# Impact of Leverage on Profitability of ONGC Ltd.

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**Executive Summary:**

The investment decisions relates to the selection of assets in which funds in the invested by a firm. The financial Decision focused on selection of right assortment of debt and equity in its capital structures. The third decision related to distribution of surpluses that is dividend policy of a firm. The dividend decision is based on success of first two decisions that is Investment and Financing decision. The tool leverage is used in the study to analyse the profitable proceedings of ONGC Ltd.

**Key words:** ONGC, EPS, Leverage, DFL, DOL.

**Introduction:**

The primary objective of financial management is to increase the shareholders wealth. This object can be achieved based on three major decisions popularly known as function of finance.

- The investment Decision or Capital expenditure decision
- The financing Decision or capital structure decision
- The dividend decision

Among the above three functions researchers focused the financing decision and its impact on profitability.

**Leverage:**

Leverage is employment of fixed asset or funds for which a firm has fixed cost or fixed rate of interest obligation irrespective of level of activities attained or the level of operating profit earned. The higher is the leverage, higher are the profit and lower is the leverage, lower are the profit. But, higher leverage obviously implies higher outside borrowings. Hence, it is riskier if the business activity of the firm suddenly takes dip. But a low leverage does not necessarily indicate prudent financial management. The firm might be incurring an opportunity cost for not having borrowed funds of a fixed cost to earn higher profit.

**Types of Leverages**

The leverage is of three types, namely

- Operating Leverage
- Financial Leverage
- Composite leverage

**Operating Leverage:**

Operating leverage defined as tendency of operating profit to vary with sales. The firm is said to have a high degree of operating leverage if it employs a greater amount of fixed cost and small amount of variable cost.

Operating Leverage = Contribution / Operating Profit

Degree of Leverage = % Change in profit / % Change in sales

**Financial Leverage:**

Financial Leverage defined as tendency of residual net income to vary with operating profit. It indicates the change that taxable income as a result of change in operation income.

Financial Leverage = Operating profit / EBT

Degree of financial leverage = % Change in taxable income / % Change in operating profit

**Composite Leverage:**

Composite leverage in case both leverage are combines, the result will disclose the effect of change in taxable profit or EPS. It expresses the relationship between revenue on account of sales and the taxable income.

Composite leverage = Operating leverage x Financial leverage

**Impact of leverage on profitability when market is favourable:**

- Increase the EPS
- Company can give highest return to shareholder
- It increase value of fund
- Business expansion become easy
- Risk becomes less
- Interest rate is low

**When market is not favourable:**

- Creates high risk
- Borrowings are not available
- High burden of firm

**Company Profile:**

Oil and Natural Gas Corporation Limited (ONGC) is an Indian multinational oil and gas company and it is one of the Maharatna Company earlier headquartered in Dehradun, Uttarakhand, India. As a Corporation, its registered office is now at Deendayal Urja Bhavan, Vasant Kunj. New Delhi. It is a Public Sector Undertaking (PSU) of the Government of India, under the administrative control of the Ministry of Petroleum and Natural Gas. It is India's largest oil and gas exploration and production company. It generates around 77% of India's crude oil (equivalent to around 30% of the country's total demand) and around 62% of its natural gas.

ONGC was founded on 14 August 1956 by Government of India, which currently holds a 68.94% equity stake. It is involved in exploring for and exploiting hydrocarbons in 26 sedimentary basins of India, and owns and operates over 11,000 Km of pipelines in the country. Its international subsidiary ONGC Videsh currently has projects in 17 countries. ONGC has discovered 6 of the 7 commercially producing Indian Basins, in the last 50 years, adding over 7.1 billion tonnes of In-place Oil & Gas volume of hydrocarbons in Indian basins. Against a global decline of production from matured fields, ONGC has maintained production from its brownfields like Mumbai High, with the help of aggressive investments in various IOR (Improved Oil Recovery) and EOR (Enhanced Oil Recovery) schemes. ONGC has many matured fields with a current recovery factor of 25–33%. Its Reserve Replacement Ratio for between 2005 and 2013, has been more than one. During FY 2012–13, ONGC had to share the highest ever under-recovery of INR 8993.78 billion (an increase of INR 567.89 million over the previous financial year) towards the under-recoveries of Oil

Marketing Companies (IOC, BPCL and HPCL) On 1 November 2017, the Union Cabinet approved ONGC for acquiring majority 51.11 % stake in HPCL (Hindustan Petroleum Corporation Limited). On Jan 30th 2018, Oil & Natural Gas Corporation acquired the entire 51.11% stake of GOI.

**Literature Review**

**Ranganathan and Chandrasekaran,(2012)** " Impact of Leverage on profitability of NTPC Ltd." from this study five year financial data were taken and analyzed about financial leverage , operating leverage and Composite leverage. This study concludes as capital structure needs to gear by way of improving borrowed funds.

**Kumar aditya (2016)** , "An appraisal of financial¬ solvency of ONGC". From the study of five years (2012-2016) financial data it has found that the profit earning capacity and short term investing capacity of ONGC is quite good. The study has suggested that the value of EBIT should be high in order to attain a maximum productivity capacity of assets. Through this study it indicates that the fluctuating trend might shift the company into a situation of bankruptcy.

**Izhar ahmed (2016),** the research paper is authored to¬ entitle the "Analysis of financial performance of Hindusthan Petroleum Coporation Limited". This study focuses on the analysis of profitability position, financial system, profit margin and expenses ratio. This study is based on secondary data for a period of fifteen years from 2000 to 2015. In this duration of study, the researcher has used multiple regression analysis for the testing of the hypotheses. In order to measure the impacts of liquidity, solvency and efficiency on return on investment. The researcher has taken return on capital employed as a dependent variable under return on investment. This study has suggested that HPCL is required good strategies for maintaining the profitability in future.

**Research Design and Methodology:**

**Collection of Data:**

The data of ONGC Ltd have been collected from the Annual reports of the company published in the website of the company. The data collected from these sources have been used and compiled with due care as per the requirement of the study.

**Period of Study:**

This study covers a period of five years from 2012 – 2013 to 2016 – 2017.

**Hypothesis:**

The following hypotheses have been formulated:

$H_a1$: DFL (Degree of financial leverage) and EPS (Earning per share) are positively correlated in such a manner that increase in financial leverage leads increase in EPS.

$H_a2$: DOL (Degree of operating Leverage) is positively correlated with EPS.

$H_a3$: Total leverage is positively correlated with EPS.

**Tools used for analysis:**

For analyzing the degree of association between financial leverage (DFL) and EPS, degree of operating leverage (DOL) and EPS, Total leverage and EPS, Pearson's correlation analysis is used.

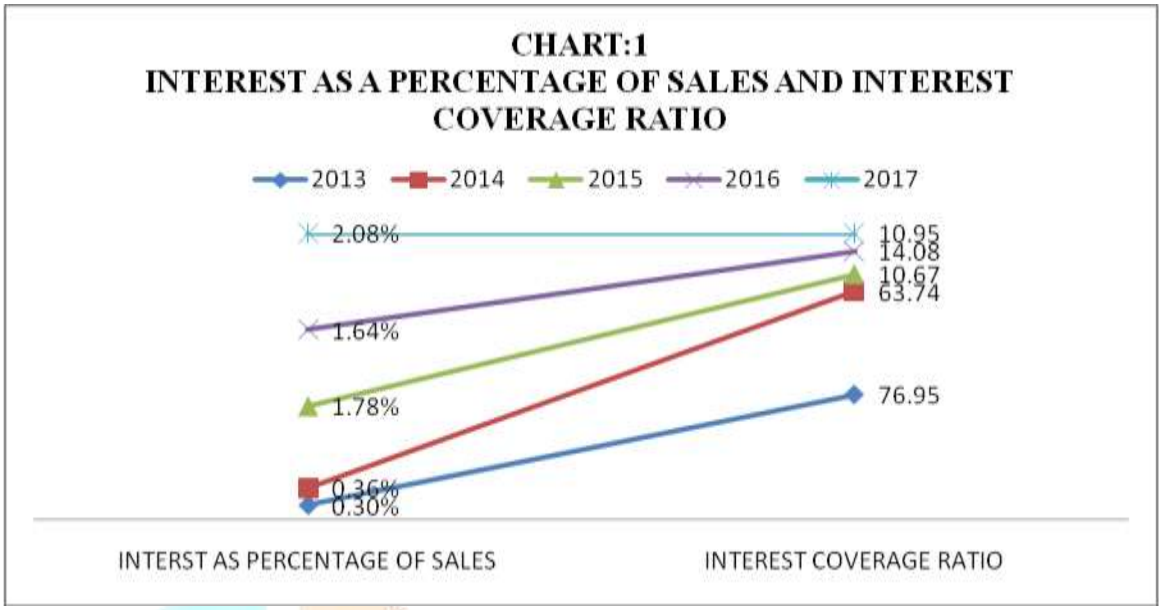
The student's t-Test is used to judge whether the calculated correlation coefficient are significant or not.

| TABLE 1 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TABLE SHOWING DETAILS REGARDING SALES, EBIT, EBT, NETWORTH , LOAN AND CAPITAL | | | | | | | | |
| **YEAR** | **SALES** | **EBIT** | **EBT** | **NETWORTH** | **LOAN** | **CAPITAL EMPLOYED** | **INTEREST** | **INTEREST / LOAN %** |
| **2013** | 162,403.17 | 54,875.69 | 36,742.05 | 152,528.01 | 20,450.83 | 172,978.84 | 483.8 | 2.37% |
| **2014** | 174,477.05 | 57,970.71 | 39,171.05 | 172,150.99 | 45,588.13 | 217,739.12 | 624.34 | 1.37% |
| **2015** | 160,889.74 | 53,566.16 | 27,683.83 | 180,454.40 | 51,871.32 | 232,325.72 | 2,862.38 | 5.52% |
| **2016** | 131,497.87 | 47,448.33 | 22,035.98 | 184,744.33 | 53,592.79 | 238,337.12 | 2,157.32 | 4.03% |
| **2017** | 142,148.96 | 47,391.74 | 29,969.91 | 221,189.49 | 55,681.89 | 276,871.38 | 2,953.44 | 5.30% |

The details regarding Sales, EBIT, EBT, Net worth, Loan and Capital employed for a period of 5 years form the financial year 2012-2013 to 2016-17 of the company are given in Table No.1. The sales in absolute figures have increased from 162,403.17 Crores in the year 2012-2013 to 174,477.05 Crores in the year 2013 -2014 and gradually it was decreased to the extent of 142,148.96 Crores in the year 2016 – 2017. Likewise EBIT has increased from 54,875.69 Crores in 2012 – 2013 to 57,970.71 Crores in the year 2013-14. Ultimately it was 47,391.74 Crores in the year 2016-17. Likewise EBT has increased from 36,742.05 Crores in 2012 – 2013 to 39,171.05 Crores in the year 2013-14. Gradually it has decreased to the extent of 29,969.91 Crores in the year 2016 -2017. Capital employed which is aggregate of Net worth and Loan has shown continuous increase. Interest expenses is increased from 483.8 Crores in the year 2012- 2013 to 2,953.44 Crores in the year 2016-2017. However interest as a percentage of loans was fluctuating over the years. It was 2.37% in 2012 – 2013 and it was decreased to 1.37 % in 2013 – 2014 and increased to 5.30 % in the year of 206 -17.

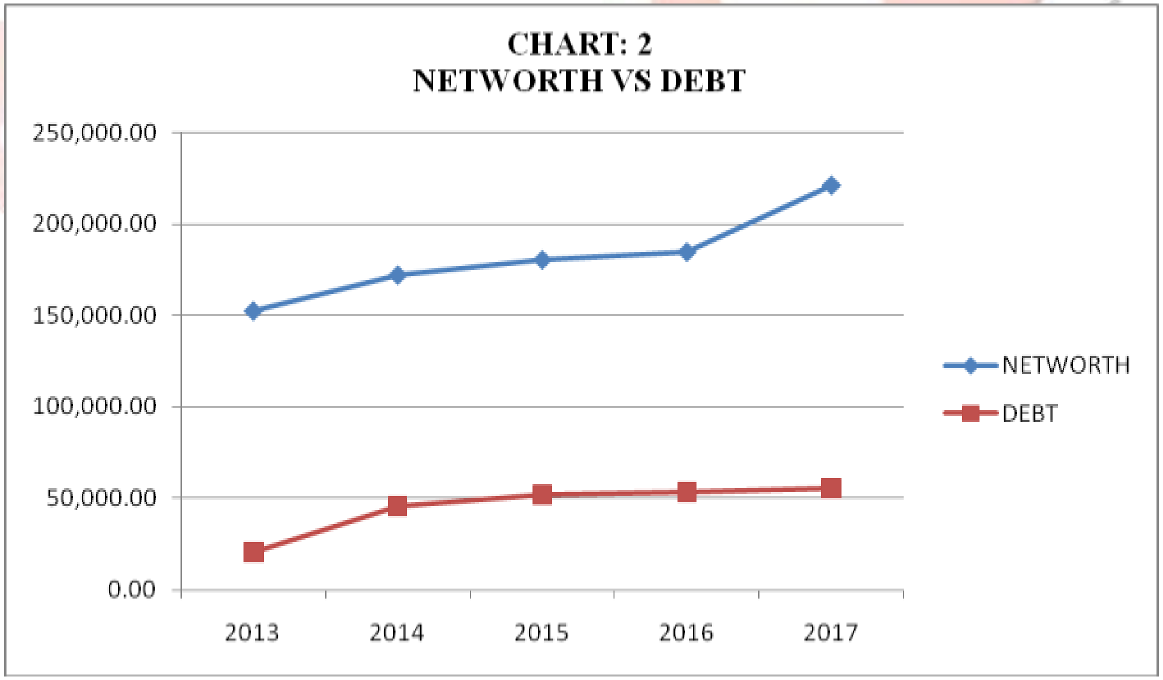
| TABLE 2 | | | | | |
|---|---|---|---|---|---|
| TABLE SHOWING COST OF INTEREST AND INTEREST COVERAGE | | | | | |
| **YEAR** | **SALES** | **EBIT** | **INTEREST** | **INTERST AS PERCENTAGE OF SALES** | **INTEREST COVERAGE RATIO** |
| **2013** | 162,403.17 | 54,875.69 | 483.8 | 0.30% | 76.95 |
| **2014** | 174,477.05 | 57,970.71 | 624.34 | 0.36% | 63.74 |
| **2015** | 160,889.74 | 53,566.16 | 2,862.38 | 1.78% | 10.67 |
| **2016** | 131,497.87 | 47,448.33 | 2,157.32 | 1.64% | 14.08 |
| **2017** | 142,148.96 | 47,391.74 | 2,953.44 | 2.08% | 10.95 |

The details regarging amount of interest and interest coverage for a period of 2012 -13 to 2016-17are given above in Table 2. Interest as a percentage on sales during the year 2012-13 was 0.30% and increase gradually to 2.08% in the year of 2016-17.Interest coverage wa 76.95 in the year 2012-13 and it decreased drastically to 10.95 on 2016-17.




The details regarding composition of capital structure was given in Table 3. In the year of 2013 debt equity ratio was 0.13 and increased slowly to 0.25 in the year of 2017. The share capital % to networth was 2.80 and reserve & surplus was 97.20 in 2013. In the same table share capital to capital structure also was given, in the year 2013 it was 2.47% and reserve was 85.70 % and loan was 11.82%.in the year 2017 share capital and reserve as percentage of capital structure was reduced as2.32% and 77.57%, whereas loan to capital structure was increased some extend as 20.11%.

| TABLE 3 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TABLE SHOWING COMPOSITION OF CAPITAL STRUCTURE | | | | | | | | | | | |
| | | | | | | | PERCENTAGE TO NETWORTH | | PERCENTAGE TO CAPITAL STRUCTURE | | |
| **YEAR** | **SHARE CAPITAL** | **RESERVES & SURPLUS** | **NETWORTH** | **DEBT** | **CAPITAL EMPLOYED** | **DEBT EQUITY RATIO** | **SHARE CAPITAL** | **RESERVE** | **SHARE CAPITAL** | **RESERVE** | **LOAN** |
| **2013** | 4,277.76 | 148,250.25 | 152,528.01 | 20,450.83 | 172,978.84 | 0.13 | 2.80% | 97.20% | 2.47% | 85.70% | 11.82% |
| **2014** | 4,277.76 | 167,873.23 | 172,150.99 | 45,588.13 | 217,739.12 | 0.26 | 2.48% | 97.52% | 1.96% | 77.10% | 20.94% |
| **2015** | 4,277.76 | 176,176.64 | 180,454.40 | 51,871.32 | 232,325.72 | 0.29 | 2.37% | 97.63% | 1.84% | 75.83% | 22.33% |
| **2016** | 4,277.76 | 180,466.57 | 184,744.33 | 53,592.79 | 238,337.12 | 0.29 | 2.32% | 97.68% | 1.79% | 75.72% | 22.49% |
| **2017** | 6,416.63 | 214,772.86 | 221,189.49 | 55,681.89 | 276,871.38 | 0.25 | 2.90% | 97.10% | 2.32% | 77.57% | 20.11% |



| TABLE 4 | | | | | |
|---|---|---|---|---|---|
| **TABLE SHOWING ANALYSE OF LEVERAGE** | | | | | |
| **YEAR** | **2013** | **2014** | **2015** | **2016** | **2017** |
| **SALES** | 162,403.17 | 174,477.05 | 160,889.74 | 131,497.87 | 142,148.96 |
| **EBIT** | 54,875.69 | 57,970.71 | 53,566.16 | 47,448.33 | 47,391.74 |
| **EBT** | 36,742.05 | 39,171.05 | 27,683.83 | 22,035.98 | 29,969.91 |
| **DFL** | | 0.78 | 2.61 | 0.92 | -140.20 |
| **DOL** | | 0.26 | 0.32 | 0.21 | -0.01 |
| **CL** | | 0.20 | 0.85 | 0.19 | 0.74 |
| **EPS** | 28.04 | 31.15 | 20.66 | 16.72 | 15.9 |

Table 4 analysis of leverage of the company, the degree of Financial Leverage (DFL) in 2014 was 0.78 and increased as 2.61 in 2015 followed by decreased as 0.92.The degree of Operating leverage (DOL) was 0.26 in 2015 and decreased to the extent of 0.01 in 2017. Total leverage or Composite leverage was 0.20 in 2013 and increased as 0.74 in 2017.

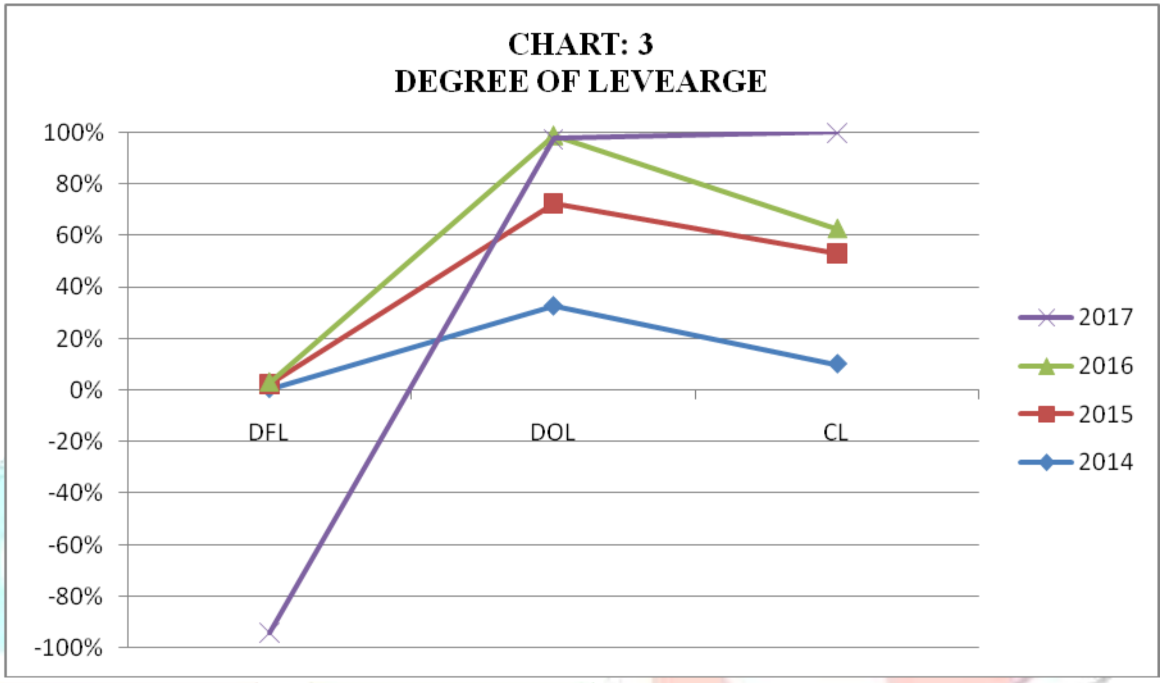


CHART: 3
DEGREE OF LEVEARGE
100%
80%
60%
40%
20%
0%
-20%
-40%
-60%
-80%
-100%
DFL
DOL
CL
2017
2016
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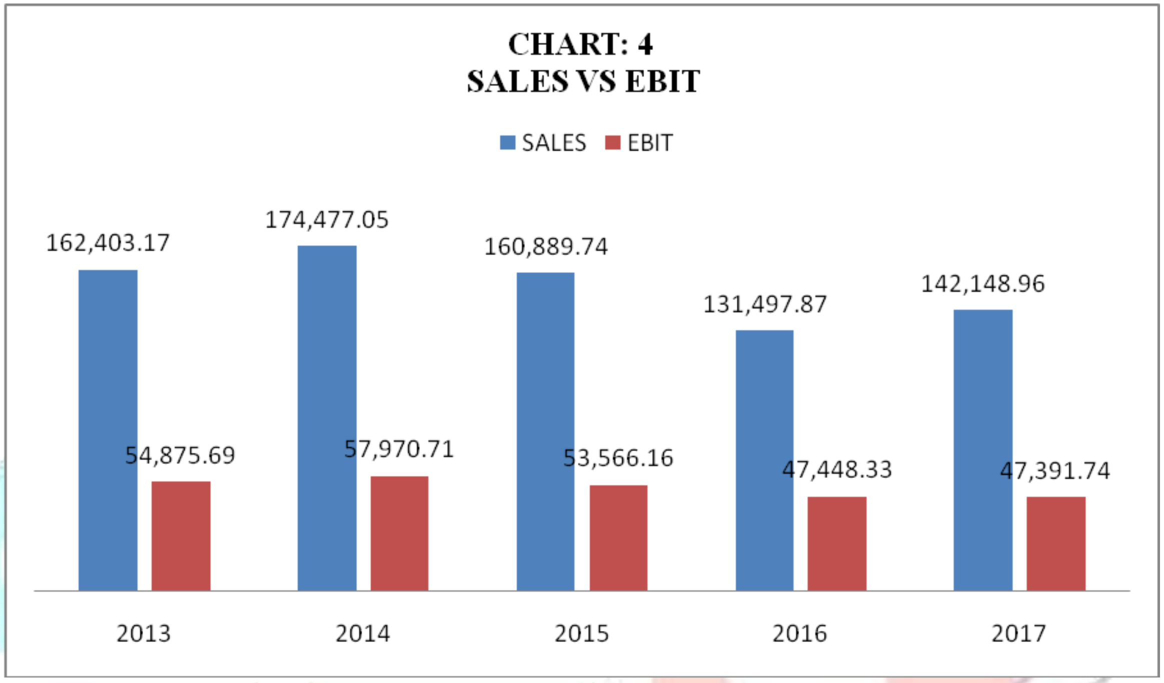
CHART: 4
SALES VS EBIT
SALES
EBIT
162,403.17
174,477.05
160,889.74
131,497.87
142,148.96
54,875.69
57,970.71
53,566.16
47,448.33
47,391.74
2013
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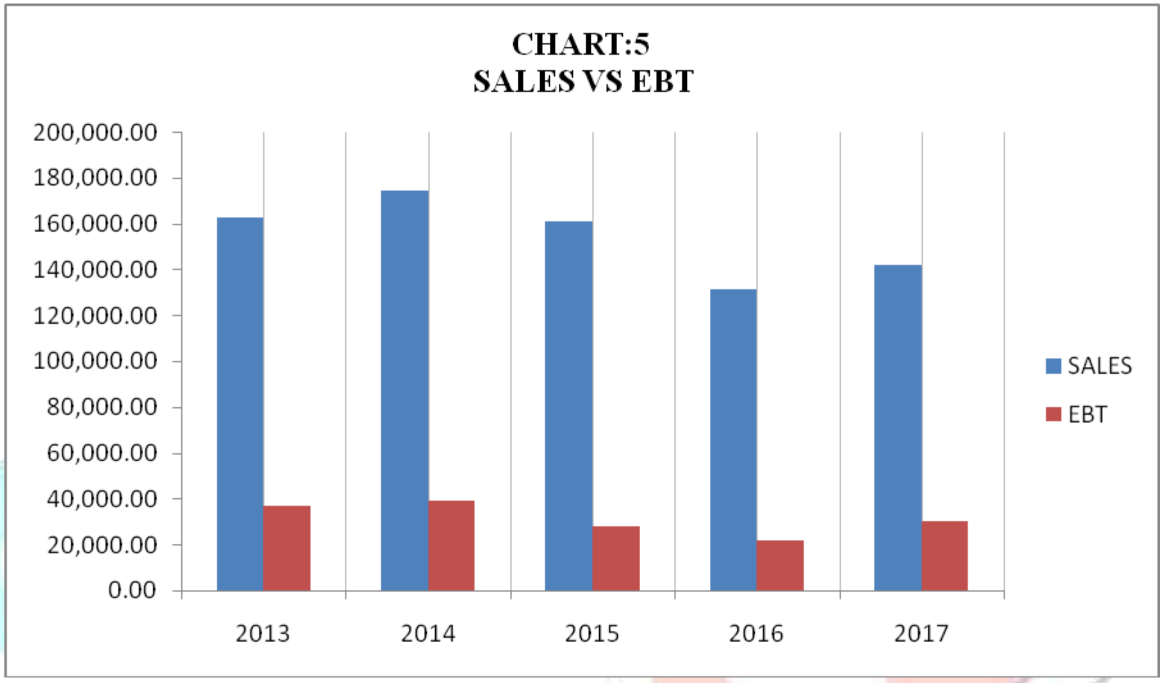


| TABLE 5 | | | |
|---|---|---|---|
| **CORRELATION ANALYSIS AND T- TEST** | | | |
| | **CORRELATION COEFFICEIENT r** | **CALCULATED VALUE t** | **DEGREE OF FREEDOM** |
| **DFL & EPS** | 0.49 | -1.62 | 5 % |
| **DOL & EPS** | 0.52 | -6.03 | 5 % |
| **CL & EPS** | -0.41 | -5.75 | 5 % |

Table 5 shows the result of correlation and student‘t’ test. The correlation relationship between DFL &EPS, DOL & EPS and CL & EPS is found positive and negative combination correlation ( 0.49,0.52 and -0.41). t test showing the calculated value of 1.62,6.03 and 5.75. table value is lesser than calculated value hence the hypothesis was rejected.

**Findings**

- The sales in absolute figures have increased from 162,403.17 Crores in the year 2012-2013 to 174,477.05 Crores in the year 2013 -2014 and gradually it was decreased to the extent of 142,148.96 Crores in the year 2016 – 2017.

- EBIT has increased from 54,875.69 Crores in 2012 – 2013 to 57,970.71 Crores in the year 2013-14. Ultimately it was 47,391.74 Crores in the year 2016-17. Likewise EBT has increased from 36,742.05 Crores in 2012 – 2013 to 39,171.05 Crores in the year 2013-14. Gradually it has decreased to the extent of 29,969.91 Crores in the year 2016 -2017.

- Capital employed which is aggregate of Net worth and Loan has shown continuous increase. Interest expenses is increased from 483.8 Crores in the year 2012- 2013 to 2,953.44 Crores in the year 2016-2017. However interest as a percentage of loans was fluctuating over the years. It was 2.37% in 2012 – 2013 and it was decreased to 1.37 % in 2013 – 2014 and increased to 5.30 % in the year of 206 -17.

- Interest and interest coverage for a period of 2012 -13 to 2016-17are given above in Table 2. Interest as a percentage on sales during the year 2012-13 was 0.30% and increase gradually to 2.08% in the year of 2016-17.Interest coverage wa 76.95 in the year 2012-13 and it decreased drastically to 10.95 on 2016-17.

- The degree of Financial Leverage (DFL) in 2014 was 0.78 and increased as 2.61 in 2015 followed by decreased as 0.92.The degree of Operating leverage (DOL) was 0.26 in 2015 and decreased to the extent of 0.01 in 2017. Total leverage or Composite leverage was 0.20 in 2013 and increased as 0.74 in 2017.

## Conclusion

ONGC Ltd. is a public sector undertaking (PSU) with a Maharatna status being awarded by central government. It is India's largest oil and gas exploration and production company. The shares of the company are all so traded in large volumes, in its financial structure evinces a keen interest in minds of financial authorities, the present study shows that financial management of the business is in accordance with the normally accepted financial principles. The present analysis highlights the fact that the company is employing the own fund and borrowed fund effectively. Since it is government undertaking the debt portion of capital structure is low and it is suggested that if the company adopts the policy more borrowings at competitive rate of interest , it will enhance the EPS and thereby the shareholders wealth.

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