

# Integrated Fundamental and Technical Analysis of Select Public Sector Oil Companies in India: A Five-Year Empirical Study

S. Abhishek Reddy<sup>1</sup>, Guide Srivani<sup>2</sup>, Dr. Chokkamreddy Prakash<sup>3</sup>

<sup>1</sup>PG Scholar, Department of MBA, School of Management Studies

<sup>2,3</sup>Assistant Professor, Department of MBA, School of Management Studies  
Guru Nanak Institutions Technical Campus, Hyderabad

**Abstract:** *This study investigates the investment potential of four major Indian public sector oil companies—Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL), and Oil and Natural Gas Corporation (ONGC)—over a five-year period (2020–2024). Using a dual approach that combines fundamental and technical analysis, the study evaluates stock trends, momentum indicators, and financial ratios to assess the companies' financial health and market performance. Results indicate that market sentiment and macroeconomic factors significantly influence price movements, while financial indicators such as ROE, ROA, current ratio, and quick ratio vary across firms, offering diverse investment opportunities. The study concludes with strategic recommendations for investors.*

**Keywords:** Technical analysis, fundamental analysis, RSI, ROC, public sector undertakings, oil & gas sector, India, investment strategies

## I. INTRODUCTION

Investment decisions in equity markets are driven by the dual forces of risk and return. Investors are increasingly seeking comprehensive methods to evaluate stock performance, particularly in volatile and capital-intensive sectors like oil and gas. Two dominant approaches have emerged to support such evaluations: fundamental analysis, which assesses a company's intrinsic value based on its financial health and macroeconomic factors, and technical analysis, which focuses on price trends and market behavior using statistical tools (Sharma & Mehta, 2018; Kumar & Pandey, 2020). India's energy sector is pivotal to its economic development, contributing significantly to GDP and employment while also being subject to external shocks such as global crude oil price fluctuations and geopolitical risks (Economic Survey, 2025). Public Sector Undertakings (PSUs) like Indian Oil Corporation Ltd. (IOCL), Bharat Petroleum Corporation Ltd. (BPCL), Hindustan Petroleum Corporation Ltd. (HPCL), and Oil and Natural Gas Corporation (ONGC) play a dominant role in the Indian energy landscape. These companies are vital not only for ensuring energy security but also as key players in the capital market. With the Indian stock market becoming more responsive to both global cues and domestic reforms, investors are increasingly relying on integrated analytical methods to guide investment decisions. Technical indicators such as the Relative Strength Index (RSI) and Rate of Change (ROC) assist in identifying optimal entry and exit points, while fundamental indicators like the Return on Equity (ROE), Return on Assets (ROA), and liquidity ratios help evaluate financial soundness (Poonia & Sirohi, 2017; Dey & Kaur, 2019). The convergence of these tools allows for a more holistic and data-driven approach to investment, especially in sectors characterized by regulatory complexity and market volatility (PwC India, 2024; EY India, 2025). This study aims to integrate both analytical approaches to assess the performance and investment potential of India's leading oil and gas PSUs from 2020 to 2024. It provides insights not only for investors but also for policy makers and analysts seeking to understand the dynamics of a sector that is undergoing significant transformation amid the global shift toward sustainable energy.

## **II. LITERATURE REVIEW**

Kaur & Arora (2016) Kaur and Arora conducted an empirical study using technical indicators such as RSI, MACD, and Bollinger Bands to analyze selected stocks in the Indian market. Their study confirmed that technical analysis serves as a powerful tool in identifying short-term trading opportunities, especially in sectors experiencing frequent price fluctuations like energy and banking. Poonia & Sirohi (2017) This study provided a comparative analysis of fundamental and technical indicators applied to selected oil and gas companies listed on the NSE. The researchers concluded that while technical analysis helped in timing the market, fundamental analysis—especially indicators like ROE and EPS—was vital for long-term decision-making. Sharma & Mehta (2018) Sharma and Mehta assessed the predictive capability of RSI and ROC indicators for energy sector stocks. The research highlighted that these tools were effective in detecting overbought and oversold zones, thus supporting short-term trading strategies. Dey & Kaur (2019) Dey and Kaur examined the influence of macroeconomic indicators—such as inflation, crude oil prices, and interest rates—on the stock performance of Indian oil companies. The study found significant correlations between macroeconomic trends and the volatility of stock prices in this sector. Kumar & Pandey (2020) This study integrated both fundamental and technical analytical tools to assess the investment potential of Indian public sector enterprises. The findings suggested that a hybrid approach provides a more reliable framework for evaluating both short-term trends and long-term value. Chittumuri et al. (2025) Chittumuri et al. conducted a study employing Geographic Information Systems (GIS) and machine learning techniques to assess risk in oil and gas flowlines. The research highlighted the potential of integrating spatial data and predictive models to enhance safety and operational efficiency in the oil and gas sector. Mohammed et al. (2022) Mohammed et al. explored cybersecurity challenges in the offshore oil and gas industry, emphasizing the vulnerabilities introduced by Industrial Cyber-Physical Systems (ICPS). The study underscored the need for robust security measures to protect critical infrastructure in the sector. Kishnani et al. (2023) Kishnani et al. reviewed the application of blockchain technology in the oil and gas supply chain, focusing on user security and privacy. The literature review identified blockchain's potential to enhance transparency and traceability, while also noting the challenges in its widespread adoption. PwC India (2024) PwC India's report discussed the volatility in the oil and gas market, attributing it to geopolitical tensions and fluctuating demand. The report emphasized the importance of comprehensive risk management strategies and the adoption of automation and data analytics to navigate complex regulatory environments. Economic Survey 2024–25 (2025) The Economic Survey highlighted India's increasing energy demand and the challenges posed by import dependency. It detailed policy interventions aimed at boosting domestic exploration and production, and the integration of renewable energy sources to achieve energy security. EY India (2025) EY India's analysis focused on the energy sector's transition, noting significant strides in renewable energy targets and the diversification of crude oil imports. The report emphasized the role of digitalization and AI in optimizing operations and enhancing efficiency in the oil and gas industry. Directorate General of Hydrocarbons (2024) The Directorate's report provided an overview of exploration and production activities in India, highlighting the government's initiatives to attract investment and the challenges faced in upstream operations, including regulatory hurdles and the need for technological advancements. Indian Infrastructure (2024) This publication discussed the developments in India's oil and gas sector, noting the government's efforts to attract foreign direct investment and the obstacles hindering upstream sector growth, such as high taxation and delays in approvals.

## **III. PROBLEM STATEMENT**

In order to predict future prices, security analysis examines market trends and price movement. Finding prospects presents challenges for the investors. Therefore, the focus of this analysis is on the usage of several security analysis techniques that assist investors in determining whether to purchase or sell. Interest rates are declining in the current economic climate, and share market volatility has confused investors. Making investment decisions can be challenging. The main reason for this is that investments are inherently dangerous, and before making an investment, investors must take a number of things into account. Thus, the study's goal is to examine the dangers that investors face when investing in security schemes.

**OBJECTIVES OF THE STUDY**

- To evaluate the price trends and momentum of IOCL, HPCL, BPCL, and ONGC using technical indicators
- To assess the short-term and long-term financial health of the selected companies using fundamental analysis
- To compare the performance of the four companies within the Indian oil and gas sector
- To analyse the investment attractiveness of each stock from both technical and fundamental perspectives
- To provide recommendations for investors based on observed trends and financial metrics

**IV. RESEARCH METHODOLOGY**

This study adopts a dual approach combining fundamental analysis and technical analysis to evaluate the performance and investment potential of four major Indian oil and gas companies—Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL), and Oil and Natural Gas Corporation (ONGC)—over the period from 2019 to 2024.

**1. Data Collection**

**Secondary data** was collected from reliable sources including annual reports, stock market data platforms (like NSE and BSE), company websites, and financial portals.

Price and financial data used for technical and fundamental analysis were recorded monthly and annually, respectively, spanning a five-year period.

**2. Technical Analysis**

To identify trends and investor sentiment in stock price movements, the following indicators were applied:

**Relative Strength Index (RSI):** Calculated using 14-day average gains and losses to assess momentum and identify overbought (>70) or oversold (<30) conditions.

**Rate of Change (ROC):** Measured the percentage change in stock prices year-over-year to determine historical price momentum and volatility.

Data for RSI and ROC was manually calculated from historical monthly stock prices using Excel-based formulas, following standard technical analysis methodology.

**3. Fundamental Analysis**

Key financial ratios were analysed to evaluate the operational and financial health of each company:

**Liquidity Ratios:**

*Current Ratio* = Current Assets / Current Liabilities

*Quick Ratio* = (Current Assets – Inventory) / Current Liabilities

**Profitability Ratios:**

Return on Equity (ROE) = Net Profit / Shareholders’ Equity

Return on Assets (ROA) = Net Profit / Total Assets

These ratios were derived using data from published financial statements for the fiscal years 2020 to 2024.

**V. DATA ANALYSIS & INTERPRETATION**

**TECHNICAL ANALYSIS:**

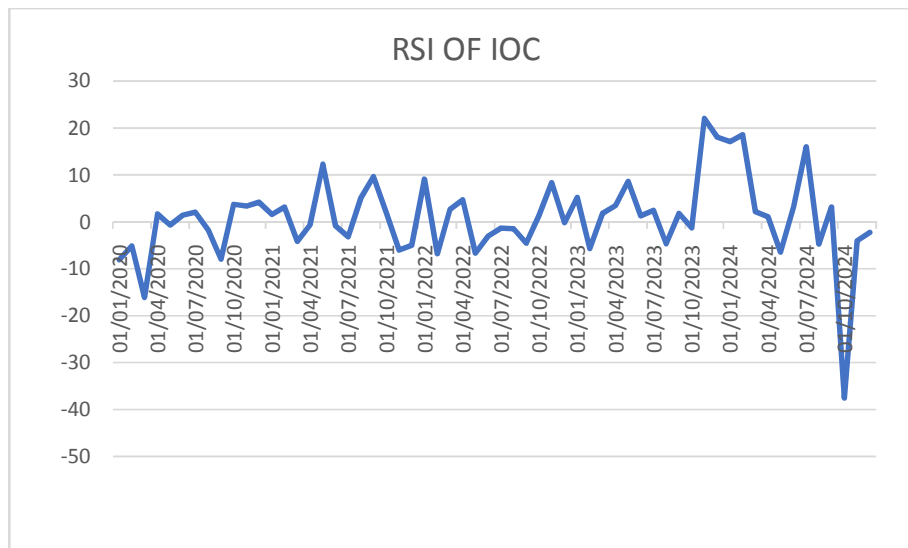
**TABLE-1: RSI CALCULATION OF “INDIAN OIL CORPORATION”**

Date	Price	Change	Gain	Loss	Avg. Gain	Avg. Loss	RS	RSI
01-12-2019	83.7							
01-01-2020	75.63	-8.07	0	8.07				
01-02-2020	70.5	-5.13	0	5.13				
01-03-2020	54.43	-16.07	0	16.07				
01-04-2020	56.13	1.7	1.7	0				

01-05-2020	55.47	-0.66	0	0.66				
01-06-2020	56.9	1.43	1.43	0				
01-07-2020	58.97	2.07	2.07	0				
01-08-2020	57.2	-1.77	0	1.77				
01-09-2020	49.27	-7.93	0	7.93				
01-10-2020	53.03	3.76	3.76	0				
01-11-2020	56.4	3.37	3.37	0				
01-12-2020	60.63	4.23	4.23	0				
01-01-2021	62.17	1.54	1.54	0				
01-02-2021	65.37	3.2	3.2	0	1.52	2.83	0.54	34.96
01-03-2021	61.23	-4.14	0	4.14	1.52	2.55	0.60	37.37
01-04-2021	60.57	-0.66	0	0.66	1.52	2.23	0.68	40.55
01-05-2021	72.83	12.26	12.26	0	2.40	1.08	2.21	68.88
01-06-2021	71.93	-0.9	0	0.9	2.28	1.15	1.98	66.49
01-07-2021	68.77	-3.16	0	3.16	2.28	1.33	1.72	63.19
01-08-2021	73.9	5.13	5.13	0	2.54	1.33	1.92	65.71
01-09-2021	83.53	9.63	9.63	0	3.08	1.33	2.32	69.91
01-10-2021	85.3	1.77	1.77	0	3.21	1.20	2.67	72.78
01-11-2021	79.3	-6	0	6	3.21	1.06	3.02	75.13
01-12-2021	74.33	-4.97	0	4.97	2.94	1.42	2.07	67.47
01-01-2022	83.47	9.14	9.14	0	3.35	1.42	2.37	70.28
01-02-2022	76.67	-6.8	0	6.8	3.05	1.90	1.60	61.57
01-03-2022	79.3	2.63	2.63	0	3.13	1.90	1.64	62.17
01-04-2022	84	4.7	4.7	0	3.23	1.90	1.70	62.96
01-05-2022	77.33	-6.67	0	6.67	3.23	2.08	1.55	60.82
01-06-2022	74.25	-3.08	0	3.08	3.23	2.26	1.43	58.90
01-07-2022	72.95	-1.3	0	1.3	2.36	2.35	1.00	50.09
01-08-2022	71.5	-1.45	0	1.45	2.36	2.39	0.99	49.68
01-09-2022	66.95	-4.55	0	4.55	2.36	2.49	0.95	48.66
01-10-2022	68.25	1.3	1.3	0	2.08	2.49	0.84	45.59
01-11-2022	76.65	8.4	8.4	0	2.00	2.49	0.80	44.52
01-12-2022	76.5	-0.15	0	0.15	1.87	2.50	0.75	42.80
01-01-2023	81.75	5.25	5.25	0	2.24	2.07	1.08	52.03
01-02-2023	76.05	-5.7	0	5.7	2.24	2.12	1.06	51.41
01-03-2023	77.9	1.85	1.85	0	1.72	2.12	0.81	44.83
01-04-2023	81.4	3.5	3.5	0	1.97	1.64	1.21	54.68
01-05-2023	90	8.6	8.6	0	2.40	1.64	1.47	59.47
01-06-2023	91.3	1.3	1.3	0	2.16	1.64	1.32	56.87
01-07-2023	93.75	2.45	2.45	0	2.33	1.16	2.01	66.80
01-08-2023	89.1	-4.65	0	4.65	2.33	1.27	1.83	64.72
01-09-2023	90.95	1.85	1.85	0	2.46	1.18	2.09	67.65
01-10-2023	89.7	-1.25	0	1.25	2.46	1.16	2.12	67.91
01-11-2023	111.75	22.05	22.05	0	4.04	0.84	4.81	82.80
01-12-2023	129.85	18.1	18.1	0	5.24	0.84	6.24	86.19

01-01-2024	146.95	17.1	17.1	0	5.86	0.84	6.98	87.47
01-02-2024	165.55	18.6	18.6	0	7.19	0.83	8.68	89.67
01-03-2024	167.75	2.2	2.2	0	6.97	0.83	8.41	89.38
01-04-2024	168.85	1.1	1.1	0	7.05	0.42	16.73	94.36
01-05-2024	162.4	-6.45	0	6.45	6.92	0.88	7.84	88.69
01-06-2024	165.63	3.23	3.23	0	6.90	0.88	7.82	88.66
01-07-2024	181.67	16.04	16.04	0	7.43	0.88	8.42	89.39
01-08-2024	176.97	-4.7	0	4.7	7.34	1.22	6.02	85.76
01-09-2024	180.15	3.18	3.18	0	7.39	1.22	6.07	85.85
01-10-2024	142.62	-37.53	0	37.53	7.39	3.57	2.07	67.45
01-11-2024	138.63	-3.99	0	3.99	7.26	3.85	1.88	65.33
01-12-2024	136.41	-2.22	0	2.22	7.26	3.92	1.85	64.92

**Graph -1**



The data provided represents the price movement and RSI (Relative Strength Index) analysis of a security over time, calculated using a 14-day period. Initially, the RSI values are missing as the average gains and losses need at least 14 days of data to compute. From early 2021 onwards, RSI values start appearing, reflecting the momentum and strength of price changes. Notably, RSI levels around January 2021 were moderate, fluctuating between 30 and 70, indicating relatively balanced market conditions. However, from late 2023 into early 2024, RSI values surged above 80 and even crossed 90, suggesting strong bullish momentum and possibly overbought conditions. A sharp drop in price in October 2024 caused the RSI to fall back to more neutral territory, indicating a shift in momentum. Overall, the data shows a period of strong price gains followed by some correction, with RSI effectively tracking these shifts in trend strength.

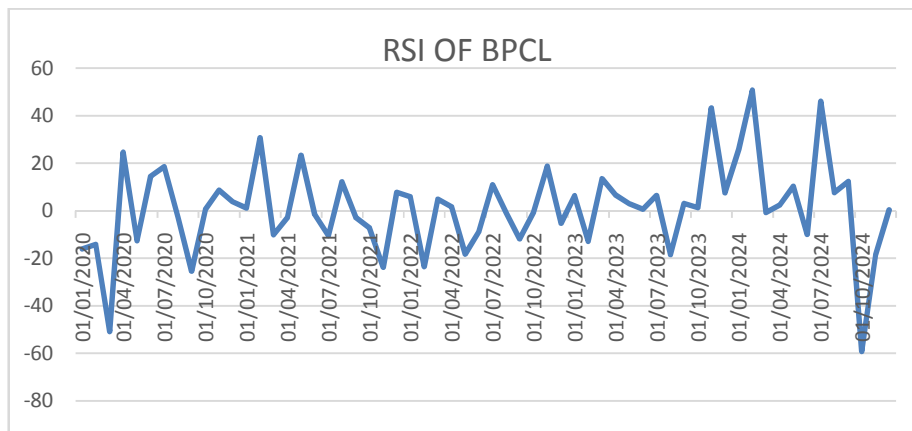
**TABLE-2: RSI CALCULATION OF “BHARATH PETROLEUM”**

Date	Price	Change	Gain	Loss	Avg.Gain	AVG.Loss	RS	RSI
01-12-2019	228.22							
01-01-2020	212.16	-16.06	0	16.06				
01-02-2020	197.95	-14.21	0	14.21				
01-03-2020	147.13	-50.82	0	50.82				

01-04-2020	171.79	24.66	24.66	0				
01-05-2020	159.16	-12.63	0	12.63				
01-06-2020	173.64	14.48	14.48	0				
01-07-2020	192.12	18.48	18.48	0				
01-08-2020	189.34	-2.78	0	2.78				
01-09-2020	163.92	-25.42	0	25.42				
01-10-2020	164.57	0.65	0.65	0				
01-11-2020	173.18	8.61	8.61	0				
01-12-2020	176.94	3.76	3.76	0				
01-01-2021	178.1	1.16	1.16	0				
01-02-2021	208.86	30.76	30.76	0	7.33	8.71	0.84	45.69
01-03-2021	198.69	-10.17	0	10.17	7.33	8.29	0.88	46.92
01-04-2021	195.84	-2.85	0	2.85	7.33	7.48	0.98	49.49
01-05-2021	219.14	23.3	23.3	0	8.99	3.85	2.34	70.04
01-06-2021	217.33	-1.81	0	1.81	7.23	3.98	1.82	64.52
01-07-2021	206.84	-10.49	0	10.49	7.23	3.82	1.89	65.41
01-08-2021	218.98	12.14	12.14	0	7.06	3.82	1.85	64.88
01-09-2021	216.1	-2.88	0	2.88	5.74	4.03	1.43	58.77
01-10-2021	208.85	-7.25	0	7.25	5.74	4.35	1.32	56.91
01-11-2021	185	-23.85	0	23.85	5.74	4.24	1.36	57.55
01-12-2021	192.73	7.73	7.73	0	6.25	4.24	1.47	59.59
01-01-2022	198.52	5.79	5.79	0	6.05	4.24	1.43	58.80
01-02-2022	174.9	-23.62	0	23.62	5.78	5.92	0.98	49.38
01-03-2022	179.68	4.78	4.78	0	6.04	5.92	1.02	50.47
01-04-2022	181.3	1.62	1.62	0	3.95	5.92	0.67	40.03
01-05-2022	163.1	-18.2	0	18.2	3.95	6.50	0.61	37.84
01-06-2022	154.2	-8.9	0	8.9	3.95	6.93	0.57	36.33
01-07-2022	165.15	10.95	10.95	0	3.07	6.93	0.44	30.72
01-08-2022	164.32	-0.83	0	0.83	3.07	6.86	0.45	30.94
01-09-2022	152.4	-11.92	0	11.92	3.07	6.96	0.44	30.62
01-10-2022	151.82	-0.58	0	0.58	2.21	7.00	0.31	23.95
01-11-2022	170.57	18.75	18.75	0	3.54	6.80	0.52	34.28
01-12-2022	165.25	-5.32	0	5.32	3.54	6.66	0.53	34.74
01-01-2023	171.63	6.38	6.38	0	4.00	4.96	0.81	44.67
01-02-2023	158.68	-12.95	0	12.95	3.45	5.88	0.59	36.96
01-03-2023	172.15	13.47	13.47	0	4.00	5.88	0.68	40.46
01-04-2023	178.8	6.65	6.65	0	4.47	4.19	1.07	51.61
01-05-2023	181.75	2.95	2.95	0	4.34	4.19	1.04	50.87
01-06-2023	182.35	0.6	0.6	0	4.27	4.19	1.02	50.44
01-07-2023	188.75	6.4	6.4	0	4.73	2.89	1.63	62.03
01-08-2023	170.27	-18.48	0	18.48	4.73	3.58	1.32	56.91
01-09-2023	173.3	3.03	3.03	0	4.16	3.58	1.16	53.76

01-10-2023	174.63	1.33	1.33	0	4.25	3.52	1.21	54.74
01-11-2023	217.85	43.22	43.22	0	7.34	2.67	2.75	73.36
01-12-2023	225.32	7.47	7.47	0	7.88	2.63	3.00	75.00
01-01-2024	251.18	25.86	25.86	0	8.38	2.63	3.19	76.15
01-02-2024	301.92	50.74	50.74	0	12.01	2.25	5.35	84.25
01-03-2024	301.2	-0.72	0	0.72	11.55	2.30	5.03	83.42
01-04-2024	303.67	2.47	2.47	0	11.73	1.37	8.55	89.53
01-05-2024	313.9	10.23	10.23	0	11.50	1.37	8.38	89.34
01-06-2024	303.95	-9.95	0	9.95	11.02	2.08	5.29	84.11
01-07-2024	350.05	46.1	46.1	0	14.10	2.08	6.77	87.14
01-08-2024	357.65	7.6	7.6	0	14.60	2.08	7.01	87.52
01-09-2024	369.95	12.3	12.3	0	15.03	2.08	7.22	87.83
01-10-2024	310.75	-59.2	0	59.2	15.03	4.99	3.01	75.07
01-11-2024	292.1	-18.65	0	18.65	14.81	6.32	2.34	70.08
01-12-2024	292.45	0.35	0.35	0	14.74	6.32	2.33	69.98

**Graph-2**



The table presents the historical price data and corresponding RSI (Relative Strength Index) calculations for a stock over a five-year period. The RSI, a momentum oscillator ranging from 0 to 100, indicates whether the asset is overbought (typically RSI > 70) or oversold (RSI < 30). From the data, the RSI frequently moves between 30 and 75, suggesting regular periods of both price strength and weakness, with peaks above 80 in early 2024 indicating possible overbought conditions. Sharp gains and losses, particularly the major price jump in January 2024 and drop in October 2024, significantly impacted the RSI values. Overall, the stock demonstrates volatility with strong bullish trends in early 2024 before facing a correction.

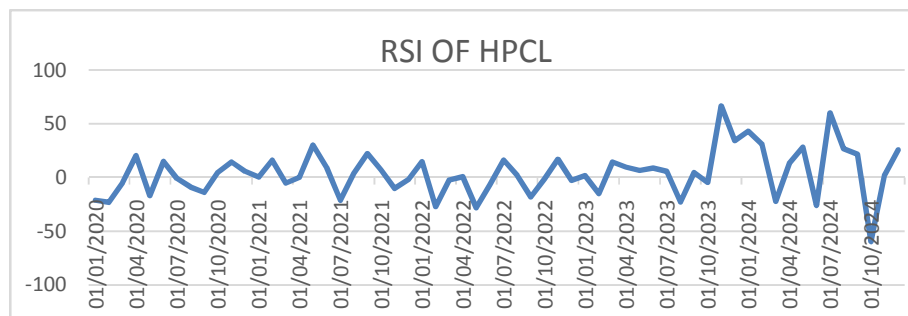
**TABLE-3: RSI CALCULATION OF “HPCL”**

Date	Price	Change	Gain	Loss	Avg. Gain	Avg. Loss	RS	RSI
01-12-2019	176.33							
01-01-2020	154.97	-21.36	0	21.36				
01-02-2020	131.7	-23.27	0	23.27				
01-03-2020	126.73	-4.97	0	4.97				
01-04-2020	146.87	20.14	20.14	0				

01-05-2020	129.7	-17.17	0	17.17				
01-06-2020	144.5	14.8	14.8	0				
01-07-2020	143.33	-1.17	0	1.17				
01-08-2020	134.37	-8.96	0	8.96				
01-09-2020	120.43	-13.94	0	13.94				
01-10-2020	125.1	4.67	4.67	0				
01-11-2020	139.57	14.47	14.47	0				
01-12-2020	145.27	5.7	5.7	0				
01-01-2021	145.73	0.46	0.46	0				
01-02-2021	161.63	15.9	15.9	0	5.44	6.49	0.84	45.60
01-03-2021	156.33	-5.3	0	5.3	5.44	5.34	1.02	50.45
01-04-2021	156.43	0.1	0.1	0	5.45	3.68	1.48	59.68
01-05-2021	186.47	30.04	30.04	0	7.59	3.32	2.28	69.55
01-06-2021	195.47	9	9	0	6.80	3.32	2.04	67.15
01-07-2021	174.1	-21.37	0	21.37	6.80	3.62	1.88	65.22
01-08-2021	177.73	3.63	3.63	0	6.00	3.62	1.65	62.33
01-09-2021	200	22.27	22.27	0	7.59	3.54	2.14	68.19
01-10-2021	206.93	6.93	6.93	0	8.08	2.90	2.79	73.59
01-11-2021	196.73	-10.2	0	10.2	8.08	2.63	3.07	75.43
01-12-2021	194.9	-1.83	0	1.83	7.75	2.76	2.80	73.71
01-01-2022	209.4	14.5	14.5	0	7.75	2.76	2.80	73.71
01-02-2022	182.17	-27.23	0	27.23	7.35	4.71	1.56	60.93
01-03-2022	179.57	-2.6	0	2.6	7.31	4.90	1.49	59.90
01-04-2022	180.2	0.63	0.63	0	6.22	4.90	1.27	55.97
01-05-2022	151.87	-28.33	0	28.33	6.22	6.54	0.95	48.75
01-06-2022	144.8	-7.07	0	7.07	6.21	7.05	0.88	46.87
01-07-2022	160.77	15.97	15.97	0	5.21	7.05	0.74	42.51
01-08-2022	162.37	1.6	1.6	0	4.68	7.05	0.66	39.92
01-09-2022	144.2	-18.17	0	18.17	4.68	6.82	0.69	40.71
01-10-2022	142.57	-1.63	0	1.63	4.42	6.93	0.64	38.94
01-11-2022	159.4	16.83	16.83	0	4.03	6.93	0.58	36.78
01-12-2022	156.77	-2.63	0	2.63	3.54	7.12	0.50	33.19
01-01-2023	158.6	1.83	1.83	0	3.67	6.39	0.57	36.46
01-02-2023	143.5	-15.1	0	15.1	3.67	7.34	0.50	33.32
01-03-2023	157.87	14.37	14.37	0	3.66	7.34	0.50	33.27
01-04-2023	167.5	9.63	9.63	0	4.35	5.40	0.81	44.62
01-05-2023	173.93	6.43	6.43	0	4.81	5.21	0.92	47.99
01-06-2023	182.57	8.64	8.64	0	5.38	5.21	1.03	50.80
01-07-2023	188.27	5.7	5.7	0	5.79	3.19	1.82	64.49
01-08-2023	165.4	-22.87	0	22.87	5.79	4.31	1.34	57.28
01-09-2023	169.97	4.57	4.57	0	4.97	4.31	1.15	53.54
01-10-2023	165.13	-4.84	0	4.84	4.86	4.66	1.04	51.04

01-11-2023	231.6	66.47	66.47	0	9.61	3.36	2.86	74.07
01-12-2023	265.93	34.33	34.33	0	12.06	3.25	3.71	78.79
01-01-2024	308.83	42.9	42.9	0	13.92	3.25	4.29	81.09
01-02-2024	339.6	30.77	30.77	0	16.12	3.06	5.27	84.05
01-03-2024	317.1	-22.5	0	22.5	15.99	4.67	3.43	77.41
01-04-2024	330.27	13.17	13.17	0	16.93	3.59	4.72	82.52
01-05-2024	358.23	27.96	27.96	0	17.90	3.59	4.99	83.31
01-06-2024	332.1	-26.13	0	26.13	17.21	5.45	3.16	75.94
01-07-2024	392.25	60.15	60.15	0	21.05	5.45	3.86	79.42
01-08-2024	419.05	26.8	26.8	0	22.34	5.45	4.10	80.38
01-09-2024	440.55	21.5	21.5	0	23.47	5.45	4.30	81.15
01-10-2024	380.9	-59.65	0	59.65	23.47	8.08	2.91	74.39
01-11-2024	383.1	2.2	2.2	0	23.30	8.08	2.88	74.25
01-12-2024	408.75	25.65	25.65	0	25.14	7.73	3.25	76.47

**Graph 3**



The data shows fluctuating stock prices with corresponding changes in the Relative Strength Index (RSI), reflecting varying market momentum from 2019 to 2024. Periods of high RSI, especially in early and mid-2024, indicate strong bullish trends and potential overbought conditions. Conversely, dips in RSI around 2022 and early 2023 suggest bearish phases or potential buying opportunities. The consistent calculation of average gains and losses highlights how momentum builds or fades over time. Overall, the trend indicates a volatile market with cycles of sharp rises and corrections.

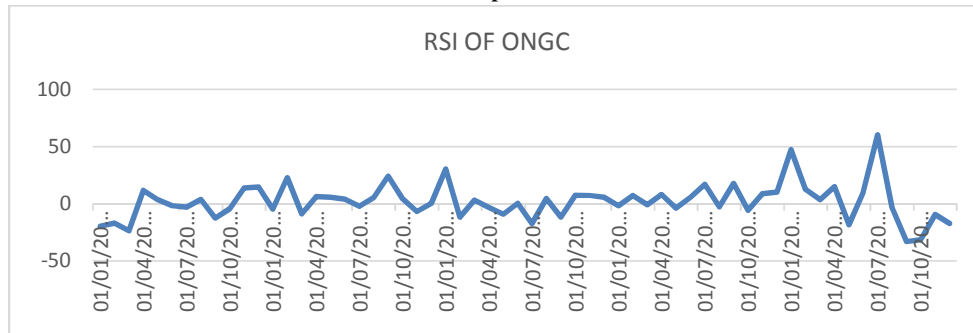
**TABLE-4: RSI CALCULATION OF “ONGC”**

Date	Price	Change	Gain	Loss	Avg. Gain	Avg. Loss	RS	RSI
01-12-2019	128.8							
01-01-2020	108.95	-19.85	0	19.85				
01-02-2020	91.95	-17	0	17				
01-03-2020	68.3	-23.65	0	23.65				
01-04-2020	79.9	11.6	11.6	0				
01-05-2020	83.2	3.3	3.3	0				
01-06-2020	81.35	-1.85	0	1.85				
01-07-2020	78.3	-3.05	0	3.05				
01-08-2020	81.95	3.65	3.65	0				
01-09-2020	69.25	-12.7	0	12.7				

01-10-2020	64.9	-4.35	0	4.35				
01-11-2020	78.5	13.6	13.6	0				
01-12-2020	93.05	14.55	14.55	0				
01-01-2021	88.3	-4.75	0	4.75				
01-02-2021	111	22.7	22.7	0	4.96	6.23	0.80	44.32
01-03-2021	102.15	-8.85	0	8.85	4.96	5.44	0.91	47.66
01-04-2021	108.15	6	6	0	5.39	4.23	1.27	56.02
01-05-2021	113.65	5.5	5.5	0	5.78	2.54	2.28	69.47
01-06-2021	117.7	4.05	4.05	0	5.24	2.54	2.06	67.36
01-07-2021	115.3	-2.4	0	2.4	5.00	2.71	1.85	64.86
01-08-2021	120.55	5.25	5.25	0	5.38	2.58	2.09	67.59
01-09-2021	144.5	23.95	23.95	0	7.09	2.36	3.00	75.02
01-10-2021	149.05	4.55	4.55	0	7.15	2.36	3.03	75.19
01-11-2021	142.1	-6.95	0	6.95	7.15	1.95	3.67	78.58
01-12-2021	142.4	0.3	0.3	0	7.18	1.64	4.38	81.40
01-01-2022	172.6	30.2	30.2	0	8.36	1.64	5.10	83.61
01-02-2022	160.65	-11.95	0	11.95	7.32	2.49	2.94	74.60
01-03-2022	163.9	3.25	3.25	0	7.55	2.15	3.51	77.81
01-04-2022	160.45	-3.45	0	3.45	5.93	2.40	2.47	71.20
01-05-2022	151.25	-9.2	0	9.2	5.93	2.43	2.45	70.98
01-06-2022	151.55	0.3	0.3	0	5.53	2.43	2.28	69.50
01-07-2022	134.15	-17.4	0	17.4	5.13	3.67	1.40	58.32
01-08-2022	138.6	4.45	4.45	0	5.16	3.67	1.41	58.45
01-09-2022	126.8	-11.8	0	11.8	5.16	4.34	1.19	54.32
01-10-2022	134.05	7.25	7.25	0	5.30	4.34	1.22	55.00
01-11-2022	141.1	7.05	7.05	0	4.10	4.34	0.94	48.56
01-12-2022	146.75	5.65	5.65	0	4.18	4.34	0.96	49.04
01-01-2023	144.9	-1.85	0	1.85	4.18	3.98	1.05	51.23
01-02-2023	152.05	7.15	7.15	0	4.66	3.98	1.17	53.99
01-03-2023	151.05	-1	0	1	2.51	4.05	0.62	38.26
01-04-2023	158.95	7.9	7.9	0	3.07	3.19	0.96	49.03
01-05-2023	154.9	-4.05	0	4.05	2.84	3.48	0.82	44.92
01-06-2023	160.3	5.4	5.4	0	3.23	3.24	1.00	49.92
01-07-2023	177.05	16.75	16.75	0	4.42	2.58	1.71	63.16
01-08-2023	174.15	-2.9	0	2.9	4.40	2.79	1.58	61.23
01-09-2023	191.85	17.7	17.7	0	5.66	1.54	3.67	78.59
01-10-2023	186.15	-5.7	0	5.7	5.35	1.95	2.74	73.27
01-11-2023	194.95	8.8	8.8	0	5.98	1.11	5.40	84.37
01-12-2023	205.05	10.1	10.1	0	6.18	1.11	5.58	84.80
01-01-2024	252.25	47.2	47.2	0	9.05	1.11	8.17	89.10
01-02-2024	264.6	12.35	12.35	0	9.53	1.11	8.60	89.59
01-03-2024	268.05	3.45	3.45	0	9.77	0.97	10.02	90.93

01-04-2024	282.85	14.8	14.8	0	10.32	0.97	10.58	91.37
01-05-2024	264.35	-18.5	0	18.5	10.32	2.23	4.64	82.26
01-06-2024	274.2	9.85	9.85	0	10.46	2.23	4.70	82.46
01-07-2024	334.2	60	60	0	14.74	1.94	7.62	88.39
01-08-2024	330.75	-3.45	0	3.45	14.36	2.18	6.58	86.81
01-09-2024	297.6	-33.15	0	33.15	13.16	4.55	2.89	74.31
01-10-2024	266.15	-31.45	0	31.45	13.16	6.59	2.00	66.64
01-11-2024	256.7	-9.45	0	9.45	11.90	7.26	1.64	62.09
01-12-2024	239.25	-17.45	0	17.45	11.90	8.10	1.47	59.48

Graph -4



The dataset represents the historical price movement of a financial asset, along with calculated values for daily price changes, gains, losses, and the Relative Strength Index (RSI). The RSI, a momentum oscillator, indicates whether the asset is overbought or oversold, based on 14-day average gains and losses. Throughout the dataset, RSI values fluctuate, reaching high levels above 80 in early 2024, suggesting strong bullish momentum and potential overbought conditions. Periodic dips in RSI reflect short-term corrections, though the general trend remains upward, especially from late 2023 onward. This suggests increasing investor confidence and strong upward momentum in the asset's value.

Table- 5: ROC CALCULATION OF “IOCL”

Year	Initial Price (₹)	Final Price (₹)	ROC (%)
2020	75.63	60.63	-19.83
2021	62.17	74.33	19.56
2022	83.47	76.5	-8.35
2023	81.75	129.85	58.84
2024	146.95	136.41	-7.17

The table shows the annual Rate of Change (ROC) in asset prices from 2020 to 2024, reflecting fluctuations in market performance. In 2020, the asset declined sharply by -19.83%, but recovered in 2021 with a positive return of 19.56%. The momentum did not sustain in 2022, as the price again fell by -8.35%. A significant surge occurred in 2023 with a strong 58.84% gain, indicating bullish market sentiment. However, 2024 saw another dip of -7.17%, suggesting possible profit booking or market correction after the previous year's rally.

Table- 6: ROC CALCULATION OF “BPCL”

Year	Initial Price (₹)	Final Price (₹)	ROC (%)
2020	212.16	176.94	-16.60068
2021	178.1	192.73	8.2144862
2022	198.52	165.25	-16.75902
2023	171.63	225.32	31.28241
2024	251.18	292.45	16.430448

The table displays the yearly Rate of Change (ROC) in asset prices from 2020 to 2024, showing alternating periods of loss and growth. The asset declined significantly in 2020 and 2022, with ROC values of -16.60% and -16.76%, indicating bearish market phases. A modest recovery occurred in 2021 with an 8.21% gain. The strongest performance came in 2023 with a 31.28% increase, suggesting a strong bullish trend. In 2024, the upward momentum continued with a 16.43% gain, pointing to overall market strength and recovery.

**Table- 7: ROC CALCULATION OF “HPCL”**

Year	Initial Price (₹)	Final Price (₹)	ROC (%)
2020	154.97	145.27	-6.26
2021	145.73	194.9	33.74
2022	209.4	156.77	-25.13
2023	158.6	265.93	67.67
2024	308.83	408.75	32.35

The data shows the annual performance of an asset from 2020 to 2024 based on Rate of Change (ROC). In 2020, the asset saw a slight decline of -6.26%, but rebounded strongly in 2021 with a 33.74% increase. A major drop occurred in 2022 with a -25.13% ROC, indicating a challenging year. However, 2023 marked a significant recovery with a remarkable 67.67% gain. The growth continued into 2024 with a solid 32.35% rise, reflecting overall positive momentum in the asset's performance.

**Table- 8: ROC CALCULATION OF “ONGC”**

Year	Initial Price (₹)	Final Price (₹)	ROC (%)
2020	108.95	93.05	-14.59
2021	88.3	142.4	61.27
2022	172.6	146.75	-14.98
2023	144.9	205.05	41.51
2024	252.25	239.25	-5.15

The data reflects a volatile performance of the asset over the five-year period from 2020 to 2024. While 2021 and 2023 showed strong positive returns of 61.27% and 41.51% respectively, the other years experienced negative returns, with the worst being in 2022 at -14.98%. This indicates that the asset had alternating periods of growth and decline, lacking consistent upward momentum. The most recent year, 2024, ended with a modest loss of -5.15%, following a strong gain in 2023. Overall, the asset shows potential for high returns but also carries a notable risk of downturns.

## VI. FUNDAMENTAL ANALYSIS

### Liquidity Ratio's :

**Table- 9: CALCULATION OF “CURRENT RATIO” OF “IOCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Current Assets	1,46,097.91	1,40,694.89	1,30,431.26	1,03,091.91	86,252.00
Total Current Liabilities	2,10,793.21	2,00,960.59	1,81,297.79	1,50,813.84	1,52,906.80
Current Ratio	0.69308641	0.70011185	0.71943105	0.683570619	0.56408217

The company's current ratio has remained below 1 over the past five years, indicating that its current liabilities consistently exceed its current assets. Although there was a slight improvement in Mar-22, reaching 0.72, the overall trend shows weak short-term liquidity. In Mar-24, the ratio slightly declined to 0.69, suggesting a minor deterioration compared to the previous year. The lowest ratio was in Mar-20 at 0.56, reflecting the most strained liquidity position during the period. Overall, the company may face challenges in covering its short-term obligations without relying on external financing.

**CALCULATION OF “QUICK RATIO” OF “IOCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Quick Assets	3,26,277.95	3,08,323.62	2,83,588.37	2,41,947.70	2,23,138.02
Total Quick Liabilities	200703.08	191330.72	171903.52	141560.28	143312.05
Quick Ratio	1.62567485	1.6114695	1.64969496	1.70914963	1.55700808

**Table-4.10**

The company’s quick ratio has consistently remained above 1 over the past five years, indicating strong short-term liquidity and the ability to meet immediate liabilities without relying on inventory. In Mar-24, the ratio slightly improved to 1.63 from 1.61 in the previous year, reflecting stable financial health. The highest ratio was observed in Mar-21 at 1.71, showing the peak in liquid asset coverage during the period. Despite minor year-to-year changes, the quick ratio has shown overall consistency. This suggests the company maintains a solid buffer of liquid assets to handle its short-term obligations efficiently.

**Table-11: CALCULATION OF “CURRENT RATIO” OF “BPCL” :**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Current Assets	63843.85	55398.01	54696.14	50962.3	41063.23
Total Current Liabilities	72233.3	71873.05	71542.07	54745.12	59004.78
<b>CURRENT RATIO</b>	0.883856199	0.770776	0.764531135	0.930901238	0.695931

The data reveals a fluctuating trend in the company's current ratio over the past five years. Starting at 0.70 in March 2020, the ratio gradually improved to 0.88 by March 2024. While this upward trend suggests some improvement in the company's short-term liquidity position, the current ratio remains below 1.0 across all years, signaling that the company may still struggle to meet its short-term liabilities with its current assets. Despite the improvement, the company is not yet in a comfortable position where its current assets can fully cover its current liabilities. The ratio's rise could indicate better management of working capital or an increase in current assets. However, caution is advised as the ratio remains below the ideal benchmark of 1.0.

**Table-12: CALCULATION OF “QUICK RATIO” OF “BPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Quick Assets	17,246.39	13,262.06	15,151.07	21,813.13	11,079.24
Total Quick Liabilities	69257.92	69190.35	68660.54	52886.2	57173.78
QUICK RATIO	0.249017	0.191675	0.220666	0.412454	0.193782

The quick ratio data reveals that the company's liquidity has shown minimal improvement over the past five years. Starting at 0.19 in March 2020, the ratio increased slightly to 0.25 by March 2024. Although there is some improvement, the ratio remains significantly below the ideal benchmark of 1.0, indicating that the company continues to face challenges in meeting its short-term liabilities with its most liquid assets. The trend highlights persistent liquidity concerns, as the company still cannot fully rely on its quick assets to cover its immediate obligations. This suggests the need for stronger liquidity management.

**Table-13: CALCULATION OF “CURRENT RATIO” OF “HPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Current Assets	52484.58	43644.48	49571.45	43610.74	37292.57
Total Current Liabilities	85738.3	73450.89	70749.57	62049.67	57007.39
<b>CURRENT RATIO</b>	0.612149	0.594199	0.700661	0.702836	0.654171

The current ratio data shows that the company’s liquidity position has remained weak over the past five years. From 0.65 in March 2020, the ratio has hovered below 1.0, reaching 0.61 by March 2024, signaling difficulty in covering short-term liabilities with current assets. Despite an increase in total current assets, current liabilities have risen at a faster rate, worsening the company’s ability to meet its short-term obligations. The ratio has decreased slightly from 0.70 in March 2022, indicating that the company’s liquidity situation has weakened over the period. Overall, the company continues to face liquidity challenges, highlighting the need for better asset management and liability control.

**Table-14: CALCULATION OF “QUICK RATIO” OF “HPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Quick Assets	14,964.12	12,685.39	12,079.26	12,635.72	9,788.57
Total Quick Liabilities	82353.29	70797.39	67914.07	58904.79	54058.95
QUICK RATIO	0.181706402	0.17917878	0.177860935	0.214510908	0.181072144

The quick ratio data indicates that the company’s liquidity position has remained weak over the past five years. From 0.18 in March 2020 to 0.18 in March 2024, the ratio has shown little improvement, signaling a persistent challenge in meeting short-term liabilities with the most liquid assets. Despite an increase in quick assets, the rise in quick liabilities has been more significant, preventing the ratio from reaching the ideal benchmark of 1.0. The ratio’s stability at a low level suggests that the company continues to face liquidity constraints. This highlights the need for effective management of its liquid assets and liabilities.

**Table-15: CALCULATION OF “CURRENT RATIO” OF “ONGC”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Current Assets	65741.6	53077.69	35926.47	31777.45	26986
Total Current Liabilities	41568.51	41149.91	36601.37	36829.9	40567.01
<b>CURRENT RATIO</b>	1.581524091	1.28986163	0.9815608	0.862816625	0.665220335

The current ratio data indicates a notable improvement in the company's liquidity over the past five years. Starting at 0.67 in March 2020, the ratio gradually increased, reaching 1.58 by March 2024, suggesting the company is now in a stronger position to cover its short-term liabilities with current assets. The ratio crossing the 1.0 threshold in March 2024 is a positive sign, indicating better financial stability and a reduced risk of liquidity issues. This growth in the current ratio is due to a faster increase in current assets compared to current liabilities. Overall, the company’s liquidity has strengthened, reflecting improved management of its short-term financial health.

**Table-16: CALCULATION OF “QUICK RATIO” OF “ONGC”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Total Quick Assets	54,832.28	44,758.18	28,065.05	23,302.98	18,419.38
Total Quick Liabilities	39032.53	39217.25	33254.48	35444.07	39469.48
QUICK RATIO	1.404784	1.141288	0.843948	0.657458	0.466674

The quick ratio data shows a significant improvement in the company's liquidity over the past five years. From a low of 0.47 in March 2020, the ratio steadily increased, reaching 1.40 in March 2024. This indicates that the company is now able to cover its immediate liabilities with its most liquid assets, a positive sign of financial stability. The ratio surpassing 1.0 in March 2024 suggests that the company no longer relies on inventory to meet short-term obligations. Overall, the company’s liquidity position has strengthened, reflecting better management of quick assets and liabilities.

**Profitability Ratio’s:**

**Table-17: Calculation of ROE of “IOCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	39,618.84	8,241.82	24,184.10	21,836.04	1,313.23
Total Share Holders Funds	1,76,714.98	1,34,757.54	1,31,286.36	1,10,500.04	93,768.87
ROE	22.4196274	6.11603625	18.4208778	19.76111502	1.40049677

The return on equity (ROE) data shows a remarkable improvement in the company’s profitability from 1.40% in March 2020 to 22.42% in March 2024. This increase reflects a significant rise in net profit, which jumped from 1,313.23 in 2020 to 39,618.84 in 2024, indicating improved efficiency in generating profit from shareholders’ equity. The growth in ROE suggests the company has become more effective at utilizing its equity capital, delivering higher returns to shareholders. While the company’s total equity has also increased over this period, the larger increase in net profit has driven the notable rise in ROE. Overall, the data points to strong financial performance and effective management of equity.

**Table-18: Calculation of ROA of “IOCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	39,618.84	8,241.82	24,184.10	21,836.04	1,313.23
Total Assets	4,57,240.62	4,19,956.09	3,88,339.10	3,34,054.08	3,11,090.56
ROA	8.66476824	1.96254327	6.22757276	6.53667813	0.42213753

The company’s Return on Assets (ROA) has seen significant fluctuations over the past five years, with a notable increase in Mar-24, reaching 8.66% compared to just 0.42% in Mar-20. This sharp rise in ROA indicates improved profitability relative to total assets, suggesting better asset utilization and management. The company experienced a dip in Mar-23 with a ROA of 1.96%, but returned to stronger performance in Mar-24. Despite the volatility, the overall trend shows an improving capacity to generate profits from its assets, especially in recent years. The upward trajectory in net profit, particularly in Mar-24, reflects effective operational strategies.

**Table-19: Calculation of ROE of “BPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	26,673.50	1,870.10	8,788.73	19,041.67	2,683.19
Total Share Holders Funds	74,674.80	51,996.34	49,669.78	54,544.55	33,214.38
ROE	35.71954662	3.596599	17.69432037	34.91030726	8.078399

The company’s Return on Equity (ROE) has experienced significant fluctuations, with a sharp increase to 35.72% in Mar-24, reflecting a strong return on shareholders’ funds. This is a substantial improvement from 8.08% in Mar-20, showing enhanced profitability relative to equity. Although Mar-23 saw a dip in ROE to 3.60%, likely due to higher equity levels, the company quickly regained its strength with strong returns in Mar-24. The company’s ability to generate substantial profits with shareholder capital indicates improved operational efficiency and effective capital utilization. The overall trend highlights strong financial performance, especially in the latest year.

**Table-20: Calculation of ROA of “BPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	26,673.50	1,870.10	8,788.73	19,041.67	2,683.19
Total Assets	1,72,992.97	1,60,803.98	1,50,512.56	1,40,604.49	1,26,468.98
ROA	15.41883	1.162969	5.8392	13.54272	2.121619

The company’s Return on Assets (ROA) has significantly improved, reaching 15.42% in Mar-24, up from just 2.12% in Mar-20. This sharp increase indicates that the company has become much more efficient in generating profits from its assets. Despite a dip in Mar-23 to 1.16%, the company’s overall trend reflects an ability to better utilize its asset base in recent years. The peak ROA of 13.54% in Mar-21 further emphasizes periods of strong asset utilization. Overall, the increase in ROA demonstrates improved operational efficiency and a more effective strategy in managing assets to drive profitability.

**Table-21: Calculation of ROE of “HPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	14,693.83	-8,974.03	6,382.63	10,663.88	2,637.26
Total Share Holders Funds	41,029.77	27,713.43	38,677.04	36,186.11	28,962.36
ROE	35.81261	-32.3815	16.50237	29.46954	9.105819

The company’s Return on Equity (ROE) has been highly volatile over the past five years, with a sharp recovery in Mar-24, reaching 35.81%. This marked improvement follows a significant negative ROE of -32.38% in Mar-23, indicating a period of financial loss. Despite this, the company rebounded from a more stable 9.11% in Mar-20, showing its ability to generate strong returns on shareholders’ equity, particularly in Mar-21 and Mar-24. The fluctuations in ROE highlight the company’s resilience and ability to recover from setbacks. Overall, the latest performance in Mar-24 signals effective use of equity to generate profit.

**Table-22: Calculation of ROA of “HPCL”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	14,693.83	-8,974.03	6,382.63	10,663.88	2,637.26
Total Assets	1,73,782.98	1,54,485.03	1,50,160.38	1,31,239.18	1,14,010.83
ROA	8.455275655	-5.8089965	4.250541987	8.125530806	2.313166214

The company’s Return on Assets (ROA) has experienced notable volatility over the past five years. In Mar-24, ROA improved to 8.46%, reflecting a strong recovery after a negative ROA of -5.81% in Mar-23, which was caused by a loss for the year. Prior to this, the company saw healthy ROA figures of 8.13% in Mar-21 and 4.25% in Mar-22, indicating more efficient asset utilization. The ROA of 2.31% in Mar-20 was relatively low, but the company’s performance has improved significantly in recent years. Overall, the Mar-24 ROA suggests better asset management and a return to profitability after a difficult period.

**Table-23: Calculation of ROE of “ONGC”**

Return on Equity					
	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	40,525.97	38,828.87	40,305.74	11,246.44	13,444.54
Total Share Holders Funds	3,05,976.51	2,57,845.84	2,37,148.09	2,04,558.57	1,94,338.09
ROE	13.24479778	15.0589476	16.996021	5.49790703	6.918118831

The company’s Return on Equity (ROE) has slightly declined from 16.99% in Mar-22 to 13.24% in Mar-24, indicating a reduction in profitability relative to shareholders’ equity. Despite this decline, the company has consistently generated strong profits, with net profit rising from 13,444.54 in Mar-20 to 40,525.97 in Mar-24. The increase in shareholder funds from 1,94,338.09 in Mar-20 to 3,05,976.51 in Mar-24 has likely contributed to the dip in ROE, as it reflects a larger equity base. Overall, the company has maintained solid financial performance, though the lower ROE suggests a slight decrease in efficiency in using equity to generate profits.

**Table-24: Calculation of ROA of “ONGC”**

	Mar-24	Mar-23	Mar-22	Mar-21	Mar-20
Net Profit / Loss	40,525.97	38,828.87	40,305.74	11,246.44	13,444.54
Total Assets	4,46,020.89	3,67,037.09	3,37,264.24	3,18,453.58	2,96,680.75
ROA	9.086115	10.579	11.95079	3.531579	4.531652

The company’s Return on Assets (ROA) has declined from 11.95% in Mar-22 to 9.09% in Mar-24, indicating slightly lower efficiency in generating profit from its assets. Despite this, the company has shown strong profitability, with net profit increasing from 13,444.54 in Mar-20 to 40,525.97 in Mar-24. The significant growth in total assets, from 2,96,680.75 in Mar-20 to 4,46,020.89 in Mar-24, likely contributed to the lower ROA, as a larger asset base dilutes the return. Although ROA has decreased, the company’s ability to generate high profits signals effective management of its growing assets. Overall, the company has maintained solid financial performance despite a slight dip in ROA.

**VII. FINDINGS AND SUMMARY**

Here’s a summary of key findings, structured into Technical Analysis, Fundamental Analysis, and Conclusive Insights for companies: IOCL, BPCL, HPCL, ONGC.

IOCL: RSI rose dramatically in 2023 and peaked at 94.36 in April 2024, signaling strong bullish momentum and likely overbought conditions. A sharp correction in late 2024 was reflected in a fall in RSI.

BPCL: Displayed similar bullish signals, hitting an RSI of 89.53 in April 2024. The RSI stayed above 70 for most of 2024 before cooling off slightly.

HPCL: Showed strong upward momentum with an RSI reaching 83.31 in May 2024. Corrections in late 2024 adjusted RSI downward.

ONGC: RSI values exceeded 90 in early 2024, especially 91.37 in April, showing exceptional bullish behavior before stabilizing post mid-2024.

IOCL: Saw a massive surge of 58.84% in 2023 but recorded a -7.17% dip in 2024, suggesting profit-booking or correction.

BPCL: Consistently improved from 8.21% (2021) to 31.28% (2023) and 16.43% (2024).

HPCL: Displayed the most explosive growth: 67.67% (2023) and 32.35% (2024) after a sharp -25.13% decline in 2022.

ONGC: Fluctuating performance, with 41.51% growth in 2023, but a -5.15% loss in 2024, indicating volatile investor sentiment.

IOCL, BPCL, HPCL: All remained below 1, reflecting liquidity stress. HPCL had the lowest at 0.61 (2024).

ONGC: Improved significantly to 1.58 (2024), indicating robust liquidity.

IOCL: Strong position with 1.63 (2024).

BPCL and HPCL: Critically low — both under 0.25 in 2024, pointing to short-term financial risk.

ONGC: Significant progress to 1.40, indicating a healthy short-term solvency.

IOCL: Improved drastically from 1.4% (2020) to 22.42% (2024).

BPCL: Jumped to 35.72% (2024), up from 3.6% (2023).

HPCL: Similarly improved, reflecting efficient use of equity.

ONGC: ROE improved, driven by higher net profits in 2023–2024.

IOCL: Increased to 8.66% (2024) from 0.42% (2020), showing better asset utilization.

Other companies reflected similar trends, driven by profit surges in 2023–2024.

### VIII. CONCLUSION

This study comprehensively analyzed the technical and fundamental performance of key Indian oil sector companies—IOCL, BPCL, HPCL, and ONGC—from 2020 to 2024. Technical indicators such as the Relative Strength Index (RSI) and Rate of Change (ROC) revealed strong bullish momentum in 2023 and early 2024, followed by signs of market correction. These patterns highlight the sector's volatility and investor responsiveness to broader economic cues. Fundamental analysis showed varied liquidity and profitability across the companies. ONGC stood out with robust liquidity and improving profitability, making it a fundamentally stable entity. IOCL showed consistent financial strengthening, while BPCL and HPCL, despite strong earnings growth, exhibited liquidity concerns that could impact short-term stability. Overall, the Indian oil sector demonstrates both growth potential and cyclical risk. Sustainable long-term performance will depend on each company's ability to manage financial health, navigate global market shifts, and align with India's transition toward cleaner energy sources.

### REFERENCES

- [1]. Chittumuri, I., Alshehab, N., Voss, R. J., Douglass, L. L., Kamrava, S., Fan, Y., Miskimins, J., Fleckenstein, W., & Bandyopadhyay, S. (2025). Risk analysis of flowlines in the oil and gas sector: A GIS and machine learning approach. arXiv preprint arXiv:2501.11213. <https://arxiv.org/abs/2501.11213>
- [2]. Dey, A., & Kaur, P. (2019). Impact of macroeconomic indicators on stock prices: A study of oil and gas companies in India. *Indian Journal of Finance*, 13(7), 30–45. <https://doi.org/10.17010/ijf/2019/v13i7/145181>
- [3]. Dey, A., & Kaur, P. (2019). Impact of macroeconomic indicators on stock prices: A study of oil and gas companies in India. *Indian Journal of Finance*, 13(7), 30–45. <https://doi.org/10.17010/ijf/2019/v13i7/145181>
- [4]. Directorate General of Hydrocarbons. (2024). India's hydrocarbon outlook report – 2023–2024. Retrieved from <https://dghindia.gov.in/assets/downloads/ar/2023-24/>
- [5]. Economic Survey. (2025). Economic survey 2024–25: India's oil and gas sector outlook. Energy Asia. <https://energyasia.co.in/featured/economic-survey-2024-25-indias-oil-and-gas-sector-outlook/>
- [6]. EY India. (2025). Fueling the future: Key trends and outlook for the energy sector. Retrieved from [https://www.ey.com/en\\_in/insights/energy-resources/fueling-the-future-key-trends-and-outlook-for-the-energy-sector](https://www.ey.com/en_in/insights/energy-resources/fueling-the-future-key-trends-and-outlook-for-the-energy-sector)
- [7]. EY India. (2025). Fueling the future: Key trends and outlook for the energy sector. [https://www.ey.com/en\\_in/insights/energy-resources/fueling-the-future-key-trends-and-outlook-for-the-energy-sector](https://www.ey.com/en_in/insights/energy-resources/fueling-the-future-key-trends-and-outlook-for-the-energy-sector)

- [8]. Government of India. (2025). Economic Survey 2024–25: India's oil and gas sector outlook. Energy Asia. Retrieved from <https://energyasia.co.in/featured/economic-survey-2024-25-indias-oil-and-gas-sector-outlook/>
- [9]. Indian Infrastructure. (2024, July 30). Maintaining growth momentum: Developments in the oil and gas sector. Retrieved from <https://indianinfrastructure.com/2024/07/30/maintaining-growth-momentum-developments-in-the-oil-and-gas-sector/>
- [10]. Kaur, M., & Arora, M. (2016). Technical analysis of Indian stock market: Empirical study. *International Journal of Research in Finance and Marketing*, 6(4), 10–21.
- [11]. Kishnani, U., Madabhushi, S., & Das, S. (2023). Blockchain in oil and gas supply chain: A literature review from user security and privacy perspective. arXiv preprint arXiv:2306.16576. <https://arxiv.org/abs/2306.16576>
- [12]. Kumar, R., & Pandey, M. (2020). Integrated approach to investment analysis: A case of Indian public sector enterprises. *International Journal of Management (IJM)*, 11(9), 1142–1150. <https://doi.org/10.34218/IJM.11.9.2020.106>
- [13]. Kumar, R., & Pandey, M. (2020). Integrated approach to investment analysis: A case of Indian public sector enterprises. *International Journal of Management (IJM)*, 11(9), 1142–1150. <https://doi.org/10.34218/IJM.11.9.2020.106>
- [14]. Mohammed, A. S., Reinecke, P., Burnap, P., Rana, O., & Anthi, E. (2022). Cybersecurity challenges in the offshore oil and gas industry: An industrial cyber-physical systems (ICPS) perspective. arXiv preprint arXiv:2202.12179. <https://arxiv.org/abs/2202.12179>
- [15]. Poonia, R. K., & Sirohi, R. (2017). A comparative study of fundamental and technical analysis of selected oil & gas companies in India. *Asian Journal of Research in Banking and Finance*, 7(2), 45–61. <https://doi.org/10.5958/2249-7323.2017.00011.6>
- [16]. Poonia, R. K., & Sirohi, R. (2017). A comparative study of fundamental and technical analysis of selected oil & gas companies in India. *Asian Journal of Research in Banking and Finance*, 7(2), 45–61. <https://doi.org/10.5958/2249-7323.2017.00011.6>
- [17]. PwC India. (2024). Unlocking sustainable value in the oil and gas sector. Retrieved from <https://www.pwc.in/research-and-insights-hub/unlocking-sustainable-value-in-the-oil-and-gas-sector.html>
- [18]. PwC India. (2024). Unlocking sustainable value in the oil and gas sector. <https://www.pwc.in/research-and-insights-hub/unlocking-sustainable-value-in-the-oil-and-gas-sector.html>
- [19]. Sharma, A., & Mehta, S. (2018). Predictive power of technical indicators: Empirical evidence from Indian energy sector stocks. *Journal of Advances in Management Research*, 15(3), 250–263. <https://doi.org/10.1108/JAMR-11-2017-0107>
- [20]. Sharma, A., & Mehta, S. (2018). Predictive power of technical indicators: Empirical evidence from Indian energy sector stocks. *Journal of Advances in Management Research*, 15(3), 250–263. <https://doi.org/10.1108/JAMR-11-2017-0107>