# Financial Analysis of Royal Dutch Shell

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**Abstract.** The financial performance of Royal Dutch Shell (2021-2023) highlights the opportunities and challenges of the energy industry in the transition period. Affected by geopolitics, carbon neutrality policy and oil price fluctuation, Royal Dutch Shell's net profit rebounded from a loss of 21.68 billion pounds in 2020 to a profit of 42.03 billion pounds in 2023. However, due to the increase in renewable energy investment in 2023, the profitability indicators (ROCE and net profit rate) all fell back, reflecting the short-term gains squeezed by strategic transformation. Liquidity management has achieved remarkable results, and the steady improvement of the current ratio (1.35 to 1.40) and quick ratio (1.08 to 1.15) highlights the efficiency of working capital. However, the high debt ratio (125%) exposes the risk of debt dependence. To support the energy transformation, Royal Dutch Shell cut its dividend payment rate (31.10% to 20%), and the fluctuation of P/E ratio (15.44 to 8.68 to 9.68) reflects the market's vacillation in its long-term transformation confidence. This study shows that Royal Dutch Shell needs to balance traditional energy benefits, debt management, and green investment to maintain its competitiveness in the energy revolution and win the favour of investors.

**Keywords:** Energy transformation, Financial resilience, Capital structure.

## 1 Introduction

### 1.1 Background

The entire global oil and energy industry has undergone deep structural change in recent times. The intersection of geopolitics, the war in Russia and Ukraine, carbon neutrality policies, and innovation in non fossil energy technologies has intensified demands on conventional energy firms' strategic resilience. As a global integrated energy leader, Royal Dutch Shell's financial performance is representative of the energy industry. The research selects Shell because the wild oscillation in its financial reports in 2021-2023 a net loss in 2020 amounting to 21.68 billion and a net income in 2023 amounting to 42.03 billion.

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### 1.2 Purpose

This study aims to explore financial statement and ratio analysis. Evaluate the profitability, liquidity risk, capital structure efficiency, and ability of generating shareholder value in the company Royal Dutch Shell in the period 2021 to 2023.

### 1.3 Research Methodology and Subject

This study will take ten key ratios are selected to assess profitability, liquidity, leverage, and market valuation. From Shell's audited financial statements from annual reports (2021-2023).

### 1.4 Research Significance

This study will provide analysis and help for Royal Dutch Shell's investors.

## 2 Research Methodology

### 2.1 ROCE

ROCE (Return on Capital Employed) is an extremely critical financial indicator that plays an important role in enterprise financial analysis. It is mainly used to measure a company's efficiency in using its long-term capital to obtain profits [1]. In other words, it reveals the company's ability to use its capital to create profits.

The formula is Equation (1).

$$\text{ROCE} = \frac{\text{Profit before interest and tax}}{\text{Total Equity} + \text{Long term liability}} * 100\% \tag{1}$$

Generally speaking, the higher the ROCE, the more efficient the company is in using capital, and it can create more profits through its assets and liabilities.

ROCE is significant in capital-intensive fields like manufacturing and energy industries. Generally, if an oil and gas company's ROCE exceeds 10%, it is considered a sign of health.

### 2.2 Net Profit Margin

Net Profit Margin evaluates a company's ability to retain profits after paying costs and expenses from revenuesand helps stakeholders evaluate its competitiveness in its industry [2].

The formula is presented in Equation (2).

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Sales}} * 100\% \tag{2}$$

The higher the net profit margin, the stronger the company's ability to retain revenue and turn it into net profit [3]. In the capital-intensive oil and gas industry, for example, the net profit margin is usually lower than in other industries. So, in the case of Royal Dutch Shell, for example, a net profit margin of 5%- 10% can be considered a strong and healthy performance.

### 2.3 Asset Turnover Ratio

The company's asset management ability and utilization efficiency can be seen through the asset turnover rate, which evaluates the company's ability to generate sales revenue by using assets [4].

The formula is presented in Equation (3).

$$\text{Asset turn over ratio} = \frac{\text{Sales}}{\text{Average total assets(excluding long-term investments)}} \quad (3)$$

A high turnover rate means that the company can efficiently utilise its assets and has high operational efficiency and competitiveness. A company with a low turnover ratio may have underutilised assets and weak sales. However, asset turnover ratios may be generally low due to the high capital intensity of capital-intensive industries.

### 2.4 Current Ratio

Liquidity can measure the company's short-term solvency, and the current ratio is the core financial indicator. The result of ratio calculation can reflect whether the current assets are enough to repay the current liabilities [1].

The formula is Equation (4).

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liability}} \quad (4)$$

The current ratio is positively correlated with the short-term solvency [5]. It is generally believed that the current ratio ≥ 1.5 is more appropriate, which means that the current assets of an enterprise are more than 1.5 times the current liabilities, and there is a strong short-term debt repayment guarantee, but it cannot be too high [6]. It is generally believed that companies with > 3 have idle assets and have no value. If the current ratio is too low, for example, less than 1, it means that the current assets of the enterprise are not enough to cover the current liabilities, and it may be difficult to pay debts, and the financial risk is greater, and creditors may face the risk of not being able to recover the loan principal and interest. However, due to the high accounts receivable or accounts payable cycle, oil and gas companies usually have a low current ratio (1.0-1.5).

### 2.5 Quick Ratio

The Quick Ratio is an indicator of an enterprise's short-term solvency. It is more conservative than the Current Ratio and can better reflect the company's ability to cover its current liabilities with assets with the strongest liquidity [5].

The formula is Equation (5).

$$\text{Quick ratio} = \frac{\text{Current Assets-Inventory}}{\text{Current Liability}} \tag{5}$$

Its core role is to exclude the impact of less liquid inventories and more closely assess a company's debt service risk in an emergency. The quick ratio is usually based on 1:1. The higher the ratio, the stronger the short-term financial security, but too high (such as > 2) may indicate idle funds or inefficient management of accounts receivable. Compared with the current ratio, the quick ratio is more suitable for industries with slow inventory turnover. Because of the large inventory, the quick ratio of oil and gas companies is usually low (0.8-1.2).

### 2.6 Interest Cover Ratio

Interest Coverage Ratio is a key index evaluating enterprises' ability to repay debt interest. It is especially important for creditors and investors and helps to judge enterprises' debt sustainability and credit rating [7]. For management, it warns that optimising the debt structure or improving profitability is necessary.

The formula is Equation (6)

$$\text{Interest cover ratio} = \frac{\text{Profit before interest and tax}}{\text{Interest expense}} \tag{6}$$

Which reflects the safety margin of the enterprise covering interest expenses with operating profit. Its core function is to measure the financial risk of enterprises. The higher the ratio (such as > 3), the higher the profit is enough to pay interest easily, and the risk of debt default is low. If the ratio is higher than 1.5 but not close to 3, the company has moderate debt default risk and needs to pay more attention. If it is close to or lower than 1, it has a high risk of default and may face a debt repayment crisis or even a bankruptcy risk. Due to the high debt level of oil and gas companies, capital-intensive industries may bear a lower ratio.

### 2.7 Gearing Ratio

The gearing ratio can directly reflect the debt burden of enterprises. The calculation formula is in Equation (7).

$$\text{Gearing ratio} = \frac{\text{Long-term liability}}{\text{Long-term liability+Equity}} * 100\% \tag{7}$$

The higher the ratio, the greater the proportion of debt to total assets, and the higher the financial risk. When the economic environment is unstable, or the enterprise is poorly managed, the enterprise with high debt may face greater debt repayment pressure and may even lead to bankruptcy [8]. Usually, the ratio of < 50% is safe, while > 70% means high financial risk. Since oil and gas companies are capital-intensive industries, they can tolerate a higher ratio of 50%-70% because of large-scale infrastructure investment.

### 2.8 Cash Conversion Cycle

The cash Conversion Cycle is a key index to measure the efficiency of enterprise cash management, which reflects the complete time from purchasing raw materials to paying cash to sell products and recovering cash [9]. The calculation formula is Equation (8).

$$\begin{aligned}\text{Cash conversion cycle} = {} & \text{Inventory holding period} + \\ & \text{Receivable collection period-Payable payment period}\end{aligned} \tag{8}$$

The ratio's role is to evaluate enterprises' ability to quickly “realise” the invested funds: the shorter the cycle, the faster the capital turnover of enterprises, the stronger the liquidity and the less dependence on external financing. The length of the cycle directly affects profitability and risk resistance, and the shorter the cycle, the better the cash flow management is. Because oil and gas companies have complex supply chains and inventory control requirements, CCC in capital-intensive industries usually takes longer, 20-60 days [10].

### 2.9 Dividend Payout Ratio

Dividend payout ratio is an index used to measure the proportion of cash dividends distributed to shareholders in a company's net profit. The calculation formula is Equation (9).

$$\text{Dividend payout ratio} = \frac{\text{Dividend}}{\text{Net profit}} * 100\% \tag{9}$$

Its core function is to reflect the balance between the company's profit distribution policy and reinvestment strategy [11]. If the ratio level is less than 30%, it shows that the enterprise tends to retain profits to support growth, but it may cause shareholders to question the efficiency of the management's use of funds. During the period of 30%-60%, it represents the balance between shareholder return and reinvestment. If the ratio level is above 60%, it may indicate that over-allocation is risky for future growth. In mature industries such as oil and gas, the target is usually 40-70% [12].

### 2.10 P/E Ratio

P/E Ratio is the core index used to measure the stock valuation level of a company [13], and the calculation formula is Equation (10).

$$\text{P/E ratio} = \frac{\text{Share Price}}{\text{Earnings Per Share}} \tag{10}$$

Which reflects the premium paid by investors for each unit profit. Its core function is to evaluate the rationality of stock price relative to the profitability of enterprises and reflect the market's expectation of the company's future growth and profitability. A higher P/E ratio may mean that the market has higher expectations for the future profit growth of the company and thinks that the company has greater development potential and growth space [14]. The lower P/E ratio may imply that the market is not optimistic about the company's future profit prospects, or that the company's growth is limited [14]. Due to the cyclical income and capital-intensive of oil and gas industries, the P/E ratio of such capital-intensive industries is usually low, ranging from 8 to 12.

# 3 Analysis

## 3.1 Company Introduction

Shell is the world's leading player in the energy and petrochemicals industry, providing a wide range of products and services across the oil and gas value chain. Its operations include upstream exploration and production, integrated gas, chemicals manufacturing, marketing, and increasingly renewable energy options. With activities on a large scale, Shell is among the world's leading energy firms, with a presence in major markets in North America, Europe, and Asia-Pacific. In a competitive industry, Shell faces some major players, such as ExxonMobil, BP, Chevron, and TotalEnergies, vying for market dominance with evolving energy demands and a greater focus on sustainability.

## 3.2 Profitability Ratios

Profitability ratios gauge a company's effectiveness in earning profit from its operations. It will examine three key profitability ratios: ROCE, Net profit margin, and Asset turnover ratio.

**Table 1.** Profitability ratios

| Ratio/Year | 2021 | 2022 | 2023 |
|---|---|---|---|
| ROCE | 10.66% | 21.14% | 18.50% |
| Net Profit Margin | 7.69% | 11.10% | 9.80% |
| Asset Turnover Ratio | 0.67 | 0.90 | 0.85 |

As shown in Table 1, **Return on capital employed (ROCE).** The ROCE of Shell has grown from 10.66% in 2021, reaching a maximum level in 2022 at 21.14 and a comparatively low level of 18.50 in 2023. Its high increase in 2022 is due to Shell's adoption of cost management in its business while at the same time being opportune to benefit from high demand and attendant high prices in the oil markets. Except for 2023,

it has declined, probably due to high spending on RE projects and other transition activities. These need huge capital, require regular colossal investments, do not show results immediately, and have low operational profitability. However, a ROCE of 18.50% shows that the company is highly profitable, reflecting Shell's ability to generate returns and make strategic bets for long-term benefit. (Fig. 1)

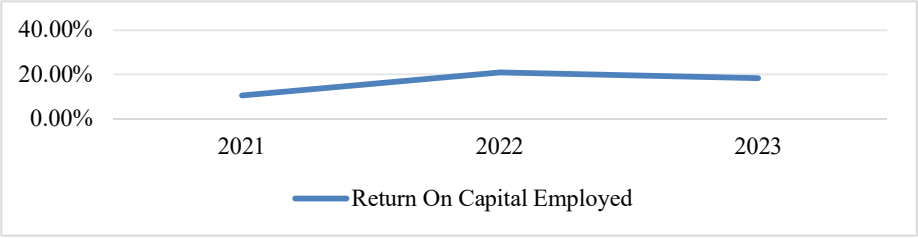


**Fig. 1.** ROCE

**Net profit margin.** A similar trend was observed in the net profit margin of Shell Company; it rose from 7.69 % in 2021 to 11.10% in 2022 and then went down to 9.80% in 2023. The first reason is linked to the increase in oil prices, and the second one concerns enhancing operational efficiency. The decrease in 2023 is in line with the trend observed in ROCE and is likely attributed to increased research and development expenses and capital expenditure on the energy transition. However, a net margin of around 10% is still strong in the volatile commodity price market, which indicates Shell's ability to remain profitable under market volatility and strategic investments. (Fig. 2)

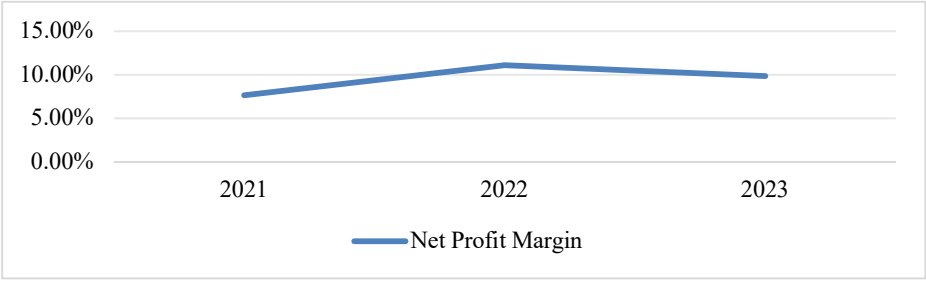


**Fig. 2.** Net Profit Margin

**Asset turnover ratio.** Shell's asset turnover ratio improved from 0.67 in 2021 to 0.90 in 2022, showing a better revenue generation on each unit of assets before falling marginally to 0.85 in 2023. The improvement in 2022 suggests improved asset utilization due to the high level of market demand. The marginal decline in 2023 can indicate the acquisition of new assets whose capacities are yet to be realized to their fullest level. Although it has decreased slightly, the asset turnover ratio is still higher than in 2021, reflecting overall asset utilization efficiency improvement. (Fig. 3)

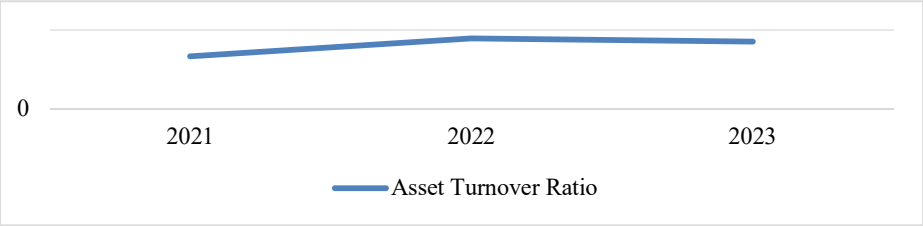


**Fig. 3.** Asset Turnover Ratio

### 3.3 Liquidity Ratios

Liquidity measures a company's ability to repay short-term debts. This time, it will be analyzed from two key indicators: current ratio and quick ratio.

**Table 2.** Liquidity ratios

| Ratio/Year | 2021 | 2022 | 2023 |
|---|---|---|---|
| Current Ratio | 1.35 | 1.37 | 1.40 |
| Quick Ratio | 1.08 | 1.11 | 1.15 |

**Current ratio.** As shown in Table 2, Shell's current ratio has risen steadily from 1.35 in 2021 to 1.40 in 2023. This steady increase indicates Shell's willingness to maintain a solid liquidity position and ensure it possesses sufficient short-term assets to cover its short-term liabilities. A current ratio of over 1 suggests that Shell can comfortably pay off its short-term obligations, providing a buffer for any unexpected cash requirements or fluctuations in the market. (Fig. 4)

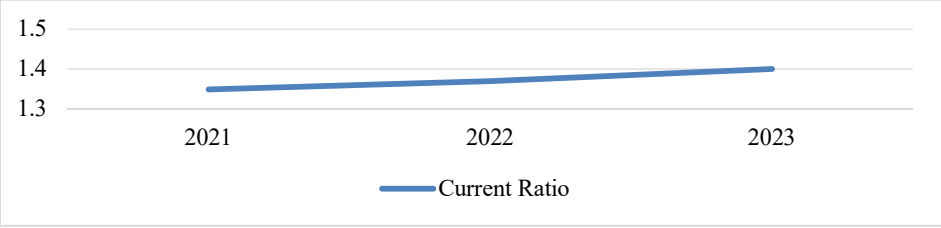


**Fig. 4.** Current Ratio

**Quick ratio.** Shell's acid-test, quick ratio, has also strengthened steadily from 1.08 in 2021 to 1.15 in 2023. This ratio is conservative as it does not consider inventories in the computation of current assets. The increasing quick ratio suggests that Shell has been accumulating holdings of extremely liquid assets, such as cash and cash equivalents, against its short-term liabilities. This establishes the company's sound liquidity standing and ability to finance its short-term requirements even without the sale of inventories. (Fig. 5)

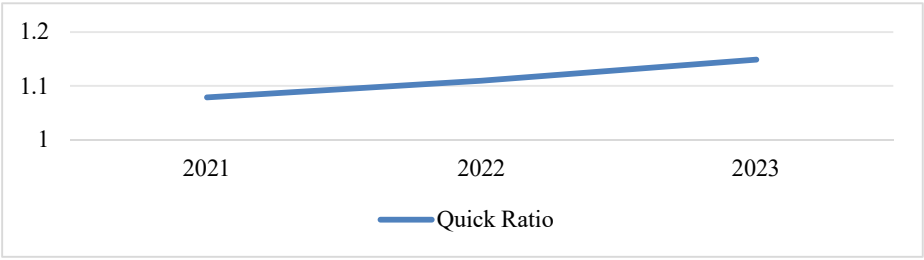


**Fig. 5.** Quick Ratio

### 3.4 Financing and Investment Ratios

Ratios of finance and investment indicate to us the capital structure of a company as well as shareholder return policies. We will discuss three significant ratios: Interest coverage ratio, gearing ratio, and dividend payout ratio.

**Table 3.** Financing and investment ratios

| Ratio/Year | 2021 | 2022 | 2023 |
|---|---|---|---|
| Interest Cover Ratio | 10.63 | 21.38 | 19.50 |
| Gearing Ratio | 130.64% | 129.97% | 125.00% |
| Dividend Payout Ratio | 31.10% | 17.50% | 20.00% |

**Interest coverage ratio.** As shown in Table 3, Shell's interest coverage ratio also significantly increased from 10.63 in 2021 to 21.38 in 2022 before slightly decreasing to 19.50 in 2023. The high values indicate Shell's ability to cover its interest charges, particularly in years of good markets and high profitability. The slight decrease in 2023 can be attributed to increased borrowing costs or higher interest charges due to financing the company's investments in clean energy. A coverage ratio of interest of around 20 would show that Shell enjoys an excellent buffer to meet its interest payment. (Fig. 6)

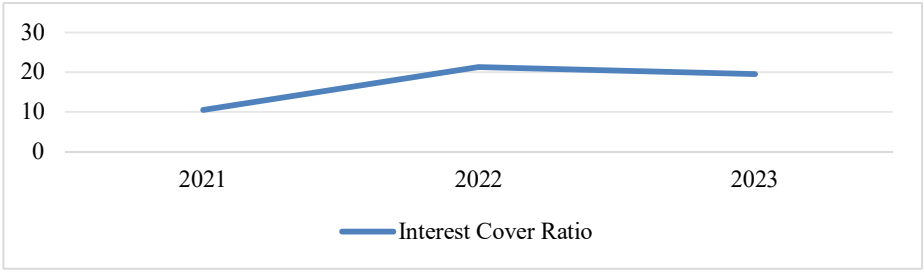


**Fig. 6.** Interest Coverage Ratio

**Gearing ratio.** Shell's gearing ratio, which indicates the amount of a company's debt-related financing, has remained high, a bit lower in 2023 at 125.00% than in 2021 at 130.64%. Shell uses considerable amounts of debt financing if the gearing ratio is

high. Debt can amplify returns when profits are made but also increases financial risk when times are bad. The moderate reduction in the gearing ratio shows that Shell has been striving to retire its debts or issue equity, but the ratio remains relatively high, reflecting the company's enormous investments in gigantic-sized projects, which have partly been financed by debt. Shell's strong liquidity and interest coverage are some mitigation of the risks involved in high gearing. (Fig. 7)

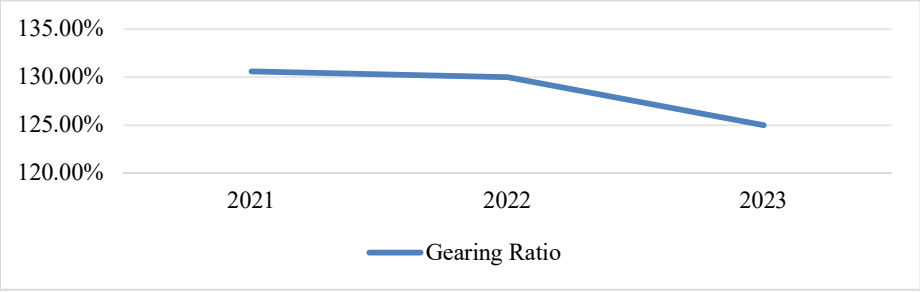


**Fig. 7.** Gearing Ratio

**Dividend payout ratio.** Shell's dividend payout ratio decreased significantly from 31.10% in 2021 to 17.50% in 2022 before increasing marginally to 20.00% in 2023. The initial decrease in the payout ratio would likely be attributed to a strategic decision by Shell to hold on to more cash and channel more funds into investing in new energy projects or debt repayment. This modest increase reflects renewed confidence in the group's cash flows, yet the payout ratio still lags 2021 levels, a more cautious policy of dividend payments. It allows Shell to balance shareholders' expectations with providing provisions to support its top-priority investments in energy transition. (Fig. 8)

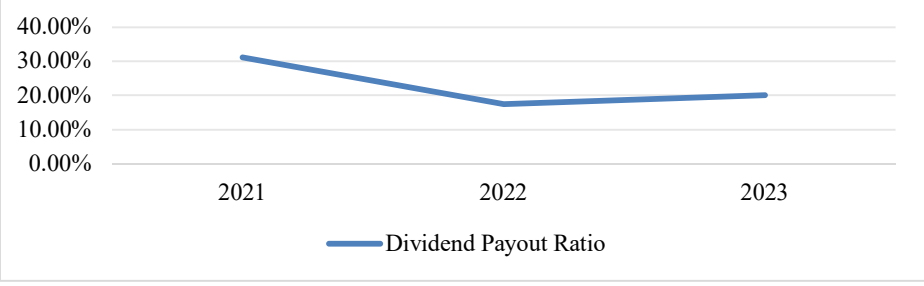


**Fig. 8.** Dividend Payout Ratio

### 3.5 Efficiency Ratio

Efficiency ratios measure how effectively a company uses its assets and manages its working capital. We will analyze the Cash conversion cycle. (Table 4)

**Table 4.** Efficiency ratio

| Ratio/Year | 2021 | 2022 | 2023 |
|---|---|---|---|
| Cash Conversion Cycle | 1.4 days | -3.7 days | -5.0 days |

**Cash conversion cycle.** Shell's cash conversion cycle (CCC) has declined significantly from 1.4 days in 2021 to -5.0 days in 2023. A negative CCC indicates that Shell receives cash from its customers before settling with suppliers. This indicates good working capital management as Shell manages to cut down its investment in inventory and reap favourable terms when settling with suppliers. While a negative CCC is normally desirable, there must be consideration given to how supplier relationships might be affected if payment terms are pushed to the extreme. (Fig. 9)

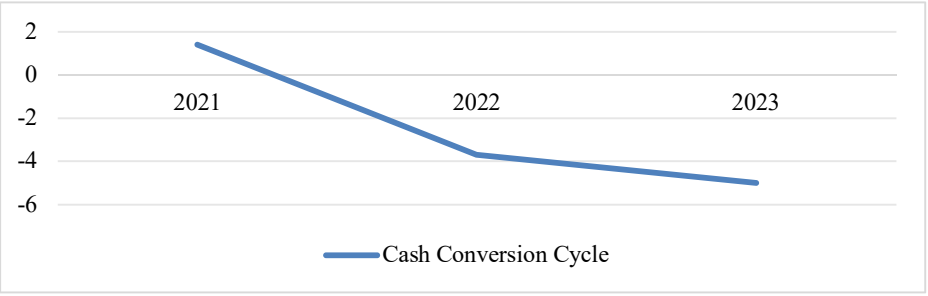


**Fig. 9.** Cash Conversion Cycle

### 3.6 Price Earning Ratio

Price earning ratio is a valuation ratio that measures the company's share price relative to its earnings per share. (Table 5)

**Table 5.** Price Earning Ratio

| Ratio/Year | 2021 | 2022 | 2023 |
|---|---|---|---|
| P/E Ratio (LYR) | 15.44 | 8.68 | 9.68 |

**P/E Ratio.** Shell's P/E ratio plummeted from 15.44 in 2021 to 8.68 in 2022 before increasing modestly to 9.68 in 2023. The steep decline could indicate that the market had already discounted Shell's increased earnings or that investors turned more bearish about the company's future outlook, possibly owing to energy transition issues. The modest increase in 2023 suggests partial confidence restoration on the part of investors. Overall, the trend of the P/E ratio reflects the evolving perception in the market of Shell's profitability outlook and the challenges and uncertainties of the energy transition. (Fig. 10)

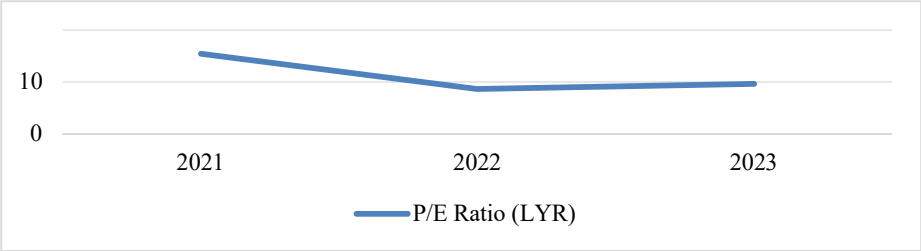


**Fig. 10.** Price Earning Ratio

### 3.7 Summary

Shell's operation between 2021 and 2023 was a strategic balancing act of using traditional energy strengths and paying for shifting to renewables. Profitability indicators like ROCE and Net profit margin skyrocketed in 2022 due to record high prices of oil but relaxed in 2023 as reinvestment into green ventures rendered costs more elevated. Liquidity ratios remained firm, as the current ratio rose to 1.40 from 1.35 and the quick ratio to 1.15 from 1.08, on account of good management of inventories and faster collection of receivables.

Financing and investment ratios revealed challenges: the 21.38x Interest cover ratio in 2022 softening to 19.50x in the face of rising borrowing costs, and the elevated gearing ratio that indicated reliance on borrowings to finance transitions, tempered by a subdued dividend payout ratio that ensures reinvestment. The efficiency ratios were a bright spot, as the cash conversion cycle went into the negative, indicating improved working capital management under longer supplier days. Finally, the P/E ratio indicated investors'apprehension about fossil fuel volatility and optimism about Shell's decarbonization drive.

Overall, Shell exhibits a mix of financial strengths and weaknesses. Its high liquidity and efficient working capital management are clear positives. The company has the weakness of balancing its debt and shareholder demand against its massive investment needs in the energy transition. Navigating these complexities successfully will be critical to Shell's long-term success and creating sustainable value in an increasingly evolving energy landscape.

## 4 Conclusion

In recent years, the global energy industry has faced profound changes due to the Russia-Ukraine conflict, carbon neutrality policy and new energy technologies. As an industry representative, Shell made a net loss of 21.68 billion pounds in 2020 but achieved a net income of 42.03 billion in 2023. Its violent fluctuation reflects the structural challenges of the industry. This study evaluates Shell's strategic resilience and transformation effect by analysing its top ten financial ratios from 2021 to 2023.

Shell's profitability index shows a trend of rising first and then falling. ROCE jumped from 10.66% in 2021 to 21.14% in 2022 and fell back to 18.50% in 2023. The

net profit rate rose from 7.69% to 11.10%, then fell to 9.80%. The high growth in 2022 stems from the rising oil price and cost optimisation, while the decline in 2023 is due to the increase in renewable energy investment, resulting in short-term income pressure. The asset turnover rate rose from 0.67 in 2021 to 0.90 in 2022, reflecting the improvement of the asset utilisation rate but decreased slightly to 0.85 in 2023, indicating that it will take time to integrate new assets.

In terms of liquidity, Shell's current ratio has steadily increased from 1.35(2021) to 1.40(2023), and its quick ratio has increased from 1.08 to 1.15, indicating that its short-term solvency has been enhanced by optimising inventory and accounts receivable management. However, the risk of capital structure appears, and the asset-liability ratio is higher than 125% for a long time, and it will still reach 125% in 2023. Although the interest guarantee rate rose from 10.63 times in 2021 to 21.38 times in 2022, it fell to 19.50 times in 2023, reflecting the erosion of profits by rising borrowing costs. To balance the transformation investment, Shell's dividend payment rate dropped sharply from 31.10% in 2021 to 17.50% in 2022 and rose slightly to 20% in 2023, indicating that cash flow prioritises strategic investment.

Shell has a difficult balance between traditional energy dividends and green transformation, with high liquidity and efficient working capital management as its obvious advantages. Still, the increase in debt exposes the pressure of transformation costs. In the future, it is necessary to accurately control strategic investment, debt risk, and shareholders' expectations to maintain competitiveness in the energy revolution. For investors, the long-term value of Shell depends on whether it can turn short-term financial resilience into a first-mover advantage in sustainable energy.

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