Crude Oil and Sectors of NSE

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Abstract: This paper investigates the relationship between oil prices and stock prices of various sectors of NSE over the period February 2010 – Nov 2018. For studying the long term relationship Regression Analysis is employed and various sectors of NSE have been studied and compared viz- Auto, FMCG, Services, IT, Energy and the results are thus compared. The results obtained suggest that stock prices of sectors viz IT is having significant impact when there is fluctuation of the crude oil prices. But a change in the oil prices does not have impact on other sectors of NSE

The purpose of present paper is to encourage discussion and critically commenting on the crude oil prices and how they effect the varipus sectors of NSE and thus comparison of various sectors of NSE can be done with crude oil price fluctuations

Keywords—NSE sectors ,crude oil

1. INTRODUCTION

The changes in the crude oil prices plays a significant role in fluctuation of stock prices. If seen in the long term the influence of oil prices on stock market exist as oil prices changes actually gets transmitted to macroeconomic indicators which ultimately effects the linkage between these market. Taking Oil prices as measure for change in key macroeconomic indicator is probably because of value of stock prices in theory which is equal to discounted expectation of future cash flow which in turn are affected by macroeconomic event.

When oil prices increases, it raises the cost of production in industrial nations which are actually oil consuming countries With the rapid development of the economies throughout the world the great challenge is for the policy makers who have to cope up with the ever fluctuating oil prices. Oil price shocks has a great impact on the economic activities such as inflation rate, growth, trade balance and others. More commonly it is accepted that increase in oil price leads to the slow economic growth in terms of stock prices of industries too.

The inflationary pressure upon a nation is usually controlled by central bank through the increase in interest rates. With the higher interest rates the investments in bonds will become more attractive than investment in stock, which thus will result in lower prices of stock.

Finally, the increase in import prices will trigger a decline in trade and thus impose welfare losses. On the other hand, Oil-exporting countries will get benefit from higher export revenues, which could be diminished by a decline in a global oil demand.

2. OBJECTIVES

To study the effect on NSE sectors when oil price changes.

3. LITERATURE REVIEW

Hale and Chang (2011) studied the impact of oil price fluctuation on the stock markets which are developed with the emerging economies. Suggested that the fluctuations in oil price on stock market is not so statistically significant although the presumption of oil price –stock price relationship seen some reasonable area of Japan.

Chettedi (2012) investigated the relationship between oil prices and stock prices for India over the period April 2000-June 2011. The study involves the Auto Regressive Distributed Lag (ARDL) Model which is taken into consideration the long run relationship. The results obtained actually suggested that volatility of stock prices in India have a significant impact on the oil prices volatality.

Bhunia Amalendu (2013) investigated the co integration relationship among variables like stock prices, domestic gold rate and crude oil prices. The Johansen cointegration test and granger Casuality test is applied which shows the Bidirectional or no causality between the variables

Sri Ram. P (2017) studied how crude oil prices change impacted the Indian Stock market (NIFTY 50 index), Commodity market and India's significant macroeconomic variables like Inflation (Wholesale Price Index) and Gross Domestic Product (GDP). The Volatility was measured through econometric tools like Unit Root test, Granger Causality Test, Correlation analysis, OLS and Generalized Auto Regressive Conditional Hetroscedasticity (GARCH) Model. The study concluded that crude prices have a significant impact on the NSE, MCX, Inflation (Wholesale Price Index), and GDP Arouri M,Foulquier P,(2011) examined the long-term relationship between oil prices and the stock markets. The empirical investigations, mainly focussed on linear and asymmetric long-term links on both the aggregate and sectoral levels and resulted that the response of stock prices differ greatly Overall, findings showed that the reverse causality between stock markets and oil price increases and the increase in oil prices were associated with higher expected economic growth and demand and investor, consumer confidence. The stock prices response to oil price increases are significant for oil-intensive industries such Automobile & Parts and Oil & Gas.

3. METHODOLOGY AND DATA DESCRIPTION

Main objective of this paper is to examine the effects of Crude Oil prices on the various sectors of NSE viz- Auto, Energy, Services, FMCG, IT. The data on crude Oil and Various sectors of NSE is taken from Money Control.com. The data is taken from the year 2009 to 2018 to study the different sectors and is taken on yearly basis. The Data has been analyzed by using Regression results.

Table 1: Results of the Analysis of all Sectors

Variabl	Observatio		Std.		
e	ns	Mean	Dev.	Min	Max
IT	119	1.57	6.38	-17.70	21.35
FMCG	106	1.40	4.29	-10.07	9.64
Auto	86	0.99	5.88	-17.01	13.13
Energy	106	0.47	5.59	-13.22	15.12
Service					
S	106	0.88	4.76	-12.00	12.28
Oil	119	0.23	8.21	-26.63	19.59

• Table 2: Pairwise Correlation

	IT	FMC	Auto	Energ	Servic	Oil
		G		у	es	
IT	1					
FMC	0.204	1				
G	3*					
Auto	0.135	0.598	1			
	2	2*				
Energ	0.218	0.411	0.603	1		
у	1*	8*	3*			
Servic	0.507	0.590	0.778	0.704	1	
es	7*	3*	2*	9*		
Oil	0.203	-	0.076	0.111	0.106	1
	7*	0.030	6	9	4	
		9				

The results in the above table shows, industries returns are positively correlated with each other in significant way except oil Industry. Oil industry return is positively correlated with IT industry in significant way. Oil Industry return is not correlated with return of other industries.

Regression model estimated is given by

 $r_t = \beta_0 + \beta_1 OG_t + e_t \pmod{1}$ Where r_t is return of a given industry at time t and OG is growth rate of oil price at time t.

We augment the above model by including the lag of return. $r_{t} = \beta_{0} + \beta_{1}OG_{t} + \beta_{2}r_{t-1} + e_{t} \pmod{2}$

Table no 1 gives results from model 1 and table no 2 gives results from model 2. As we can see from these two tables only IT industry return is effected by growth of oil prices. One percent increase in oil price increases the return of IT industry by .15 percent. Surprisingly there is no significant evidence of oil price on return of energy industry. This could be due to the fact that in most of our sample, oil prices were regulated and this led to huge amount of subsidy burden for oil companies

Table 3: Regression

	IT	FMC	Auto	Energ	Servi
		G		у	ces
Growth Rate of	0.158	-	0.052	0.076	0.062
Oil Prices	**	0.016	3	4	0
		2			
	(2.64	(-	(0.67	(1.15	(1.05
)	0.32))))
Constant	1.534	1.401	1.029	0.490	0.896
	**	**			
	(2.67	(3.34	(1.62	(0.91	(1.94
)))))
R-squared	0.041	0.001	0.006	0.013	0.011
Observations	119	106	86	106	106
t statistics in parentheses ="* p<0.05 ** p<0.01 ***					
p<0.001"					







 Table: 4 Regression of Log Data of Oil prices and NSE sectors

	IT	FMC	Auto	Energ	Servic
		G		у	es
Growth Rate	0.159*	-	0.055	0.090	0.0586
of Oil Prices	*	0.0227	0	0	
	(2.62)	(-0.45)	(0.68	(1.40)	(1.01)
)		
L.Return on	-				
IT Index	0.0080				
	8				

	(-0.09)				
L.Return on		-			
FMCG Index		0.0844			
		(-0.93)			
L.Return			0.022		
on Auto			5		
Index					
			(0.21		
)		
L.Return on				-	
Energy Index				0.135	
				(-	
				1.65)	
L.Return on					-
Services					0.0817
Index					
					(-0.87)
Constant	1.611*	1.478*	1.152	0.533	0.934
	*	*			
	(2.82)	(3.34)	(1.74	(0.97)	(1.90)
)		
R-squared	0.042	0.009	0.008	0.029	0.017
Observations	118	105	85	105	105

Conclusion

Volatility in Oil price has increased and the sectors are more or less are affected by the price changes although major impact is seen on the IT sector among all as it is showing the change of 15% and further on other sectors it may be due to the subsidiary burden Although oil prices in future are difficult to predict, they are expected to rise as per current trend. Since our increasing dependence on imports effects the Indian economy as increase in the price of crude oil increases the inflation, exports are becoming weaker per day, on subsidy government have to spend too much, investment is decreasing effecting GDP.

In the long run for meeting the growing demand for crude oil, diesel and petrol etc. India should take measures for efficiency in improvement of use of other alternative sources of energy. hydro, nuclear and bio fuels etc, as other Western European countries are doing. At last India should take measures to increase exports to meet its growing future oil requirements.

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