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INTRODUCTION
REVIEW OF LITERATURE
NEED/IMPORTANCE OF THE STUDY
STATEMENT OF THE PROBLEM
OBJECTIVES
HYPOTHESIS (ES)
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
FINDINGS
RECOMMENDATIONS/SUGGESTIONS
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APPENDIX/ANNEXURE

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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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MAPPING PROFITABILITY OF PUBLIC SECTOR ENTERPRISES WITH SPECIAL REFERENCE TO BHEL

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ABSTRACT
This paper aims to access the position of BHEL from the year 2004 to 2014. To evaluate the profitability of the company, relevant rations were used and statistical tools like mean, standard deviation, coefficient of variation, minimum, and maximum were applied, and to test the significant relationship between the relevant variable, the variables were tested with the help of correlation and regression analysis (t-test). In hypotheses testing, most of the hypothesis showed a statistically significant relationship between two variables. Hence it was concluded that the overall performance of Bharat Heavy Electricals Limited regarding profitability was sound during the study period, the company's market is growing, and it was earning an acceptable return on invested capital, and it has good future opportunities for growth.

KEYWORDS
profitability, paper companies, profit margin, operational performance, correlation analysis, regression analysis.

JEL CLASSIFICATION
C12, C14, C16, G32.

INTRODUCTION
Profitability is a shallow goal, if it doesn't have a real purpose and the purpose has to be share the profits with others"
Profitability is the ability of a business to earn a profit. A **profit** is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue, such as producing a product, and other expenses related to the conduct of the business' activities**.** Profitability is an indication of the efficiency with which the operations of the business are carried on. Poor operational performance may indicate poor sales and hence, poor profits. A lower profitability may arise due to a lack of control over expenses. Bankers, financial institutions, and other creditors look at the profitability ratios as an indicator of whether or not a firm earns substantially more than it pays interest for the use of borrowed funds and whether the ultimate repayment of their debt appears reasonably certain. Owners are interested to know the profitability as it indicates the return which they can get on their investment. The profitability ratio measures the profitability or the operational efficiency of a firm. There are two groups of persons who may be especially interested in the analysis of the profitability of a firm. There are:

I) The management which is interested in the overall profitability and operational efficiency of the firm; and
II) The equity shareholders who are interested in the ultimate returns available to them.

Both of these parties and any other party such as creditors can measure the profitability of the firm in terms of the profitability ratios. Different profitability ratios have been suggested to access the profitability of the firm from different angles. The performance of the firm can be evaluated in terms of its earnings with reference to a given level of assts or sales or owner interest, etc. broadly, the profitability ratios are calculated by relating the returns with the I) sales of the firm; II) assets of the firm; and III) the owners' contribution.

PROFILE OF BHARAT HEAVY ELECTRICALS LIMITED (BHEL)
Embarking upon the 50th Golden Year of its journey of engineering excellence, BHEL is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing company of its kind in India engaged in the design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation (Railway), Renewable Energy, Oil & Gas and Defence with over 180 products offerings to meet the needs of these sectors. Establishment of BHEL in 1964 was a breakthrough for upsurge in India's Heavy Electrical Equipment industry. Consistent performance in a highly competitive environment enabled BHEL attain the coveted 'Maharatna' status in 2013.
BHEL also has a widespread overseas footprint in 76 countries with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW including Malaysia, Oman, Libya, Iraq, the UAE, Bhutan, Egypt and New Zealand.
The high level of quality & reliability of BHEL products and systems is an outcome of strict adherence to international standards through acquiring and adapting some of the best technologies from leading OEM companies in the world together with technologies developed in our own R&D centres. Most of our manufacturing units and other entities have been accredited to Quality Management Systems (ISO9001:2008), Environmental Management Systems (ISO14001:2004) and Occupational Health & Safety Management Systems (OHSAS18001:2007).

- **Expansion/ Modernization Project:** Public sector undertaking BHEL is expanding its limited presence in the solar power equipment industry by setting up a solar photovoltaic cell manufacturing plant at Sakoli, in Bhandara district of Maharashtra. Coming up at an investment of Rs 2,731 crore, the project is BHEL's largest investment in the power plant equipment manufacturing segment. Maharashtra government, while clearing the project, granted it the "Mega Project" status and extended all special incentives that go with the status. MIDC has already secured 480 acre for the plant. BHEL intends to execute the project in two phases. In the first phase, the power equipment giant will be setting up a fabrication plant with an investment of Rs 500 crore. And the solar cell plant will be set up in the second phase. The state government has assured special status to both the phases. Manufacturing solar power equipment is not a new venture to BHEL. The company presently manufactures apparatus for solar lanterns, photovoltaic cells, water heating systems etc, at its Bangalore plant. The Sakoli plant will catapult BHEL into a larger player in this segment. Apart from manufacturing photovoltaic cells, modules and solar panels, the plant will also manufacture solar wafers. Solar or silicon wafers are key components of solar photovoltaic cells. The wafers are currently imported as they are not domestically manufactured. As BHEL's initiative will result in import substitution, the company will also be entitled to avail subsidies under the National Clean Energy Fund (NCEF).

OBJECTIVES OF THE STUDY
1) To analyze the profile of Bharat Heavy Electricals Limited (BHEL).
2) To evaluate the profit margins in relation to sales.

3) To examine the profitability in relation to investment.
4) To examine the profitability in relation to total assets.

SCOPE OF THE STUDY

For the present study, one of the leading large size public sector companies was considered for analysis. The scope covered under the present study is ten years, beginning from 2004 to 2014.

REVIEW OF LITERATURE

Almazai (2009) in his study titled "Analysis Profitability Ratios of Jordanian Phosphate Mines Company (2001-2007)" examined the profitability ratios by using times series analysis over the period from 2001-2007. The study constructed a theoretical model consisting of independent variables(gross profit margin, operating profit margin, net profit margin, earning per share return on total assets, and return on equity) and dependent variable (performance of the company) to examine the relationship between the variables. The study found that there was a positive relationship between dependent variable (gross profit margin, operation profit margin, net profit margin, and return on equity) and dependent variable (performance). The authors suggested that financial statement analysis must be used to reduce risk and uncertainly by using tools and techniques to evaluated and project the future performance of firm.

Chandra, chouhan, and Goswami (2012) enquired the relationship between profitability and working capital analysis of information technology companies. In their study, they found a statistically significant relationship between capital and profitability of all the selected companies. The positive direction of the relationship in all significant cases connotes that growth in working capital will result in increased profitability.

Abuzar (2004) observed the relationship between profitability and liquidity for sample firms in Saudi Arabia. The researcher took cash gap and current ratio as a measure of liquidity. Using correlation and regression analysis, a negative relationship was investigated between liquidity and profitability, where current ratio was taken as a measure of liquidity. At the company level, it was observed that the cash gap (cash conversion cycle) is more important as a measure of liquidity than the current ratio as a measure of liquidity that affects profitability. At the industry level, it was observed that size had a significant effect on profitability.

Haslem (1968) used operating profit ratio to measure the effect of management, size, location, and time on profitability and found that all variables related to profitability.

Lazaridis and Dimitrios (2006) looked into the relationship between corporate profitability and working capital management using listed companies on the Athens stock exchange. They discovered that a statistically significant relationship existed between profitability and the cash conversion cycle. They concluded that the business can create profit for their companies by correctly handling the cash conversion cycle and keeping each component of the cash conversion cycle to an optimum level.

Mohamed and Abdul (2007) also considered the relationship between cash conversion cycle and its components by taking a sample of 94 firms listed on the Karachi Stock Exchange for a period of six year from 1999-2004. The outcome of the study was that the cash conversion cycle is negatively related to net operating profit, which is a measure of profitability. A similar relationship was observed for the collection period, inventory turnover in days, and average payment period.

Rajagam and Selvaraj (2012) studied the relationship between liquidity and profitability and risk and profitability. In this study, the researchers applied Spearman's Rank correlations to test the significant relationships. The study revealed that the Tamil Nadu Newsprint and Papers Limited (TNPL) maintained an overall control over the liquidity position of current assets, and all the techniques of liquidity management were satisfied during the study period. In testing of the hypotheses, the researchers observed that there was no significant relationship between liquidity and profitability and also, there was an insignificant relationship between risk and profitability.

Pandey (2012) evaluated the relationship between capital structure and profitability of IFCI Ltd. During the study period from 2005 to 2011, profitability was measured on the basic of EPS and return on assets had declined, which showed that the financial structure of the company failed to increase the profitability. For the testing of the hypotheses, correlation and multiple regressions were used. There was a negative correlation between loan fund and EPS, which meant that funds had failed to enhance the profitability of the company. Due to inefficient capital mix and lack of favorable impact of working capital on IFCI's profitability, negative correlation results were observed. In this study, insignificant regression results were obtained, and it made clear that the working capital was not favorably influencing the profitability of the company.

Singh (2012) made an investigation for the relationship between capital and profitability in the information technology and telecom industry in India. He used the correlation and regression analysis. He investigated that the working capital turnover is positively related with ROCE (return on capital employed), it means that we accept that more working capital returns will result in higher return on capital employed, which is a measure of profitability. The results of the regression analysis showed that the coefficient of working capital turnover is positive, which means that working capital turnover affects the profitability of the firm positively. However, day's inventory was negatively related to profitability.

Zabiulla (2011) in his study entitled" Analysis of profitability Ratios of Selected of FMCG Companies in India" used profitability variables like gross profit margin, net profit margin, operating profit margin, return on total assets, return on capital employed, and return on net worth, and earnings per share. In this study, he applied statistical tools like average and f-test and one-way ANOVA to test the significant relationship between selected profitability variables, and the present study was conducted to examine the profitability ratios of selected FMCG companies in India. The study found that ITC Ltd. Recorded the highest values of GPM, OPM, and NPM against its peer companies. Britannia Industries Ltd. showed the highest EPS. An upward movement in ROTA was found in Colgate Palmolive (India) Ltd., generated significant higher returns on the capital employed by the investors.

RESEARCH METHODOLOGY

- Method of Data Collection: The research is present entirely based upon secondary data and the data was collected from the official directory of the Bombay Stock Exchange, Capita line Plus corporate database and money control.
- Time Period of the Study: The selected study unit focuses on a number of profitability variables during the period from 2004 to 2014, covering a time period of ten years.
- Selection of the Sample: The sample was drawn from the list of companies coming under the public sector industry listed on the Bombay Stock Exchange. For the present study, one out of the nineteen large size public sector industry listed at the Bombay Stock Exchange, which is Bharat Heavy Electricals Limited (BHEL) sit.
- Statistical Tools: for the purpose of statistical analysis, SPSS 20.0 was used, and applied mean. Standard deviation. Coefficient of variations minimum, maximum, Pearson's, Kendall's, and Spearmen's correlations F test & graphical analysis is done with the use of MS excel .

LIMITATIONS OF THE STUDY

This study had the following limitations:

1) The selected unit, BHEL is a public sector company based in different states of India.
2) The study used the secondary data from the published annual reported of BHEL and the study is limited to ten years from 2004 to 2014.
3) The study covered only one out of all large size public sector companies in India.

HYPOTHESIS

The following hypothesis was framed to conduct the analysis and evaluate the profitability results of BHEL:

- H01: There is no significant relationship between operating profit margin and net sales.
- H02:There is no significant relationship between net profit margin and net sales

- H03: There is no significant relationship between net profit and total assets.
- H04: There is no significant relationship between net profit and net worth.
- H05: There is no significant relationship between ROCE and net sales.

DATA ANALYSIS AND INTERPRETATION

This section presents the results of the profitability ratios and discussion based on them. The financial ratios like gross profit margin, net profit margin, operating profit margin, earning per share, ROCE, ROTA, and RONW were used and the significant relationship between them were tested by using the mean, standard deviation, minimum & maximum and f test.

HYPOTHESIS 1

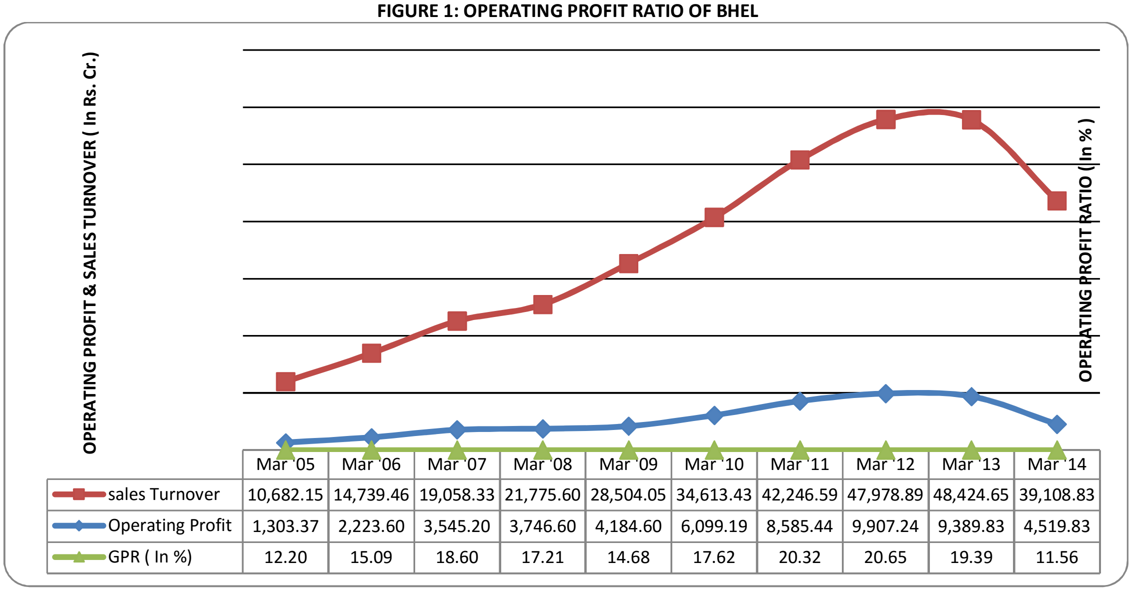
Ho: There is no significant relationship between operating profit margin and net sales.

Ha: There is a significant relationship between operating profit margin and net sales.

TABLE 1: OPERATING PROFIT RATIOS OF BHEL

YEAR	Operating Profit	sales Turnover	GPR (In %)
Mar '05	1,303.37	10,682.15	12.20
Mar '06	2,223.60	14,739.46	15.09
Mar '07	3,545.20	19,058.33	18.60
Mar '08	3,746.60	21,775.60	17.21
Mar '09	4,184.60	28,504.05	14.68
Mar '10	6,099.19	34,613.43	17.62
Mar '11	8,585.44	42,246.59	20.32
Mar '12	9,907.24	47,978.89	20.65
Mar '13	9,389.83	48,424.65	19.39
Mar '14	4,519.83	39,108.83	11.56
Mean	5350.49	30713.19	16.73
S.D.	3021.09	13774.04	3.23
Variance	9127015.93	189724151.13	10.45
Minimum	1303.37	10682.15	11.56
Maximum	9907.24	48424.65	20.65

FIGURE 1: OPERATING PROFIT RATIO OF BHEL



On the basis of Table 1 & figure 1 , it is observed that operating profit ratio of BHEL showed average progress or the period from 2004-05 and 2013-14, the lowest ratio (11.56) was observed in the year 20013-14, and the highest ratio (about 20.65) was evidenced in the year 2011-12. The coefficient of variance was 10.488 percent. The average operating profit was 16.7315 percent during the study period. The figure 2 shows the operating profit ratio of BHEL and it can be seen that it fluctuated form the year 2004 to 2014. The net sales increased gradually year by year upto 2012-13 but got a slowdown in the year 2013-14, when the sales fell from the figure of the previous year to reach Rs. 39,108.83 crores.

TABLE 2: CORRELATION RESULTS

Correlations	Results
Pearson's Correlations	0.941**
Kendall's Correlations	0.911**
Spearman' Correlations	0.976**
**Correlations is significant at 0.01 level(2-tailed)	
** Correlations Correlations is significant at 0.05 level(2-tailed)	

Source: Secondary – Computed

The table 2 exhibits the correlation results of the operating profit margin and net sales of BHEL. The Pearson correlation, Kendall's and Spearman's correlation were used to test the second hypothesis at 0.01 level and 0.05 level between operating profit margin and net sales with r = 0.941,0.911, and 0.976, which is high and positive. Therefore there was a relationship between operating profit and net sales during different business cycle of BHEL.

TABLE 3: ANOVA ANALYSIS – OPERATING PROFIT & SALES TURNOVER

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72745887.408	1	72745887.408	61.929	.000[b]
	Residual	9397255.993	8	1174656.999		
	Total	82143143.401	9			

a. Dependent Variable: operating Profit

b. Predictors: (Constant), sales Turnover

From table 3 mentioned above results, it can be seen that the calculated F value is 61.929 & p value is (.000). On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted. Therefore, there was a significant relationship between operating profit and net sales.

HYPOTHESIS 2

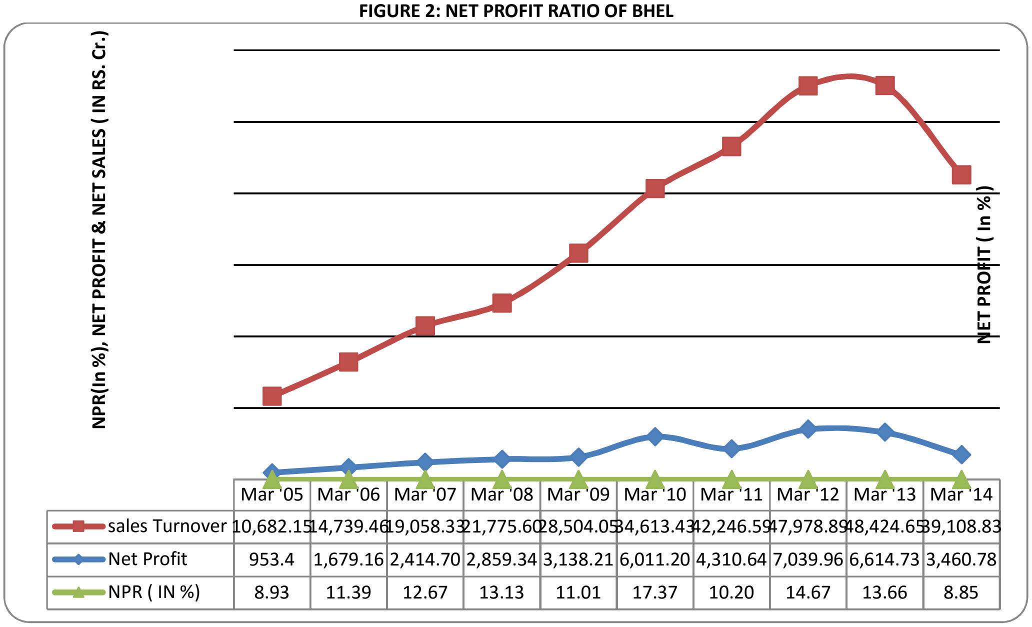
Ho: There is no significant relationship between net profit margin and **Sales turnover.**

Ha: There is a significant relationship between profit margin and **Sales turnover**.

TABLE 4: NET PROFIT RATIOS OF BHEL

Year	Net Profit	sales Turnover	NPR (IN %)
Mar '05	953.4	10,682.15	8.93
Mar '06	1,679.16	14,739.46	11.39
Mar '07	2,414.70	19,058.33	12.67
Mar '08	2,859.34	21,775.60	13.13
Mar '09	3,138.21	28,504.05	11.01
Mar '10	6,011.20	34,613.43	17.37
Mar '11	4,310.64	42,246.59	10.20
Mar '12	7,039.96	47,978.89	14.67
Mar '13	6,614.73	48,424.65	13.66
Mar '14	3,460.78	39,108.83	8.85
Mean	3848.212	30713.1980	12.19
S.D.	2095.09	13774.04	2.67
Variance	4389443.10	189724151.13	7.115
Minimum	953.4	10682.15	8.85
Maximum	7040.0	48424.65	17.37

FIGURE 2: NET PROFIT RATIO OF BHEL



It can be observed form the Table 4 & figure 2 that the net Profit ratio of the company was volatile during the study period. This ratio was above the standard norms of 12%. The lowest NPR percent was observed in the year 2013-14, where it was 8.85 percent, and the highest value was observed during the year 2010-11, when it was 17.37 percent. With the exception of 2001-02, 2002-03, and 2003-04, for all other years of the study period, the average NPR stood at 12.1880 percent. The coefficient of variation was 7.115 percent. It showed a fluctuating trend during the study period and a poor performance was observed for only a few years in the last.

TABLE 5: CORRELATION RESULTS

Correlations	Results
Pearson's Correlations	0.920**
Kendall's Correlations	0.867**
Spearman' Correlations	0.952**
**Correlations is significant at 0.01 level(2-tailed)	
**Correlations Correlations is significant at 0.05 level(2-tailed)	

Source: Secondary – Computed

The table 5 indicates the correlation results of net profit margin and sales. The Pearson's correlation, Kendall's and Spearman's correlation were used to test the third hypothesis at 0.01 level of significance between net profit margin and sales with r = 0.920, 0.867, and 0.952 respectively, which is high and positive. Therefore, there was a significant relationship between net profit margin and net sales during different business cycle of BHEL.

TABLE 6: ANOVA ANALYSIS OF NET PROFIT & TOTAL SALES

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32169536.621	1	32169536.621	35.084	.000[b]
	Residual	7335451.237	8	916931.405		
	Total	39504987.858	9			

a. Dependent Variable: Profit After Tax

b. Predictors: (Constant), Sales Turnover

From table 6 mentioned above results, it can be seen that the calculated F value is 35.084 & p value is (.000) which is significant at 5% level of significance. On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted. Therefore, there was a significant relationship between net profit and net sales.

HYPOTHESIS: 3

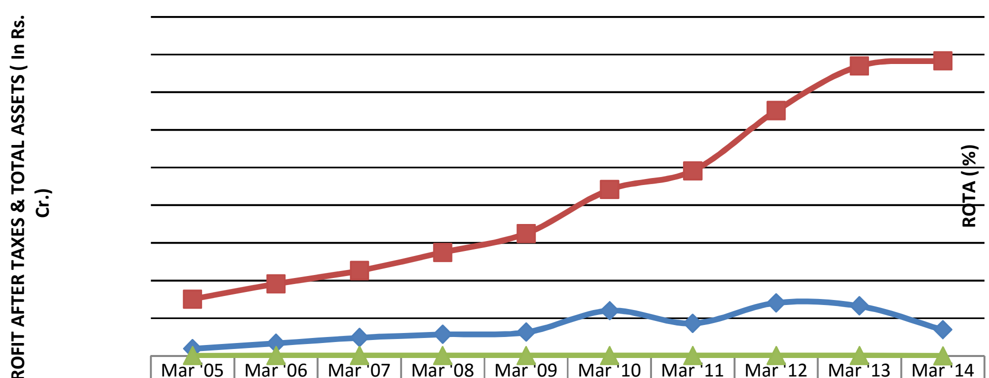
Ho: There is no significant relationship between profit after tax and total assets.

Ha: There is a significant relationship between profit after tax and total assets.

TABLE 7: PROFIT AFTER TAX & TOTAL ASSESTS RATIOS OF BHEL

YEAR	PROFIT AFTER TAX	TOTAL ASSETS	ROTA (%)
Mar '05	953.4	6,563.88	14.52
Mar '06	1,679.16	7,859.61	21.36
Mar '07	2,414.70	8,877.59	27.20
Mar '08	2,859.34	10,869.39	26.31
Mar '09	3,138.21	13,088.18	23.98
Mar '10	6,011.20	16,045.10	37.46
Mar '11	4,310.64	20,255.98	21.28
Mar '12	7,039.96	25,496.64	27.61
Mar '13	6,614.73	31,859.30	20.76
Mar '14	3,460.78	35,701.82	9.69
Mean	3848.21	17661.75	23.02
Std. Deviation	2095.09	10334.43	7.59
Variance	4389443.09	106800385.59	57.72
Minimum	953.4	6563.88	9.69
Maximum	7040.0	35701.82	37.46

FIGURE 3: RETURN ON TOTAL ASSETS OF BHEL



	Mar '05	Mar '06	Mar '07	Mar '08	Mar '09	Mar '10	Mar '11	Mar '12	Mar '13	Mar '14
TOTAL ASSETS	6,563.88	7,859.61	8,877.59	10,869.39	13,088.18	16,045.10	20,255.98	25,496.64	31,859.30	35,701.82
PROFIT AFTER TAX	953.4	1,679.16	2,414.70	2,859.34	3,138.21	6,011.20	4,310.64	7,039.96	6,614.73	3,460.78
ROTA(%)	14.52	21.36	27.20	26.31	23.98	37.46	21.28	27.61	20.76	9.69

Return on Total Assets: The Table 7 & Figure 3 provides the results of return on total assets. The highest value of ROTA was 37.46 percent in March 2010, and the least Value was about 9.69 in March 2014 and the mean value was observed at about 23.0186 percent and the coefficient of variation was 57.726 percent. Hence, the ROTA showed a fluctuating trend over the study period. The Figure 3 depicts the return on total assets of BHEL. The total assets gradually increased and fluctuated during the study period from a minimum of Rs. 6563.88 cr. to the maximum of 65,701.82 cr. whereas the ROTA fluctuated at a minimum value of 14.52 % to a maximum of 37.46%.

TABLE 8: CORRELATION RESULTS

Correlations	Results
Pearson's Correlations	0.828**
Kendall's Correlations	0.600**
Spearman' Correlations	0.794**
**Correlations is significant at 0.01 level(2-tailed)	
**Correlations Correlations is significant at 0.05 level(2-tailed)	

Source: Secondary – Computed

The Table 8 demonstrates the correlation results of profit after tax and total assets. The Pearson correlation, Kendall's, and Spearman's correlation were used to test the fourth hypothesis at the 0.01 level of significance between net profit margin and total assets with r = 0.828, 0.600, and 0.794 respectively, which is high and positive in case of Pearson's correlation and low and positive in Kendall's and Spearman's correlation. Therefore, there was a significant relationship between net profit margin and total assets during the period of study.

TABLE 9: ANOVA ANALYSIS OF PAT AND TOTAL ASSETS

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17837891.697	1	17837891.697	6.586	.033b
	Residual	21667096.161	8	2708387.020		
	Total	39504987.858	9			

a. Dependent Variable: Net Profit

b. Predictors: (Constant), Total assests

From table 9 mentioned above results, it can be seen that the calculated F value is 6.586 & p value is (.033). On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted at 10 % level of significance. Therefore, there was statistically significant relationship between profit after tax and total assets.

Hypothesis 4

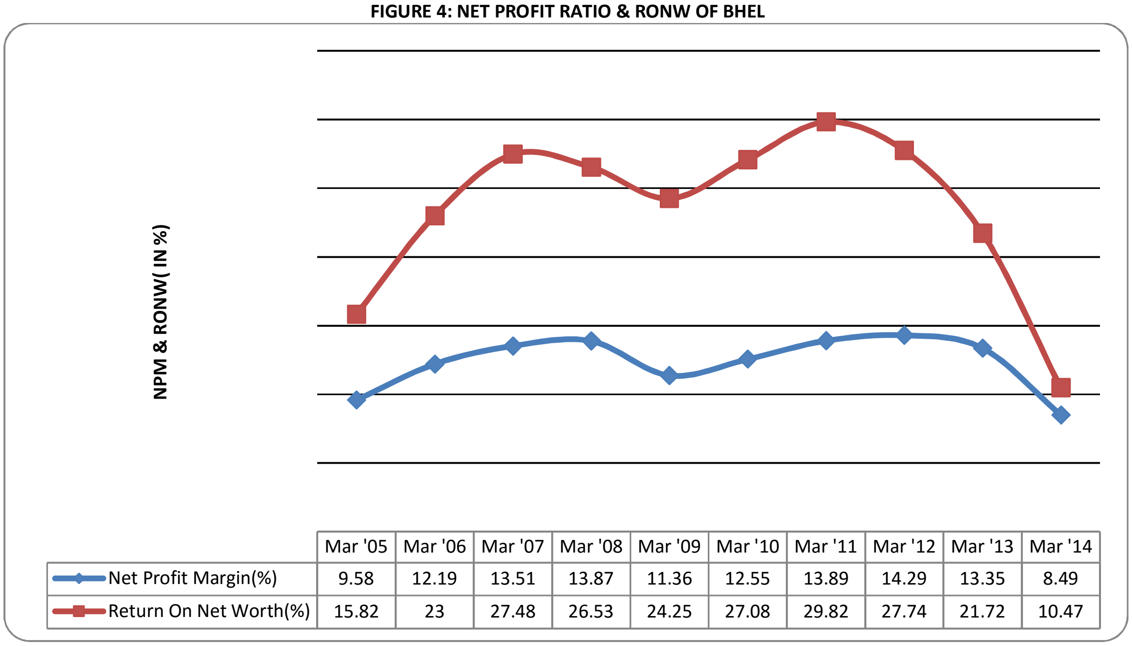
Ho: There is no significant relationship between net profit ratio and return on net worth.

Ha: There is a significant relationship between net profit ratio and return on net worth.

TABLE 10: NET PROFIT RATIO & RETURN ON NET WORTH OF BHEL

Year	Net Profit Ratio (%)	Return On Net Worth (%)
Mar '05	9.58	15.82
Mar '06	12.19	23
Mar '07	13.51	27.48
Mar '08	13.87	26.53
Mar '09	11.36	24.25
Mar '10	12.55	27.08
Mar '11	13.89	29.82
Mar '12	14.29	27.74
Mar '13	13.35	21.72
Mar '14	8.49	10.47
Mean	60.95	23.39
Std. Deviation	34.83	6.04
Variance	1213.25	36.49
Minimum	14.14	10.47
Maximum	122.80	29.82

FIGURE 4: NET PROFIT RATIO & RONW OF BHEL



From the above table 10 & figure 4 show the profitability ratios of BHEL during the study period. It has been observed that the value of Net Profit Margin fluctuated during the study period. The mean value of Net Profit Margin was 60.95, and the coefficient of variation was 1213.257 percent, which shows that the highest variation was observed in the study period. The minimum value of Net Profit Margin was 8.49 percent, observed in the last year, and the maximum value of Net Profit Margin (14.29 percent) was attained in the year 2011-12. RONW could be observed from the table 10 that the return on net worth ratio fluctuated during the study period. The average RONW was evidenced to be 23.39, and the years 2002-03, 2003-04, 2007-08, and 2008-09 attained the above average. A low coefficient of variation was observed during the study period. The table 10 also shows that the RONW of BHEL fluctuated from 10.47 to 29.82. The figure 4 exhibits the Net Profit Margin, RONW, for BHEL during the study period.

TABLE 11: CORRELATION RESULTS

Correlations	Results
Pearson's Correlations	0.913*
Kendall's Correlations	0.689**
Spearman' Correlations	0.855**
**Correlations is significant at 0.01 level(2-tailed)	

Source: Secondary – Computed

The table 11 explains the correlation results of net profit margin and return on net worth. The Pearson's correlation, Kendall's and Spearman's correlation were used to test the fifth hypothesis (Table 11 and figure 5) at the 0.01 level of significance between net profit margin and net worth with r = 0.913, .689, .855 at 0.01 level, which is high and positive. Therefore, there was a significant relationship between net profit margin and net worth during different business cycles of BHEL.

TABLE 12: ANOVA ANALYSIS OF NET PROFIT RATIO AND NET WORTH

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.639	1	28.639	39.83	.000b
	Residual	5.752	8	.719		
	Total	34.392	9			

From table 11 mentioned above results, it can be seen that the calculated F value is 39.83 & p value is (.000). On the basis of p value we can reject the null hypothesis and the alternative hypothesis is accepted. Therefore, there was a significant relationship between net profit ratio and net worth.

HYPOTHESIS 5

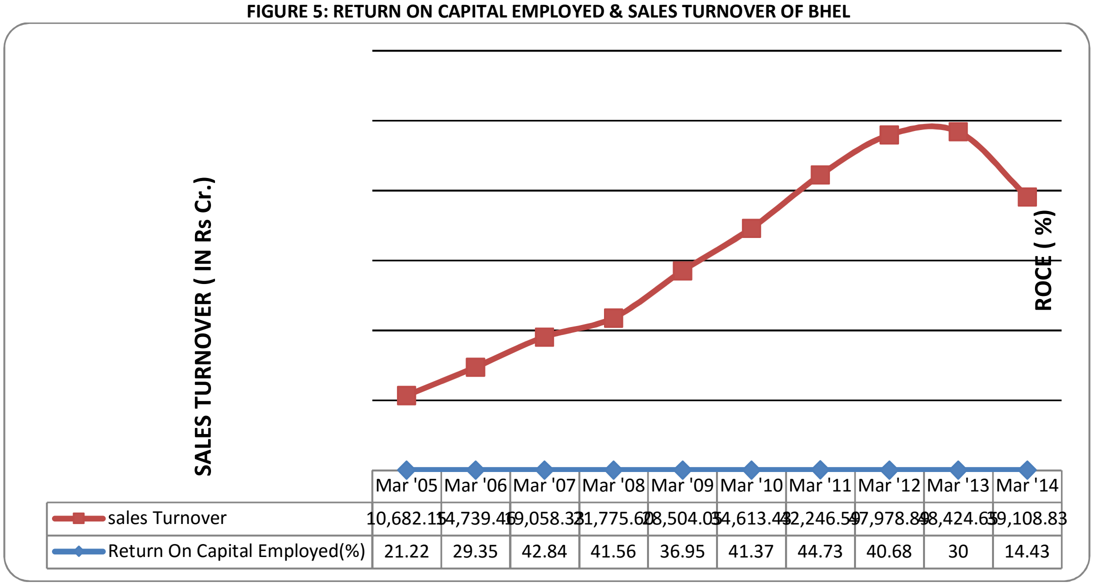
Ho: There is no significant relationship between ROCE and sales Turnover.

Ha: There is a significant relationship between ROCE and net sales.

TABLE: 13 RETURN ON CAPITAL EMPLOYED & SALES TURNOVER OF BHEL

Year	ROCE (%)	**Sales Turnover**
Mar '05	21.22	10,682.15
Mar '06	29.35	14,739.46
Mar '07	42.84	19,058.33
Mar '08	41.56	21,775.60
Mar '09	36.95	28,504.05
Mar '10	41.37	34,613.43
Mar '11	44.73	42,246.59
Mar '12	40.68	47,978.89
Mar '13	30	48,424.65
Mar '14	14.43	39,108.83
Mean	34.313	30713.198
S.D.	10.225	13774.039
Variance	104.559	189724151.13
Minimum	14.43	10682.15
Maximum	44.73	48424.65

FIGURE 5: RETURN ON CAPITAL EMPLOYED & SALES TURNOVER OF BHEL



From table no. 13 & figure 5 shows the relationship between ROCE & Sales Turnover of BHEL. The ROCE was minimum in the year 2013-14 (14.43%) and was maximum in the year 2010-11 (44.73%), whereas the sales turnover was minimum in the year 2004-05 (10,862 cr.), and was maximum in the year 2012-13 (48,424 cr.). The ROCE and Sales turnover fluctuated during the study period.

TABLE 14: CORRELATION RESULTS

Correlations	**Results**
Pearson's Correlations	0.147
Kendall's Correlations	0.067
Spearman' Correlations	0.152
**Correlations is significant at 0.01 level(2-tailed)	
**Correlations Correlations is significant at 0.05 level(2-tailed)	

Source: Secondary – Computed

TABLE 15: ANOVA ANALYSIS- ROCE AND SALES TURNOVER

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.227	1	20.227	.176	.686[b]
	Residual	920.803	8	115.100		
	Total	941.030	9			

a. Dependent Variable: Return On Capital Employed (%)

b. Predictors: (Constant), sales Turnover

The table 14 indicates the correlation results of ROCE and net sales. The Pearson's correlation, Kendall's and Spearman's correlations were used to test at 0.01 level of significance between ROCE and Net sales with r = 0.147, 0.067, and 0.152 respectively, which is quite low. Therefore, there was no relationship between ROCE and net sales during different business cycles of BHEL. From the above results, it is clear that the calculated value (-) .176 & p value is .686 is less than the table value, which is not significant at all. Hence, the null hypothesis is accepted. Therefore, there was no relationship between ROCE and net sales.

FINDINGS AND SUGGESTIONS

Ratio analysis enables stockholders, lenders, and the firm's mangers to evaluate the firm's performance. It can be performed on a cross – sectional or a time – series basis. To achieve the main purpose of this study, a time- series analysis was used to find the profitability ratios of the Bharat Heavy Electricals Limited (BHEL). The results are as follows:

1) Operating profit margin ratio represents the pure profit of the company, it increased positively upto the year 2014 but in the last year it went down as per the given data, which is not a good indication of the public sector industries performance.
2) Net profit margin ratio, which measures how profitable a company's sales are after deducting all expenses, interests, taxes, and preferred stock dividends grew from 8.93% to 17.37% in the year 2014 but falls down after that period.
3) Return on net worth – which measures the returns earned on the common stockholders' investment in the firm – increased drastically from 15.82 % (2005) to 29.82% (March, 2011) & after that it has declined sharply to 10.49% in the year 2014. This indication reflects the mixed performance of the management on the invested financial resources.
4) ROCE measured the overall profitability of BHEL, and it ranged between 21.22% (March, 2005) to higher level of 44.73% but after that declined regularly and drastically it has fallen to 14.43% in year 2014.
5) The overall performance of BHEL regarding profitability was good till 2011-12 and in the year 2013 -14 it is falling drastically with respect to operating profit, net profit, RONW and ROTA. The company's customer base has been growing, and it has been earning an acceptable return on invested capital. Hence, it has good future opportunities.

CONCLUSION AND RECOMMENDATIONS

Operating profit, which represents the profits earned from producing and selling products, was also low as compared to the sales volume of the company. Therefore, the company needs to reduce its expenses to be able to pay its debts and gain more earnings after taxes.

Earning taxes, which are available for common stockholders, were also low as compared to the sales volume of the company. This is due to the effect of high expenses on the costs of goods sold and other expenses. These factors need to be controlled by following accounting and financial policies.

Finally, though the company is a profitable one and has good future opportunities, it has to look carefully at controlling the costs of goods sold and reduce its expenses to avoid facing difficult conditions in the future.

As far as the above analysis is concerned though BHEL is one of 'Navratnas' in PSUs, its profitability was good and impactable upto the year 2012 but after it in the years 2013 & 2014 its profitability graph falls down that is producing a threat in front of the public sector enterprises of India.

SCOPE FOR FUTURE RESEARCH

Future studies can investigate the relationship among profitability variables in the small, medium, and large size companies of the public sector industries in India and other countries. Furthermore, the studies can be extended to a model which will explain how: i) sales of the firm; ii) assets of the firm; and iii) the owners' contribution influences the profitability of a firm.

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