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Equity Valuation: Shell plc

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Master in Management

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BUSINESS
SCHOOL

Department of Marketing, Strategy and General Management

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Resumo

Este projeto teve como objetivo determinar o valor justo das ações da Shell plc no final de 2024, de forma a avaliar se estavam a ser negociadas ao seu valor intrínseco de mercado. A Shell é uma das maiores empresas integradas de energia do mundo, operando em mais de setenta países e envolvida em atividades relacionadas com petróleo, gás, energias renováveis e soluções energéticas.

A avaliação do capital próprio foi realizada através de dois métodos principais: o método dos Fluxos de Caixa Descontados (DCF), utilizando o modelo de Fluxos de Caixa Livres para a Empresa, e o método de Avaliação Relativa, recorrendo a múltiplos de mercado (P/E e EV/EBITDA). Para mitigar a incerteza e subjetividade das premissas adotadas, foi efetuada uma análise de sensibilidade. Os dados financeiros e operacionais foram recolhidos dos relatórios anuais da Shell, complementados por informações de mercado e perspetivas do setor.

Os resultados demonstraram que as ações da Shell estavam subvalorizadas a 31 de dezembro de 2024. O método DCF estimou um preço justo por ação de $84,05, consideravelmente superior ao preço de mercado de $62,65. O múltiplo EV/EBITDA apresentou uma maior consonância com a avaliação DCF do que o P/E, reforçando a fiabilidade das conclusões.

Este estudo realça a importância da utilização de métodos de avaliação complementares para decisões de investimento fundamentadas e conclui que as ações da Shell representavam uma oportunidade de investimento atrativa naquela data.

Palavras-Chave: Shell, Avaliação de Empresa, Fluxos de Caixa Descontados, Avaliação Relativa

Classificação JEL: G30, G32

Abstract

This project aimed to determine the fair value of Shell plc's shares at the end of 2024 to assess whether they were trading at their intrinsic market value. Shell is one of the world's largest integrated energy companies, operating in over seventy countries and involved in activities related to oil, gas, renewables, and energy solutions.

The equity valuation was conducted using two main methods: the Discounted Cash Flow (DCF) approach, which used the Free Cash Flow to the Firm model, and the Relative Valuation method employing market multiples (P/E and EV/EBITDA). To address the uncertainty and subjectivity of the assumptions made, a sensitivity analysis was carried out. Financial and operational data were collected from Shell's annual reports, along with market information and industry outlooks.

The results showed that Shell's shares were undervalued as of December 31, 2024. The DCF approach estimated a fair share price of $84.05, which was much higher than the actual market price of $62.65. The EV/EBITDA multiple aligned more closely with the DCF valuation than the P/E ratio, supporting the reliability of the findings.

This study highlights the importance of using additional valuation methods for informed investment decisions and concludes that Shell's stock was an attractive investment opportunity at that time.

Keywords: Shell; Equity Valuation; Discounted Cash Flow; Relative Valuation

JEL Classification System: G30; G32

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Glossary

$ – U.S. Dollar

% – Percentage

APV – Adjusted Present Value

CAPEX – Capital Expenditures

CAPM – Capital Asset Pricing Model

CF – Cash Flow

CV – Continuing Value

DCF – Discounted Cash Flows

DDM – Dividend Discount Model

EBIT – Earnings Before Interest and Taxes

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

EPS – Earnings Per Share

EQV – Equity Value

ESG – Environmental, Social, and Governance

ESRS – European Sustainability Reporting Standards

EV – Enterprise Value

FCFE – Free Cash Flow to Equity

FCFF – Free Cash Flow to the Firm

GDP – Gross Domestic Product

GFC – Global Financial Crisis

GTL – Gas-to-Liquids

HHI – Herfindahl-Hirschman Index

LNG – Liquefied Natural Gas

LPG – Liquefied Petroleum Gas

LSE – London Stock Exchange

MVA – Market Value Added

MRP – Market Risk Premium

NOA – Non-Operating Assets

NOPLAT – Net Operating Profit Less Adjusted Taxes

NYSE – New York Stock Exchange

PLC – Public Limited Company

RADR – Risk-Adjusted Discount Rate

REVA – Refined Economic Value Added

ROA – Return on Assets

ROE – Return on Equity

ROIC – Returns on Invested Capital

RV – Residual Value

TGR – Terminal Growth Rate

TV – Terminal Value

VTS – Value of Tax Shields

WACC – Weighted Average Cost of Capital

YTM – Yield to Maturity

Introduction

“Every asset, financial as well as real, has a value” (Damodaran, 2012). The process of valuation is not just a mere financial exercise, but a critical component in the corporate finance world. Its determination presents investors with essential information for financial decisions, making it a significant aspect of equity valuations. This process can be used for a multitude of purposes, namely investment decision-making, strategic planning, and risk management, underscoring its importance in the financial landscape.

This thesis's main objective is to assess the fair value of Shell plc’s shares, as of December 31, 2024, by using different valuation methods and performing a comparison between the results obtained through the calculations and the real value at close. These estimations will allow us to conclude whether said shares were being traded above or below their fair value and how investors should have acted accordingly.

Shell’s origins date back to 1833, in London, when Marcus Samuel Sr. started selling seashells and importing them from the Far East. However, it was not until 1907, resultant of a merger between the Royal Dutch Petroleum Company (founded in 1890) and the "Shell" Transport and Trading Company (founded in 1897), that Shell became the integrated multinational energy company known today, combining strengths in oil exploration, production, and trading under a single global brand, as well as developing an interest in renewables and energy solutions. Today, the company operates in over seventy countries and employs around 90,000 people as it aims to be the world’s leading integrated energy company.

The report is structured into four main sections, excluding the introduction. The first section discusses the concept of valuation and the practical application of different valuation methods to estimate the fair value of Shell’s shares. The following section provides a comprehensive analysis of Shell’s external environment, including a macroeconomic and industry overview, and an assessment of its competitors. The third section offers an overview of Shell’s company, covering its history, business strategy, financial analysis, and potential challenges and areas of development. The final section focuses on a detailed valuation of Shell, applying the Free Cash Flow to the Firm (FCFF) method and Relative Valuation Methods. A sensitivity analysis is also performed to understand potential scenarios, and the results are presented along with conclusions for investors considering Shell’s stock at the end of 2024.

1. Literature Review

This section explains the basic idea of valuation, highlighting its important role in assessing the value of the firm. Then, a variety of valuation methods relevant to Shell are discussed. These models act as analytical tools that help to determine the company's "true value" under different market and operational conditions.

1.1. Foundations of Valuation

As previously mentioned, every asset has a value, but according to Damodaran (2012), the key to successful investing goes beyond just understanding the value of an asset. Corporate finance depends on valuation as a fundamental tool because it enables organizations to connect financial strategies with business objectives to maximize company value (Damodaran, 2012). Therefore, the core principles of valuation go beyond mere financial estimation. The success of an investment depends on both the ability to determine the asset's value and the understanding of the fundamental factors that influence its worth.

Luehrman (1997) identifies three critical factors in valuation: cash flows, timing, and risk. These factors guide analysts through the valuation process and present them with distinct challenges, especially when balancing subjective judgments with objective financial data. Damodaran (2012) further emphasizes that valuation is not a purely objective measure, despite its methodologies being conducted with consistent foundational principles. Subjective frameworks can significantly distort valuation outcomes, potentially impacting strategic planning and resource distribution within organizations.

A key insight in valuation is that value and price are distinct concepts (Fernández, 2002). The price at which assets are bought and sold often reflects negotiation strategies rather than the intrinsic economic value of a firm, with sellers aiming for a price above their minimum and buyers trying to negotiate below their maximum. These differences happen because some metrics used in the process are subjective, as previously stated. Fernández (2002) highlights the various valuation methods used, while acknowledging the cash flow discounting-based methods as conceptually "correct". In his literature, Damodaran (2012) also addresses three distinct valuation approaches: the DCF valuation, the Relative Valuation, and the Contingent Claim Valuation.

Table 1: Main Valuation Methods. *Fernández (2002)*

MAIN VALUATION METHODS					
BALANCE SHEET	**INCOME STATEMENT**	**MIXED (GOODWILL)**	**CASH FLOW DISCOUNTING**	**VALUE CREATION**	**OPTIONS**
Book value Adjusted book value Liquidation value Substantial value	Multiples PER Sales P/EBITDA Other multiples	Classic Union of European Accounting Experts Abbreviated income Others	**Equity cash flow** **Dividends** **Free cash flow** **Capital cash flow** **APV**	EVA Economic profit Cash value added CFROI	Black and Scholes Investment option Expand the project Delay the investment Alternative uses

It is worth noting that, although most authors agree on the various existing valuation methods, they do not all attribute the same importance to each of them. Damodaran and Fernández hold different beliefs about the primary valuation methods, with Damodaran primarily listing three in his work. At the same time, Fernández proposes six main ones, as seen in the table above. The same applies when consulting other authors' work, as, for example, Reis & Augusto (2013) believe there to be five main categories of valuation methods.

In the next part of this section, both the DCF and the Relative Valuation (Multiples) methods will be covered, as these are usually the two most used valuation methodologies and are the ones chosen in this report to perform Shell's valuation.

1.2. Discounted Cash Flow

The Discounted Cash Flow is presented as one of the main valuation methodologies by Damodaran (2012) and Fernández (2002), with the former referring to it as the foundation on which all other valuation methods are built and the latter going as far as classifying it as conceptually correct. It is one of the most used methods when assessing a company's fair value, and it does so by "estimating the cash flows it will receive in the future and then discounting them at a discount rate matched to the flows' risk" (Fernández, 2002).

This method is often used due to its forecast-based approach, which considers each financial item in each period of the analysis. According to Fang (2023), this method is highly regarded by investors as it requires a thorough understanding of the company's business model. All the mentioned authors agree that the core of this approach lies in the present value rule, "where the value of any asset is the present value of expected future cash flows that the asset generates" (Damodaran, 2012), and all of them conclude that the discounting of cash flows can be assessed by the use of the following equation:

$$V = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} + \frac{TV_n}{(1+r)^n} \quad , \qquad (1)$$

where,

- V = Present Value of the cash flows
- CF_t = Cash Flow generated by the company in period t
- t = Current period
- r = discount rate
- TV_n = Terminal Value, considering a perpetual duration of cash flows and a constant growth rate after year n
- n = Last year of the forecasted cash flows

By assessing the formula above, two variables need to be calculated in order to compute *V*: the estimated CF of the company during the chosen period and the discount rate, which is regarded as one of the most important tasks in the valuation process, since it considers both risk and historical volatilities, as stated by Fernández (2002).

According to Damodaran (2012), there are four main variants to be considered with this approach, in order to compute the value of a firm, which are: the FCFF, described as the value of the firm, the FCFE, described as the value of equity, the APV (adjusted present value), and the DDM (Dividend Discount Model). Of these methods, the two that are of the most common use are the FCFF and FCFE. The literature is consistent in mentioning that, although each method uses its own definition of cash flows and discount rates, the fact that they operate under the same assumptions means that the yielded valuation should remain consistent.

Granted, this method also possesses its limitations, as Reis & Augusto (2013) present the critique that present financial valuation models, when using perpetuity, often overlook the average life expectancy of a company, which can lead to valuation errors.

1.2.1. Free Cash Flow to the Firm

"The free cash flow to the firm is the sum of the cash flows to all claim holders in the firm, including stockholders, bondholders, and preferred stockholders" (Damodaran, 2012). In his work, the author presents two different methods of measuring FCFF. The first is garnered by adding up all cash flows to the claim holders. According to Damodaran (2012),

however, a simpler way of attaining the FCFF would be to perform the estimation of the cash flows before any of these claims, which results in the following equation:

$$FCFF = EBIT * (1 - T_c) + Depreciations - CAPEX - \Delta WC \, , \qquad (2)$$

where,

- *EBIT* = Earnings before interest and taxes
- T_c = Corporate tax rate
- *CAPEX* = Capital expenditure
- ΔWC = Changes in working capital

This cash flow is usually referred to as unlevered, as it is calculated prior to debt payments. Shrieves & Wachowicz (2001) note that, because the discount rate being used is already the after-tax weighted average cost of capital, the cash flows of appropriate usage are before the tax advantage of debt, accounting, therefore, for the tax advantage by reducing the discount rate instead of incorporating said benefits on the FCFF and thus avoiding the benefits to have a doubled effect (Damodaran, 2012).

According to Reis & Augusto (2013), the DCF model is a process that can be separated in two stages: the first one, the finite horizon, which consists in a specific period of time usually constituting a temporal horizon of around five to seven years where the company's cash flows are estimated, and the second stage, classified as an infinite horizon, also known as terminal value forecasting the company's activity for an undefined period of time, commonly represented by a growing or constant perpetuity of the FCF.

1.2.1.1. Enterprise Value

The first step of the DCF-FCFF approach starts with the calculation of the EV, which is regarded as the total value of the firm, including future cash flows discounted to the present using an appropriate rate. The discount rate stated by the author is the weighted average cost of capital, and it is done so by application of the following formula:

$$EV = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{TV_n}{(1 + WACC)^n} \, , \qquad (3)$$

where,

- EV = Enterprise value
- $FCFF$ = Free cash flow to the firm at period t
- $WACC$ = Weighted average cost of capital
- TV_n = Terminal value: present value of all future cash flows expected to be generated by the company beyond the forecast period, assuming a constant growth rate

To perform the enterprise value calculation, several key components must be computed. These components are the future cash flows of the company, the TV, and the WACC. Damodaran (2012) emphasizes the importance of a precise WACC to reflect the risk associated with cash flows accurately. Fernández (2002) enhances this claim by assessing the sensitivity of the DCF approach to the input parameters, indicating that small changes in the underlying assumptions can lead to significant variations in the enterprise value calculated. This highlights the need for meticulous consideration and robust data in model calibration, ensuring that the evoked financial analysis captures the complexities of the firm's operational landscape, such as underlying market conditions, competitive positioning, and macroeconomic factors impacting future performance.

1.2.1.2. Terminal Value

Terminal value (TV), also known as continuing value (CV) or residual value (RV), is defined as the present value of all future cash flows that are expected to be generated by the company beyond the forecast period, while assuming a constant growth rate. This component is commonly used in order to perform multiple valuation methods, making it not exclusive to the DCF model, as it is present when assessing the market value added (MVA), and even in the refined economic value added (REVA).

According to Nissim (2019), the most common approach to calculating the terminal value is as follows:

$$TV_n = \frac{FCFF_{n+1}}{WACC - TGR} \quad , \tag{4}$$

where,

- TV_n = Terminal Value
- $FCFF_{n+1}$ = First cash flow of the perpetuity at t = n + 1
- $WACC$ = Weighted average cost of capital
- TGR = Constant Growth Rate

In order to perform this calculation, two key variables need to be assessed: the discount rate, which in this case is the WACC, and the growth rate.

1.2.1.3. Growth Rate

An essential theme within the valuation literature is the estimation and significance of a company's growth rate. The growth rate not only influences projections of future cash flows but also plays a pivotal role in determining firm value, particularly when valuating high-growth firms using the DCF model. Damodaran (2012) emphasizes that a firm's value is fundamentally anchored in its anticipated future growth. However, the author warns that sustainable value creation only occurs when growth is paired with its Returns on Invested Capital (ROIC) exceeding the cost of capital. In other words, growth without profitability may destroy rather than create value, highlighting the need to scrutinize both the magnitude and quality of projected growth.

Fernandez (2015) further explores the challenges of estimating growth rates, arguing that assumptions regarding perpetual growth in terminal value calculations are especially sensitive and can significantly sway valuation outcomes. He states the occurring tendency for analysts to overestimate growth, often failing to reconcile projected rates with macroeconomic and industry-level constraints. Accordingly, Fernández advocates for conservative and justifiable growth assumptions, ideally grounded in observable fundamentals such as reinvestment rates and return on capital.

The literature identifies several approaches to estimating growth rate, including historical trend analysis, analyst forecasts, and fundamental analysis based on reinvestment and returns (Damodaran 2012). Each method carries limitations, as historical growth rates may not continue in the future, analyst forecasts often exhibit optimism bias, and fundamental analysis requires a detailed understanding of the firm's strategy and capital allocation decisions.

The literature around this topic essentially advises that, when making a valuation, the growth rate should be appropriately defined, without optimism bias and with careful justification based on the firm's fundamentals and broader economic realities.

1.2.1.4. Discount Rate – Weighted Average Cost of Capital

The determination of an appropriate discount rate is a fundamental step in the DCF-FCFF method, as it directly influences the present value of projected cash flows and the resulting business valuation. The discount rate reflects both the time value of money and the investment-specific risk (Damodaran, 2012), meaning that investments associated with higher discount rates are usually linked to a higher risk and, consequently, higher possible returns. An accurate estimation of this rate is essential to ensure that valuation results are theoretically robust and applicable in practice.

In the DCF-FCFF method, the discount rate appears in the form of the weighted average cost of capital (WACC), as, according to Damodaran (2011), it is the rate at which FCFF must be discounted in order to obtain a consistent valuation with the FCFE method. This discount rate considers both the debt and equity portions of the business. The author stresses the importance of WACC being neither a cost nor a required return, but, as the name suggests, a weighted average of both. He highlights this information to clarify the potential confusion that arises when the term is referred to as the cost of capital.

In order to compute the WACC, we must apply the following formula:

$$WACC = \frac{E}{E+D} * r_e + \frac{D}{E+D} * r_d * (1 - T_c), \quad (5)$$

where,

- E = Equity
- D = Debt
- r_e = Cost of equity
- r_d = Cost of Debt
- T_c = Corporate tax rate

As mentioned, this metric possesses great importance in the application of the DCF-FCFF method, and its correct calculation is fundamental to reaching a correct valuation of the firm. Fernández (2006) argues that this calculation is based on a correct valuation of the tax shield, which, in turn, depends on the company's debt policy. Even though there is no consensus on how to properly evaluate the value of tax shields (VTS), as authors like Modigliani & Miller (1963), Myers (1974), Luehrman (1997), Brealey & Myers (2000) and Damodaran (2006) defend the idea of discounting tax savings due to interest payments on debt at the cost of debt (r_e), others like Harris & Pringle (1985) and Ruback (1995, 2002)

discount them at the cost of capital for an unlevered firm (r_u), and Miles & Ezzell (1985) propose a mix of the two previous methods (Fernández, 2006). In the DCF method, the usual adopted approach is to follow the first set of authors mentioned, by discounting it at the cost of debt.

1.2.1.5. Cost of Debt

To perform the calculation of the WACC, we first need to compute two different values: the cost of debt and the cost of equity. The cost of debt ultimately represents the effective rate that a company pays on its borrowed funds, while adjusting it for tax benefits due to the deductibility of interest expenses. The literature also indicates that the cost of debt varies across firms and over time. It is affected by company-specific factors such as credit risk, leverage, and profitability (Fama & French, 1997), as well as market conditions and macroeconomic variables. Altman (1968) pioneering work on default prediction models emphasized the significant effect of financial distress risk on the required return by debt holders. Graham & Harvey (2001) offered empirical insights into how practitioners estimate the cost of capital, often relying on market yields and observed credit spreads.

For the DCF model, this adjustment of after-tax is crucial, as WACC intends to reflect the tax effects, and, for that purpose, it calculates the pre-tax cost of debt and then proceeds to apply its tax effect by the application of the following formula:

$$After - tax\ cost\ of\ debt = r_d * (\ 1 - T_c\ ), \qquad (6)$$

where,

- r_d = Pre-tax cost of debt

According to Damodaran (2012), the calculation of the pre-tax cost of debt is not a straightforward process, as the best way to assess it varies depending on whether the company has publicly traded bonds or not. The author claims that for this type of company, the most accurate measure is to use the yield to maturity (YTM) as a proxy of the pre-tax cost of debt, whereas for companies that do not have traded bonds, this should be computed by adding the risk-free (r_f) rate to the standard spread.

The YTM itself may be computed either by verifying a bond's price and performing the estimation, or, in the case that the company is rated, by adding the default spread to its official rating (Damodaran, 2012).

1.2.1.6. Cost of Equity

The cost of equity is often referred to as the rate of return that a company must offer its shareholders to compensate them for the risk of investing in the firm. This element reflects both the risk of investment and alternative investment opportunities (Damodaran, 2012) and is the final component that needs to be assessed to be able to compute the WACC. As the cost of equity tends to be higher than the cost of debt, so does its risk. Investors agree to take part in this measure as they only receive the project's dividends after both financial and tax obligations have been met (Saługa & Kamiński, 2018). The authors refer to the cost of equity as the risk-adjusted discount rate (RADR) and, just like Damodaran (2012), state that it can be analytically determined with the use of the capital asset pricing model (CAPM) by the application of the method as follows:

$$r_e = r_f + \beta_L * \left(r_m - r_f \right) , \tag{7}$$

where,

- r_e = Cost of equity
- r_f = Risk-free rate
- β_L = Beta Levered
- r_m = Expected market return
- $(r_m - r_f)$ = Market risk premium

The CAPM, introduced by Sharpe (1964), Lintner (1965), and Mossin (1966), remains the most widely used framework for quantifying the required rate of return on equity and capturing systematic risk. It asserts that the expected return for any security is dependent on three variables: expected beta, expected market return, and the risk-free rate (Fernandez, 2015).

Fernandez (2015) highlights the limitations of CAPM in practical application, with the author going as far as classifying it as an "absurd model" and advocating for multi-factor models that better account for real-world complexities. The author presents the critique that

the model operates under unrealistic assumptions, such as all investors possessing the same expectations for every security, the ability to lend or borrow unlimited amounts at the risk-free rate of interest, no transaction costs, and even homogeneous access to information.

It is necessary to keep these assumptions in mind when assessing the value of the CAPM, as even though the literature does not possess a consensus view on the model, it is still the most used when computing the cost of equity.

1.2.1.7. Risk-free Rate

Damodaran (2008) posits that understanding a risk-free asset requires first comprehending the notion of risk. The author presents that risk corresponds to the variance between the expected return for an investment and the actual return on that same investment. Therefore, for an investment to be risk-free, its actual return must equal its expected return, meaning the absence of variance between these elements. The author adds that, in order for an investment to truly be risk-free, it must align with two core principles: having no default risk and no reinvestment risk.

The risk-free rate is an element of great importance in a firm's valuation, as the use of a higher risk-free rate would, ceteris paribus, increase the CF discount rate, leading to a reduction of the present value in the DCF valuation.

When asked to estimate a risk-free rate, multiple scholars believe that for valuations that rest on future cash flows, 10-year government bond rates can serve as a proxy for the risk-free rate. However, according to Damodaran (2008), there are multiple factors to take into account, such as the fact that some governments face some default risk, making it so that securities issued by them are not risk-free, the importance of the time horizon as the risk-free rates vary across time, depending on the generation period of the cash flow and the importance of currency, as a risk-free rate must be applied within the same currency.

Aligning this information, the most approximate estimation for a risk-free rate in the case of this report is a 10-year US government bond, as it remains classified at an Aaa rating by Moody’s as of March 2025.

1.2.1.8. Market Risk Premium

The market risk premium is viewed as the additional return investors require to invest in the market, rather than in a risk-free asset, representing the price of risk in equity markets

(Damodaran, 2025). This extra is necessary since riskier investments should possess higher expected returns than supposedly safer investments.

In the application of these models, the risk premium is a market-wide number, meaning that it is neither company-specific nor asset-specific, and its measurement can be computed in the following way, according to the CAPM:

$$MRP = r_m - r_f \ , \tag{8}$$

According to Damodaran (2025), when investors perform their asset allocation, they do so with the intricate view they possess of risk premiums, even if unaware of it. The author states that if investors believe markets are efficient, they inherently accept the associated risk premiums built into those markets. At the same time, if they view those markets as overvalued, they believe the risk premiums are too low, and vice versa.

The literature outlines various ways of estimating the MRP: the historical average premium, discussed by Damodaran (2012), which consists of computing the average difference between market returns and risk-free rates over long historical periods, the implied premium, which derives from current market prices, and expected future cash flows (Damodaran, 2025), and survey-based estimations, by surveying finance professionals to understand their expectation about future returns.

The MRP estimates can vary over time and across markets, with a clear dependence on the methodology used to obtain them. Fernandez (2015) documents substantial dispersion of said estimations both within and across countries.

In developed markets, Dimson et al. (2023) find evidence of a declining but persistently positive equity premium. In contrast, emerging markets typically exhibit higher MRPs due to greater uncertainty, lower liquidity, and political risk (Godfrey & Espinosa, 1996).

1.2.1.9. Beta

The beta represents a method for measuring systematic risk and is considered integral to the CAPM (Fama & French, 1992). When multiplied by the market risk premium, it yields the total risk for a given asset (Damodaran, 2025). In other words, this element represents the asset's susceptibility to stock market fluctuations. For instance, a beta of 1 implies that

the asset moves in tandem with the market, while a beta greater than 1 indicates higher sensitivity to said fluctuations and vice versa.

According to Damodaran (2012), the beta can be estimated by three different approaches: using historical data on market prices for individual investments, which is deemed by the author as the conventional approach, using the fundamental characteristics of the investment, or using accounting data.

Despite the first approach being considered the conventional approach, Damodaran (2012) disregards it by implying that betas estimated this way will rarely serve as practical measures of the equity risk in a company, being subjected to a surplus of information or skewed by estimation choices.

The author portrays the second approach as a better estimate of the beta, describing it as the bottom-up betas, and presents different steps to compute the firm's beta: identifying the business the firm operates in, obtaining the regression betas of companies operating in that industry, unlevering those betas and estimating the average of those companies' betas, and lastly estimate the levered beta of the firm by using its debt and equity market values.

To perform these estimations, we need to take the following formulas into account:

$$\beta_L = \beta_U + (\beta_U - \beta_D) * \frac{D}{E} * (1 - T_c) \ , \tag{9}$$

$$\beta_U = \frac{\beta_L}{1 + (1 - t) * \frac{D}{E}} \ , \tag{10}$$

$$\beta_D = \frac{r_d - r_f}{r_m - r_f} \ , \tag{11}$$

where,

- β_L = Beta levered
- β_U = Beta unlevered
- β_D = Beta of debt
- $\frac{D}{E}$ = Debt-to-Equity ratio
- T_c = Tax rate

Damodaran (2012) advocates that this approach presents a significant evolution over the previous one, even if it may appear that they possess the same limitations, as this approach minimizes the standard error, reflects actual and expected changes in the firm's business mix, uses the current debt-to-equity ratio of the firm, and reduces the dependence on historical stock prices. For companies that do not have a very high level of debt, β_D is usually considered zero, as the formula above is only applicable if β_D is greater than zero.

1.2.1.10. Equity Value

After assessing all the components required to calculate the total value of a firm (EV), we need to determine the firm's equity value, as this is the second and final step in the DCF-FCFF method.

As highlighted by Damodaran (2012) and Fernández (2002), the equity value is obtained by adding the non-operating expenses and subtracting the market value of debt from the enterprise value.

$$EQV = EV + NOA - Debt \ , \tag{12}$$

where,

- EQV = Equity Value
- NOA = Non-operating assets

This is a fundamental step in the company valuation as the EQV reflects the actual value of the company to its shareholders, by accounting for its non-operating assets such as cash and near-cash investments, investments and holdings in other firms, and even assets that, despite not generating cash-flows, present value to the company like for example a portion of undeveloped land, as per Damodaran (2012) and removing the debt as this element intends to mirror the value of the firm's assets and cash-flow after debt obligations have been fulfilled.

1.3. Relative Valuation

Much like the DCF, the relative valuation is one of the main methodologies used when valuating a company, as it compares market values of similar or comparable companies (Damodaran, 2012) for an understanding of what a fair price for the company could be.

Therefore, to perform the relative valuation, we first need to identify similar companies and obtain their assessed market values, standardized by creating price multiples. We then compare these multiples to the standardized multiple of the asset being analyzed (Damodaran, 2012). The author alerts to the fact that relevant differences between the firms, even if they are in the same industry, might affect the perception of under- or overvaluation. So, when performing this analysis, we must verify the existence of possible outliers, which are firms whose multiples deviate significantly, and exclude them from the study as they may skew the overall valuation and make it inaccurate.

As this valuation method focuses its efforts on existing information and does not rely on as many assumptions as the DCF-FCFF model, it is considered a more accessible method and provides a faster way to perform company evaluation.

One of its central assumptions, however, is that the market value of the companies is deemed correct, as being overpriced or underpriced could lead to the estimations following suit subsequently.

Scholars like Fernández (2001) go as far as stating that these types of valuations are highly debatable and are of a more appropriate usage when regarded as a second stage of the valuation, giving it an enhanced depth and possibly serving as confirmation of the previously applied methodology.

1.3.1. Multiples

In 2001, Fernández shared a study indicating that the PER and EV/EBITDA are the most commonly used valuation methods. The author conveys that, despite this being the case, it is not transversal in valuation as specific multiples are more appropriate than others depending on the industry in which the company is inserted.

Also, in accordance with his literature, multiples can be divided into three groups, depending on whether they are focused on the equity value of the company, on the equity and debt value of the company, or just focused on growth.

***Table 2**: **Multiples Groups.** Adapted from Fernández (2001)*

Multiples based on the company's capitalization (equity value: E)	Price earnings ratio (PER) Price to cash earnings (P/CE) Price to sales (P/S) Price to book value (P/BV)
Multiples based on the company's value (equity value and debt value: E + D)	Enterprise value to EBITDA (EV/EBITDA) Enterprise value to Sales (EV/Sales) Enterprise value to unlevered Free Cash Flow (EV/FCF)
Growth-referenced multiples	Enterprise value to EBITDA growth (EV/EG) PER to EPS growth (P/EG)

The author characterizes the different groups, with the first being described as very easy to compute and understand, the second as being similar to the first group but relying on the use of the EV, and the third as being primarily used in high-growth industries, such as luxury goods, health, and technology.

Regarding this report, since Shell is primarily involved in the oil and gas industry, which is not considered a high-growth sector, growth-based multiples are less relevant for its analysis. Therefore, the other two groups will be assessed using the PER and EV/EBITDA multiples in their relative valuation.

1.4. **Research Gaps**

The foundations of valuation extend far beyond a singular analytical framework. Instead, it embodies a comprehensive approach driven by the understanding of diverse financial, strategic, and corporate metrics essential for decision-making. The nuance of valuation emerges through acknowledging the interplay between theoretical constructs and practical outcomes, where varying methodologies, alongside a robust understanding of corporate drivers, coalesce to enrich financial valuation practices.

This intricate landscape invites continued academic exploration, as specific terms do not present themselves as being clearly defined, which, according to Kruschwitz & Löffler (2005), is the case of cash flows, leaving the reader with uncertainty regarding what is intended to transmit when authors speak of the term, as one can never be sure they possess the same thing in mind. This, along with multiple authors having divergent opinions on what the primary valuation methods are, as well as the limitations each model possesses, as

shown during this section, leaves the impression that future work could deepen comprehension of valuation practices and terms, along with their respective influences on corporate strategy and overall market behaviors.

2. Market Overview

The market overview is a key component in understanding the company's analysis, as it provides valuable insight regarding its operational environment. This allows for proper contextualization of the subsequent company-specific analysis, as a broader perspective is deemed critical for making informed strategic decisions, evaluating potential risks, and identifying areas for growth or differentiation. In this section, we delve into the macroeconomic outlook and then provide a more detailed view of the oil and gas industry, including its key drivers and challenges, as well as the competitive environment Shell faces.

2.1. Macroeconomic Outlook

The global macroeconomic environment remains highly dynamic and uncertain, subject to the lingering effects of the Covid-19 pandemic, shifting monetary policies, and ongoing geopolitical tensions, with wars between Russia and Ukraine, and Israel and Palestine leading the way. These elements present challenges to the global economy, as they impact key factors such as economic growth and price stability.

Economic growth is measured by the GDP (Gross Domestic Product), which represents the monetary value of all final goods and services produced in a specific period. Its changes reflect a broader economic outlook.

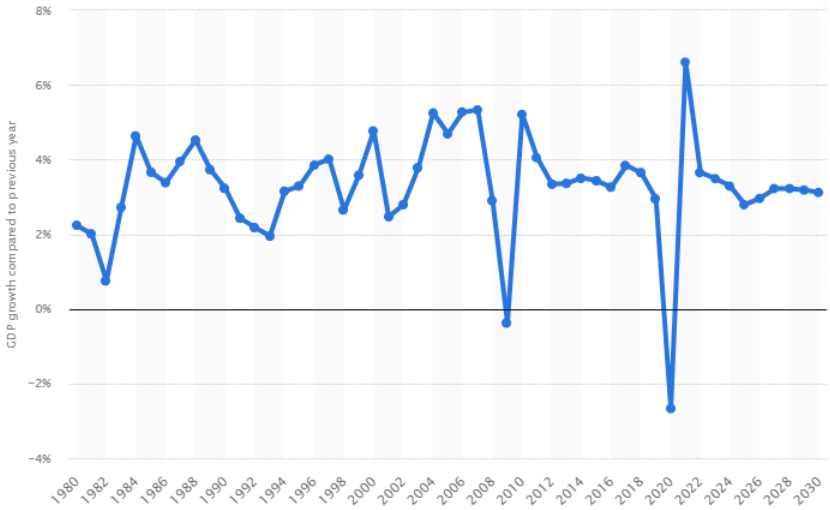

Figure 1: Growth of the Global Gross Domestic Product (GDP) from 1980 to 2024, with forecasts until 2030. *Statista, August 2025*

As depicted in Figure 1, real GDP (inflation-adjusted) saw a sharp decline, reaching a value of -2.67% in 2020 due to the pandemic, marking an economic recession similar to the one in 2009 caused by the 2008 Global Financial Crisis. A strong recovery occurred in 2021, and recent years have shown stability, with Statista projecting a growth rate of around 3% annually until 2030.

Another critical aspect is the inflation rate, which indicates the overall rise in prices for goods and services, reflecting, therefore, price stability. Since 2020, inflation has surged unexpectedly, driven by the pandemic and the conflict between Russia and Ukraine. This fluctuation led to inflation peaking at multi-decade high levels in various economies, prompting both the European Central Bank (ECB) and the U.S. Federal Reserve to deem it a priority. Although inflation is expected to return to pre-pandemic levels, it remains above the central bank's targets in several economies.

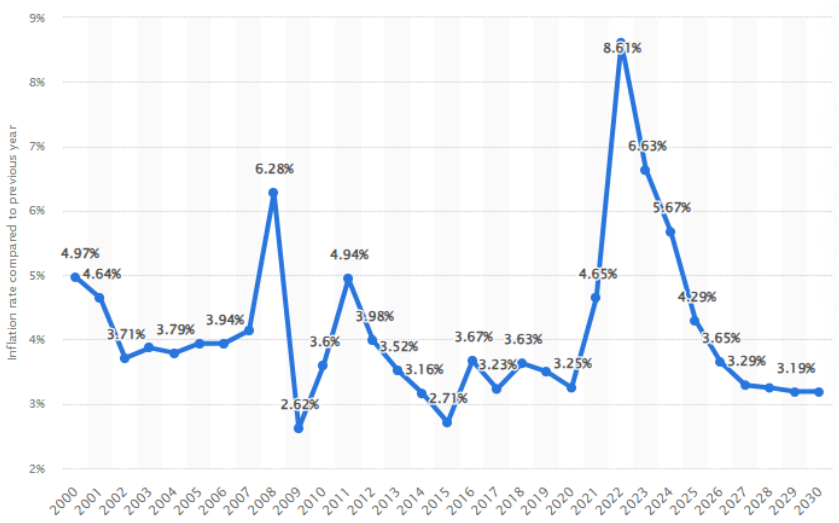

***Figure 2**: Global Inflation Rate from 2000 to 2024, with Forecasts until 2030.*
Statista, August 2025

Persistent inflation directly influences other key market factors, such as interest rates, as central banks like the U.S. Federal Reserve and the ECB raised their rates to the highest levels in decades to control it, leading to tighter financial conditions and higher borrowing costs.

2.2. Industry Outlook

Shell presents itself as a global group of energy and petrochemical companies, with its main business centered on the exploration, production, refining, and marketing of oil and natural gas, primarily within the oil and gas industry.

Despite a confluence of macroeconomic headwinds, including the already discussed heightened geopolitical tensions and inflation, as well as controlled OPEC+ supply, and variations in global demand driven by a focus on the energy transition, the oil and gas industry has shown resilience, continuing to thrive in this complex landscape.

According to Deloitte's "2025 oil and gas industry outlook", this can be reflected in what is deemed one of the most stable periods over the past quarter-century regarding oil prices, as Brent crude oil ranged between $74 and $90 throughout the entirety of 2024. Oil and gas companies have presented robust financial performance and are prioritizing investor trust by shifting focus to high-return investments and production efficiency.

Despite increasing numbers, such as a 53% CAPEX and 16% net profit rises over four years, as well as nearly $231 and $136 billion in distributed dividends and buybacks in 2024, respectively, representing significant shareholder return in the industry, players like Shell keep diversifying their portfolios with investments in low-carb technology, as the imminent energy transition poses risks to the traditional oil and gas market. These investments present the opportunity for companies to position themselves as key players in the future energy landscape.

By October 2024, the oil and gas industry had a market capitalization of over $5 trillion, representing a nearly 10% increase from the previous year and making it one of the largest industries globally. This, along with the previously assessed industry numbers, evidently demonstrates its robustness and provides confidence to investors.

As 2025 progresses, and following the Federal Reserve's interest rate cuts, which are expected to fall even further, oil and gas companies foresee a future of stability, at least in the near term.

It is worth noting that, as different markets face unique challenges and opportunities, understanding each market's landscape is essential to grasping the future of the oil and gas industry. Ultimately, the main factor shaping it depends on government priorities, which can be heavily influenced by the fact that many countries held national elections, representing over half the world's population, and that changes in governments might lead to shifts in national energy strategies.

In the United States, President Donald Trump's proposals seek to increase production of oil and gas as well as nuclear energy, as the newly elected administration plans to lift the previously imposed pause on new liquefied natural gas export permits, which presents the idea that the oil and gas industry has a chance at significant growth in the country. Despite this, newly announced tariffs on imported goods from essentially all over the world can present complications to the sector and affect cash flows available to meet business and shareholder obligations.

In Europe, however, the focus has been increasing on incorporating more clean energy, with a directive aiming to raise renewable energy consumption to 42.5% by 2030. Moreover, the United Kingdom has proposed a 78% tax rate on North Sea oil and gas producers, presenting a significant challenge to the industry and causing various issues, such as increased costs, higher prices, and consumer resistance, especially for companies that have not shifted their focus to these areas as much.

As the energy industry continues to evolve, oil and gas companies like Shell must stay flexible and adapt to changing regulations, shifting customer preferences, and technological innovations. Companies that can successfully balance operational excellence in their traditional business with a commitment to innovation and low-carbon investments are likely to retain their competitive edge and generate long-term value for stakeholders, leaving the industry's future trajectory to their ability to navigate complex external challenges and make strategic choices as they redefine themselves in a rapidly changing global landscape.

2.3. Competitive Environment

A thorough understanding of a company's competitive environment is a fundamental tool for assessing its challenges and opportunities and is particularly important when employing relative valuation methodologies.

The oil and gas sector is best characterized as an oligopoly, as a small number of dominant firms, often referred to as "supermajors", control a substantial share of industry revenues, shares, and production capacity. This is highlighted by concentration ratios, such as the CR4 (where Shell is present alongside Saudi Aramco, ExxonMobil, and Chevron) and CR8, composed of the four and eight biggest companies by market share, respectively, where the firms account for a significant proportion of the industry's market capitalization and output, and exert a significant presence in both upstream and downstream activities.

This degree of concentration is further evident in the Herfindahl-Hirschman Index (HHI), which for this industry exceeds 2,500 points, indicating a highly concentrated, less competitive market. The dominance of the supermajors is reinforced by their vertical integration, global supply chains, and access to advanced technologies, which enable them to exert substantial influence over pricing and market trends.

The oil and gas industry is, therefore, a well-defined industry with formidable entrance barriers, including the necessity of a significant upfront investment in infrastructure, the regulatory and political risks previously discussed, technological and operational expertise, and economies of scale, which prevent the emergence of new large-scale competitors.

To perform the relative valuation methodology, the first step is to identify companies that share similar characteristics with the company being analyzed, whether in terms of operations, business model, products, services, or analytically. For this purpose, ten companies present in the oil and gas industry have been chosen, with a focus on market capitalization, revenue, and geographic relevance, as they serve as direct peers for Shell, which, according to CompaniesMarketCap website, as of August 2025, possessed a market capitalization of $214.43 billion and $272.01 billion in revenue. Data retrieved from the same source presented the following information regarding Shell's peers:

- **Saudi Aramco** ($6.78 trillion in market capitalization, $461.56 billion in revenue, Saudi Arabia)
- **Exxon Mobil** ($428.26 billion in market capitalization, $329.38 billion in revenue, USA)
- **Chevron** ($226.22 billion in market capitalization, $187.73 billion in revenue, USA)
- **PetroChina** ($1.67 trillion in market capitalization, $399.36 billion in revenue, China)
- **TotalEnergies** ($119.98 billion in market capitalization, $187.11 billion in revenue, France)
- **ConocoPhillips** ($126.53 billion in market capitalization, $57.79 billion in revenue, USA)
- **CNOOC** ($117.3 billion in market capitalization, $59.18 billion in revenue, China)
- **Enbridge** ($103.8 billion in market capitalization, $46.09 billion in revenue, Canada)
- **Southern Company** ($102.6 billion in market capitalization, $28.36 billion USA)
- **BP** ($78.16 billion in market capitalization, $186.53 billion in revenue, UK)

Out of these competitors, it is essential to highlight two distinct groups: the globally integrated oil majors, led by the likes of Shell, Total Energies, and ExxonMobil, and the regionally or state-owned enterprises, such as Saudi Aramco, PetroChina, and CNOOC.

The reason this group distinction is essential is mainly because while the former operate in a more complex landscape, presenting cross-continent challenges, managing extensive international portfolios, combining exploration, production, and refining across the globe, the latter usually aligns goals with respective governments in order to maximize domestic resource development, and benefits from privileged access to vast, low-cost reserves, providing it a competitive advantage over its peers and impacting global supply and prices. This second group is, therefore, less susceptible to regulation changes, at least in local operations, as they already act in accordance with government goals and objectives.

Recent years have also presented strategic shifts by companies in response to geopolitical developments and the global energy transition. Some companies have pursued diversification into renewables and low-carbon technologies, while others aim to maximize what is deemed a near-term demand for hydrocarbon production.

3. Company Overview

This section provides a detailed analysis of Shell, examining its history and evolution, as well as assessing its operational health and future developments. It examines key components, including its business models and main segments, as well as its products and services, projects, and global footprint. It then addresses the company's strategic positioning and core strategies to understand its competitive advantage and differentiation factors. A thorough financial analysis is then performed to understand its financial health, ability to generate profits, and meet its obligations, providing insight into Shell's long-term vision and strategic execution, laying a foundation for the subsequent valuation analysis.

3.1. Corporate Identity

Shell plc, as we know it today, is a result of a merger between the Shell Transport and Trading Company and the Royal Dutch companies on April 23, 1907, forming the Royal Dutch Shell plc. However, the origins of the company date back to 1833, when Marcus Samuel began selling seashells in London, imported from the Far East, laying the foundations for an import-export business that would ultimately become one of the world's leading energy companies—the Royal Dutch Shell.

The years following the expansion provided substantial opportunities for growth, and Shell opened operations throughout Europe and Asia during the late 1900s and early 1910s. Shell's product quality was evidenced mainly by its fuel being used both in the racing world and the aircraft world, delivering prominent results.

During both World Wars, Shell was a major player for the Allies, as they became the leading fuel supplier of both the British army and, later, all Allied air forces. The post-war years brought multiple challenges to the company, however. Reconstruction becoming increasingly expensive, and a rapid change in the oil market demand, led Shell to start exploring in both Africa and South America. The company eventually discovered hundreds of commercially viable offshore wells, which, when combined with considerable scientific advancements boosting the demand for oil during this time, made Shell the biggest oil company in the world, a stage the company would eventually share throughout history.

In the 1980s, Shell seized new growth opportunities through acquisitions and intensive research with the goal of developing cheaper projects to face the oil price collapse of 1986, as the development of new techniques and refinement of already existing ones, such as 3D seismic technology and gas-to-liquids (GTL), propelled Shell into a more solidified position

than ever. This period was not devoid of challenges, as the company faced backlash related to its environmental practices and plans, which it promptly addressed through policies that remain in effect to this day.

In 2005, the Royal Dutch Shell Group underwent a significant reorganization of its structure, as the long-standing partnership between Royal Dutch Petroleum and Shell Transport and Trading was dissolved. This led Shell to unify its corporate structure under a new company, Royal Dutch Shell plc (known today as Shell plc).

In 2016, Shell shifted some of its focus to exploring renewable energy with the creation of its New Energies business, as the company, having faced both success and challenges, now realizes that adaptation is more effective when done proactively. As governmental policies and market preferences change swiftly, Shell seeks to lead that transition by working closely with society and with their customers in both the present and future.

3.2. Business Model and Operations

Shell's business model operates under four main categories: upstream, integrated gas, downstream, renewables and energy solutions, and trading and supply.

The upstream sector includes the exploration and extraction of crude oil, natural gas, and natural gas liquids, with Shell's operations covering both deepwater and conventional methods. This segment also manages the infrastructure necessary to transport oil and gas to markets or to process them at the company's energy and chemicals parks. According to the company's 2024 report, this division earned nearly $7.8 billion in profit that year.

Integrated gas is responsible for the exploration and extraction of natural gas, which leads to the production of liquefied natural gas (LNG) or its conversion into GTL products. It covers both the upstream and midstream sectors necessary to deliver gas and gas products to markets. The nearly $9.6 billion profit generated in 2024 includes trading, optimization, marketing, and distribution activities for these products.

The downstream, renewables, and energy solutions divisions support operations involving the marketing of fuels, lubricants, and supplies for transportation, manufacturing, mining, power generation, agriculture, and construction. They also include chemicals and related products produced in manufacturing plants and refineries within energy and chemical parks, along with trading and optimization activities related to crude oil, oil products, petrochemicals, and oil sands. Additionally, they manage the generation, marketing, and trading of power from wind, solar, and natural gas sources. This segment

generated $2.5 billion in profit, although renewables incurred a loss of over $1 billion during this period.

Finally, the trading and supply segment manages one of the world's largest fleets of LNG carriers and oil tankers, trading natural gas, electricity, crude oil, refined products, chemical feedstocks, and environmental products.

3.3. Products, Services, and Major Projects

Similar to their operations, Shell offers a comprehensive portfolio of energy products and services that spans the entire hydrocarbon value chain and, increasingly, the renewable energy domain. The company's offers range from raw products, including crude oil and natural gas, to refined petroleum products, such as gasoline, diesel, aviation fuel, marine fuel, liquefied petroleum gas (LPG), lubricants, and petrochemicals.

As a global leader in LNG, it supports industrial, commercial, and residential energy demands by providing solutions for transportation, production, and marketing. Shell also supplies products such as biofuels, hydrogen, and renewable electricity through its renewables and energy solutions division to support the transition to lower-carbon energy. The company operates over 44,000 service stations globally, offering convenience retail and electric vehicle charging services to both individual consumers and industrial clients across diverse regions.

Despite their strong market position, Shell aims to pursue new growth opportunities through the ongoing development of new projects across all its sectors. These projects are expected to launch between 2025 and 2026 in Australia, Qatar, Malaysia, the UK, Brazil, and other countries, encompassing integrated gas, upstream, and renewable energy solutions. With increased investment and expansion efforts within a diversified asset portfolio spanning over 70 countries, the company demonstrates its eagerness to grow, diversify risk, and generate revenue across multiple market cycles, mitigating many of the risks associated with the industry.

3.4. Strategic Positioning and ESG Policies

Shell's strategic positioning is intrinsically related to their environmental, social, and governance (ESG) policies, as evidenced by its website, which states that its strategy is to deliver more value with fewer emissions as it navigates its journey to become a net-zero emissions business by 2050, aligning its strategy with the climate change transition. The

company is committed to providing value to investors through disciplined investment, enhanced shareholder distributions, and maintaining a strong balance sheet.

This investment, as evidenced in the company's capital markets day in 2025, is focused on areas in which the company possesses a competitive advantage, with special focus on LNG, aiming to grow sales by 4-5% through 2030, while maintaining growth in the top-line production for the upstream and integrated gas businesses by 1% per year during the same period, and pursuing higher returns and cash flow resilience in their downstream and renewables and energy solutions businesses seeking higher returns and lower employed capital by 2030.

Artificial intelligence plays a significant role in Shell's competitive advantage, as it provides the company with valuable information that helps develop its already market-leading business, particularly LNG. It helps calculate the most efficient settings for equipment at LNG plants, resulting in a reduction of approximately 340,000 tonnes of carbon dioxide per year.

The company is committed to respecting human rights, as outlined in the United Nations Guiding Principles, with a focus on areas such as the workplace, supply chains, local communities, and security. They strive for inclusion and diversity, as detailed later in the report, through their board structure, seeking to contribute positively to local economies and communities by creating local jobs.

In its annual reports, Shell, the company includes the voluntary implementation of the European Sustainability Reporting Standards (ESRS) as sustainability is embedded into its strategy, business processes, and decision-making through comprehensive governance structures and policies.

As the industry and its preferences evolve, Shell positions itself strategically to deliver today, build for tomorrow, and prepare for the future, aiming to differentiate itself from competitors and capitalize on the advantages that arise from it.

3.5. Financial Analysis

3.5.1. Operational Performance

During the analyzed period in Figure 3 (2021-2024), Shell shows consistency by maintaining similar revenue and operational costs, and exhibiting a low variance in EBITDA margin, except in 2022, when Shell's operational performance reached its peak.

There is a notable rise in both revenue and operational costs in that year, which can be linked to the geopolitical tensions between Russia and Ukraine. This event led to significant supply disruptions in oil and gas markets, driving prices to multi-year highs and allowing companies to benefit from strong margins during this period.

Even when considering this year as an outlier, Shell shows stable revenue of around $300 billion, operational costs of nearly $200 billion, and an EBITDA margin of roughly 22%, portraying its robustness as a major company in the oil and gas market.

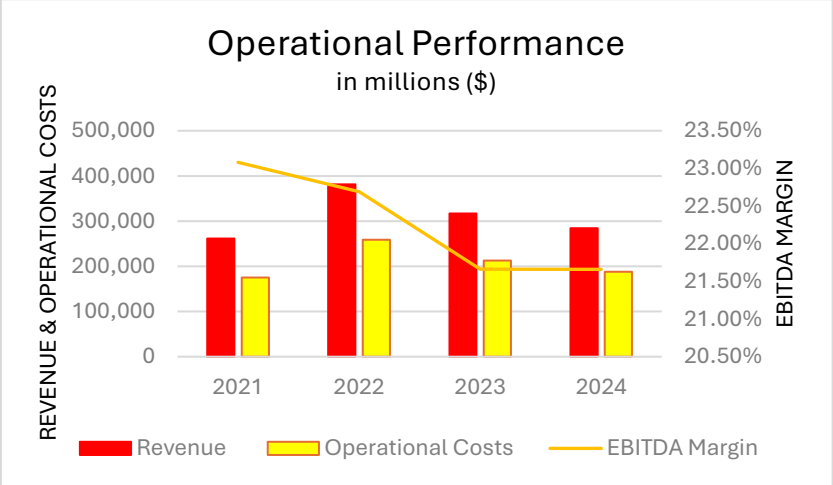

Figure 3: Operational Performance. *Own elaboration*

3.5.2. Liquidity

When assessing its liquidity ratios, which represent the company's ability to meet its short-term obligations, Shell's financial stability is further evidenced.

As depicted in Figure 4, the current and quick ratios, both above one, indicate that the company has a healthy liquid asset position, with sufficient assets convertible into cash within a year to pay off its short-term debts, even when excluding inventories.

While the cash ratio is naturally lower than the previous two, it still exhibits low variance. It presents a value of around 0.35 to 0.44 throughout the period, demonstrating a

meaningful cash buffer sufficient to cover approximately 35% to 44% of current liabilities without needing to liquidate receivables or inventory.

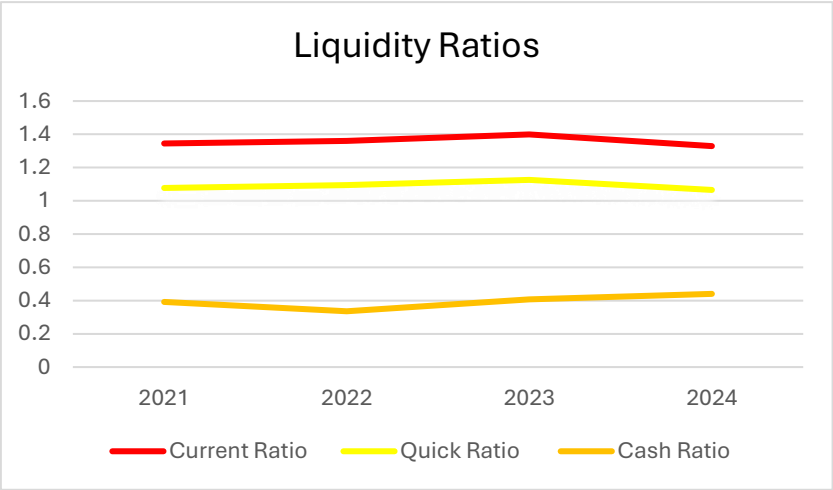

Figure 4: Liquidity Ratios. *Own elaboration*

These ratios further evidence the company's financial stability and operational prudence, indicating effective risk management and operational strength, and enhancing stakeholder confidence in the business, as the company is unlikely to face short-term distress.

3.5.3. Solvency

Solvency ratios offer insight into a company's long-term financial stability and its ability to manage debt obligations effectively.

In Figure 5, it is evident that Shell's debt-to-equity ratio exhibits a gradual decline throughout the analysis period, indicating that Shell is reducing its reliance on debt relative to equity and, consequently, strengthening its image among investors and creditors.

The debt ratio, in contrast, remains stable over the years, with a value that consistently hovers around 20%. This indicates that the company is not overly reliant on borrowed funds to meet its financial obligations and is well-positioned to handle potential financial challenges.

Lastly, the interest coverage ratio is the only one that sees a significant spike in its value in 2022, as mentioned earlier, since Shell's operating profits peaked during that time. This ratio remains above critical thresholds in all years (typically, a value greater than five is considered strong), indicating that Shell can comfortably cover its interest expenses with its earnings.

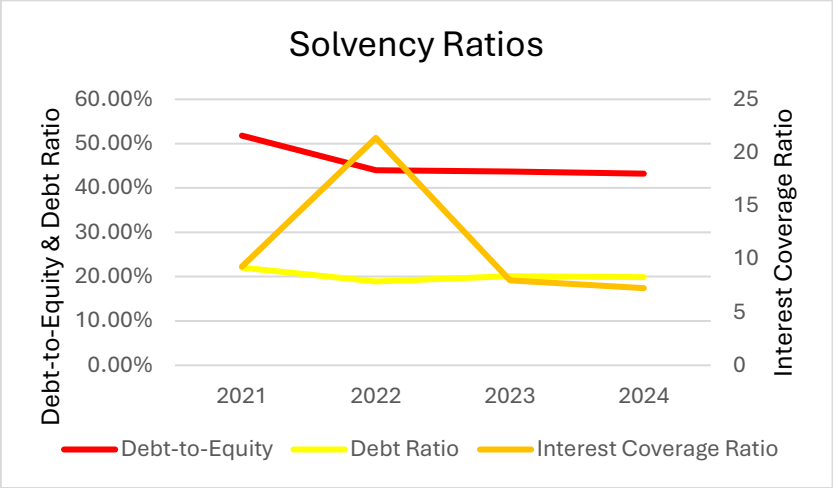

Figure 5: Solvency Ratios. *Own elaboration*

3.5.4. Profitability

As addressed in the first section of this report, growth without profitability does not yield sustainable value creation, and profitability ratios are vital indicators of a company's ability to efficiently convert revenue into profit, reflecting its overall financial success and operational effectiveness.

Shell's return on equity (ROE), return on assets (ROA), and return on invested capital (ROIC) all demonstrate similar evolutions from 2021 to 2024, as all of them showed their most significant values in 2022, when favorable market conditions prevailed. This analysis once again demonstrates the company's financial stability, as it provides outstanding returns to shareholders with a 10% to 20% ROE, while also efficiently utilizing its combination of debt and equity for value creation, as evidenced by its nearly identical ROIC.

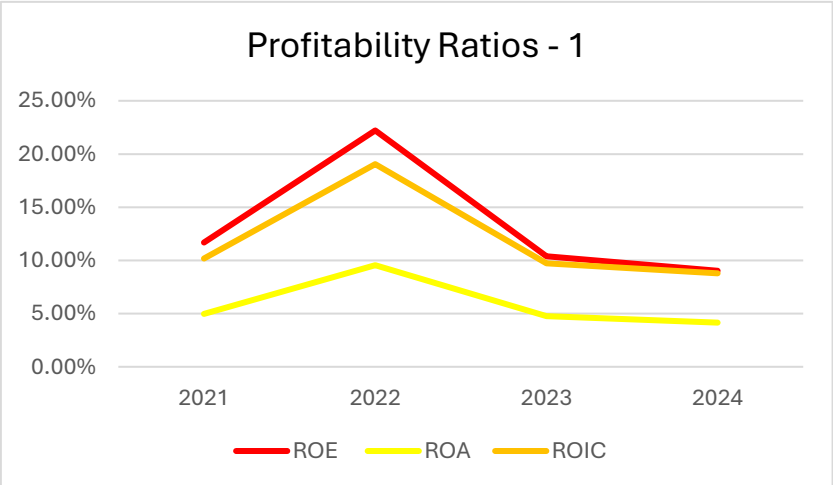

Figure 6: Profitability Ratios – 1. *Own elaboration*

In Figure 7, it is possible to make a deduction about Shell's efficiency in production, as the company's gross margin hovers steadily above 30%, while their net profit margin and operating margin closely follow the behavior of the three previously discussed ratios.

Margins and returns remain healthy and relatively steady throughout the period, reflecting Shell's disciplined cost management and demonstrating the company is highly profitable, especially in favorable market conditions. This enables it to consistently maintain operational efficiency and shareholder value in both normal and exceptional years.

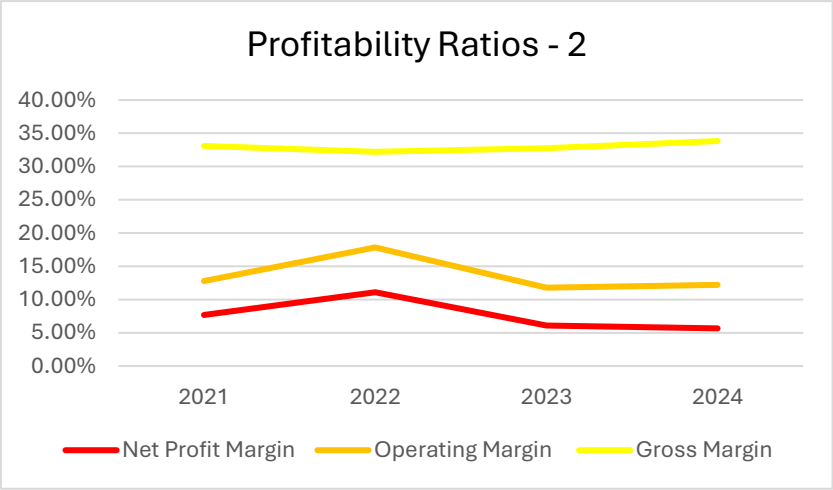

Figure 7: Profitability Ratios – 2. *Own elaboration*

Shell's financial analysis reveals a company characterized by robust operational performance, prudent risk management, and consistent value creation. The stability observed across liquidity, solvency, and profitability ratios underscores Shell's resilience in both typical and exceptional market conditions. This comprehensive financial strength not only reinforces stakeholder confidence but also positions Shell favorably for sustainable growth in a dynamic global energy landscape.

3.5.5. Stock Performance

Figure 8: Stock Performance Comparison between Shell and S&P 500. *Google Financ,, September 2025.*

When examining Shell's stock performance over the last five years, it is evident that the company's stock rose approximately 150% during that period, outperforming the S&P 500 by about 60% in terms of variation. At the beginning of the period, Shell plc was valued at roughly $28.91, while the S&P 500 was valued at $3,426.96. As of December 31, 2024, Shell closed at $62.65 on the New York Stock Exchange (NYSE), with the S&P 500 closing at $5,881.63.

The comparison must be made with the S&P 500, as the index represents the broad U.S. equity market, and, despite Shell being primarily listed on the London Stock Exchange (LSE), it presents its reports in USD, hence why the valuation of Shell will be based on its stock value at the NYSE.

4. Valuation

As previously outlined, Shell's fair share value at the end of 2024 was estimated using two distinct methods: the discounted cash flow (DCF) approach and relative valuation.

The DCF-FCFF model utilizes historical financial statement data to project cash flows over a five-year period from 2024 to 2029. The terminal value was subsequently calculated using a perpetual growth rate, yielding the company's intrinsic value. This intrinsic value forms the basis for determining Shell's fair share value.

The relative valuation, or multiples method, compares Shell to ten relevant industry competitors to provide a complementary perspective. Key metrics such as price-to-earnings (P/E) and enterprise value to EBITDA (EV/EBITDA) are employed to estimate the share price.

4.1. Discounted Cash Flows

4.1.1. Assumptions

Because the DCF approach relies on projecting the firm's cash flows, it is necessary to define key assumptions throughout the calculations. This section details each assumption applied during the process.

4.1.2. Revenues

As a key part of this method's calculation, and with its importance highlighted by its influence on many other elements, the revenue projection significantly impacts the overall valuation landscape.

According to Shell's reports, we can see that their revenue evolution has not been consistent, mainly due to the previously assessed geopolitical conflict between Russia and Ukraine. This led to 2022 being a year of unprecedented margins for oil and gas industry players, yielding abnormally high results for those companies.

Table 3: Shell's Historical Revenues. *Shell's Annual Reports 2022, 2023, 2024*

(values in $ million unless otherwise stated)	2021	2022	2023	2024
Revenue	261,504	381,314	316,620	284,312

As we can see, this impact did not hold up as the market adjusted in 2023 and 2024, leading to a significant drop in revenues for those years. However, compared to 2021, we

can observe that, had it not been for the unprecedented events of 2022, those years would have presented a positive evolution in the company's revenues.

Taking all of this into account, we defined the assumptions for Shell's revenue growth throughout the analyzed period in the following way:

- For 2025, a 1% contraction was assumed as a modest adjustment to reflect ongoing economic uncertainties, considering inflationary pressures and geopolitical tensions on energy demand. Oil price volatility may mildly impact cash flows, but with less severity than a steeper decline scenario.
- For 2026, a 1.5% growth is expected, as economic conditions begin to stabilize and demand for energy products improves in recovering markets. Shell's expansion of renewables and LNG starts generating additional revenue, supporting growth beyond what oil prices alone can offer.
- Regarding 2027, a presumable rising demand in emerging markets and industrial sectors boosts overall energy use. Shell's diversification into clean energy technologies and infrastructure investments begins to show substantial results. Oil prices rebound to more stable levels, supporting traditional upstream revenue and resulting in a 2.5% growth rate.
- By 2028, the expected growth aligns with industry forecasts that predict continued energy demand despite the transition pressures. Renewables and clean energy continue to penetrate Shell's portfolio. Assuming a stable geopolitical environment and a gradual easing of oil market volatility, it contributes to a 3% growth in the company's revenue.
- Lastly, for 2029, global population growth and industrial activity are presumed to continue to drive energy consumption, boosting demand for low-carbon energy sources and supporting Shell's strategic growth areas. Regulatory frameworks stabilize, enabling more precise long-term planning and investment. Shell is expected to continue capitalizing on market conditions and evolution, earning a 3.1% boost in revenues.

Table 4: Shell's Projected Revenues. *Own calculations*

(values in $ million unless otherwise stated)	2025	2026	2027	2028	2029
Revenue	281,469	287,098	294,276	303,104	312,500

4.1.3. EBIT

For the calculation of EBIT, we reversed the reduction of interest that occurs when arriving at "Income Before Taxation" on the income statement by adding it back.

Table 5: Shell's Projected EBIT. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
Income Before Taxation	29,922	32,590	34,978	37,649	40,751	43,933
Interest Expense	4,787	4,273	3,721	3,237	2,696	2,203
EBIT	**34,709**	**36,863**	**38,700**	**40,887**	**43,447**	**46,136**

4.1.4. Depreciation and Amortization

For Depreciation and Amortization, assuming the average asset life used for oil majors is around 10 years, and by looking at the CAPEX schedule, we performed calculations to project each year's weight on the metric.

Table 6: Shell's Projected D&A. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
Depreciation, depletion, and amortisation	**26,872**	**25,922**	**25,330**	**24,738**	**24,145**	**23,553**

4.1.5. EBITDA

For the EBITDA calculation, we added the two previously assessed components.

Table 7: Shell's Projected EBITDA. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
EBIT	34,709	36,863	38,700	40,887	43,447	46,136
Depreciation, depletion, and amortisation	26,872	25,922	25,330	24,738	24,145	23,553
EBITDA	**61,581**	**62,785**	**64,029**	**65,624**	**67,593**	**69,689**

4.1.6. CAPEX

The values assumed for the CAPEX are constant throughout the period, as Shell discloses the intention to have stable CAPEX in their 2024 report, as the company plans to allocate between 20 and 22 billion per year until 2028.

Taking this into account, we assumed a stable 21 billion per year for our forecast, to be aligned with the company's objectives and goals.

Table 8: Shell's Projected CAPEX. *Own estimates based on Shell's 2024 report*

In Millions ($)	2024	2025	2026	2027	2028	2029
CAPEX	**19,601**	**21,000**	**21,000**	**21,000**	**21,000**	**21,000**

4.1.7. Working Capital

To perform the calculations for specific components, such as working capital, we projected the company's financial statements, including the income statement, cash flow statement, and balance sheet. As the working capital reflects the difference between a company's current assets and current liabilities, the balance sheet is where we can compute this element, whose variation presents significant importance in calculating the FCFF.

Table 9: Shell's Projected Working Capital. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
Inventories	23,426	24,252	24,737	25,356	26,116	26,926
Trade and other receivables	45,860	49,781	50,777	52,046	53,608	55,270
Derivative financial instruments	9,673	14,993	15,293	15,675	16,145	16,646
Cash and cash equivalents	39,110	32,740	34,929	34,392	35,390	37,691
Assets classified as held for sale	9,857	3,905	3,905	3,905	3,905	3,905
Current Assets	**127,926**	**125,672**	**129,640**	**131,374**	**135,164**	**140,437**
Debt	11,630	7,717	6,930	5,813	4,800	3,870
Trade and other payables	60,693	61,806	63,042	64,618	66,557	68,620
Derivative financial instruments	7,391	14,110	14,538	14,609	14,680	14,694
Income taxes payable	4,648	4,648	4,648	4,648	4,648	4,648
Decommissioning and other provisions	4,469	3,653	3,763	3,782	3,800	3,804
Liabilities directly associated with assets classified as held for sale	6,203	6,203	6,203	6,203	6,203	6,203
Current Liabilities	**95,034**	**98,137**	**99,124**	**99,673**	**100,688**	**101,840**
Working Capital	**32,892**	**27,534**	**30,516**	**31,701**	**34,476**	**38,597**

Table 10: Shell's Projected Changes in Working Capital. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
(-) Changes in WC	**4,805**	**5,358**	**-2,982**	**-1,185**	**-2,775**	**-4,122**

4.1.8. FCFF

To calculate the FCFF, we used the previously assessed variables by removing the D&A from the EBITDA, arriving at EBIT, then applying the effective tax rate deduction on EBIT, which was assumed at 37.3% as a historical average representation, leading us to the NOPLAT (Net Operating Profit Less Adjusted Taxes). After this step, we need to add back

the D&A and remove both the CAPEX and investment in Working Capital to reach the FCFF.

Table 11: Shell's FCFF. *Own calculations*

In Millions ($)	2024	2025	2026	2027	2028	2029
EBITDA	61,581	62,785	64,029	65,624	67,593	69,689
(-) Depreciation, depletion, and amortisation	26,872	25,922	25,330	24,738	24,145	23,553
EBIT	**34,709**	**36,863**	**38,700**	**40,887**	**43,447**	**46,136**
(-) Effective Tax Rate on EBIT	15,545	13,759	14,444	15,260	16,216	17,220
Effective Tax Rate (%)	*44.8%*	*37.3%*	*37.3%*	*37.3%*	*37.3%*	*37.3%*
NOPLAT	19,164	23,105	24,256	25,626	27,231	28,917
(+) D&A	26,872	25,922	25,330	24,738	24,145	23,553
(-) Capex	-19,601	-21,000	-21,000	-21,000	-21,000	-21,000
(-) Investment in Net Working Capital	4,805	5,358	-2,982	-1,185	-2,775	-4,122
FCFF	**31,240**	**33,384**	**25,603**	**28,179**	**27,602**	**27,348**

4.1.9. WACC

For the WACC calculation, several components must be assessed, including the risk-free rate, the company's beta, and the market and country risk premiums, all of which effectively determine the cost of equity, the cost of debt, and the company's leverage structure.

The risk-free rate was based on the US 10-year Treasury bond yield on December 31, 2024, which stood at 4.58% (YCHARTS).

For the market risk premium, we accessed Kroll's website for the current U. S. ERP recommendation, last changed on June 26, 2024, to 5%.

The country risk premium was calculated to a total of 1.57% by using Damodaran's public databases, driven by evaluating the sources of the company's different revenue streams and their weights on total revenue. For Europe, the proxy countries used were the United Kingdom, the Netherlands, Germany, Italy, and Spain, representing the continent's largest markets with a combined CRP of 1. 17%. For Asia, Oceania, and Africa, four major markets served as proxies: Australia, China, India, and South Africa, indicating a diverse risk profile that mixes developed and emerging markets, with generally higher sovereign risk than the US/EU, resulting in a CRP of 1.97%. For the USA region, assuming Canada is part of this segment rather than Other Americas, both countries are assigned a CRP of 0%. Lastly, for the Other Americas, the basis was Brazil, Mexico, Chile, Argentina, and Colombia, some of the region's largest markets, producing a CRP of 5.11%. Although high,

this value has minimal influence on the final result, given the region's lower contribution to Shell's total revenue.

The company's beta was calculated using the sector's levered beta of 0.46 from Damodaran's databases, which was then unlevered and re-levered based on the determined leverage, resulting in a beta of 0.5 for the company. Leverage was computed using the industry's capital structure of 13.71%, also from Damodaran databases, assuming that, in the long run, companies within the same sector tend to converge toward similar capital structures. The cost of equity was calculated using these variables, yielding a result of 7.86%.

For the company's cost of debt, we used Damodaran's average cost of debt for the industry and applied Shell's previously forecasted effective tax rate, arriving at a value of 3.18%. After all calculations, a value of 7.3% was reached for the WACC.

Table 12: Shell's Projected WACC. *Own calculations*

WACC Calculation	
Risk Free Rate	4.58%
Beta Sector (Unlevered)	0.46
Beta Company	0.50
Market Risk Premium and Country Risk Premium	6.57%
Cost of Equity	7.86%
Average Cost of Debt	5.08%
Effective Tax Rate	37.32%
Cost of Debt	3.18%
Capital Structure (D/E)	13.71%
Leverage (D/(D+E))	12.06%
WACC	7.30%

4.1.10. Terminal Growth Rate

For the terminal growth rate, we assumed a 2% rate to avoid overly optimistic expectations and keep it below both the US's inflation rate and real GDP growth rate of 2.2% and 2.1%, respectively, as projected by the IMF Economic Outlook Projections (2025).

For large, mature, global companies such as Shell, terminal growth is typically anchored near the expected nominal GDP growth of their primary markets or at the risk-free rate, whichever is lower. This approach is both conservative and standard in equity valuation, as it avoids assuming Shell can grow faster than the overall economy into perpetuity, while reflecting its status as a mature, diversified global player.

4.1.11. Enterprise value

Both the terminal value and the enterprise value (EV) were calculated by discounting the terminal value and the explicit forecast period FCFF, using the appropriate discount factor. The valuation period was set from 0.5 to 4.5 years, rather than 1 to 5 years, to more accurately reflect the timing of cash flow generation throughout the period, rather than assuming all FCFF is realized at the end.

After calculations, we arrived at a value of $120,338 million for the explicit period and $430,831 million for the terminal value. The combination of both provides us with the total value of the company’s operating business at $551,218 million.

4.1.12. Equity Value

Equity value was calculated at $511,389 million by subtracting net debt, non-controlling interests, and preferred equity from the enterprise value.

This figure represents the total value available to equity shareholders, reflecting the market value of owners' claims after all other obligations, such as debt and preferred stock, have been satisfied.

4.2. Share Price

After finalizing the DCF-FCFF approach, the final step is to determine the company's fair value per share by dividing the calculated equity value by the total number of Shell's shares outstanding. According to Shell’s 2024 report, the number of shares outstanding as of December 31 was 6,084 million, implying the company’s fair share value as of that date was $84.05, a significant increase of 34.15% over the actual close price of $62.65, and indicating the company was considerably undervalued at the time.

4.3. Sensitivity Analysis

To assess the robustness of the valuation, a sensitivity analysis was conducted by varying two key parameters: the weighted average cost of capital (WACC) and the terminal growth rate (TGR). The WACC was tested across a range of 6.3% to 8.3%, while the TGR varied from 0% to 3%. This analysis demonstrated a substantial impact on Shell's share price and enterprise value.

Specifically, the lowest estimated share price, $56.38, resulted from the scenario with the highest WACC (8.3%) and a terminal growth rate of 0%. Conversely, the highest share price, $132.07, was observed under the most favorable assumptions—a WACC of 6.3% and a terminal growth rate of 3%.

A parallel sensitivity analysis was performed to evaluate the effect of the same parameter variations on the company's enterprise value. The lowest enterprise value, $382,871 billion, was obtained at a WACC of 8.3% and a terminal growth rate of 0%, corresponding to a share price of $62.93. The highest enterprise value, $843,372 billion, was calculated at a WACC of 6.3% and a terminal growth rate of 3%, yielding a share price of $138.62. This confirms the notion that Shell's share price was undervalued during the observed period, as its closing value hovers very closely to the lowest values included in the scenarios.

Table 13: Sensitivity Analysis on Price Per Share. *Own calculations*

PPS		Terminal Growth Rate								
WACC	84.05	0.00%	0.50%	1.00%	1.50%	2.00%	2.25%	2.50%	2.75%	3.00%
	6.30%	$76.08	$81.39	$87.70	$95.32	$104.72	$110.29	$116.60	$123.79	$132.07
	6.55%	$72.96	$77.80	$83.51	$90.35	$98.70	$103.61	$109.11	$115.35	$122.46
	6.80%	$70.07	$74.49	$79.68	$85.85	$93.31	$97.65	$102.50	$107.95	$114.12
	7.05%	$67.38	$71.44	$76.17	$81.76	$88.45	$92.32	$96.62	$101.41	$106.80
	7.30%	$64.88	$68.61	$72.94	$78.02	$84.05	$87.52	$91.35	$95.60	$100.34
	7.55%	$62.54	$65.99	$69.96	$74.59	$80.05	$83.17	$86.60	$90.39	$94.59
	7.80%	$60.36	$63.54	$67.20	$71.43	$76.40	$79.22	$82.30	$85.69	$89.43
	8.05%	$58.31	$61.26	$64.63	$68.52	$73.05	$75.60	$78.39	$81.44	$84.79
	8.30%	$56.38	$59.13	$62.24	$65.82	$69.96	$72.29	$74.82	$77.57	$80.59

Table 14: Sensitivity Analysis on Enterprise Value. *Own calculations*

EV		Terminal Growth Rate								
WACC	551218	0.00%	0.50%	1.00%	1.50%	2.00%	2.25%	2.50%	2.75%	3.00%
	6.30%	$502,723	$535,011	$573,395	$619,781	$676,965	$710,856	$749,210	$792,972	$843,372
	6.55%	$483,719	$513,159	$547,908	$589,543	$640,335	$670,165	$703,680	$741,610	$784,887
	6.80%	$466,117	$493,048	$524,625	$562,164	$607,529	$633,953	$663,453	$696,597	$734,107
	7.05%	$449,770	$474,478	$503,271	$537,257	$577,977	$601,520	$627,653	$656,827	$689,606
	7.30%	$434,547	$457,278	$483,618	$514,502	$551,218	$572,304	$595,589	$621,434	$650,286
	7.55%	$420,338	$441,303	$465,470	$493,633	$526,875	$545,850	$566,704	$589,733	$615,294
	7.80%	$407,044	$426,426	$448,660	$474,425	$504,636	$521,783	$540,550	$561,175	$583,951
	8.05%	$394,580	$412,539	$433,047	$456,688	$484,238	$499,796	$516,756	$535,317	$555,717
	8.30%	$382,871	$399,547	$418,507	$440,258	$465,463	$479,629	$495,017	$511,791	$530,150

Additionally, a sensitivity analysis was performed to assess the impact of variations in revenue growth and the WACC on the price per share. This was made to understand if the revenue growth metric during the forecast period had more or less of an impact on Shell's share price than the terminal growth rate. Upon finalizing the analysis, we were able to conclude that, although yielding similar results to the first sensitivity table, the revenue growth rate has a lesser impact on PPS than the terminal growth rate, as the generated values were all comprised between $62.98 and $115.08, as presented in Appendix A.

4.4. Relative Valuation

The relative valuation is a secondary approach that acts as a complement to the DCF-FCFF method by providing a term for comparison and validation of the previously obtained results. As previously discussed, a select group of peers was chosen to perform this analysis. The companies chosen are some of those that operate within the same industry as Shell, as they face similar challenges and market conditions.

The multiples chosen to perform this analysis were the P/E and the EV/EBITDA, and the data was retrieved from the Yahoo!Finance website. The P/E ratio used for this analysis was the forward P/E, as it is based on the projected earnings for the next 12 months, reflecting the expected future performance of the company and, therefore, aligning with the DCF-FCFF method.

Table 15: Peer Group's Multiples. *Own elaboration and Yahoo! Finance*

Identifier	Company	Country	Market Cap	P/E	EV/EBITDA
(TTE.PA)	TotalEnergies SE	France	119.98B	6.88	3.44
(BP)	BP p.l.c.	UK	78.16B	7.35	3.83
(XOM)	Exxon Mobil Corporation	USA	428.26B	12.14	6.43
(CVX)	Chevron Corporation	USA	226.22B	12.03	6.67
(2222.SR)	Saudi Arabian Oil Company	Saudi Arabia	6.78T	15.72	7.37
(COP)	ConocoPhillips	USA	126.53B	10.79	5.45
(0857.HK)	PETROCHINA	China	1.67T	8.10	6.25
(0883.HK)	CNOOC	China	1.1T	7.14	4.92
(ENB)	Enbridge Inc.	Canada	92.58B	20.28	12.89
(SO)	The Southern Company	USA	90.47B	19.16	11.56

The group of outliers was not defined by the commonly applied approach of removing every element that does not fall within two times the standard deviation of the mean, as this

methodology provided no outliers. Instead, the outliers selected were every company whose P/E was below 10, as this presents a really low P/E, even for the sector.

This led to PetroChina, CNOOC, BP, and Total being excluded from the calculation of the multiples, which resulted in a value of 15.02x for the P/E and 8.4x for the EV/EBITDA.

Table 16: Relative Valuation. *Own elaboration*

	P/E Valuation	EV/EBITDA Valuation
Peer Group Multiple	15.02x	8.40x
Shell plc: Net Income	$16,094 M	-
Shell plc: EBITDA	-	$61,581 M
Enterprise Value	-	$516,972 M
Equity Value	$241,731 M	$477,143 M
Number of Shares Outstanding	6,084 M	6,084 M
Shell sare price	$39.73	$78.43

After performing the calculations related to both multiples, we arrived at a fair share value of $39.73 for P/E valuation and $78.43 for the EV/EBITDA valuation.

It is essential to note that, specifically for the oil and gas sector, the EV/EBITDA multiple is generally considered the more appropriate metric for relative valuation than the P/E multiple, as the former accounts for both debt and equity, making it less affected by a company's capital structure, which is important as companies in this sector often have significant debt levels. It also examines earnings before interest, taxes, depreciation, and amortization, and provides a more precise measure of operational profitability. Since oil and gas companies have large non-cash charges (depreciation, impairments), EV/EBITDA captures a more comparable earnings metric than net income, which is used in the P/E ratio. The use of this multiple is also widespread in M&A transactions within the industry, providing a better operational view. P/E, on the other hand, despite being simpler and easier to understand, is widely sensitive to leverage and taxes, since the earnings in its denominator are after interest and tax. This presents a limitation as these two metrics vary widely between companies within the oil and gas industry.

The results show that, according to the P/E multiple, Shell's share price was highly overvalued, while, according to the EV/EBITDA multiple, the price was considerably undervalued, yielding a very close result to the DCF-FCFF valuation and corroborating the notion that Shell's share price was likely undervalued by the end of 2024.

Conclusion

This thesis set out to determine the fair value of Shell plc's shares as of December 31, 2024, and to evaluate whether the shares were trading above or below their intrinsic market value. To achieve this, two complementary valuation methodologies were employed: the Discounted Cash Flow (DCF) approach, utilizing the Free Cash Flow to the Firm (FCFF) model, and the Relative Valuation method, which applied key industry multiples (P/E and EV/EBITDA). To account for the uncertainty inherent in valuation assumptions, a sensitivity analysis was performed, testing a range of scenarios for WACC and terminal growth rate.

The DCF-FCFF approach yielded a fair share value estimate of $84.05, which is significantly above the actual market price of $62.65 at year-end, indicating that Shell shares were undervalued during the period. The EV/EBITDA multiple yielded results aligned with the DCF analysis, while the PE multiple suggested a lower share price, supporting the robustness of the main findings. The sensitivity analysis confirmed that even under less favorable assumptions, Shell's share price remained undervalued, giving confidence in the reliability of the results.

This comprehensive analysis, encompassing macroeconomic and industry trends, Shell's competitive positioning, financial performance, and the use of multiple valuation methods, demonstrates that Shell plc represented an attractive investment opportunity at the close of 2024. The findings highlight the value of employing varied valuation techniques for a holistic investment assessment, and suggest that, barring major market shifts, Shell's shares can be considered undervalued and potentially appealing for investors seeking exposure to the global energy sector.

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Appendix

Appendix A: Sensitivity Analysis on Price Per Share – Revenue Growth. *Own calculations*

PPS		Revenue Growth								
WACC	$83.82	0%	0.50%	1%	1.50%	1.82%	2%	2.50%	3%	3.50%
	6.30%	$93.52	$96.42	$99.37	$102.39	$104.35	$105.47	$108.61	$111.81	$115.08
	6.55%	$88.23	$90.95	$93.71	$96.54	$98.37	$99.42	$102.36	$105.35	$108.41
	6.80%	$83.50	$86.05	$88.64	$91.29	$93.02	$94.00	$96.75	$99.57	$102.44
	7.05%	$79.24	$81.63	$84.07	$86.57	$88.19	$89.11	$91.71	$94.36	$97.06
	7.30%	$75.37	$77.63	$79.94	$82.29	$83.82	$84.69	$87.14	$89.64	$92.18
	7.55%	$71.86	$73.99	$76.17	$78.40	$79.85	$80.67	$82.98	$85.35	$87.75
	7.80%	$68.64	$70.67	$72.73	$74.84	$76.21	$76.99	$79.19	$81.43	$83.71
	8.05%	$65.69	$67.62	$69.58	$71.58	$72.88	$73.62	$75.71	$77.83	$80.00
	8.30%	$62.98	$64.81	$66.67	$68.58	$69.82	$70.52	$72.50	$74.52	$76.58

Appendix B: Historic Income Statement (2021-2024). *Adapted from Shell's 2022, 2023, and 2024 Reports*

	Historic			
(values in $ million unless otherwise stated)	2021	2022	2023	2024
Revenue	261,504	381,314	316,620	284,312
Share of profit of joint ventures and associates	4,097	3,972	3,725	2,993
Interest and other income	7,056	915	2,838	1,724
Total revenue and other income	**272,657**	**386,201**	**323,183**	**289,029**
Purchases	174,912	258,488	212,883	188,120
Production and manufacturing expenses	23,822	25,518	25,240	23,379
Selling, distribution and administrative expenses	11,328	12,883	13,433	12,439
Research and development	815	1,075	1,287	1,099
Exploration	1,423	1,712	1,750	2,411
Depreciation, depletion and amortisation	26,921	18,529	31,290	26,872
Interest expense	3,607	3,181	4,673	4,787
Total expenditure	**242,828**	**321,386**	**290,556**	**259,107**
Income before taxation	**29,829**	**64,815**	**32,627**	**29,922**
Taxation charge	9,199	21,941	12,991	13,401
Income for the period	**20,630**	**42,874**	**19,636**	**16,521**
Income attributable to non-controlling interest	529	565	277	427
Income attributable to Shell plc shareholders	**20,101**	**42,309**	**19,359**	**16,094**
Basic earnings per share ($)	3	6	3	3
Diluted earnings per share ($)	3	6	3	3

Appendix C: Historic Balance Sheet (2021-2024). *Adapted from Shell's 2022, 2023, and 2024 Reports*

	Historic			
(values in $ million unless otherwise stated)	2021	2022	2023	2024
Assets				
Non-current assets				
Goodwill	14,920	16,039	16,660	16,032
Other intangible assets	9,773	9,662	10,253	9,480
Property, plant and equipment	194,932	198,642	194,835	185,219
Joint ventures and associates	23,415	23,864	24,457	23,445
Investments in securities	3,797	3,362	3,246	2,255
Deferred tax	12,426	7,815	6,454	6,857
Retirement benefits	8,471	10,200	9,151	10,003
Trade and other receivables	7,065	6,920	6,298	6,018
Derivative financial instruments	815	582	801	374
	275,614	**277,086**	**272,155**	**259,683**
Current assets				
Inventories	25,258	31,894	26,019	23,426
Trade and other receivables	53,208	66,510	53,273	45,860
Derivative financial instruments	11,369	24,437	15,098	9,673
Cash and cash equivalents	36,970	40,246	38,774	39,110
	126,805	**163,087**	**133,164**	**118,069**
Assets classified as held for sale	1960	2851	951	9,857
	128,765	**165,938**	**134,115**	**127,926**
Total assets	**404,379**	**443,024**	**406,270**	**387,609**
Liabilities				
Non-current liabilities				
Debt	80,868	74,794	71,610	65,448
Trade and other payables	2,075	3,432	3,103	3,290
Derivative financial instruments	887	3,563	2,301	2,185
Deferred tax	12,547	16,186	15,347	13,505
Retirement benefits	11,325	7,296	7,549	6,752
Decommissioning and other provisions	25,804	23,845	22,531	21,227
Other non-current Liabilities				
	133,506	**129,116**	**122,441**	**112,407**
Current liabilities				
Debt	8,218	9,001	9,931	11,630
Trade and other payables	63,173	79,357	68,237	60,693
Derivative financial instruments	16,311	23,779	9,529	7,391
Income taxes payable	3,254	4,869	3,422	4,648
Decommissioning and other provisions	3,338	2,910	4,041	4,469
	94,294	**119,916**	**95,160**	**88,831**
Liabilities directly associated with assets classified as held for sale	1253	1395	307	6,203
	95,547	**121,311**	**95,467**	**95,034**
Total liabilities	**229,053**	**250,427**	**217,908**	**207,441**
Equity				
Share capital	641	584	544	510
Shares held in trust	-610	-726	-997	-803
Other reserves	18,909	21,132	21,145	19,766
Retained earnings	153,026	169,482	165,915	158,834
Equity attributable to Shell plc shareholders	**171,966**	**190,472**	**186,607**	**178,307**
Non-controlling interest	3,360	2,125	1,755	1,861
Total equity	**175,326**	**192,597**	**188,362**	**180,168**
Total liabilities and equity	**404,379**	**443,024**	**406,270**	**387,609**

Appendix D: Historic Cash Flow Statement (2021-2024). *Adapted from Shell's 2022, 2023, and 2024 Reports*

	Historic			
(values in $ million unless otherwise stated)	2021	2022	2023	2024
Income before taxation for the period	29,829	64,815	32,627	29,922
Adjustment for:				
Interest expense (net)	3,096	2,135	2,360	2,415
Depreciation, depletion and amortisation	26,921	18,529	31,290	26,872
Exploration well write-offs	639	881	868	1,622
Net losses/(gains) on sale and revaluation of non-current assets and businesses	-5,995	-642	-246	288
Share of profit of joint ventures and associates	-4,097	-3,972	-3,725	-2,993
Dividends received from joint ventures and associates	3,929	4,398	3,674	3,632
Decrease/(increase) in inventories	-7,319	-8,360	6,325	1,273
Decrease/(increase) in current receivables	-20,567	-8,989	12,401	6,578
(Decrease)/increase in current payables [A]	17,519	12,329	-11,581	-5,789
Derivative financial instruments	5,882	-2,619	-5,723	2,484
Retirement benefits	16	417	-37	-326
Decommissioning and other provisions [A]	-76	-379	220	-828
Other	803	2,991	-550	1,539
Tax paid	-5,476	-13,120	-13,712	-12,002
Cash flow from operating activities	**45,104**	**68,414**	**54,191**	**54,687**
Cash capital expenditure		-24,833	-24,392	-21,085
Capital expenditure	-19,000	-22,600	-22,993	-19,601
Investments in joint ventures and associates	-479	-1,973	-1,202	-1,404
Investments in equity securities	-218	-260	-197	-80
Proceeds from sale of property, plant and equipment and businesses	14,233	1,431	2,565	1,621
Proceeds from joint ventures and associates from sale, capital reduction and repayment of long-term loa	584	511	474	590
Proceeds from sale of equity securities	296	117	51	582
Interest received	423	906	2,124	2,399
Other investing cash inflows	2,928	2,060	4,269	4,576
Other investing cash outflows	-3,528	-2,640	-2,825	-3,838
Cash flow from investing activities	**-4,761**	**-22,448**	**-17,734**	**-15,155**
Net (decrease)/increase in debt with maturity period within three months	14	318	-211	-310
Other debt:				
New borrowings	1,791	269	1,029	363
Repayments	-21,534	-8,459	-10,650	-9,672
Interest paid	-4,014	-3,677	-4,441	-4,557
Derivative financial instruments	-1,165	-1,799	723	-594
Change in non-controlling interest	19	-1,965	-22	-15
Cash dividends paid to:				
Shell plc shareholders	-6,253	-7,405	-8,393	-8,668
Non-controlling interest	-348	-206	-764	-295
Repurchases of shares	-2,889	-18,437	-14,617	-13,898
Shares held in trust: net purchases and dividends received	-285	-593	-889	-789
Cash flow from financing activities	**-34,664**	**-41,954**	**-38,235**	**-38,435**
Effects of exchange rate changes on cash and cash equivalents	-539	-736	306	-761
(Decrease)/increase in cash and cash equivalents	5,140	3,276	-1,472	336
Cash and cash equivalents at beginning of year	31,830	36,970	40,246	38,774
Cash and cash equivalents at end of year	**36,970**	**40,246**	**38,774**	**39,110**