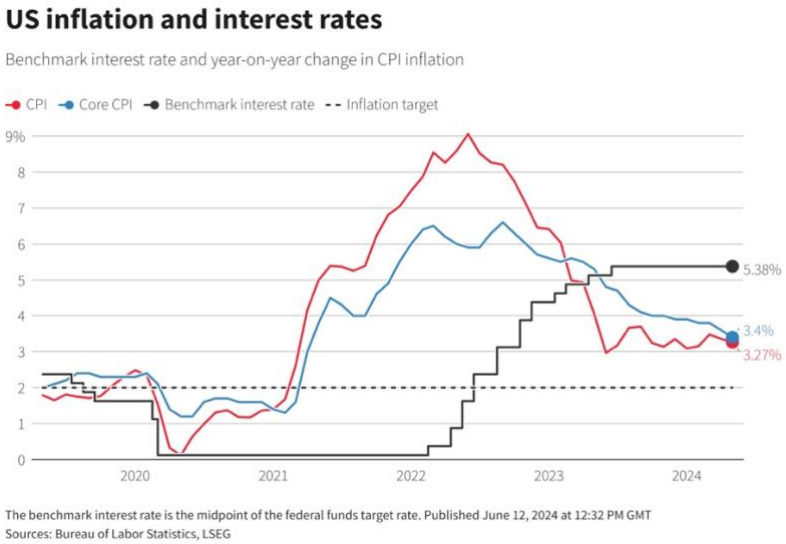


Figure 3: U.S.Inflation and Interest Rates (2020-2024). From Bureau of Labor Statistics, LSEG

4. About Johnson & Johnson

4.1. Company Overview

Johnson & Johnson (JNJ) is an American multinational corporation founded in 1886 by Robert Wood Johnson I, James Wood Johnson, and Edward Mead Johnson. Headquartered in New Brunswick, New Jersey, JNJ operates in over 60 countries and sells its products in more than 175 countries globally. It is recognized as one of the largest and most diversified healthcare companies in the world, with its business spanning pharmaceuticals, medical devices, and consumer health products. The company's commitment to improving health and well-being has made it a leader in healthcare innovation for over a century.

JNJ is also known for its strong commitment to corporate social responsibility and ethical practices. The company operates under a guiding document called "Our Credo," written in 1943, which outlines its responsibilities to patients, medical professionals, employees, communities, and shareholders. This ethical foundation has shaped JNJ's culture, emphasizing quality, integrity, and a dedication to improving health outcomes. JNJ is frequently recognized for its efforts in social impact, public health initiatives, and disaster relief, often partnering with global organizations to address critical health challenges. This commitment to social responsibility has helped JNJ build trust and a positive reputation around the world.

4.2. Corporate Structure and Segmentation

Johnson & Johnson's business is organized into three main segments:

4.2.1. Pharmaceuticals

This is the largest and most profitable segment of JNJ, responsible for the research, development, and manufacturing of prescription medicines. The company's pharmaceutical division focuses on six key therapeutic areas:

- Immunology
- Oncology
- Neuroscience

- Cardiovascular & Metabolism
- Infectious Diseases
- Pulmonary Hypertension

JNJ’s pharmaceutical arm operates through its subsidiary, Janssen Pharmaceuticals, which is a major player in the global pharmaceutical industry. The division has achieved significant growth driven by innovative medicines, particularly in oncology (e.g., Darzalex for multiple myeloma) and immunology (e.g., Stelara for autoimmune diseases).

4.2.2. Medical Devices

Johnson & Johnson’s Medical Devices segment develops and manufactures a wide range of products used in surgical procedures, orthopedics, vision care, and cardiovascular care. It includes brands like DePuy Synthes (orthopedics), Ethicon (surgical solutions), and Acuvue (contact lenses). JNJ is a global leader in these categories, with a strong presence in minimally invasive surgery, robotic surgery systems, and advanced diagnostic tools.

4.2.3. Consumer Health

JNJ’s Consumer Health segment offers a wide array of over-the-counter (OTC) products, including personal healthcare items, baby care, skin care, wound care, and oral health. Iconic brands like Band-Aid, Listerine, Johnson’s Baby, Neutrogena, and Tylenol are part of this division. The Consumer Health segment is built around trust, and its products are household staples in many markets worldwide.

4.3. Operational Performance Analysis

In 2023, Johnson & Johnson reported total revenue of $85.16 billion. Compared to 2019, when the company achieved total revenue of $82.06 billion, JNJ experienced a modest increase of approximately 3%. The COVID-19 pandemic had a significant impact on JNJ's revenue, particularly through the introduction of its vaccine, which contributed substantially to revenue in 2021 and 2022.

In terms of EBITDA, Johnson & Johnson reported $23.32 billion for 2023. This indicates an improvement from the $20.51 billion recorded in 2019.

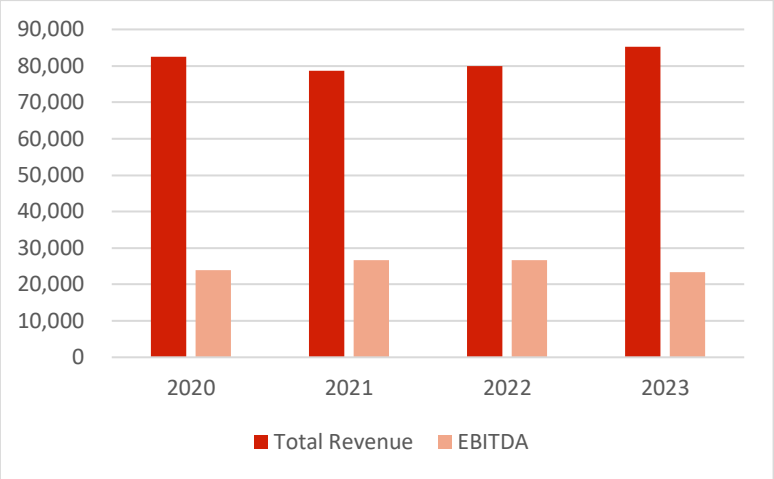


Figure 4: Annual Revenue and EBITDA of JNJ, in millions ($)

For 2021-2023 the adjusted operational EPS performance was above target. However, the TSR compound annual growth rate fell below target. This might be due to declining sales in some established drugs and the eventual wind-down of COVID-19 vaccine sales. While Johnson & Johnson did maintain profitability, the competition in pharmaceuticals and MedTech became intense, with rivals gaining ground, which also played a role in underperformance relative to expectations. The company's TSR was also hampered by litigation expenses related to talc products and opioids, which further strained its financial results.

Even so, the company executed strategic acquisitions and partnerships that enhanced revenue streams and contributed to overall earnings growth. A notable acquisition was its $6.5 billion purchase of Momenta Pharmaceuticals in 2020, which bolstered JNJ’s portfolio in autoimmune diseases, which began yielding benefits in the subsequent years. Also, the acquisition of Abiomed in 2022 for $16.6 billion, a leader in heart pump technologies, which significantly expanded JNJ’s cardiovascular offerings under its MedTech division. Despite external pressures, such as inflation and litigation costs, JNJ maintained solid revenue generation, which translated into better-than-expected EPS growth.

Table 1: Consolidated statement of income and cash flows of JNJ, 2019-2023

in million $	2019	2020	2021	2022	2023
Total Revenue	**82,059**	**82,584**	**78,740**	**79,990**	**85,159**
Cost of Revenue	27,556	28,427	23,402	24,596	26,553
Gross Profit	54,503	54,157	55,338	55,394	58,606
(-) Operating Expenses	**64,413**	**65,886**	**59,379**	**60,355**	**69,325**
(=) EBIT	**17,646**	**16,698**	**19,361**	**19,635**	**15,834**
(+) Depreciation and Amortization	7,009	7,231	7,390	6,970	7,486
(=) EBITDA	**24,655**	**23,929**	**26,751**	**26,605**	**23,320**
Operating Cash Flow	**23,416**	**23,536**	**23,410**	**21,194**	**22,791**
(+) Capital Expenditure	-3,498	-3,347	-3,652	-4,009	-5,013
(=) Free Cash Flow	**19,918**	**20,189**	**19,758**	**17,185**	**17,778**
Interest Expense	318	201	183	276	772
Tax Rate	12.70%	10.81%	7.18%	15.44%	11.53%
FCFF	**20,196**	**20,368**	**19,928**	**17,418**	**18,461**

For 2024, the Board championed the Company's investment in data science and digital capabilities as foundational to its innovation goals, further contributing to the growth of the company. JNJ also continues to focus on strategic acquisitions and partnerships to expand its portfolio. For instance, recent acquisitions include Shockwave Medical, which specializes in cardiovascular technology, and Ambrx, a biotechnology company focusing on oncology treatments. Moreover, the company is heavily investing in its Innovative Medicine segment, with products like DARZALEX in oncology and TREMFYA in immunology driving significant growth in the future.

5. Assumptions

To estimate the future free cash flows to the firm, that will be necessary for the DCF valuation, we need to make some assumptions both about the income statement and the balance sheet. These parameters will be computed based on the cash flows from the previous five years, using an appropriate growth rate.

5.1. Income statement assumptions

When it comes to income statement assumptions, the variables to define are revenue growth, operating expenses, depreciation and amortization, research and development, tax rate, interest expense, tax provision, EBIT and EBITDA.

5.1.1. Total Revenue and Operating Expenses

The company has revised its full-year 2024 guidance, anticipating sales growth between 6.1% and 6.6%. For this study we will use 6.5% for that year, which is the same as the growth in 2023 and leads to projected sales of approximately $90.7 billion, a record-breaking figure. This seems to hold up, as in 2024 third quarter the company reported a sales growth of 5.2% with adjusted operational growth of 5.4% compared to the third quarter of 2023. For 2025, JNJ expects an operation sales growth of 3-5%, so we will consider 4%. For 2026-2028 a conservative 2%, was considered as well as for the terminal growth rate. We will consider the cost of revenue as 32% of the total revenue, which was the average for the five past years.

As for the operating expenses, they increased by 5.71% (YTD) as of the third quarter of 2024, so this value will be considered for that year. For the following years we will assume a steady 0.5% growth rate.

5.1.2. Depreciation and Amortization (D&A)

An average of growth between 2019 and 2023 was used to forecast the growth rate for the future years (1.77%). For 2019-2023, D&A is on average 8.8% of the total revenue, which is close for the forecasted period, at 8.5%.

Table 2: Depreciation and amortization, 2019-2023. From JNJ's annual reports

in millions ($)	2019	2020	2021	2022	2023
Depreciation and Amortization	**7,009**	**7,231**	**7,390**	**6,970**	**7,486**
% of Revenue	8.54%	8.76%	9.39%	8.71%	8.79%

Table 3: Depreciation and amortization forecasted figures. From author's estimates

in millions ($)	2024	2025	2026	2027	2028
Depreciation and Amortization	**7,619**	**7,754**	**7,891**	**8,031**	**8,173**
% of Revenue	8.40%	8.22%	8.20%	8.18%	8.17%

5.1.3. Research and Development (R&D)

JNJ's R&D spending from 2019 to 2023 focused on developing cancer therapies, the Janssen COVID-19 vaccine, and advancing surgical and orthopedic technologies. These costs were relatively constant, with an average growth of 7.72%, which is the rate we will consider for each of the following years.

5.1.4. Selling, marketing and administrative expenses (SG&A)

This rubric refers to the costs associated with a company's day-to-day operations that are not directly tied to the production of goods or services. These values stayed overall constant throughout the five years, with an average growth of -0.10%. For simplicity, the figure of 2023 will be considered for the five forecasted years.

5.1.5. Interest Expense, Tax Rate, Tax Provision

Interest expense is the cost incurred by a company for borrowing money. It reflects the payments made on outstanding debt, such as loans or bonds, and is recorded on the income statement. We will assume a growth rate of -5%, since 2023 was atypical in sense that central banks, including the U.S. Federal Reserve, significantly raised interest rates to combat inflation, resulting in higher interest expenses. The interest rates are expected to lower steadily in the next few years, and subsequently interest expense as well.

As for the tax rates, they will grow by 10.31% each year, i.e., the average growth from 2019-2023. As interest expense declines, it makes sense for tax rate to increase, because it has less interest expense to deduct.

Table 4: Interest expense, tax provision, EBT and tax rate, 2019-2023. From JNJ's annual reports

in million $	2019	2020	2021	2022	2023
Interest Expense	318	201	183	276	772
Tax Provision	2,201	1,783	1,377	2,989	1,736
Pretax Income	17,328	16,497	19,178	19,359	15,062
Tax Rate (t)	12.70%	10.81%	7.18%	15.44%	11.53%

Table 5: Interest expense, tax provision, EBT and tax rate, forecasted years. From author's estimates

in million $	2024	2025	2026	2027	2028
Interest Expense	733	697	662	629	597
Tax Provision	1,881	2,038	2,208	2,393	2,592
Pretax Income	16,677	19,976	21,529	23,116	24,738
Tax Rate (t)	12.71%	14.02%	15.47%	17.06%	18.82%

5.1.6. EBITDA, EBIT, EBT and other rubrics

Applying the growth rates for revenue, operating expenses, D&A, interest expense and tax rate discussed in the previous steps, we are able to calculate the EBIT and EBITDA.

Table 6: Historical and forecasted figures for part of the income statement. From JNJ's reports and author's estimates

in millions ($)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Gross profit	54,503	54,157	63,920	55,394	58,606	61,672	64,139	65,422	66,730	68,065
Selling, marketing and administrative expenses	22,178	22,084	24,659	20,246	21,512	21,512	21,512	21,512	21,512	21,512
Research and development expense	11,355	12,159	14,714	14,135	15,085	16,250	17,504	18,855	20,311	21,879
EBITDA	**17,646**	**16,698**	**19,361**	**19,635**	**15,834**	**25,029**	**28,426**	**30,081**	**31,775**	**33,508**
Depreciation and amortization	7,009	7,231	7,390	6,970	7,486	7,619	7,754	7,891	8,031	8,173
EBIT	**24,655**	**23,929**	**26,751**	**26,605**	**23,320**	**17,411**	**20,672**	**22,190**	**23,745**	**25,335**
Interest expense, net of portion capitalized	-357	-111	-53	276	772	733	697	662	629	597
Earnings before provision for taxes on income (EBT)	**17,328**	**16,497**	**22,776**	**19,359**	**15,062**	**16,677**	**19,976**	**21,529**	**23,116**	**24,738**
Provision for taxes on income	2,209	1,783	1,898	2,989	1,736	1,881	2,038	2,208	2,393	2,592
Net earnings from continuing operations	-	-	-	16,370	13,326	14,797	17,937	19,320	20,723	22,146
Net earnings from discontinued operations, net of tax	-	-	-	1,571	21,827	-	-	-	-	-
Net earnings	**15,119**	**14,714**	**20,878**	**17,941**	**35,153**	**14,797**	**17,937**	**19,320**	**20,723**	**22,146**

5.2. Balance Sheet Assumptions

This section is dedicated to finding the balance sheet assumptions needed for the DCF valuation. These are mainly the capital expenditure, the working capital, the capital structure of the firm, the parameters of the CAPM and finally computing the WACC.

5.2.1. Capital Expenditure (CapEx)

Capital expenditure significantly increased in 2023 especially due to the acquisition of Abiomed in December 2022 with a growth rate of 25% opposed to the steady 9% from 2021 and 2022. For 2024, as the third quarter data is already known we can assume a growth rate of -4.5%, as in Q3 (for nine months) it is at -4.07%. This makes sense, as the CapEx of 2023 was extraordinary. For the other 4 years a growth of 7% was assumed, matching the average of the known years.

5.2.2. Working Capital (WC)

Working capital refers to the difference between a company's current assets and liabilities. The increase/decrease in working capital per year is important for the understanding of a company's operational efficiency and liquidity management. A company with positive net working capital indicates it has enough current assets to cover its short-term liabilities, while a company with negative net working capital might have some financial constraints.

By analyzing the balance sheet for 2019-2023 we can retrieve de working capital and then estimate the same for the forecasted years, by growing both the current assets and liabilities by the average growth rate of past years.

Table 7: Working capital, 2019-2023. From JNJ's annual reports

in millions ($)	2019	2020	2021	2022	2023
Total current assets	45,274	51,237	60,979	55,294	53,495
Total current liabilities	35,964	42,493	45,226	55,802	46,282
Working Capital	9,310	8,744	15,753	-508	7,213
ΔWC	-1,002	-566	7,009	-16,261	7,721

Table 8: Working capital, forecasted years. From author's estimates

in millions ($)	2024	2025	2026	2027	2028
Total current assets	56,117	58,868	61,754	64,781	67,957
Total current liabilities	48,250	50,302	52,440	54,670	56,995
Working Capital	7,867	8,567	9,314	10,111	10,962
ΔWC	654	699	747	797	851

5.2.3. Capital Structure

The capital structure for equity and debt of JNJ was assessed through the balance sheet on the annual reports. Debt represents the borrowed funds that the company uses to finance its operations and growth. It is a crucial component, as it affects the company's overall financial strategy and risk profile. Debt can take various forms, including short-term liabilities like bank loans and long-term obligations such as bonds and mortgages. JNJ's debt is composed mostly of long-term, and in 2023 it was 29.3 billion, decreasing severely compared to previous years 2020-2022.

Equity refers to the portion of ownership held by its shareholders, and it was calculated by multiplying the number of outstanding shares by the stock price as of 31st December of each year. Basic shares were considered instead of diluted shares, because while diluted shares provide a more comprehensive view of potential ownership, basic shares often align better with traditional financial analysis methods and offer a clearer picture of the current ownership landscape. Equity decreased $51.8 billion from 2022 to 2023 but overall, it increased $49.4 billion since 2019.

With the values of equity and debt for the five years, the debt-to-equity ratios were determined.

Table 9: JNJ's capital structure. Source: JNJ's Annual Reports

in millions ($), except shares	2019	2020	2021	2022	2023
Stock Price	128	141.85	158.07	167.52	153.15
Outstanding Basic Shares	2,645.1	2,632.8	2,632.1	2,625.2	2,533.5
E	338,572.8	373,462.7	416,056	439,773.5	388,005.5
Long Term Debt	26,494	32,635	29,985	26,886	25,881
Short Term Debt	1,202	2,631	3,766	12,756	3,451
D	27,696	35,266	33,751	39,642	29,332
D/E	8.18%	9.44%	8.11%	9.01%	7.56%

We can see the debt-to-equity ratios for each year are relatively close, with the biggest jump in 2020. The average of these ratios is 8.46%.

5.2.4. Risk-Free Rate and Market Risk Premium

The risk free rate was obtained from the yield on 10-year US treasury bonds, at 3.87% in the end of 2023. The market return was calculated from the S&P 500. Historical return rates have fluctuated as the economy matures and endures cycles, but numerous sources have

consensually estimated a potential long term return of approximately 8% annually, so we will consider this figure. This results in a mark risk premium of 4.13%.

5.2.5. Beta

For JNJ's capital structure, using the levered (equity) beta will be more appropriate than unlevered, as the company has a significant amount of debt in its capital structure, which influences the overall risk profile of its equity. Levered beta accounts for this debt, providing a more accurate measure of how the stock is expected to react to market movements. Beta was obtained from the website Yahoo Finance, value being 0.52.

5.2.6. Cost of Equity

The cost of equity was finally calculated through the CAPM model, at 6.02%. This value can now be applied in the WACC.

Table 10: Capital Asset Pricing Model inputs. From author's estimates

CAPM components	
Rf	3.87%
Rm	8%
(Rm - Rf)	4.13%
β	0.52
Re	6.02%

5.2.7. Cost of Debt

The cost of debt was estimated by dividing the interest expense for the total debt of the most recent fiscal year, 2023. The interest expense in 2023 was $772 million and the total debt was s $29,332 million, so the cost of debt assumed is 2.63%.

5.2.8. WACC computation

After these assumptions are established, it is possible to calculate the weighted average cost of capital. The debt and equity considered were the averages of these values for the years 2019-2023.

Table 11: WACC parameters, values in $

WACC	
E	391,174,111,200
Re	14.72%
D	33,137,400,000
Rd	2.63%
Tax Rate (t)	11.53%
WACC	5.73%

6. Discounted Cash Flows Valuation

6.1. DCF Computation

From all the assumptions from the previous section, we can compute the five forecasted free cash flows to the firm and then discount them into their present value using the WACC, obtaining the five discounted cash flows necessary for the valuation.

Table 12: Discounted Cash Flows, 2024-2028. From author's estimates

in millions ($)	2024	2025	2026	2027	2028
Total Revenue	**90,694**	**94,322**	**96,209**	**98,133**	**100,095**
Cost of Revenue	29,022	30,183	30,787	31,402	32,031
Gross Profit	61,672	64,139	65,422	66,730	68,065
(-) Operating Expenses	**73,283**	**73,650**	**74,018**	**74,388**	**74,760**
(=) EBIT	**17,411**	**20,672**	**22,190**	**23,745**	**25,335**
(+) Depreciation and Amortization	7,619	7,754	7,891	8,031	8,173
(=) EBITDA	**25,029**	**28,426**	**30,081**	**31,775**	**33,508**
Operating Cash Flow	**22,162**	**24,828**	**25,902**	**26,926**	**27,889**
(+) Capital Expenditure	-4,787	-5,123	-5,481	-5,865	-6,275
Changes in WC	654	699	747	797	851
(=) Free Cash Flow	**17,374**	**19,705**	**20,421**	**21,062**	**21,613**
Interest Expense	733	697	662	629	597
Tax Provision	1,881	2,038	2,208	2,393	2,592
Tax Rate	12.71%	14.02%	15.47%	17.06%	18.82%
FCFF	**18,014**	**20,304**	**20,980**	**21,583**	**22,098**
DCF	**17,038**	**18,163**	**17,751**	**17,271**	**16,726**

6.2. Terminal Value

The terminal value of JNJ, this is, the value of its cash flows into perpetuity, was determined with growth rate of 2%, a conservative number to avoid exaggeration. After applying this rate to the last known FCFF, using formula (x), the terminal value was calculated as $ 457,437 million, its present value as $ 346,219 million.

6.3. Firm Value and Equity Value

The firm value, or enterprise value, is simply the sum of the forecasted discounted cash flows and the discounted terminal value. Summing these values, which were determined in the last two sections, we get a firm value of $ 433,168 million.

Lastly, the equity value, representing the portion of a company's total value that belongs to its shareholders, can be computed. It reflects the value of the company after accounting for

all its obligations, such as debt, and is often referred to as the market capitalization. We get this value by subtracting the net debt from the enterprise value. The net debt equals the total debt minus the cash equivalents, and in JNJ's case, we consider the rubrics "Loans and notes payable" and "Long-term debt" for the total debt and then subtract the "Cash and cash equivalents" from the balance sheet as of 2023. These amount to a net debt of $7,473 million, which, subtracted from the firm value, gives us an equity value of $ 425,695 million.

The only step left to get to the fair value of JNJ's stock is to divide the equity value for the number of shares outstanding of the company. Therefore, $ 425,695 million divided by 2,533.5 million shares outstanding gives us a stock price of $168.03. The real stock price as of 31st December 2023 was $153.15, which implies that the company was undervalued at the time, by $14.88 according to the Discounted Cash Flow Method.

6.4. Sensitivity Analysis

To understand the impact of key assumptions on the valuation of JNJ, a sensitivity analysis was conducted. This analysis evaluates how changes in the primary drivers of the DCF model influence the estimated stock price. By altering these variables, we can determine the sensitivity of the valuation to shifts in key inputs, allowing for a clearer understanding of potential risks and the reliability of the model.

The parameters changed in this sensitivity analysis will be two of the most critical on the model: the terminal growth and the WACC. These inputs were chosen because even small adjustments can lead to significant changes in the valuation outcome. The terminal growth rate will be changed by 0.5% and the WACC by 0.25%.

Table 13: Sensitibity Analysis: terminal growth rate and WACC variation

$	WACC													
	$153.15	5.00%	5.25%	5.50%	5.73%	6.00%	6.25%	6.50%	6.75%	7.00%	7.25%	7.50%	7.75%	8.00%
	0.00%	198.64	185.58	174.35	165.35	156.03	148.44	141.67	135.60	130.11	125.12	120.57	116.40	112.55
	0.50%	199.48	186.35	175.07	166.02	156.65	149.03	142.23	136.12	130.61	125.60	121.02	116.83	112.97
	1.00%	200.31	187.12	175.78	166.69	157.28	149.62	142.78	136.65	131.11	126.07	121.48	117.26	113.39
	1.50%	201.14	187.89	176.50	167.36	157.90	150.20	143.34	137.17	131.61	126.55	121.93	117.70	113.80
	2.00%	201.97	188.66	177.21	168.03	158.52	150.79	143.89	137.70	132.11	127.02	122.39	118.13	114.22
Terminal	2.50%	202.81	189.43	177.92	168.70	159.15	151.38	144.45	138.23	132.60	127.50	122.84	118.57	114.64
Growth Rate	3.00%	203.64	190.19	178.64	169.37	159.77	151.97	145.00	138.75	133.10	127.98	123.29	119.00	115.05
(g)	3.50%	204.47	190.96	179.35	170.04	160.40	152.55	145.56	139.28	133.60	128.45	123.75	119.44	115.47
	4.00%	205.30	191.73	180.07	170.71	161.02	153.14	146.11	139.80	134.10	128.93	124.20	119.87	115.89
	4.50%	206.14	192.50	180.78	171.38	161.65	153.73	146.67	140.33	134.60	129.40	124.66	120.31	116.30
	5.00%	206.97	193.27	181.49	172.05	162.27	154.32	147.22	140.86	135.10	129.88	125.11	120.74	116.72
	5.50%	207.80	194.04	182.21	172.72	162.90	154.91	147.78	141.38	135.60	130.35	125.57	121.18	117.13
	6.00%	208.64	194.81	182.92	173.39	163.52	155.49	148.34	141.91	136.10	130.83	126.02	121.61	117.55
	6.50%	209.47	195.58	183.63	174.06	164.15	156.08	148.89	142.43	136.60	131.31	126.47	122.04	117.97
	7.00%	210.30	196.34	184.35	174.73	164.77	156.67	149.45	142.96	137.10	131.78	126.93	122.48	118.38

Highlighted in blue we have our previous obtained values, in green the values which would give us a stock value bigger than the actual value on the 31st of December 2023, and in red the values which would suggest a currently overvalued JNJ stock. We can observe that the WACC and g that would create the real stock price are close to 6.25% and 4% respectively. We can also conclude that the lower the WACC and the bigger the terminal growth, the bigger is the stock price increase.

Table 14: Sensitibity Analysis: terminal growth rate and WACC variation (percentage of real price)

$	WACC													
	153.15	5.00%	5.25%	5.50%	5.73%	6.00%	6.25%	6.50%	6.75%	7.00%	7.25%	7.50%	7.75%	8.00%
	0.00%	129.7%	121.2%	113.8%	108.0%	101.9%	96.9%	92.5%	88.5%	85.0%	81.7%	78.7%	76.0%	73.5%
	0.50%	130.2%	121.7%	114.3%	108.4%	102.3%	97.3%	92.9%	88.9%	85.3%	82.0%	79.0%	76.3%	73.8%
	1.00%	130.8%	122.2%	114.8%	108.8%	102.7%	97.7%	93.2%	89.2%	85.6%	82.3%	79.3%	76.6%	74.0%
	1.50%	131.3%	122.7%	115.2%	109.3%	103.1%	98.1%	93.6%	89.6%	85.9%	82.6%	79.6%	76.9%	74.3%
	2.00%	131.9%	123.2%	115.7%	109.7%	103.5%	98.5%	94.0%	89.9%	86.3%	82.9%	79.9%	77.1%	74.6%
Terminal	2.50%	132.4%	123.7%	116.2%	110.2%	103.9%	98.8%	94.3%	90.3%	86.6%	83.3%	80.2%	77.4%	74.9%
Growth Rate	3.00%	133.0%	124.2%	116.6%	110.6%	104.3%	99.2%	94.7%	90.6%	86.9%	83.6%	80.5%	77.7%	75.1%
(g)	3.50%	133.5%	124.7%	117.1%	111.0%	104.7%	99.6%	95.0%	90.9%	87.2%	83.9%	80.8%	78.0%	75.4%
	4.00%	134.1%	125.2%	117.6%	111.5%	105.1%	100.0%	95.4%	91.3%	87.6%	84.2%	81.1%	78.3%	75.7%
	4.50%	134.6%	125.7%	118.0%	111.9%	105.5%	100.4%	95.8%	91.6%	87.9%	84.5%	81.4%	78.6%	75.9%
	5.00%	135.1%	126.2%	118.5%	112.3%	106.0%	100.8%	96.1%	92.0%	88.2%	84.8%	81.7%	78.8%	76.2%
	5.50%	135.7%	126.7%	119.0%	112.8%	106.4%	101.1%	96.5%	92.3%	88.5%	85.1%	82.0%	79.1%	76.5%
	6.00%	136.2%	127.2%	119.4%	113.2%	106.8%	101.5%	96.9%	92.7%	88.9%	85.4%	82.3%	79.4%	76.8%
	6.50%	136.8%	127.7%	119.9%	113.7%	107.2%	101.9%	97.2%	93.0%	89.2%	85.7%	82.6%	79.7%	77.0%
	7.00%	137.3%	128.2%	120.4%	114.1%	107.6%	102.3%	97.6%	93.3%	89.5%	86.0%	82.9%	80.0%	77.3%

On table 14 we can see the values as the percentage of the real price of JNJ stock, to better compare them (100% being the actual price). The blue highlighted value, the stock price

we got by using the previous assumptions on the DCF method, shows up as 109.7% of JNJ's real stock. Once again, green means undervaluation and red overvaluation.

7. Relative Valuation

7.1. Peer Companies Comparison

A relative valuation research was conducted as well to provide a more thorough understanding of different valuation processes and also assess which method closer matches the real stock value. From this analysis, the aim is to evaluate JNJ using multiples and compare it against several globally recognized pharmaceutical companies.

The analysis includes ten corporations with substantial market capitalizations, and as valuation multiples, the enterprise value to EBITDA (EV/EBITDA) ratio and the price-to-earnings (P/E) ratio were used. The P/E ratio is commonly considered to value mature and profitable companies like JNJ and the above listed competitors, as they have established earnings streams, and investors often focus on earnings per share (EPS) to assess stock value. This ratio focuses on the company's earnings attributable to shareholders, making it highly relevant for equity investors. On the other hand, EV/EBITDA takes into account the entire firm's value (both debt and equity) and ignores the impact of capital structure. This metric can be useful as it allows for comparison across companies with different capital structures. Furthermore, EBITDA focuses on operating performance by excluding the impact of non-operational factors like interest, taxes, and non-cash expenses, providing a clearer view of how well the core business is generating cash flow, making it ideal for comparing companies in the same industry.

Table 15: Similar companies P/E and EV/EBITDA ratios, as of 2023

EV and EBITDA in millions ($)	P	E	P/E	EV	EBITDA	EV/EBITDA
Johnson & Johnson (JNJ) *	153.15	13.88	**11.03**	380,533	23,320	**16.32**
Pfizer Inc. (PFE)	27.55	0.38	**72.50**	87,473	9,557	**9.15**
Merck & Co., Inc. (MRK)	106.97	0.14	**764.07**	243,169	6,907	**35.21**
AbbVie Inc. (ABBV)	149.50	2.75	**54.36**	217,437	17,172	**12.66**
Medtronic PLC (MDT)	80.35	2.77	**29.01**	83,002	8,203	**10.12**
Procter & Gamble Co. (PG)	142.98	6.07	**23.56**	312,244	21,823	**14.31**
Eli Lilly and Co. (LLY)	580.10	5.83	**99.50**	499,323	8,568	**58.28**
Bristol-Myers Squibb Co. (BMY)	48.84	3.88	**12.59**	72,742	19,366	**3.76**
Gilead Sciences Inc. (GILD)	78.48	4.54	**17.29**	79,041	10,496	**7.53**
Sanofi S.A. (SNY)	47.71	2.15	**22.19**	111,755	12,604	**8.87**
GlaxoSmithKline plc (GSK)	36.06	2.43	**14.84**	58,993	9,083	**6.49**
Average			**101.90**			**16.61**
Median			**23.56**			**10.12**

From the above table, we can spot that Merck & Co., Inc. (MRX)'s P/E ratio deviates extremely from the one of its counterparts. This is because MRX had some one-time expenses, such as acquisitions, collaborations, and asset write-downs. For example, Merck had a large charge associated with its collaboration with Daiichi Sankyo and other R&D-related expenses. These charges greatly reduced net earnings, which in turn drastically lowered the Our object of study, JNJ itself, also had an abnormal increase in EPS in 2023. That year JNJ completed the separation of its consumer health division, Kenvue, through an IPO. This resulted in a one-time gain from the sale of shares, which significantly boosted their net income and and EPS.

To mitigate the impact of these anomaly years, that don't realistically represent the true performance of the company, we will also compare the companies using the non-GAAP (Non-Generally Accepted Accounting Principles) EPS. Companies often include these non-standard metrics in their reports to exclude certain non-recurring or irregular items that are included in the GAAP.

Table 16: Similar companies P/E and EV/EBITDA ratios, as of 2023, with non-GAAP EPS

EV and EBITDA in millions ($)	P	E	P/E	EV	EBITDA	EV/EBITDA
Johnson & Johnson (JNJ)	153.15	9.92	**15.44**	380,533	23,320	**16.32**
Pfizer Inc. (PFE)	27.55	0.38	**72.50**	87,473	9,557	**9.15**
Merck & Co., Inc. (MRK)	106.97	1.51	**70.84**	243,169	6,907	**35.21**
AbbVie Inc. (ABBV)	149.50	11.11	**13.46**	217,437	17,172	**12.66**
Medtronic PLC (MDT)	80.35	5.29	**15.19**	83,002	8,203	**10.12**
Procter & Gamble Co. (PG)	142.98	6.07	**23.56**	312,244	21,823	**14.31**
Eli Lilly and Co. (LLY)	580.10	8.30	**69.89**	499,323	8,568	**58.28**
Bristol-Myers Squibb Co. (BMY)	48.84	7.51	**6.50**	72,742	19,366	**3.76**
Gilead Sciences Inc. (GILD)	78.48	4.54	**17.29**	79,041	10,496	**7.53**
Sanofi S.A. (SNY)	47.71	2.15	**22.19**	111,755	12,604	**8.87**
GlaxoSmithKline plc (GSK)	36.06	2.43	**14.84**	58,993	9,083	**6.49**
Average			**31.06**			**16.61**
Median			**17.29**			**10.12**

It is fair to conclude that the non-GAAP EPS was able to paint a clearer picture for the true P/E ratio in the healthcare industry. Even so, there are still outlier values, so for comparison means, we will use the median instead of the average ratios, as this metric is able to eliminate this impact.

7.2. Results Analysis

JNJ's P/E is 15.44**,** while the median P/E of the peer group is 17.29. JNJ is slightly undervalued compared to its peers based on the P/E ratio. Its P/E is lower than the median, which could indicate that the market expects either lower growth or more risks for JNJ compared to the industry. However, it is close enough to the median to suggest that JNJ is relatively in line with its peers in terms of price relative to earnings.

JNJ has a higher EV/EBITDA than the median (16.32 against 10.12), indicating it is overvalued relative to its competitors when using this multiple. A higher EV/EBITDA can sometimes indicate higher investor expectations for future growth, or that JNJ's business is seen as more stable or of higher quality. However, it could also suggest that the company is more expensive relative to its earnings power.

The P/E ratio and EV/EBITDA ratio focus on different aspects of a company's financials, which explains the differing results for JNJ's valuation. The P/E is more influenced by net income, including interest, which, as explored in previous sections, were quite high in 2023 for JNJ. On the other hand, the EV/EBITDA ratio looks at operational performance by excluding taxes, interest, and depreciation, which provides a clearer view of the company's core profitability. EV/EBITDA offers a more holistic valuation for JNJ by emphasizing operational earnings and adjusting for financial structuring factors like debt and taxes. This makes it a more reliable indicator of the company's intrinsic value, especially given its complex financial strategies and capital-intensive nature.

To get the stock price from the EV/EBITDA we have to calculate first the adjusted EV, which will be the EBITDA times the median ratio obtained. Then, we just divide by the original EV and multiply by the original stock price. To get the stock price from P/E we multiply the median P/E ratio obtained by the JNJ's stock price. Deriving from P/E and EV/EBITDA, JNJ's stock price is respectively $171.48 and $95.05.

8. Comparison of methods and conclusion

The goal of this study was to estimate the fair value of JNJ's stock, through two methods: the Discounted Cash Flow and the Multiples/Relative Valuation methods. After applying both these approaches, we will observe the takeaways, in this section of the project.

According to the DCF analysis, the intrinsic value of JNJ's stock as of 31st December 2023 suggests that the real stock price of $153.15 was undervalued by $14.88, indicating a fair value closer to $168.03. This implies potential upside for investors based on the projected cash flows and the discount rate used in the DCF calculation.

Using the Multiples Method, which benchmarks JNJ's stock against industry standards and historical performance, the stock price derived from the P/E ratio was $171.48. This indicates that JNJ might be undervalued even more than suggested by the DCF analysis. However, the EV/EBITDA valuation pointed to a significantly lower stock price of $95.05, implying that the stock might actually be overvalued compared to earnings and EBITDA multiples.

These different methods yield different perspectives. The DCF and P/E approaches indicate that JNJ's stock is undervalued, with prices around $168 to $171, signaling a potential investment opportunity if future cash flows meet or exceed projections. Conversely, the EV/EBITDA method suggests caution, indicating a value significantly below the current market price, which could imply overvaluation based on EBITDA.

This divergence highlights the importance of using multiple methods for a comprehensive assessment. Investors should consider not only intrinsic value and profitability multiples but also broader market conditions, industry trends, and the assumptions from each model when making investment decisions.

9. References

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10. Appendixes

Consolidated Balance Sheet

in millions ($)	2019	2020	2021	2022	2023
Assets					
Cash and cash equivalents	17,305	13,985	14,487	12,889	21,859
Marketable securities	1,982	11,200	17,121	9,392	1,068
Accounts receivable trade, less allowances for doubtful accounts	14,481	13,576	15,283	14,039	14,873
Inventories	9,020	9,344	10,387	10,268	11,181
Prepaid expenses and other receivables	2,392	3,132	3,701	2,876	4,514
Assets held for sale	94	-	-	5,830	-
Total current assets	**45,274**	**51,237**	**60,979**	**55,294**	**53,495**
Property, plant and equipment (net)	17,658	18,766	18,962	17,982	19,898
Intangible assets (net)	47,643	53,402	46,392	38,489	34,175
Goodwill	33,639	36,393	35,246	36,047	36,558
Deferred taxes on income	7,819	8,534	10,223	8,947	9,279
Other assets	5,695	6,562	10,216	9,212	14,153
Noncurrent assets of discontinued operations	-	-	-	21,407	-
Total assets	**157,728**	**174,894**	**182,018**	**187,378**	**167,558**
Liabilities and Shareholders' Equity					
Loans and notes payable	1,202	2,631	3,766	12,756	3,451
Accounts payable	8,544	9,505	11,055	9,889	9,632
Accrued liabilities	9,715	13,968	13,612	10,719	10,212
Accrued rebates, returns and promotions	10,883	11,513	12,095	13,579	16,001
Accrued compensation and employee related obligations	3,354	3,484	3,586	3,049	3,993
Accrued taxes on income	2,266	1,392	1,112	2,220	2,993
Current liabilities of discontinued operations	-	-	-	3,590	-
Total current liabilities	**35,964**	**42,493**	**45,226**	**55,802**	**46,282**
Long-term debt	26,494	32,635	29,985	26,886	25,881
Deferred taxes on income	5,958	7,214	7,487	3,991	3,193
Employee related obligations	10,663	10,771	8,898	6,542	7,149
Long-term taxes payable	7,444	6,559	5,713	4,306	2,881
Other liabilities	11,734	11,944	10,686	10,146	13,398
Noncurrent liabilities of discontinued operations	-	-	-	2,901	-
Total liabilities	**98,257**	**111,616**	**107,995**	**110,574**	**98,784**
Shareholders' equity					
Preferred stock — without par value	-	-	-	-	-
Common stock — par value $1.00 per share	3,120	3,120	3,120	3,120	3,120
Accumulated other comprehensive income (loss)	-15,891	-15,242	-13,058	-12,967	-12,527
Retained earnings	110,659	113,890	123,060	128,345	153,843
Less: common stock held in treasury, at cost	-97,888	-101,768	-39,099	-41,694	-75,662
Total shareholders' equity	**59,471**	**63,278**	**74,023**	**76,804**	**68,774**
Total liabilities and shareholders' equity	**157,728**	**174,894**	**182,018**	**187,378**	**167,558**

Consolidated Statements of Earnings

in millions ($) except Per Share amount	2019	2020	2021	2022	2023
Sales to customers	82,059	82,584	93,775	79,990	85,159
Cost of products sold	27,556	28,427	29,855	24,596	26,553
Gross profit	54,503	54,157	63,920	55,394	58,606
Selling, marketing and administrative expenses	22,178	22,084	24,659	20,246	21,512
Research and development expense	11,355	12,159	14,714	14,135	15,085
In-process research and development impairments	-	-	-	783	313
Interest income	890	181	900	-490	-1,261
Interest expense, net of portion capitalized	-357	-111	-53	276	772
Other (income) expense, net	318	201	183	810	6,634
Restructuring	2,525	2,899	489	275	489
Earnings before provision for taxes on income	17,328	16,497	22,776	19,359	15,062
Provision for taxes on income	2,209	1,783	1,898	2,989	1,736
Net earnings from continuing operations	-	-	-	16,370	13,326
Net earnings from discontinued operations, net of tax	-	-	-	1,571	21,827
Net earnings	**15,119**	**14,714**	**20,878**	**17,941**	**35,153**
Net earnings per share					
Basic	**5.72**	**5.59**	**7.93**	**6.83**	**13.88**
Diluted	**5.63**	**5.51**	**7.81**	**6.73**	**13.72**
Average shares outstanding					
Basic	**2,645**	**2,633**	**2,632**	**2,625**	**2,534**
Diluted	**2,684**	**2,671**	**2,674**	**2,664**	**2,560**

Consolidated Statements of Cash Flows

in millions ($)	2019	2020	2021	2022	2023
Cash flows from operating activities					
Net earnings	15,119	14,714	20,878	17,941	35,153
Adjustments to reconcile net earnings to cash flows from operating activities:					
Depreciation and amortization of property and intangibles	7,009	7,231	7,390	6,970	7,486
Stock based compensation	977	1,005	1,135	1,138	1,162
Asset write-downs	1,096	233	989	1,216	1,295
Contingent consideration reversal	-	-1,148	-	-	-
Charge for purchase of in-process research and development assets	-	-	-	-	483
Gain on Kenvue separation	-	-	-	-	-20,984
Net gain on sale of assets/businesses	-2,154	-111	-617	-380	-117
Deferred tax provision	-2,476	-1,141	-2,079	-1,663	-4,194
Credit losses and accounts receivable allowances	-20	63	-48	-17	-
Changes in assets and liabilities, net of effects from acquisitions and divestitures:					
Increase in accounts receivable	-289	774	-2,402	-1,290	-624
Increase in inventories	-277	-265	-1,248	-2,527	-1,323
Increase in accounts payable and accrued liabilities	4,060	5,141	2,437	1,098	2,346
Increase in other current and non-current assets	-1,054	-3,704	-1,964	687	-3,480
Increase/(Decrease) in other current and non-current liabilities	1,425	744	-1,061	-1,979	5,588
Net cash flows from operating activities	**23,416**	**23,536**	**23,410**	**21,194**	**22,791**
Cash flows from investing activities					
Additions to property, plant and equipment	-3,498	-3,347	-3,652	-4,009	-4,543
Proceeds from the disposal of assets/businesses, net	3,265	305	711	543	358
Acquisitions, net of cash acquired	-5,810	-7,323	-60	-17,652	-
Purchases of in-process research and development assets				-	-470
Purchases of investments	-3,920	-21,089	-30,394	-32,384	-10,906
Sales of investments	3,387	12,137	25,006	41,609	19,390
Credit support agreements activity, net	338	-987	214	-249	-2,963
Other (primarily licenses and milestones)	44	-521	-508	-229	12
Net cash used by investing activities	**-6,194**	**-20,825**	**-8,683**	**-12,371**	**878**
Cash flows from financing activities					
Dividends to shareholders	-9,917	-10,481	-11,032	-11,682	-11,770
Repurchase of common stock	-6,746	-3,221	-3,456	-6,035	-5,054
Proceeds from short-term debt	39	3,391	1,997	16,134	13,743
Repayment of short-term debt	-100	-2,663	-1,190	-6,550	-22,973
Proceeds from long-term debt, net of issuance costs	3	7,431	5	2	-
Repayment of long-term debt	-2,823	-1,064	-1,802	-2,134	-1,551
Proceeds from the exercise of stock options/employee withholding tax on stock awards, net	954	1,114	1,036	1,329	1,094
Credit support agreements activity, net	100	-333	281	-28	-219
Proceeds of short and long-term debt, net of issuance cost, related to the debt that transferred to Kenvue at separation				-	8,047
Proceeds from Kenvue initial public offering	-	-	-	-	4,241
Cash transferred to Kenvue at separation	-	-	-	-	-1,114
Other	475	-294	114	93	-269
Net cash used by financing activities	**-18,015**	**-6,120**	**-14,047**	**-8,871**	**-15,825**
Effect of exchange rate changes on cash and cash equivalents					
Effect of exchange rate changes on cash and cash equivalents	-9	89	-178	-312	-112
Increase/(Decrease) in cash and cash equivalents					
Increase/(Decrease) in cash and cash equivalents	-802	-3,320	502	-360	7,732
Cash and cash equivalents from continuing operations, beginning of period	-	-	12,697	13,309	12,889
Cash and cash equivalents from discontinued operations, beginning of period	-	-	1,288	1,178	1,238
Cash and cash equivalents, beginning of year	18,107	17,305	13,985	14,487	14,127
Cash and cash equivalents from continuing operations, end of period	-	-	13,309	12,889	21,859
Cash and cash equivalents from discontinued operations, end of period	-	-	1,178	1,238	-
Cash and cash equivalents, end of year	**17,305**	**13,985**	**14,487**	**14,127**	**21,859**
Supplemental cash flow data					
Cash paid during the year for:					
Interest	995	904	990	982	1,836
Interest, net of amount capitalized	925	841	941	933	1,766
Income taxes	4,191	4,619	4,768	5,223	8,574
Supplemental schedule of non-cash investing and financing activities					
Treasury stock issued for employee compensation and stock option plans	1,736	1,937	1,811	2,114	1,435
Conversion of debt	1	27	-	-	-
Acquisitions					
Fair value of assets acquired	7,228	7,755	61	18,710	-
Fair value of liabilities assumed and noncontrolling interests	-1,418	-432	-1	-1,058	-
Net cash paid for acquisitions	**5,810**	**7,323**	**60**	**17,652**	**-**