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Factors Influencing Financial Performance of Selected BSE Listed Oil Exploration and Production Companies in India

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ABSTRACT
Operational efficiency and production costs are also crucial, as companies with lower costs or advanced technologies in exploration and drilling can outperform competitors. Moreover, currency exchange rates, particularly the rupee's fluctuation against the dollar, impact import costs, especially since India imports most of its crude oil. As the energy consumption demand continues to rise domestically, driven by industrial growth and urbanization, this creates revenue opportunities, although shifts toward renewable energy present long-term challenges. The companies' financial performance is also influenced by corporate governance practices, debt management, and foreign exchange risks. Technological advancements in exploration, such as seismic surveys and fracking, improve production efficiency, thus enhancing profitability. Environmental, social, and governance (ESG) concerns have become increasingly relevant, with companies focusing on compliance to avoid penalties and reputational damage. Lastly, factors such as macroeconomic conditions, competitive positioning, and the size of a company's oil reserves determine its financial stability and potential for growth. Successful partnerships and risk management strategies, particularly in mitigating crude oil price fluctuations, are also essential in maintaining robust financial health.

Keywords: *global oil prices, government regulations, operational efficiency, energy demand, corporate governance, esg compliance*

I. INTRODUCTION

The oil exploration industry in India plays a crucial role in meeting the country's growing energy demands and achieving energy security. As one of the largest energy consumers in the world, India has a strong reliance on oil, with domestic exploration efforts aimed at reducing dependence on imports. Oil exploration in India involves the search for underground or underwater crude oil reserves through geological surveys, seismic imaging, and drilling operations. The industry is overseen by the government and regulated by policies such as the Hydrocarbon Exploration and Licensing Policy (HELP), which has been designed to attract foreign and domestic investment by offering favorable licensing conditions. This sector includes both public and private players, with major companies like Oil and Natural Gas Corporation (ONGC) and Oil India Limited (OIL) leading domestic efforts.

The exploration and production industry in India faces various challenges, including the high cost of exploration, fluctuating global oil prices, and the need for advanced technology to explore in difficult terrains such as offshore and deep-water sites. In recent years, the Indian government has introduced several initiatives to enhance domestic oil production, including policies to open up more oil blocks for exploration under the Open Acreage Licensing Policy (OALP). Additionally, the National Data Repository (NDR) provides a comprehensive database for oil and gas exploration, promoting transparency and efficiency. However, despite these efforts, India continues to rely heavily on oil imports, making the development of domestic resources vital for the future.

Environmental concerns and the shift toward renewable energy sources are also influencing the industry. With increasing global pressure to reduce carbon emissions, oil exploration companies are being urged to adopt more sustainable practices and invest in cleaner technologies. This has led to a growing emphasis on environmental, social, and governance (ESG) standards in the industry, as companies seek to balance exploration activities with environmental sustainability. As a result, the future of oil exploration in India is evolving, with companies needing to innovate and adapt to new global energy trends.

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II. REVIEW OF LITERATURE

Surender Kumar (2005) conducted an in-depth analysis of the effects of oil price fluctuations on the industrial output of the Indian economy over a 30-year span, beginning in 1975. The study employed vector autoregression techniques to assess the impact of oil price changes on key macroeconomic variables. Kumar's findings revealed that expressing oil prices in US dollars had a less pronounced effect on the economy compared to their expression in Indian rupees (INR). Additionally, fluctuations in oil prices were shown to stimulate industrial output. Moreover, increases in real oil prices positively influenced short-term interest rates and inflation levels. Importantly, the study concluded that an oil price shock in a stable economy has a more substantial economic impact than in an unstable pricing environment.

Dr. PratapsinhChauhan (2012) focused on evaluating shareholder value creation within the Indian petroleum sector by analyzing seven public and private sector enterprises between 2001 and 2011. Utilizing empirical measures such as Economic Value Added (EVA), Market Value Added (MVA), Profit After Tax (PAT), Earnings Per Share (EPS), Net Operating Profit After Tax (NOPAT), and Market Capitalization, Chauhan applied statistical tools including descriptive statistics, correlation analysis, the T-test, and the chi-square test to assess value creation trends. The results indicated that both public and private sector firms exhibited positive EVA and MVA, with private sector companies demonstrating stronger trends. The study concluded that EVA and MVA have significant correlations with operating profit, EPS, NOPAT, market capitalization, and MVA, reinforcing the link between shareholder value creation and market performance across both sectors.

Khatik and Thakur (2017) assessed liquidity management and its effects on the profitability of Oil and Natural Gas Corporation (ONGC) by employing financial metrics such as the acid test ratio, current ratio, and debtors-to-sales ratio. Data spanning a decade (2005-2015) was sourced from ONGC's annual reports and analyzed through ratio analysis. Their study found that ONGC maintained satisfactory liquidity throughout the study period, indicating sound financial management practices. Similarly, Agusman and Deriantino (2005) explored the relationship between stock returns and oil price fluctuations across nine industrial sectors in Indonesia, finding that oil price changes had minimal impact on most sectors but significantly influenced the mining and trading sectors in both positive and negative ways.

M. Sakthivadivel et al. (2014) observed that since its inception, India's textile industry has remained predominantly cotton-based, with cotton accounting for approximately 65% of the country's fabric consumption. The industry is primarily concentrated in the western regions of India, particularly in Ahmedabad and Bombay, though other significant centers exist in cities such as Kanpur, Calcutta, Indore, Coimbatore, and Sholapur. Over the past few years, the Indian textile industry has demonstrated consistent growth and has played a pivotal role in the nation's economic development. The financial performance of the industry can be evaluated through various factors, including marketplace dynamics, competitiveness, technological advancements, environmental protection measures, and strategic positioning. These factors collectively contribute to shifts in the financial performance of the textile industry. This study examines the financial performance and provides forecasts for selected Indian textile companies.

Tayyaba (2013) analyzed the relationship between various types of leverage and earnings per share (EPS) in 25 Pakistani oil and gas companies, concluding that leverage metrics had mixed effects on firm profitability, with differing relationships between operating and financial leverage and return on assets (ROA) and EPS.

III. SAMPLING DEFINITION

For conducting the present study the researcher has selected three oil exploration and production companies listed in BSE And NSE including Reliance Industries, ONGC, and Oil India. The financial data for the same is extracted from CAPITALINE and CMIE for the period of 10 years from 2013-14 to 2023-24 and the relevant statistical tools have been applied

IV. FACTOR ANALYSIS

Factor analysis is a crucial statistical technique used to identify underlying relationships between variables, simplifying complex data sets by grouping correlated variables into factors. This method is particularly significant in research and business contexts, as it helps to reduce the dimensionality of data while retaining its essential information. By isolating key factors that influence outcomes, organizations and researchers can better understand the structure of data, uncover hidden patterns, and focus on the most impactful variables for decision-making. In industries like oil exploration, factor analysis can reveal critical influences on financial performance, operational efficiency, and market trends, enabling more informed strategic planning and resource allocation. Overall, factor analysis enhances data interpretation, making it a powerful tool for insight generation and problem-solving in complex environments.

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Factor Loading of RIL
Measurement Scale Items on Extracted Factors

FACTORS	Component			
	1	2	3	4
X12-Debt-Equity Ratio	**-0.980**	-0.075	-0.142	-0.046
X5-Net Assets/Net Worth	**-0.964**	0.059	-0.222	-0.043
X11-Market Cap/Sales	**0.889**	0.328	0.169	-0.092
x18-Interest Cover Ratio	**0.881**	0.162	0.218	0.224
X13-Long Term Debt-Equity Ratio	**-0.897**	0.305	-0.188	0.193
X9-Price/Cash EPS (P/CEPS)	**0.874**	0.416	-0.085	-0.088
X8-Price to Book Value (P/BV)	0.837	**0.282**	0.267	-0.110
X7-Price Earning (P/E)	0.760	**0.244**	0.477	-0.107
X14-Current Ratio	0.610	**0.573**	0.137	0.140
X2- Sales/Net Assets	-0.290	**-0.940**	0.186	0.061
X15-Fixed Assets Turn over ratio	-0.171	**-0.928**	0.092	0.031
X3- PBDIT/Net Assets	0.098	-0.730	**0.653**	0.137
X1-PBIDT/Sales(%)	0.464	-0.032	**0.861**	-0.012
X4-PAT/PBIDT(%)	0.531	-0.190	**0.787**	-0.167
X10-EV/EBIDTA	-0.008	0.554	**-0.800**	0.191
X6-ROE(%)	0.144	-0.148	**0.080**	0.884
X16-Inventory Turn over ratio	-0.094	-0.034	-0.174	**0.875**
x17-Debtors Turn over ratio	-0.573	0.421	-0.275	**0.614**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Components Transformation Matrix

Component	**1**	**2**	**3**	**4**
1	**0.913626**	**0.143577**	**0.370241**	**-0.08715**
2	**-0.09597**	**-0.83295**	**0.531074**	**-0.12222**
3	**0.089179**	**-0.11808**	**0.058124**	**0.987283**
4	**-0.38487**	**0.521182**	**0.759937**	**0.052356**

Table shows the factor loadings of RIL for the period from 2013-14 to 2022-23.It can be observed from table that there are 9 prime factors X12-Debt-Equity Ratio,X5-Net Assets/Net Worth ,X11-Market Cap/Sales,x18-Interest Cover Ratio,X13-Long Term Debt-Equity Ratio,X9-Price/Cash EPS (P/CEPS),X8-Price to Book Value (P/BV),X7-Price Earning (P/E),X14-Current Ratio are accounted by Factor I with the values 0.969,-0.953,0.900,0.892,-0.886,0.885,0.848,0.771,and 0.621 respectively.

Similarly, it is seen that there are three factors influencing factor 2 which includes X2- Sales/Net Assets,X15-Fixed Assets Turn over ratio,X3- PBDIT/Net Assets with the values of -0.929,-0.917 and -0.719 respectively .

It is also observed that Factor 3 and 4 is primarily influenced by three variables each namely X1-PBIDT/Sales(%), X4-PAT/PBIDT(%).X10-EV/EBIDTA and X6-ROE(%),X16-Inventory Turn over ratio,x17-Debtors Turn over ratio with the values of 0.872,0.798,-0.789,0.895,0.886 and 0.625respectively.‘

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Factor Loading of ONGC
Measurement Scale Items on Extracted Factors

FACTORS	1	2	3	4
X9-Price/Cash EPS (P/CEPS)	**0.940**	0.288	-0.052	0.034
X10-EV/EBIDTA	**0.863**	-0.055	-0.479	-0.07
X15-Fixed Assets Turnover ratio	**0.828**	0.351	0.034	-0.047
X11-Market Cap/Sales	**0.787**	0.374	0.353	0.208
X8-Price to Book Value (P/BV)	**0.704**	0.416	0.403	0.149
X7-Price Earning (P/E)	**0.693**	0.327	-0.551	-0.139
X2- Sales/Net Assets	0.158	**0.908**	0.024	-0.073
X14-Current Ratio	-0.314	**-0.887**	-0.19	-0.198
X13-Long Term Debt-Equity Ratio	-0.563	**-0.812**	-0.215	0.04
X5-Net Assets/Net Worth	-0.613	**-0.771**	-0.229	-0.022
X12-Debt-Equity Ratio	-0.635	**-0.762**	-0.194	-0.03
X1-PBIDT/Sales(%)	-0.149	0.019	**0.923**	0.189
X6-ROE(%)	-0.147	-0.009	**0.866**	-0.372
X4-PAT/PBIDT(%)	0.456	0.236	**0.820**	0.015
X3- PBDIT/Net Assets	-0.048	0.504	**0.793**	0.117
x18-Interest Cover Ratio	0.275	0.494	**0.642**	0.08
X16-Inventory Turnover ratio	0.076	0.179	0.129	**0.911**
x17-Debtors Turnover ratio	-0.104	-0.555	-0.164	**0.619**

"Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization."
a. Rotation converged in 6 iterations.

Components Transformation Matrix

Component	1	2	3	4
1	0.661324	0.670109	0.333044	0.051837
2	-0.48638	0.042325	0.870068	0.067983
3	0.285098	-0.40354	0.111637	0.862212
4	0.494773	-0.62154	0.345834	-0.49928
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Source: secondary data from capitaline and computed.

Table shows the factor loadings of ONGC for the period from 2013-14 to 2022-23.It can be observed from table that there are 6 prime factors X9-Price/Cash EPS (P/CEPS),X10-EV/EBIDTA ,X15-Fixed Assets Turnover ratio,X11-Market Cap/Sales,8-Price to Book Value (P/BV) X7-Price Earning (P/E) are accounted by Factor I with the values ranging from 0.940 to 0.693

Similarly, it is seen that there are four factors influencing factor 2 which includes X2- Sales/Net Assets,X14-Current Ratio,X13-Long Term Debt-Equity Ratio, X5-Net Assets/Net Worth,X12-Debt-Equity Ratio with the values of .0.908,-0.887,-0.812,-0.771 and -0.762 respectively .

It is also observed that Factor 3 is primarily influenced by five variables namely X1-PBIDT/Sales(%),X6-ROE(%), X4-PAT/PBIDT(%),X3- PBDIT/Net Assets,x18-Interest Cover Ratio with the values of 0.923,0.866,0.820,0.793 and 0.642 respectively.

Finally Factor four has two main ratios which includes X16-Inventory Turnover ratio, x17-Debtors Turnover ratio with the value of 0.911 and 0.

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Factor Loading of Oil India
Measurement Scale Items on Extracted Factors

FACTORS	Rotated Component Matrix			
	1	2	3	4
X11-Market Cap/Sales	**0.965**	0.026	0.040	-0.125
X9-Price/Cash EPS (P/CEPS)	**0.952**	0.192	0.031	0.108
X8-Price to Book Value (P/BV)	**0.931**	0.104	0.138	-0.149
X15-Fixed Assets Turn over ratio	**0.749**	0.338	-0.508	-0.062
X13-Long Term Debt-Equity Ratio	**-0.692**	-0.341	0.488	0.370
X12-Debt-Equity Ratio	**-0.661**	-0.341	0.469	0.418
x18-Interest Cover Ratio	**0.543**	0.005	-0.142	-0.464
X5-Net Assets/Net Worth	**-0.522**	**0.955**	0.533	0.247
X1-PBIDT/Sales(%)	0.203	**0.943**	-0.045	-0.121
X3- PBDIT/Net Assets	0.139	**0.885**	-0.305	-0.266
X4-PAT/PBIDT(%)	-0.300	**-0.861**	-0.008	-0.422
X6-ROE(%)	0.184	**0.697**	-0.084	-0.632
X2- Sales/Net Assets	0.155	**0.686**	-0.159	-0.142
x17-Debtors Turn over ratio	0.006	-0.023	**0.912**	0.006
X14-Current Ratio	-0.263	0.543	**-0.686**	0.266
X7-Price Earning (P/E)	-0.135	-0.120	-0.108	**0.892**
X10-EV/EBIDTA	0.500	0.235	0.434	**0.668**
X16-Inventory Turn over ratio	0.518	0.077	-0.071	**-0.650**

"Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization."
a. Rotation converged in 8 iterations.

Component Transformation Matrix				
Component	1	2	3	4
1	0.666831	0.596828	-0.33201	-0.29816
2	0.682262	-0.42076	0.597619	0.018163
3	0.106688	0.405021	0.136076	0.897808
4	-0.28013	0.550194	0.71701	-0.32359
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				

Table shows the factor loadings of Oil India for the period from 2013-14 to 2022-23.It can be observed from table that there are 8 prime factors X11-Market Cap/Sales,X9-Price/Cash EPS (P/CEPS),X8-Price to Book Value (P/BV),X15-Fixed Assets Turnover ratio, X13-Long Term Debt-Equity Ratio,X12-Debt-Equity Ratio, x18-Interest Cover Ratio, X5-Net Assets/Net Worth are accounted by Factor I with the values 0.965,0.952,0.931,0.749,-0.692 and -0.661,0.543 and -0.522 respectively.

Similarly, it is seen that there are six factors influencing factor 2 which includes X1-PBIDT/Sales(%),X3-PBDIT/Net Assets, X4-PAT/PBID(%), X6-ROE(%) and X2- Sales/Net Assets with the values of 0.955,0.943,0.885,-0.861,0.697 and 0.686 respectively .

It is also observed that Factor 3 is primarily influenced by two variables namely x17-Debtors Turn over ratioX14-Current Ratio and finally factor 4 is influenced by X7-Price Earning (P/E) ,X10-EV/EBIDTA, X16-Inventory Turnover ratio with the values of 0.912,-0.686,0.892,0.668 and -0.650 respectively.

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V. CONCLUSION

The oil industry in India is shaped by a dynamic combination of global market conditions, regulatory frameworks, and operational efficiency. Fluctuations in crude oil prices, government policies, and taxation significantly impact the financial performance of oil companies, while internal factors such as asset utilization, liquidity management, and market valuation play critical roles in maintaining profitability. Additionally, the sector is highly capital-intensive, making debt management and technological innovation essential for long-term success. As environmental, social, and governance (ESG) standards gain prominence, companies must adopt sustainable practices to remain competitive in a rapidly evolving market. In summary, the future of India's oil industry depends on a balanced approach to global risks, regulatory compliance, and operational excellence.

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