THINK INDIA JOURNAL

ISSN:0971-1260

Vol-22-Issue-10-November-2019

Analysis Of Financial Performance Of Oil And Gas Industry In India

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Abstract:

The oil & gas sector is among the six core industries in India and plays a major role in influencing the decision making for other important sectors of the economy. The industry includes the companies which produce and deliver oil, oil products and natural gas. In this paper an attempt has been made to analyze the financial performance public and private sector oil and gas companies for the period from 2006 to 2015. It has been found that private sector firms are reported with relatively high liquidity, high solvency and low asset management efficiency against the public sector firm for the entire period of the study. In terms of profitability, private sector firms are almost similar to public sector firms.

Key words: oil and gas sector, financial performance.

1. INTRODUCTION

India is the world"s fourth-largest energy consumer with oil and gas accounting for 37.3 percent of total energy consumption. The country has 5.6 billion barrels of proven oil reserves and 1,330 bcm of gas reserves and produced only 47.6 bcm of gas in 2012. The high economic growth in the past few years and increasing industrialization coupled with a burgeoning population have created a lot of concern for India's energy scenario. India has 0.5% of the oil and gas resources of the world and 15% of the world's population. This makes India heavily dependent on the import of the crude oil and natural gas. India's crude oil production has not shown significant growth in the last 10 or more years whereas its refining capacity has grown by more than 20% over the last 5 years. Oil consumption is growing at approximately 4.1% per year and natural gas consumption at 68% per year.

The fact that India has not made any major breakthroughs in the field of renewable sources of energy, oil and natural gas would continue to hold a place of key importance in India's economy. The oil and gas sector is among the eight core industries in India and plays a major role in influencing decision making for all the other important sections of the economy.

India's economic growth is closely related to energy demand; therefore the need for oil and gas is projected to grow more, thereby making the sector quite conducive for investment. The Government of India has adopted several policies to fulfill the increasing demand. The government has allowed 100 per cent Foreign Direct Investment (FDI) in many segments of the sector, including natural gas, petroleum products, and refineries, among others. Today, it attracts both domestic and foreign investment, as attested by the presence of Reliance Industries Ltd (RIL) and Cairn India.

In this paper an attempt has been made to analyze the financial performance public and private sector oil and gas companies for the period from 2006 to 2015. Rest of the paper is organized in following sections. Section 2 presents the brief overview of the key financial ratios used in measuring the financial performance of a firm. Section 3 highlights the methodological aspects of this study. Section 4 presents the results and discussions. And finally section 5 concludes.

I. KEY FINANCIAL RATIOS

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The ratio analysis is based on the financial statements of the concerned firms and examines the various aspects of a firm's financial performance like liquidity, solvency, activity and profitability. In order to compare and measure the various aspects of the financial performance of the public and private sector companies, we have used the following families of financial ratios:

(1) Liquidity Ratios:

Liquidity ratios measure the ability of a firm to meet its short term maturing obligations (i.e. current liabilities) as and when they fall due to payment. In the normal course of business, these liabilities are to be paid out of current assets. In the present study, following liquidity ratios has been used:

$$\text{Current ratio } (L_1) = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio } (L_2) = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

$$\text{Cash ratio } (L_3) = \frac{\text{Cash} + \text{Marketable securities}}{\text{Current liabilities}}$$

$$\text{Net working capital ratio } (L_4) = \frac{\text{Net working capital}}{\text{Net assets}}$$

$$\text{Liquidity index (LI)} = \frac{1}{J}\sum I_j^i \,, \qquad 0 \le LI \ge 1$$

$$\text{and } I_j^i = \frac{L_j^i}{L_j^{max}} \qquad 0 \le I_j^i \ge 1$$

(2) Solvency Ratios:

Solvency or capital structure ratios measure the extent to which a firm uses debt financing or financial leverage. The debt financing has three important implications: First, by raising funds through debt, shareholders can maintain control of a firm without increasing their investment. Second, if a firm earns more on investments financed with borrowed funds than it pays in interest, the shareholders returns are magnified or leveraged. But at the same time their risks are also magnified. Third, creditors, look to the equity or funds supplied by the owners to provide a margin of safety. A high debt financing may increase the risk and can harm the profitability of the firm. In the present study, following solvency ratios are used:

$$\text{Debt ratio } (1/S_1) = \frac{\text{Total debt}}{\text{Total debt} + \text{Net worth}}$$

$$\text{Debt} - \text{equity ratio } (1/S_2) = \frac{\text{Total debt}}{\text{Net worth}}$$

$$\text{Capital employed to Net worth ratio } (1/S_3) = \frac{\text{Capital employed}}{\text{Net worth}}$$

$$\text{Interest coverage ratio } (S_4) = \frac{\text{Earnig before Interest and Taxes}}{\text{Interest}}$$

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$$\text{Solvency index (SI)} = \frac{1}{J}\sum s_j^i \ , \qquad 0 \leq SI \geq 1$$

$$\text{and } s_j^i = \frac{S_j^i}{S_j^{max}} \qquad 0 \leq s_j^i \geq 1$$

(3) Activity Ratios:

Activity ratios measure how effectively a firm is managing and utilizing its assets. These ratios are also known as turnover ratios. These ratios are designed to answer this question: Does the total amount of each type of assets as reported on the balance sheet seem reasonable, too high, or too low in view of current and projected sales level. We have used following activity or turnover ratios:

$$\text{Inventory turnover ratio } (A_1) = \frac{\text{sales}}{\text{Inventory}}$$

$$\text{Debtors turnover ratio } (A_2) = \frac{\text{Sales}}{\text{Debtors}}$$

$$\text{Fixed assets turnover ratio } (A_3) = \frac{\text{Sales}}{\text{Net fixed assets}}$$

$$\text{Net assets turnover ratio } (A_4) = \frac{\text{Sales}}{\text{Net assets}}$$

$$\text{Total assets turnover ratio } (A_5) = \frac{\text{Sales}}{\text{Total assets}}$$

$$\text{Working capital turnover ratio } (A_6) = \frac{\text{Sales}}{\text{Net working capital}}$$

$$\text{Activity index (AI)} = \frac{1}{J}\sum a_j^i \ , \qquad 0 \leq AI \geq 1$$

$$\text{and } a_j^i = \frac{A_j^i}{A_j^{max}} \qquad 0 \leq a_j^i \geq 1$$

(4) Profitability ratios:

Profitability ratios measure the overall performance of a firm and show a combined effect of liquidity, debt financing and asset management on the performance of a firm. Therefore, profitability ratios measure the operating efficiency of a firm. We have used the following profitability ratios in order to examine the financial performance of public and private sector firms:

$$\text{Gross profit ratio } (P_1) = \frac{\text{Gross}}{\text{Net Sales}}$$

$$\text{Net profit ratio } (P_2) = \frac{\text{Profit after tax}}{\text{Net sales}}$$

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$$\text{Returns on total assets } (P_3) = \frac{\text{Profit after tax}}{\text{Total assets}}$$

$$\text{Returns on net assets } (P_4) = \frac{\text{Profit after tax}}{\text{Net assets}}$$

$$\text{Returns on equity } (P_5) = \frac{\text{Profit after tax}}{\text{Net worth}}$$

$$\text{Earnings per share } (P_6) = \frac{\text{Profit after tax}}{\text{No. of shares outstanding}}$$

$$\text{Dividend per share } (P_7) = \frac{\text{Earnings paid to shareholders}}{\text{No. of ordinary shares outstanding}}$$

$$\text{Profitabilty index (PI)} = \frac{1}{j}\sum p_j^i, \qquad 0 \le PI \ge 1$$

$$\text{and} \quad p_j^i = \frac{P_j^i}{P_j^{max}} \qquad 0 \le p_j^i \ge 1$$

II. METHODOLOGY

3.1 Sample of the study

In order to conduct the present study, we have selected 10 companies (five companies from public sector and five from the private sector) based on their market capitalization.

Table 1: List of selected companies

Public sector	Private sector
1. Bharat Petroleum Corp. Ltd.	1. Castrol India Ltd.
2. GAIL India Ltd.	2. Essar Oil Ltd.
3. Hindustan Petroleum Corporation Ltd.	3. Reliance Industries Ltd.
4. Indian Oil Corporation Ltd	4. Aban Offshore Ltd.
5. Oil and Natural Gas Corporation Ltd.	5. Cairn India Ltd

3.2 Independent Samples t-Test

In order to compare the financial performance of public and private firms on the basis of above mentioned financial ratios, we have used independent samples t-test. It can be calculated by following formula:

$$t = \frac{(\bar{X}_1 - \bar{X}_2)}{\sigma\sqrt{1/N_1 + 1/N_2}} \quad \text{where} \quad \sigma = \sqrt{\frac{N_1 s_1 + N_2 s_2}{N_1 + N_2 - 2}}$$

Where $\bar{X}_1$ = mean ratio (i.e. liquidity, solvency, activity or profitability ratio) of private sector firms for the period 2006 to 2015; $\bar{X}_2$ = mean ratio of public sector firms for the period 2006 to 2015; s_1 and s_2 are standard deviations of private and public sector firms respectively; N_1 is size of sample in case of private sector and N_2 in case of public sector.

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The null hypothesis (H_0) underlying the independent samples t- test is

$$H_0: \quad \bar{X}_1 = \bar{X}_2$$

The independent samples t-test is based on the following assumptions: (1) Observations within each sample must be independent, (2) the dependent variable is normally distributed in both populations, and (3) the population variances are in the two groups are homogeneous.

III. RESULTS AND DISCUSSION

The oil & gas sector is among the six core industries in India and plays a major role in influencing the decision making for other important sectors of the economy. The industry includes the companies which produce and deliver oil, oil products and natural gas. Similar to the other industries, in oil & gas industry 10 companies have been selected, in a way that five companies belong to the public sector and other five belong to the private sector. Bharat Petroleum Corporation Ltd.(BPCL), GAIL India Ltd. (GAIL), Hindustan Petroleum Corporation Ltd. (HPCL), Indian Oil Corporation Ltd. (IOCL) and Oil & Natural Gas Corporation Ltd. (ONGC) are selected as public sector companies. Castrol India Ltd (CAIL), Essar Oil Ltd. (EOL), Reliance Industries Ltd. (RIL), Aban Offshore Ltd.(AOL) and Cairn India Ltd. (CAIRN) as private sector companies.

Table 2: Liquidity Ratios of Public and Private Sector Companies in Oil & Gas Industry (2006-2015)

Liquidity ratio	Private ($\bar{X}_1$)	Public ($\bar{X}_2$)	($\bar{X}_1$ - $\bar{X}_2$)
Current ratio	2.024	1.723	0.301
Quick ratio	1.662	1.181	0.481
Cash ratio	0.953	0.242	0.712*
NWC ratio	0.299	0.3	-0.001
Liquidity index	0.481	0.346	0.135***

Source:capitaline and authors' calculation
$\bar{X}_1$ = mean of private sector, $\bar{X}_2$ = mean of public sector,
*** and ** indicate statistical significance at 1% and 5% respectively.

Table 2 compares and analyses the liquidity position of public and private sector firms in oil & gas industry for the period 2006 to 2015. The mean liquidity index of the private sector firms over the period of the study is 0.481, which is significantly greater than that of public sector firms by 0.135. A high value of the liquidity index implies that private sector companies have sufficient liquid assets to meet their short term obligations when they become due. However, on the basis of current ratio, quick ratio, cash ratio and net working capital ratio, the lead of the private sector companies over their public counterparts is regarded as statistically insignificant.

Table 3: Solvency Ratios of Public and Private Sector Companies in Oil & Gas Industry (2006-2015)

Solvency ratio	Private ($\bar{X}_1$)	Public ($\bar{X}_2$)	($\bar{X}_1$ - $\bar{X}_2$)
Debt ratio	0.215	0.497	-0.282***
Debt equity ratio	0.358	2.069	-1.711***
CE to NW ratio	1.358	3.069	-1.711***

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Interest coverage ratio	2840.9	72.28	2768.62
Solvency index	0.521	0.457	0.063

Source:capitaline and authors' calculation
$\bar{X}_1$ = mean of private sector, $\bar{X}_2$ = mean of public sector,
*** and ** indicate statistical significance at 1% and 5% respectively.

Table 3 compares the solvency position of public and private sector firms in oil & gas industry. On the basis of solvency index, no significant difference is observed between the long term financial health of public and private sector firms. As far as debt ratio, debt equity ratio and capital employed to net worth ratio are concerned; it is observed that public sector companies have a significantly greater share of long term debt in their capital structure than that of private sector companies. However, it is worth noting that if the returns on investments are higher than the interest costs of borrowed funds, it can be said that shareholders' returns are magnified or leveraged. However, at the same time their risks also magnified. On the basis of the interest coverage ratio, no significant difference is observed between the debt servicing capacity of public and private sector firms.

Table 4: Activity Ratios of Public and Private Sector Companies in Oil & Gas Industry (2006-2015)

Activity ratio	Private ($\bar{X}_1$)	Public ($\bar{X}_2$)	($\bar{X}_1$ - $\bar{X}_2$)
Inventory turnover	19.086	11.548	7.538***
Debtors turnover	24.139	31.559	-7.42
Net assets turnover	1.803	4.688	-2.885***
Total assets turnover	1.651	4.398	-2.747***
Fixed assets turnover	2.432	8.297	-5.865***
Working capital turnover	4.923	15.752	-10.829*
Activity index	0.268	0.452	-0.184***

Source: capitaline and authors' calculation
$\bar{X}_1$ = mean of private sector, $\bar{X}_2$ = mean of public sector,
*** and ** indicate statistical significance at 1% and 5% respectively.

Table 4 compares public and private sector firms on the basis of turnover ratios. These ratios measure the efficiency of a firm with which it is utilizing the resources employed. The mean values of the activity index of the public and private sector companies over the period under consideration are 0.452 and 0.268 respectively. The activity index of public sector companies is significantly greater than that of private sector firms by 0.184. It indicates the better management of assets of the public sector firms than that of their private counterparts. Similarly, in terms of net assets turnover ratio, total assets turnover ratio and fixed asset turnover ratio public sector firms are found significantly more efficient than private sector firms. However, as far as the inventory turnover ratio is concerned, private sector firms are reported more efficient in producing and selling their products, which indicates their efficiency over the public sector firms. Further, on the basis of the working capital turnover ratio, no significant difference is observed between them.

Table 5: Profitability Ratios of Public and Private Sector Companies in Oil & Gas Industry (2006-2015)

Profitability ratio	Private ($\bar{X}_1$)	Public ($\bar{X}_2$)	($\bar{X}_1$ - $\bar{X}_2$)
Gross profit margin	-2.044	0.124	-2.169
Net profit margin	-2.986	0.057	-3.043

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Returns on total assets	0.153	0.201	-0.047
Returns on net assets	0.194	0.219	-0.025
Returns on equity	0.14	0.184	-0.044
Earnings per share	105.54	73.71	31.83
Dividend per share	383.17	240.674	142.496***
Profitability index	0.309	0.278	0.03

Source: capitaline and authors' calculation

$\bar{X}_1$ = mean of private sector, $\bar{X}_2$ = mean of public sector,

*** and ** indicate statistical significance at 1% and 5% respectively.

Table 5 compares the profitability of public and private sector firms in oil & gas industry over the period of the study. The profitability index demonstrates that public and private sector firms do not differ significantly in terms of profitability. The above finding is also supported by the other profitability ratios like gross profit ratio, net profit ratio, returns on total equity and dividend per share. However, on the basis of earning share, private sector firms are performing significantly better than government owned firms.

IV. CONCLUSION

The main findings of the paper may be summarized as: (1) Private sector firms are reported with relatively high liquidity as compared to their public counterparts. Availability of liquid assets is necessary to meet the short term obligations of the firm but existence of too much liquidity is not good for the profitability of a firm. (2) Private sector firms are using more debts as compared to the equity in financing their long term capital as indicated by their high debt equity ratio. Using relatively high debt capital is beneficial when rate of interest is lower than the returns on shareholders capital. (3) Public sector companies are operating with relatively high efficiency in managing the available resources as indicated by their high activity index. (4) In terms of profitability no significant difference is found in the financial performance of public and private sector companies.

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