

# Profitability Analysis of Selected Oil Refinery Companies in India

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**Abstract:** *In this Research paper, analysis of profitability of Selected Oil Refinery Companies in India is undertaken. For the purpose of study, five Oil Refinery Companies are selected. Profitability ratios considered for the purpose of analysis are Gross Profit Margin, Operating Profit Margin, Net Profit Margin, Return on Net Worth, Return on Capital Employed, and Return on Assets. For the purpose of analysis statistical tools applied like average, standard deviation and ANOVA test.*

**Keywords:** Gross Profit Margin, Operating Profit Margin, Net Profit Margin, Return on Net Worth, Return on Capital Employed, Return on Assets

## 1. Introduction

The amount of profit a business generates is the most significant factor to consider. Profitability refers to an organization's ability to profit from all of its operations. It is a metric that measures how successfully a company's resources have been exploited by management in the development of profits. "Profitability" is made up of two words: "profit" and "ability." The term "profit" refers to the absolute amount of profit, although an absolute figure does not provide a precise indication of the adequacy or otherwise of an increase or change in performance as reflected in the company's financial statement. The term "ability" refers to an organization's ability to make greater and more profits by maximising resource usage; it is also known as the firm's earning performance. Earnings are necessary for the firm to continue. Profit is necessary for a company's survival and growth. As a result, we can define a healthy business as one that is profitable. According to the available information and appearance, India's oil refining capacity was 259.3 million metric tonnes (MMT) as of December 1, 2020, making it Asia's second - largest refiner. In FY20, private enterprises owned 35.29 percent of total refining capacity. The purpose of this research is to look into the profitability of the oil refinery industry.

## 2. Literature Review

**P. Logambal (2012)** computed the profitability of petroleum (Refinery) companies; he also attempted to analyse the various variables, which are expected to have influence over the profitability of petroleum (Refinery) companies. For this purpose, a multivariate approach viz., Correlation Analysis, Multiple Regression Analysis, Factor Analysis and Path Analysis have been adopted. The data of selected variable have been pooled for eleven years of time period namely 2000 - 01 to 2010 - 11. He concluded that the multivariate analyses of the profitability undertaken in this study, discloses the relationship among the dependent factors and independent factors on the financial performance of financial performance of petroleum (Refinery) Companies in India, which enriches the scope of the study. This study is especially useful for policy makers, companies, and researchers as it provides adequate information about the

determinants of the earning and profit petroleum (Refinery) Companies in India.

**Vijakumar and Gomathi. P (2013)** analyzed the profitability of Indian oil refineries during the period of 1996 - 97 to 2010 - 11. The conclusion of the study was that operating efficiency of selected oil refineries in India was satisfactory and the management generally succeeded in investing capital funds. They also concluded that owner's funds were utilized profitably by all the selected oil refineries in India except Mangalore Refinery and Petrochemicals Ltd and Essar Oil Ltd. It is significant to note that the position regarding EPS and dividend payout ratio in all the selected oil refineries during the period under review shows better performance and prospects from the point of view of shareholders. Only in the case of MRPL, Chennai Petroleum Corporation Ltd and Reliance Industries Ltd, the time trend co - efficient is positive implying the tendency of profit rate to rise over time. The study revealed that the majority of the companies under review have highlighted the better performance and the prospects from the point of view of owners.

**Renu Hooda and Kuldip Singh Chhikara (2018)** analyzed financial performance of IOCL with the help of statistical tools like mean, standard deviation, CAGR and ratio analysis. They revealed that the company's total assets exhibit the growth of 13.13 per cent followed by income (10.62 per cent), equity (9.27), total liabilities (7.77), turnover (5.89) and retained earnings (0.24). Company's liquidity position in term of current ratio and quick ratio was found to be less than industry and the same were consistently falling while leverage position indicates that company finance its projects from equity fund rather than from borrowed funds. Company's fixed assets turnover ratio also showed the downward trend which is a matter of concern and profitability of company in terms of ROA, ROE and ROC showed wide fluctuation over the period of the study owing the India's dependence on import of crude oil to fulfill the requirement of growing and expanding economy and making its oil marketing companies vulnerable to global events.

**S. Ramya, N. Pooja priyadharshini, and R. Pavithra Chandran (2018)** analyzed the financial performance of

IOCL during the period of five year from 2013 to 2017 by using the tools like ratio analysis and common size balance sheet. Various ratios like current ratio, liquid ratio, absolute liquid ratio, turnover ratios have been used to measure the financial performance of the company. They concluded that the company has been doing a satisfactory job. They the company should focus on the area of meeting its current liabilities. So the company should focus on getting profits in the coming years by taking care of both internal and external factors. And with regard to resources, the company is advised to utilize its assets properly.

### Objective of Study

- 1) To ascertain the overall earnings performance of selected Oil Refinery Companies in India
- 2) To evaluate the profitability related to sales of selected Oil Refinery Companies in India.
- 3) To analyze the profitability related to equity share of selected Oil Refinery Companies in India

### Hypotheses:

**Ho:** There is no significant difference in profitability ratio of selected Oil Refinery Companies in India during study period.

**H1:** There is significant difference in profitability ratio of selected Oil Refinery Companies in India during study period.

### 3. Research Methodology

The study is aimed at studying profitability scenario of selected Oil Refinery Companies in India. The time period for which the companies are studied is of five years from 2016 - '17 to 2020 - '21. In order to study Oil Refinery industry five major companies of the industry were chosen. These were;

- 1) Indian oil corporation
- 2) Bharat petroleum corporation limited
- 3) Hindustan petroleum corporation limited
- 4) Chennai petroleum corporation
- 5) Maglore refinery and petrochemical limited

In order to achieve the objective of studying the profitability of sample Oil Refinery companies six profit parameters were chosen for the study. These were;

- 1) Gross Profit Margin
- 2) Operating Profit Margin
- 3) Net Profit Margin
- 4) Return on Net Worth
- 5) Return on Capital Employed
- 6) Return on Assets

The requisite data were sourced through the websites of National Stock Exchange of India ([www.nseindia.com](http://www.nseindia.com)), Money Control ([www.moneycontrol.com](http://www.moneycontrol.com)) and the annual reports of the companies given on companies' website. Descriptive statistics and ANOVA test was used to perform statistical analysis and 5% level of significance was used.

### 4. Analysis and Interpretation of Results

To examine the data, descriptive statistics such as the trend of defined performance metrics from 2016 - '17 to 2020 -

'21, mean, standard deviation, minimum, and maximum are employed. The ANOVA test is used to look at how different Oil Refinery companies perform on various performance parameters.

#### 1) Gross Profit Margin

The gross profit ratio measured by dividing gross profit by net sale.

Gross Profit Margin					
Year/ Companies	IOCL	BPCL	HPCL	CPCL	MRPL
2016 - 17	10.66	7.73	6.54	7.12	12.34
2017 - 18	10.68	7.18	5.57	6.51	9.73
2018 - 19	7.18	5.75	4.71	1.37	4.38
2019 - 20	4.05	3.61	2.72	- 5.62	- 6.11
2020 - 21	12.11	10.23	7.99	9.4	2.47
MAX	12.11	10.23	7.99	9.4	12.34
MIN	4.05	3.61	2.72	- 5.62	- 6.11
AVG.	8.936	6.9	5.506	3.756	4.562
SD	3.280416	2.449633	1.977304	6.007456	7.167752
Companies AVG.	5.932				

Its clear from the above table that the Gross Profit Ratio in selected Oil Refineries Companies show down trend during study period. The average Gross Profit Ratio in selected Oil Refineries Companies is 5.932 percent. IOCL and BPCL have satisfactory average Gross Profit Ratio while HPCL, CPCL, and MRPL have not satisfactory average Gross Profit Ratio. Standard Deviation of MRPL is high 7.167 which show high fluctuation trend in company Gross Profit Ratio.

#### Test of Hypothesis

Following hypothesis has been tested by ANOVA test

**Ho:** There is no significant difference in Gross Profit Ratio of selected Oil Refinery Companies in India during study period.

**H1:** There is significant difference in Gross Profit Ratio of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	83.77196	4	20.94299	0.968348	0.44655	2.866081
Within Groups	432.551	20	21.62755			
Total	516.323	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 0.968348 and P - value is 0.44655. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected I. e. There is no significant difference in Gross Profit Ratio of selected Oil Refinery Companies in India during study period.

#### 2) Operating Profit Margin:

This ratio establishes the relation between operating profit and net sales.

Operating Margin					
Year/ Companies	IOC	BPCL	HPCL	CPCL	MRPL
2016 - 17	8.73	6.68	5.06	5.89	10.09
2017 - 18	8.86	5.96	4.28	5.45	7.76
2018 - 19	5.57	4.6	3.59	0.28	2.72
2019 - 20	1.93	2.17	1.47	- 7.02	- 8.27
2020 - 21	9.1	8.34	6.44	7.33	- 1.13
MAX	9.1	8.34	6.44	7.33	10.09
MIN	1.93	2.17	1.47	- 7.02	- 8.27
AVG.	6.838	5.55	4.168	2.386	2.234
SD	3.101656	2.321422	1.842789	5.89528	7.316764
Companies Avg.	4.2352				

Its clear from the above table that the Operating Profit Margin in selected Oil Refineries Companies show down trend during study period. The average Operating Profit Margin in selected Oil Refineries Companies is 4.2352 percent. IOCL and BPCL have satisfactory average Operating Profit Margin while HPCL, CPCL, and MRPL have not satisfactory average Operating Profit Margin. Standard Deviation of MRPL is high 7.316 which show high fluctuation trend in company Operating Profit Margin.

### Test of Hypothesis

Following hypothesis has been tested by ANOVA test

**H<sub>0</sub>:** There is no significant difference in Operating Profit Margin of selected Oil Refinery Companies in India during study period.

**H<sub>1</sub>:** There is significant difference in Operating Profit Margin of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	79.66062	4	19.91516	0.933279	0.464713	2.866081
Within Groups	426.778	20	21.3389			
Total	506.4386	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 0.933279 and P - value is 0.464713. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected I. e. There is no significant difference in Operating Profit Margin of selected Oil Refinery Companies in India during study period.

### 3) Net Profit Margin:

This ratio establishes the relation between Net profit and net sales.

Net Profit Margin					
Year/ Companies	IOC	BPCL	HPCL	CPCL	MRPL
2016 - 17	5.55	4.25	3.15	3.69	7.51
2017 - 18	5.15	3.6	2.68	2.79	3.61
2018 - 19	3	2.54	2.09	- 0.53	0.55
2019 - 20	- 0.67	0.79	1.15	- 5.61	- 8.04
2020 - 21	5.65	7.66	4.51	1.03	- 2.38
MAX	5.65	7.66	4.51	3.69	7.51
MIN	- 0.67	0.79	1.15	- 5.61	- 8.04
AVG.	3.736	3.768	2.716	0.274	0.25
SD	2.688304	2.538931	1.250232	3.668744	5.910334
Companies Avg.	2.1488				

Its clear from the above table that the Net Profit Ratio in selected Oil Refineries Companies show down trend during study period. The average Net Profit Ratio in selected Oil Refineries Companies is 2.1488 percent. IOCL, BPCL and HPCL have satisfactory average Net Profit Ratio while CPCL, and MRPL have not satisfactory average Net Profit Ratio. Standard Deviation of MRPL is high 5.910334 which show high fluctuation trend in company Net Profit Ratio.

### Test of Hypothesis

Following hypothesis has been tested by ANOVA test

**H<sub>0</sub>:** There is no significant difference in Net Profit Ratio of selected Oil Refinery Companies in India during study period.

**H<sub>1</sub>:** There is significant difference in Net Profit Ratio of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	62.91522	4	15.72881	1.235998	0.327456	2.866081
Within Groups	254.5118	20	12.72559			
Total	317.4271	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 1.235998 and P - value is 0.327456. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected I. e. There is no significant difference in Net Profit Ratio of selected Oil Refinery Companies in India during study period.

### 4) Return on Net Worth

Return on net worth is also known as return on shareholders' equity. This ratio indicates how the firm will have used the resources of owner's fund. Return on net worth is measured by dividing profit after tax by net worth.

Return on Net Worth					
Year/ Companies	IOC	BPCL	HPCL	CPCL	MRPL
2016 - 17	19.44	28.29	39.08	30.53	36.54
2017 - 18	19.48	24.6	28.27	23.19	19.47
2018 - 19	15.45	20.12	22	- 5.94	3.41
2019 - 20	- 0.93	8.36	8.51	- 151.28	- 49.05
2020 - 21	19.34	30.18	28	15.96	- 13.35
MAX	19.48	30.18	39.08	30.53	36.54
MIN	- 0.93	8.36	8.51	- 151.28	- 49.05
AVG.	14.556	22.31	25.172	- 17.508	- 0.596
SD	8.826116	8.693963	11.16592	76.01455	32.81855
Companies Avg.	8.7868				

Its clear from the above table that the Return on Net Worth in selected Oil Refineries Companies show down trend during study period. The average Return on Net Worth in selected Oil Refineries Companies is 8.7868 percent. IOCL, BPCL and HPCL have satisfactory average Return on Net Worth while CPCL, and MRPL have not satisfactory average Return on Net Worth. Standard Deviation of CPCL is high 76.01455 which show high fluctuation trend in company Return on Net Worth.

**Test of Hypothesis**

Following hypothesis has been tested by ANOVA test

**Ho:** There is no significant difference in Return on Net Worth of selected Oil Refinery Companies in India during study period.

**H1:** There is significant difference in Return on Net Worth of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	6320.444	4	1580.111	1.107539	0.380425	2.866081
Within Groups	28533.73	20	1426.687			
Total	34854.18	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 1.107539 and P - value is 0.380425. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected i.e. There is no significant difference in Return on Net Worth of selected Oil Refinery Companies in India during study period.

**5) Return on Capital Employed:**

The return on capital employed is measured by dividing profit before interest and tax by capital employed.

Return On Capital Employed					
Year/ Companies	IOC	BPCL	HPCL	CPCL	MRPL
2016 - 17	22.03	21.77	27.46	17.62	18.73
2017 - 18	23.97	18.87	22.33	17.6	12.96
2018 - 19	16.87	16.38	19.73	2.19	11.6
2019 - 20	5.55	6.83	6.63	- 58.84	- 20.64
2020 - 21	17.19	18.46	20.92	33.83	- 1.76
MAX	23.97	21.77	27.46	33.83	18.73
MIN	5.55	6.83	6.63	- 58.84	- 20.64
AVG.	17.122	16.462	19.414	2.48	4.178
SD	7.158262	5.717243	7.730455	36.05857	15.7731
Companies Avg.	11.9312				

Its clear from the above table that the Return on Capital Employed in selected Oil Refineries Companies show down trend during study period. The average Return on Capital Employed in selected Oil Refineries Companies is 11.9312 percent. IOCL, BPCL and HPCL have satisfactory average Return on Capital Employed while CPCL, and MRPL have not satisfactory average Return on Capital Employed. Standard Deviation of CPCL is high 36.05857 which show high fluctuation trend in company Return on Capital Employed.

**Test of Hypothesis**

Following hypothesis has been tested by ANOVA test

**Ho:** There is no significant difference in Return on Capital Employed of selected Oil Refinery Companies in India during study period.

**H1:** There is significant difference in Return on Capital Employed of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	1264.511	4	316.1277	0.933798	0.46444	2.866081
Within Groups	6770.796	20	338.5398			
Total	8035.307	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 0.933798 and P - value is 0.46444. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected I. e. There is no significant difference in Return on Capital Employed of selected Oil Refinery Companies in India during study period.

**6) Return on Assets**

The return on assets is measured by dividing profit after tax by total assets.

Return on assets					
Year/ Companies	IOC	BPCL	HPCL	CPCL	MRPL
2016 - 17	7.25	7.99	10.25	9.04	10.57
2017 - 18	7.5	7.48	8.04	6.48	6.23
2018 - 19	5.18	5.69	6.23	- 1.33	1.03
2019 - 20	0.27	2.02	2.25	16.02	- 10.94
2020 - 21	6.09	10.04	7.94	1.8	- 1.63
MAX	7.5	10.04	10.25	16.02	10.57
MIN	0.27	2.02	2.25	- 1.33	- 10.94
AVG.	5.258	6.644	6.942	6.402	1.052
SD	2.939944	3.013923	2.986063	6.716273	8.191546
Companies Avg.	5.2596				

Its clear from the above table that the Return on Assets in selected Oil Refineries Companies show down trend during study period. The average Return on Assets in selected Oil Refineries Companies is 5.2596 percent. BPCL, HPCL and CPCL have satisfactory average Return on Assets while IOCL, and MRPL have not satisfactory average Return on Assets. Standard Deviation of MRPL is high 8.191546 which show high fluctuation trend in company Return on Assets.

**Test of Hypothesis**

Following hypothesis has been tested by ANOVA test

**Ho:** There is no significant difference in Return on Assets of selected Oil Refinery Companies in India during study period.

**H1:** There is significant difference in Return on Assets of selected Oil Refinery Companies in India during study period.

Source of Variation	SS	df	MS	F	P - value	F crit
Between Groups	118.7801	4	29.69501	1.069294	0.39766	2.866081
Within Groups	555.4132	20	27.77066			
Total	674.1933	24				

In ANOVA table calculate value of F - test with corresponding P - value is given. F - value is 1.069294 and P - value is 0.39766. Here P - value is greater than 0.05. Hence the given null hypothesis is not rejected I. e. There is no significant difference in Return on Assets of selected Oil Refinery Companies in India during study period.

## 5. Conclusion

The study period taken in sample was quite challenging for the Oil Refinery Companies and Indian economy in all. 2019 - 20 was the commencement of the downturn in the economy. Moreover, it was the year of certain economic shocks internationally. Effect of Corona virus, the downturn spread across the globe. In these challenging times it was very difficult for all businesses to perform with its efficiency.

In this backdrop, the study undertaken here aims at analyzing profitability position of the selected Oil Refinery Companies in India. The five years' time period chosen for analyzing selected Oil Refinery Companies in India profitability was quite a roller coaster ride for companies. In initial years the profitability was not quite encouraging. Later on, after 2019 - 20 the selected companies started exhibiting positive trends in profitability.

## References

- [1] P. Logambal (2012) <https://shodhganga.inflibnet.ac.in/handle/10603/37222>
- [2] Vijakumar and Gomathi. P (2013) <http://shodhganga.inflibnet.ac.in:8080/jspui/handle/10603/37216>
- [3] Renu Hooda and Kuldip Singh Chhikara (2018) [http://ijrar.com/upload\\_issue/ijrar\\_issue\\_20542462.pdf](http://ijrar.com/upload_issue/ijrar_issue_20542462.pdf)
- [4] S. Ramya, N. Pooja priyadharshini, and R. Pavithra Chandran (2018) <https://www.ijarnd.com/manuscript/financial-analysis-and-performance-of-indian-oil-corporation-ltd/>