



**A COMPARATIVE PROFITABILITY ANALYSIS OF SELECTED PETROLEUM  
COMPANIES IN INDIA - BPCL, HPCL AND IOCL**

**Corresponding Author**

**Dr Anubhav Lodhi**

*Former Research Scholar,*

*Department of ABST, University of Rajasthan , Jaipur (Rajasthan)*

**ABSTRACT**

*In this Research paper, analysis of profitability of selected public sector oil companies is undertaken. For the purpose of study, three public sector oil companies are selected. Profitability ratios considered for the purpose of analysis are Operating Profit Margin Ratio, Gross Profit Margin Ratio, Net Profit Ratio and Return on Capital Employed.*

**Keywords**

Profitability Ratios, Operating Profit Margin Ratio, Gross Profit Margin Ratio, Net Profit Ratio and Return on Capital Employed.

**INTRODUCTION :**

The business firms are generally established with a view of earning profit from the business operations. But under different situation the object of the business firms may be changed to survival, growth stability etc. It is difficult for a business to breathe well without profit. It may be regarded as a mirror of the operating performance of the business activities. But in the real business environment of today, profit is thus, not the sole objective but one among the most important objectives, which normally guide and direct business operations.

Profit is an absolute connotation, whereas profitability is a relative concept, despite being closely related to a mutually interdependent, as they are, profit and profitability are two different concepts. In other words, in spite of their generic nature, each one of them has a distinct role in business concerns. Profitability is the main indicator of the efficiency and effectiveness of a business enterprise in achieving its goal of earning profit. Analysis of the profitability reveals as to how the position of profits stands as a result of total transactions made during the year.

### **MEASUREMENT OF PROFITABILITY:**

Profitability of a firm can be measured by its profitability ratios. In the process of performance appraisal of a business, profitability ratios can be calculated to measure the operating efficiency. The profitability ratios could be determined on the basis of either investment or sales, and for this purpose a quantitative relationship between the profit and the investment or the sales is established.

Analysis of Profitability is done for selected Oil Companies in India. The three companies selected for the study are as under:

- i. Bharat Petroleum Co. Ltd. (BPCL),
- ii. Hindustan Petroleum Co. Ltd. (HPCL), and
- iii. Indian Oil Co. Ltd. (IOCL)

The Profitability Ratios of selected Indian Oil Companies have been analyzed are as under:

1. Operating Profit Margin Ratio
2. Gross Profit Margin Ratio
3. Net Profit Margin Ratio.
4. Return on Capital Employed.

### **1. OPERATING PROFIT MARGIN RATIO :**

The operating profit margin reflects the efficiency with which the management produces each unit of product. This ratio indicates the average spread between the cost of goods sold and sales. It is one of the most carefully watched measure of profitability. A high Operating Profit Ratio is the sign of managerial effectiveness. On the other hand, a low ratio should be carefully investigated and compared with the ratios of similar corporations for diagnoses as also to remedy

problem. There is no standard norm for operating profit ratio and it may vary from business to business.

The operating profit margin ratios for the selected public sector oil companies during the study period are presented in Table 1.

**TABLE 1 : OPERATING PROFIT MARGIN RATIO**

Years	BPCL		HPCL		IOCL	
	Percentage	Index	Percentage	Index	Percentage	Index
2008-09	5.99	100	5.12	100	7.44	100
2009-10	6.3	105	6.44	126	10.01	135
2010-11	6.9	115	7.07	138	10.28	138
2011-12	3.61	60	3.95	77	6.2	83
2012-13	1.88	31	1.62	32	5.72	77
2013-14	4.35	73	3.45	67	6.75	91
2014-15	3.96	66	2.59	51	5.83	78
2015-16	3.17	53	3	59	3.66	49
Mean	4.52		4.16		6.99	
CV	0.38		0.46		0.32	
CAGR	-8.69		-7.35		-9.64	

Source: Computed from the Annual reports of the respective companies

The operating profit margin ratio of BPCL had a fluctuating trend and ranged from 1.88% in the year 2012-13 to 6.90% in the year 2010-11 during the study period. Table 1 showed that the mean operating profit margin ratio of BPCL was 4.52%, which is statistically significant. The CV value further indicated high fluctuation (0.38) in this ratio during the study period. Further, operating profit margin ratio of BPCL had a negative (-8.69) Compound Annual Growth Rate during the study period.

It is evident from the table that the operating profit margin ratio of HPCL had a fluctuating trend and ranged from 1.62% in the year 2012-13 to 7.07% in the year 2010-11 during the study period. Table 1 showed that the mean operating profit margin ratio of HPCL was 4.16% which is statistically significant. The CV value further indicated high fluctuation (0.46) in this ratio during the study period. Further, operating profit margin ratio of HPCL had a negative (-7.35) Compound Annual Growth Rate during the study period.

In IOCL operating profit margin ratio had a fluctuating trend and ranged from 3.66% in the year 2015-16 to 10.28% in the year 2010-11 during the study period. Table 1 showed that the mean operating profit margin ratio of IOCL was 6.99% which is statistically significant. The CV value further indicated high fluctuation (0.32) in this ratio during the study period. Further, operating profit margin ratio of IOCL had a negative (-9.4) from the Annual reports of the respective companies Compound Annual Growth Rate during the study period.

Table 1 also indicated the IOCL had highest mean operating profit margin ratio, followed by HPCL and BPCL. The CV value also showed high fluctuation in operating profit margin ratio of public sector oil companies during the study period. The Compound Annual Growth Rate of operating profit margin had a negative value in all the selected oil companies during the study period.

To judge whether the difference in the mean values of operating profit margin ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

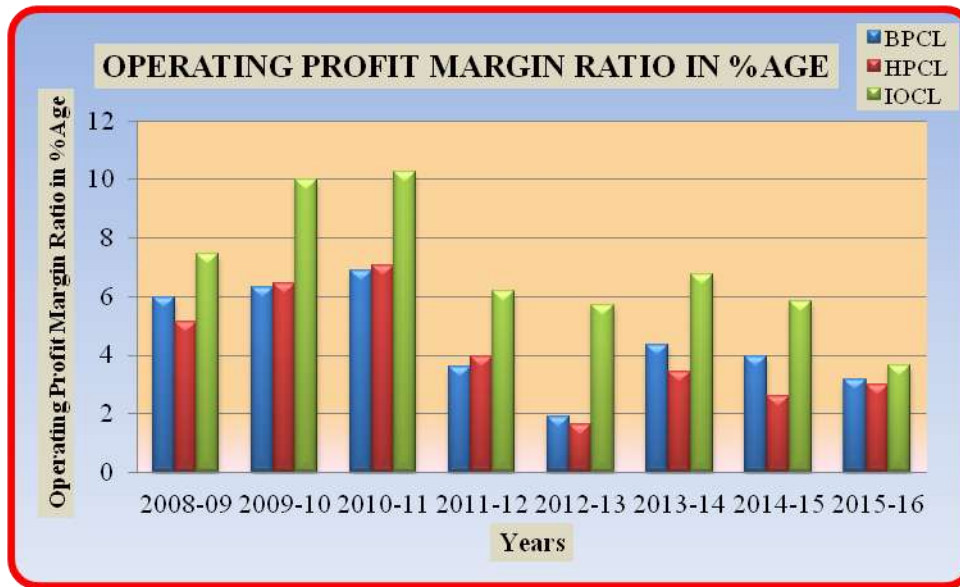
H<sub>0</sub> - There is no significant difference in Operating Profit Margin Ratio between the companies and between years.

Values derived from Analysis of Variance for Operating Profit Margin Ratio is presented in the following table 2:

**TABLE 2 : ANALYSIS OF VARIANCE OF OPERATING PROFIT MARGIN RATIO**

<b>Sources of Variance</b>	<b>Sum of Squares</b>	<b>D.F.</b>	<b>Mean Square Variance</b>	<b>F Ratio</b>	<b>F Value (5% level)</b>	<b>Critical</b>
Between companies	74.49	7	10.64	22.10	2.76	
Between years	37.95	2	18.98	39.14	3.74	
Residual	6.74	14	0.48			

## CHART 1 : OPERATING PROFIT MARGIN RATIO



It is evident from the Table 2 that the calculated value of 'F' (22.10) is more than the table value of 'F' (2.76) at 5% level of significance. Hence, the null hypothesis is rejected, and thus, the differences between operating profit margin in between the companies are significant. Further, calculated value of 'F' (39.14) is higher than the table value of 'F' (3.74) at 5% value of significance, the null hypothesis is also rejected, and thus, the difference between operating profit margin between years is significant.

Hence, the profitability of the selected companies measured through operating profit margin ratio is satisfactory and is adequate during the study period.

## 2. GROSS PROFIT MARGIN RATIO :

The difference between net sales and cost of goods sold is termed as gross profit margin. It reflects the efficiency with which management produces each unit of product. This ratio indicates the average spread between cost of goods sold and sales. This ratio is of vital importance for gauging business results. It reflects pricing policies of a business. It also helps in ascertaining whether the average percentage of mark up on the goods is maintained. A low gross profit ratio will suggest a decline in business which may be due to insufficient sales, higher cost of production with the existing or reduced selling price or all round inefficient management. The finance manager must be able to detect the causes of falling gross profit margin. The gross profit margin is a sign of good and efficient management.

The gross profit margin ratio for the selected public sector oil companies during the study period is presented in Table 3:

**TABLE 3 : GROSS PROFIT MARGIN RATIO**

Years	BPCL		HPCL		IOCL	
	Percentage	Index	Percentage	Index	Percentage	Index
2008-09	5.12	100	4.38	100	5.89	100
2009-10	5.73	112	6.13	140	9.26	157
2010-11	6.68	130	6.96	159	9.88	168
2011-12	3.37	66	3.81	87	5.77	98
2012-13	1.56	30	1.37	31	5.11	87
2013-14	3.8	74	2.98	68	6.04	103
2014-15	3.35	65	1.86	42	5.18	88
2015-16	1.55	30	1.35	31	2.35	40
Mean	3.90		3.61		6.19	
CV	0.48		0.59		0.39	
CAGR	-15.69		-15.48		-12.3	

Source: Computed from the Annual reports of the respective companies

It is evident from Table 3, that the Gross Profit Margin Ratio of BPCL had a fluctuating trend and ranged from 1.55% in the year 2015-16 to 6.68% in the year 2010-11 during the study period. Table 3 showed that the mean gross profit margin ratio of BPCL was 3.9% which is statistically significant. The CV value further indicated high fluctuation (0.48) in this ratio during the study period. Further, gross profit margin ratio of BPCL had a negative (-15.69) Compound Annual Growth Rate during the study period.

The gross profit margin ratio of HPCL had registered fluctuating trend and ranged from 1.35% in the year 2015-16 to 6.96% in the year 2010-11 during the study period. Table 3 showed that the mean gross profit margin ratio of HPCL was 3.61% which is statistically significant. The CV value further indicated erratic fluctuation (0.59) in this ratio during the study period. Further, gross profit margin ratio of HPCL had a negative (-15.48) Compound Annual Growth Rate during the study period.

In IOCL, gross profit margin ratio was having a fluctuating trend and ranged from 2.3% in the year 2015-16 to 9.88% in the year 2010-11 during the study period. Table 3 showed that the mean gross profit margin ratio of IOCL was 6.19% which is statistically significant. The CV value further indicated high fluctuation (0.39) in this ratio during the study period. Further, gross

profit margin ratio of IOCL had a negative (-12.3) Compound Annual Growth Rate during the study period.

Table 3 also revealed that IOCL had the highest mean gross profit margin ratio, followed by HPCL and BPCL. The CV value also indicated the high fluctuation in gross profit margin ratio of public sector oil companies during the study period. The Compound Annual Growth Rate of Gross Profit Margin Ratio had registered negative value in all the selected oil companies during the study period.

To judge whether the difference in the mean values of gross profit margin ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

H0 – There is no significant difference in Gross Profit Margin Ratio between the companies and between years.

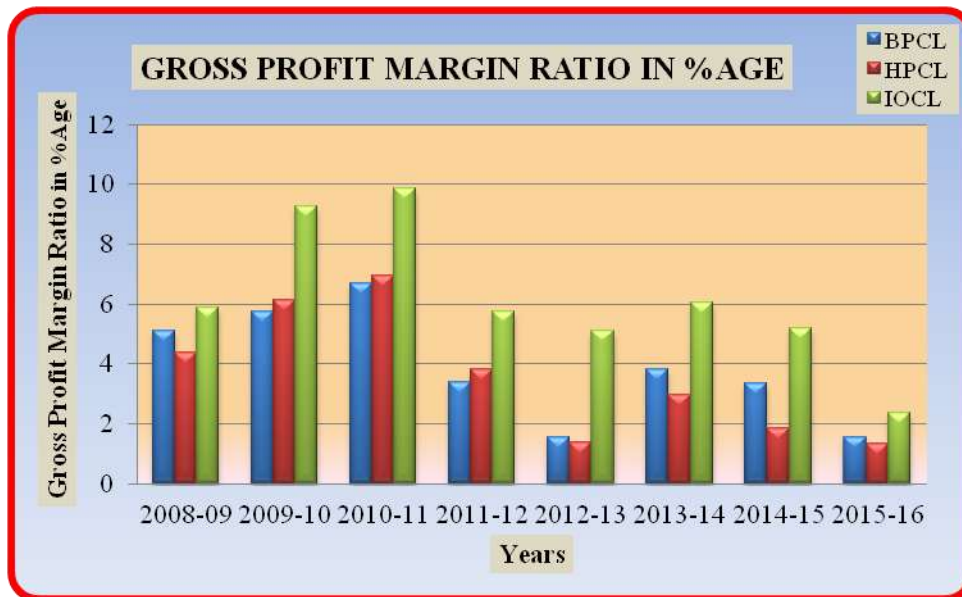
Values derived from Analysis of Variance for Gross Profit Margin Ratio is presented in the following Table 4:

**TABLE 4 : ANALYSIS OF VARIANCE OF GROSS PROFIT MARGIN RATIO**

<b>Sources of Variance</b>	<b>Sum of Squares</b>	<b>D.F.</b>	<b>Mean Square Variance</b>	<b>F Ratio</b>	<b>F Value (5% level)</b>	<b>Critical</b>
Between companies	90.02	7	12.86	29.11	2.76	
Between years	31.96	2	15.98	36.17	3.74	
Residual	6.18	14	0.44			

Source: Computed.

## CHART 2 : GROSS PROFIT MARGIN RATIO



It is evident from the Table 4, that the calculated value of 'F' (29.11) is more than the table value of 'F' (2.76) at 5% level of significance. Hence, the null hypothesis is rejected, and thus the difference between gross profit margin between the companies is significant. Further, calculated value of 'F' (36.17) is higher than the table value of 'F' (3.74) at 5% value of significance and the null hypothesis is also rejected. Thus, the difference between gross profit margin between years is significant.

Hence, the profitability of the selected companies measured through gross profit margin ratio is satisfactory and is adequate during the study period.

### 3. NET PROFIT RATIO :

Net profit margin is an indicator of the efficiency of the management in manufacturing, selling and financing. It helps in measuring the relationship between sales and net profits. A high net profit margin would ensure adequate return to the owners as well as enable a firm to face the adverse economic conditions, when the selling price is declining, cost of production is rising and demand for the product is falling. If the net profit margin is inadequate, the company will not be



in a position to pay off its debts and give a satisfactory return to its shareholders. The net profit ratio for the selected public sector oil companies during the study period is presented in Table 5 :

**TABLE 5 : NET PROFIT RATIO**

Years	BPCL		HPCL		IOCL	
	Percentage	Index	Percentage	Index	Percentage	Index
2008-09	2.42	100	1.98	100	2.85	100
2009-10	2.89	119	3.16	160	5.74	201
2010-11	3.52	145	3.7	187	6.03	212
2011-12	1.71	71	2.16	109	3.52	124
2012-13	0.38	16	0.57	29	2.64	93
2013-14	1.9	79	1.77	89	2.87	101
2014-15	1.41	58	1.21	61	2.92	102
2015-16	0.73	30	0.44	22	1.16	41
Mean	1.87		1.87		3.47	
CV	0.57		0.61		0.47	
CAGR	15.74		-19.34		-12.05	

Source: Computed from the Annual reports of the respective companies

It is evident from the table 5 that the Net Profit Ratio of BPCL had registered fluctuating trend and ranged from 0.38% in the year 2012-13 to 3.52% in the year 2010-11 during the study period. Table 5 showed that the mean net profit ratio of BPCL was 1.87% which is statistically significant. The CV value further indicated erratic fluctuation (0.57) in this ratio during the study period. Further, net profit ratio of BPCL had a negative (-15.74) Compound Annual Growth Rate during the study period.

In HPCL net profit ratio had a fluctuating trend and ranged from 0.44% in the year 2015-16 to 3.70% in the year 2010-11 during the study period. Table 5 showed that the mean net profit ratio of HPCL was 1.87% which is statistically significant. The CV value further indicated erratic fluctuation (0.69) in this ratio during the study period. Further, net profit ratio of HPCL had a negative (-19.34) Compound Annual Growth Rate during the study period.

The net profit ratio of IOCL had a fluctuating trend and ranged from 1.16 % in the year 2015-16 to 6.03% in the year 2010-11 during the study period. Table 5 showed that the mean net profit ratio of IOCL was 3.47% which is statistically significant. The CV value further indicated high fluctuation (0.47) in this ratio during the study period. Further, net profit ratio of IOCL had a negative (-12.05) Compound Annual Growth Rate during the study period.

Table 5 also indicated that IOCL had the highest mean net profit ratio, followed by HPCL and BPCL. The CV value also indicated the erratic fluctuation in the net profit ratio of public sector oil companies during the study period. The Compound Annual Growth Rate of Net Profit Ratio had registered negative value in all the selected oil companies during the study period.

To judge whether the difference in the mean values of net profit ratio between the companies and between the years during the year period, the following hypothesis is framed and tested.

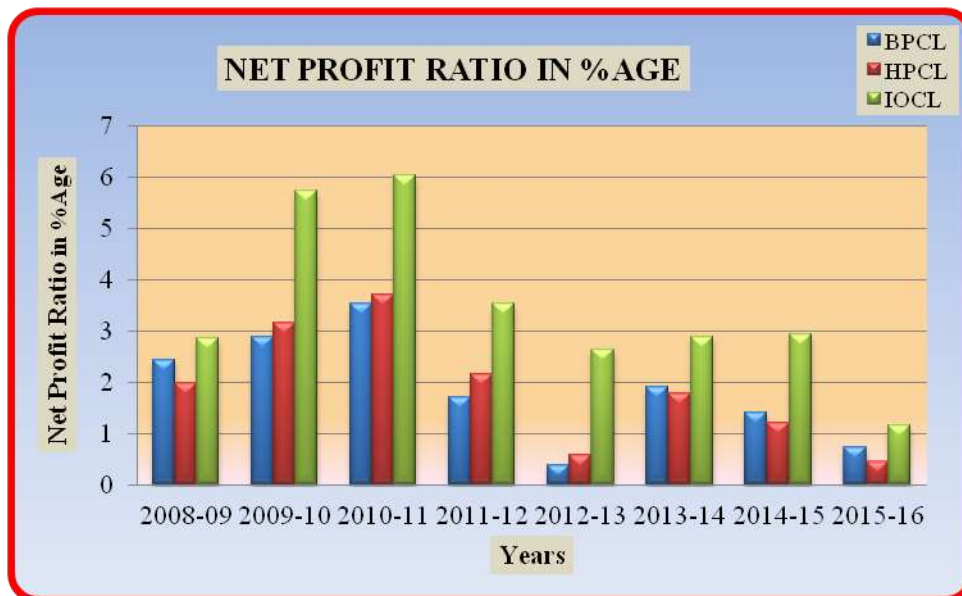
Ho - There is no significant difference in Net Profit Ratio between the companies and between years.

Values derived from Analysis of Variance for Net Profit Ratio is presented in the following Table 6 :

**TABLE 6 : ANALYSIS OF VARIANCE OF NET PROFIT RATIO**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F Ratio	F Value (5% level)	Critical
Between companies	32.55	7	4.65	19.47	2.76	
Between years	13.56	2	6.78	28.38	3.74	
Residual	3.34	14	8.65			

**CHART 3 : NET PROFIT RATIO**



It is evident from the Table 6, that the differences between Net Profit Ratio in between the companies are significant because the calculated value of 'F' (919.47) is more than the table value of 'F' (2.76) at 5% level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are significant because calculated value of 'F' (28.38) is higher than the table of 'F' (3.74) at 5% value of significance and the null hypothesis is also rejected.

Hence, the profitability of the selected companies measured through Net Profit Ratio is satisfactory and is adequate during the study period.

#### **4. RETURN ON CAPITAL EMPLOYED :**

The primary objective of making investment in any business is to obtain satisfactory return on the capital invested. Hence, the Return on Capital Employed is used as a measure of success of a business in realizing this objective. It is the chief profitability ratio and the most important measure of performance. It indicates the comparative efficiency with which the whole company runs properly. Therefore, return on capital employed is a valuable yardstick to measure the overall performance of an earning power of the capital invested. It indicates how the management has used the funds supplied by creditors and owners. The higher the ratio, the more efficient can be considered the enterprise in using funds entrusted to it. The comparison of this ratio with the ratio of similar business organizations will reveal the relative operating efficiency of a business enterprise. Further, an investor can judge the future prospects of business enterprise by taking into consideration the earning capacity of capital employed. It shows the earning capacity of the capital.

The Return on Capital Employed for the selected public sector oil companies during the study period is presented in Table 7.

**TABLE 7: RETURN ON CAPITAL EMPLOYED**

Years	BPCL		HPCL		IOCL	
	Percentage	Index	Percentage	Index	Percentage	Index
2008-09	19.01	100	16.73	100	16.78	100
2009-10	29.53	155	28.6	171	27.87	166
2010-11	33.47	176	33.74	202	29.79	178
2011-12	23.54	124	18.73	112	18.61	111
2012-13	6.78	36	3.7	22	15.34	91
2013-14	18.22	96	14.33	86	17.84	106
2014-15	14	74	9.96	60	18.85	112
2015-16	11.88	62	9.88	59	9.84	59
Mean	19.55		16.96		19.37	
CV	0.46		0.59		0.34	
CAGR	-6.5		-7.25		-7.34	

Source: Computed from the Annual reports of the respective companies

Table 7 showed that the return on capital employed of BPCL had registered fluctuating trend and ranged from 6.78% in the year 2012-13 to 33.47% in the year 2010-11 during the study period. Table 7 also showed that the mean return on capital employed of BPCL was 19.55% which is statistically significant. The CV value further indicated high fluctuation (0.46) in this ratio during the study period. Further, return on capital employed of BPCL had a negative (-6.5) Compound Annual Growth Rate during the study period.

The return on capital employed of HPCL had a fluctuating trend and ranged from 3.7% in the year 2012-13 to 33.74% in the year 2010-11 during the study period. Table 7 showed that the mean return on capital employed of HPCL was 16.96% which is statistically significant. The CV value further indicated erratic fluctuation (0.59) in this ratio during the study period. Further, return on capital employed of HPCL had a negative (-7.25) Compound Annual Growth Rate during the study period.

In IOCL return on capital employed had a fluctuating trend and ranged from 9.84% in the year 2015-16 to 29.79% in the year 2010-11 during the study period. Table 7 showed that the mean return on capital employed of IOCL was 19.37% which is statistically significant. The CV value further indicated high fluctuation (0.34) in this ratio during the study period. Further, the return on capital employed of IOCL had a negative (-7.34) Compound Annual Growth Rate during the study period.

Table 7 also indicated the BPCL had the highest mean return on capital employed, followed by HPCL and IOCL. The CV value also indicated high fluctuation in the return on capital employed of public sector oil companies during the study period. The Compound Annual Growth Rate of Return on Capital Employed had registered negative value in all the selected oil companies during the study period.

To judge whether the difference in the mean values of return on capital employed between the companies and between the years during the year period, the following hypothesis is framed and tested.

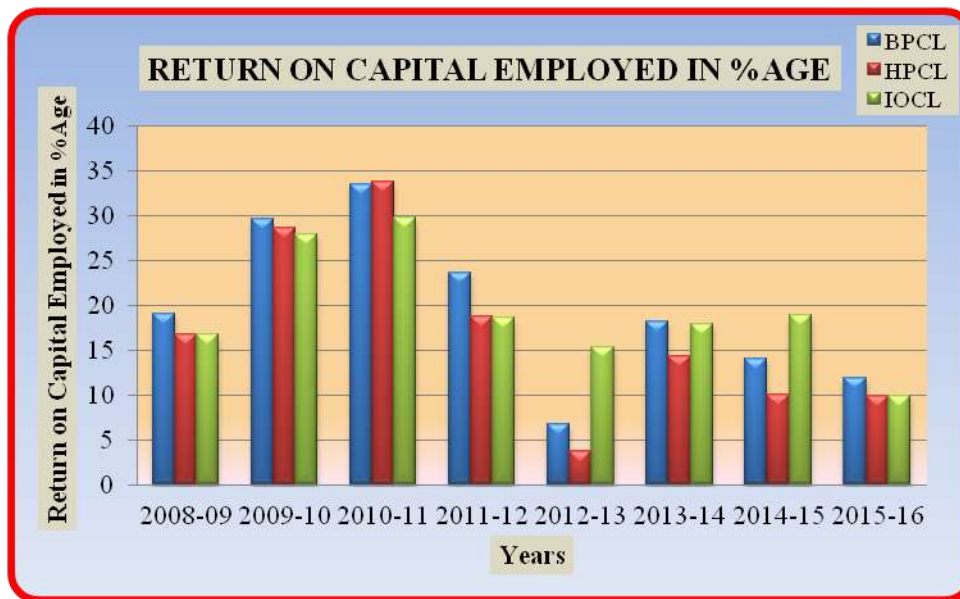
Ho - There is no significant difference in Return on Capital Employed between the companies and between years.

Values derived from Analysis of Variance for Return on Capital Employed is presented in the following Table 8:

**TABLE 8 : ANALYSIS OF VARIANCE OF RETURN ON CAPITAL EMPLOYED**

Sources of Variance	Sum of Squares	D.F.	Mean Square Variance	F Ratio	F Value (5% level)	Critical (5%)
Between companies	1442.82	7	206.12	23.82	2.76	
Between years	33.49	2	16.75	1.94	3.74	
Residual	121.14	14	8.65			

**CHART 4 : RETURN ON CAPITAL EMPLOYED**



It is evident from the Table 8 that the difference between Return on Capital Employed between the companies are significant because the calculated value of 'F' (23.82) is more than the table value of 'F' (2.76) at 5% level of significance. Hence, the null hypothesis is rejected. Further, the difference between years are not significant because calculated value of 'F' (1.94) is lower than the table value of 'F' (3.74) at 5% value of significance and the null hypothesis is accepted.

Hence, the profitability of the selected companies measured through Return on Capital Employed is satisfactory and is adequate during the study period.

## **CONCLUSIONS :**

There is significant difference between Profitability Ratios between companies, according to all the 4 ratios considered i.e The profitability of the selected companies measured through Operating Profit Margin Ratio, Gross Profit Margin Ratio , Net Profit Ratio and Return on Capital Employed.

Whereas, there is significant difference between profitability ratios between years as per Operating Profit Margin Ratio, Gross Profit Margin Ratio and Net Profit Ratio, but there is no significant difference between Return on Capital Employed between years.

The profitability of the selected companies measured through Operating Profit Margin Ratio, Gross Profit Margin Ratio, Net Profit Ratio and Return on Capital Employed is satisfactory and is adequate during the study period.

## REFERENCES

- Agarwal, V.K. (1978). “Size profitability and Growth of some Manufacturing Industries”, unpublished FPM thesis IIM, Ahmedabad.
- Nerumann, Bobel and Haid (1979). “Profitability, Risk and Market Structure in West German Industries”, *The Journal of Industrial Economics*, Vol.27, pp.227-242. | Annual Reports of the Indian Oil Companies
- ArttaBandhu Jena (2015).“Profitability Analysis: A Study of Hindustan Petroleum Corporation Limited” *International Journal of Research and Development - A Management Review*. 4(1), pp125-132.
- Pratik P. Valand (2014). The challenges and future prospects of India's petroleum products refineries.*Indian Journal of Applied Research*, 4(6),pp 69-70.
- Yameen, M., & Ahmad, I. “Impact of Corporate Governance Practices on Financial Performance of Hindustan Petroleum Corporation Limited”, *International Journal of Advancements in Research & Technology*, Volume 4, Issue 2, February -2015, pp 135-148.
- Singh, A. P. H., & Kumar, A. P. P. (2014). Capital Structure Analysis of Oil Industry—An Empirical Study of HPCL, LOCL & BPCL (INDIA). *International Journal of Research in Finance and Marketing*, 4(6), pp18-25.
- Agarwal, A., (2013). “Financial Performance of Reliance Industries Limited”, *International Journal of Applied Financial Management Perspectives*. Volume 2, Number 3, July – September 2013, pp 573-577.
- Khan, M., Y & Jain, P., K (2005).*Financial Management*. Tata McGraw-Hill Publishing Company Limited. New Delhi.
- Burca, AM., &Batrinca G., (2014). “The Determinants of Financial Performance in Romanian Insurance Market”, *International Journal of Academic Research in Accounting, Finance and Management Sciences*. Volume 4, Number 1, January 2014 pp 299-308.
- Pandey, I, M., (2005). “Financial Management”, 5th Edition, Vikas Publishing House Pvt Ltd. New Delhi.