
**CORRELATION ANALYSIS OF EXPLORATION AND PRODUCTION (E&P) COMPANIES
AND BSE OIL & GAS INDEX WITH BSE SENSEX**

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ABSTRACT

The Oil and Gas sector is among the six core industries in India plays major role in influencing decision-making for all the other important sections of Indian economy. Exploration & Production (E&P) Companies plays a vital role in fulfilling energy demand of the country. 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 Govt. of India has adopted several policies to fulfil the increasing demand. The government has allowed 100 percent Foreign Direct Investment (FDI) in Exploration and Production of crude oil and natural gas, petroleum products, refineries etc. The researcher made an attempt to measure the relationship associated between selected two upstream NOCs such as Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL) and one private company viz., Reliance Industries Limited (RIL) involves in E&P activities with S&P BSE Oil and Gas Index and also with S&P BSE Sensex during the study period. It is also made an attempt to measure the relationship between S&P BSE Oil and Gas Index and S&P BSE Sensex.

Key Words: Exploration & Production (E&P) Companies, Public Sector Undertaking(PSU), Private Sector, Correlation, Net Profit, S&P Bombay Stock Exchange (BSE) Oil and Gas Index, S&P BSE Sensex, Last Traded Price (LTP), Portfolio

INTRODUCTION:

National Oil Companies (NOC) namely Oil and Natural Gas Corporation Limited (ONGC) and Oil India Limited (OIL) play a dominant role in country's oil and gas exploration. Along with this race private sector companies namely Reliance Industries Limited (RIL) and Cairn India Limited also involves in E&P activities to meet the county's energy demand. The Prime Minister of India set the target of the country by reducing crude oil import dependence by 10% by 2022. To achieve the target E&P companies need to produce more to meet the increase in fuel demand. Every organization expects to attain more profit and the same will be distributed to the owners of the company such as equity shareholders and to the Government. By distributing the dividend, Government of India can generate revenue by the way of getting their shares as dividends as well as taxes on profit earned by the corporates. Considering these factors, the researcher made an attempt to take the above mentioned two upstream NOCs and one private company viz., Reliance Industries Limited (RIL) involves in E&P activities, based on its Net Profit After Tax (NPAT) earned in the previous year.

STATEMENT OF THE PROBLEM:

Net profit earned by the respective E&P company supports to declare good amount of dividend to its equity shareholders. This motivates the prospective investors to invest their amount in their selected portfolio of E&P companies of Oil and Gas Sector and gain out of their investment. Based on the above problem, the following questions to be answered;

1. What is the level of relationship associated between select E&P Companies share prices and S&P Oil and Gas Index?
2. What is the level of relationship associated between select E&P Companies share prices and S&P BSE Sensex?
3. What is level of relationship associated between S&P Oil and Gas Index and S&P BSE Sensex?

OBJECTIVES OF THE STUDY:

Based on the above, the following are the objectives of the study;

1. To identify the selected E&P Companies of public sector as well as private sector based on Net Profit After Tax (NPAT) earned during the previous Financial Year (FY) 2016-17.
2. To study the equity share price movements of selected E&P Companies. Last Traded Prices (LTP) of the selected companies, S&P Oil and Gas index and S&P BSE Sensex has been taken into account during the study period.
3. To analyse the level of relationship associated between
 - a. Select E&P Companies and S&P Oil and Gas Index.
 - b. Select E&P Companies and S&P BSE Sensex and
 - c. S&P Oil and Gas Index and S&P BSE Sensex.
4. To offer better suggestions to the investors for their investment decisions to make wise decisions in equity market especially in Oil and Gas sector portfolio based on the findings of the study.

METHODOLOGY:

In this present study, the Pearson Correlation method (significant level of .01(2-tailed)) has been applied. The Select E&P Companies Last Traded Price (LTP) data was collected from the official website of BSE India. In this study, the researcher made an attempt to identify top three E&P Companies based on the Net Profit After Tax (NPAT) gained during the previous FY 2016-17. The details of the E&P Companies and its NPAT details are given below:

TABLE NO. – I

TOP THREE E&P COMPANIES

(On the basis of Net Profit After Tax)

Sl. No.	Name of the E&P Company	NPAT (₹ in Crores) FY 2016-17	Rank
1	RELIANCE INDUSTRIES (Private Sector)	29,907.00	I
2	ONGC (Public Sector Undertaking)	17,899.97	II
3	OIL (Public Sector Undertaking)	1,548.68	III

Source: BSE of India site

DATA ANALYSIS:

In this recent study, the researcher used partial correlation analysis ie. Pearson Correlation method at the significant level of .01(2-tailed) , to analyse the collected data. The above mentioned correlation analysis is used to estimate the relationship associated between selected variables. Here, the researcher used the following variables:

- (a) Last Traded Price (LTP) data of the select E&P companies (Public sector and Private Sector),
- (b) Closing value of S&P Oil and Gas index and
- (c) Closing value of S&P BSE Sensex.

The pertinent data was collected from 1st October 2017 to 9th November 2017 for this purpose of the study.

TABLE NO. – II

Correlation (r) between selected E&P Companies and S&P BSE OIL & GAS Index

Sl. No.	Name of the E & P Company	Calculated 'r' Value	'r' in %	Remarks
1	RIL (Reliance Industries Limited)	0.945	94.50	Positive r
2	ONGC (Oil and Natural Gas Corporation Ltd.)	0.785	78.50	Positive r
3	OIL(Oil India Ltd.)	0.563	56.30	Positive r

Source: Primary Data

TABLE NO. – III

Correlation (r) between selected E&P Companies and S&P BSE SENSEX

SL. No.	Name of the E & P Company	Calculated r Value	'r' in %	Remarks
1	ONGC	0.869	86.90	Positive r
2	RIL	0.856	85.60	Positive r
3	OIL	0.643	64.30	Positive r

Source: Primary Data

TABLE NO. – IV

Correlation (r) between S&P BSE OIL & GAS Index and S&P BSE SENSEX

Factor	Calculated r Value	'r' in %	Remarks
S&P BSE OIL & GAS Index	0.945	94.50	Positive r

Source: Primary Data

FINDINGS OF THE STUDY AND DISCUSSIONS:

While analysing the relationship associated between Selected E&P Companies and S&P Oil and Gas Index, it is identified from the analysis that, RIL the highest (94.50%) positive relationship with the changes in S&P Oil and Gas Index and it is followed by ONGC has 78.50% level of relationship and finally by OIL has 56.30% level of relationship. It is found that, all the E&P companies whether it is Public Sector Unit or Private Sector, which has a positive correlation with S&P Oil and Gas Index.

While analysing the relationship associated between Selected E&P Companies and S&P BSE Sensex, it is identified from the analysis that, ONGC has the highest positive (86.90%) relationship with the changes in S&P BSE Sensex and it is followed by RIL has 85.60% and finally by OIL has 64.30% positive correlation. It is found that, all the E&P companies have a positive correlation with BSE Sensex.

While analysing the relationship associated between S&P BSE Sensex and S&P Oil and Gas Index, it is identified from the analysis that, the result shows highest (94.50%) level of strong relationship.

CONCLUSION:

It is concluded that, the RIL (Private Sector) has the highest positive correlation with S&P Oil and Gas Index. The National Oil Companies such as ONGC and OIL (PSUs) also have positive correlation with S&P Oil and Gas Index. However the E&P Company ONGC (PSU) has the highest positive correlation with S&P BSE Sensex followed by RIL and OIL. It indicates that, equity prices of select E&P companies and BSE Sensex moves in the same direction i.e., BSE Sensex increases and the percentage level of price of the select E&P companies share prices increases and vice-versa.

It is also concluded that, a strong high (94.50%) positive correlation associated between S&P BSE Sensex and S&P Oil and Gas Index. It indicates that, S&P Oil and Gas Index increases due to increase in S&P BSE Sensex and vice-versa. Hence it is advised to the investors that, the investors may select their portfolio and take their investment decisions towards diversified sectors of the above mentioned scripts according to the changes happening between the selected variables of Oil & Gas Index as well as BSE Sensex.

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ANNUXURE

Select E&P Companies Equity Share Price, S&P BSE Oil & Gas Index and S&P BSE Sensex (Period from 01.10.2017 to 09.11.2017)

Day	Date	Reliance	ONGC	OIL	S&P OIL & GAS Index	BSE SENSEX
1	4-Oct-17	819.20	172.00	351.3	15235.08	31671.71
2	5-Oct-17	824.20	170.95	349.05	15150.49	31592.03
3	6-Oct-17	836.85	173.70	350.15	15466.59	31814.22
4	9-Oct-17	830.75	170.95	344.85	15309.91	31846.89
5	10-Oct-17	843.40	170.20	352.05	15361.79	31924.41
7	11-Oct-17	840.40	169.35	345.65	15532.65	31833.99
8	12-Oct-17	872.50	169.95	346.65	15646.14	32182.22
9	13-Oct-17	876.70	170.10	349.4	15624.79	32432.69
10	16-Oct-17	875.20	171.90	347.55	15691.20	32633.64
11	17-Oct-17	874.25	171.20	344.95	15807.38	32609.16
12	18-Oct-17	913.75	174.20	342.90	16002.81	32584.35
13	19-Oct-17	910.35	172.15	340.75	15894.56	32389.96
14	23-Oct-17	938.10	171.60	338.45	16023.94	32506.72
15	24-Oct-17	934.75	176.00	344.15	16125.42	32607.34
16	25-Oct-17	939.95	176.80	338.90	16201.98	33042.50
17	26-Oct-17	947.25	177.33	351.8	16556.76	33147.13
18	27-Oct-17	929.45	183.55	350.85	16365.51	33157.22
19	30-Oct-17	940.15	186.65	375.6	16545.18	33266.16
20	31-Oct-17	940.80	191.10	369.35	16552.40	33213.13
21	1-Nov-17	952.30	190.90	368.05	16605.88	33600.27
22	2-Nov-17	947.10	188.00	358.05	16550.11	33573.22
23	3-Nov-17	945.60	191.35	361.3	16524.05	33685.56
24	6-Nov-17	934.45	198.65	370.65	16527.75	33731.19
25	7-Nov-17	906.65	193.85	373.2	16310.24	33370.76
26	8-Nov-17	901.55	192.05	363.00	16097.62	33218.81
27	9-Nov-17	883.50	189.50	364.05	16092.09	33250.93

Source: www.bseindia.com