

# Effect of Reliance and Saudi ARAMCO Deal News on Oil Market

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**Aim:** Quantification of cross-sectional variations in the oil-market index and share-prices due to ongoing early-stage negotiation news reports between Reliance and Saudi Aramco companies.

**Abstract:** We analyzed the cross-sectional effects of mega deal between two giant oil-companies, i.e., Reliance Industries and world's largest off-shore crude-oil company named - Saudi Aramco on the various domestic crude-oil marketing companies such as Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL), and Hindustan Petroleum Corporation Limited (HPCL). In order to observe the shock transmission of the deal news, share-prices of IOCL – one of the biggest oil-trading company, BPCL, HPCL were chosen. Because the news of informal mega-deal came into limelight for the first time in December 2018, with possibility of sealing the deal in future, therefore traded FUTCOM instrument for CRUDEOIL commodity under Energy segment was considered for the duration of January 2019 to December 2019 from the MCX database.

**Keywords:** BSE100 index, BSE Oil & Gas index, share-price, IOCL, BPCL, HPCL, Reliance Industries share-price, MCX, Crude-oil prices.

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## INTRODUCTION

The stock-market, by default, is the foremost and reliable mirror to visualize any significant changes in policy or business market in a globalized world. In this context, an informal news, dated back to 19 December 2018,[1] of Saudi's interest in partnering with Reliance Industries Limited (RIL) for the investments and cooperation across-segments from oil to telecom have created buzzword in the oil-market segment. RIL, is a giant Indian conglomerate founded in May 1973 and headquartered in Mumbai, INDIA and owns businesses across India engaged in energy, petrochemicals, textiles, natural resources, retail, and telecommunications. More details about can be found elsewhere.[2] On other hand, Saudi Aramco, officially the Saudi Arabian Oil Company, is a Saudi Arabian public petroleum and natural gas company founded in 1933 and based in Dhahran.[3] It is one of the largest companies in the world by revenue. The news of mega-deal between two aforesaid big conglomerates have thrown a shocking wave in the stock-market and particularly in the oil-marketing sector which has been studied here by analyzing the stock-market index and share-price values. For that, author have also included IOCL, BPCL, HPCL besides the RIL because of involvement of those companies in the negotiation deal as per the news report.[4]

## NEWS REPORTS REVIEW

In this section, authors has explored the various news related to Saudi Aramco-RIL deal talks through published news articles in leading newspapers. The reports on a possible deal between Saudi Aramco-RIL were in talks around for two to three years. However, to the authors best of knowledge, it have emerged and published on December 19, 2018 that Oil-rich Saudi Arabia discussing opportunities to partner with Mukesh Ambani-promoted Reliance Industries (RIL) for investments and cooperation across segments - from oil to telecom came into existence on December 19, 2018 (1). From this deal, RIL stands to gain on crude oil supply security and substantial debt reduction. As of December 2018, RIL's debt was Rs 2.74 trillion. In the December quarter, its petrochemicals and refining business together contributed a little over 70 per cent to its earnings before interest, taxes, depreciation, and amortization (EBITDA). It is a measure of a company's overall financial performance and is used as an alternative to net income in some circumstances. Subsequently, there were several other headlines in coming time about this deal. For example, on 21 February 2019, a news with title "Saudi Aramco in talk with Reliance Industries, other to invest in oil" broke out.[4] The news outlines was, in addition to the \$44-billion Ratnagiri refinery in Maharashtra, for which Saudi Aramco

and UAE's Adnoc are partnering with Indian oil marketing companies (OMC) such as Indian Oil Corporation (IOCL), Bharat Petroleum Corporation (BPCL), and Hindustan Petroleum Corporation (HPCL). Then on 17 April 2019, a news with title "Reliance Industries weights refinery unit stake sale to Aramco, Adnoc" broke out.[5] The news says that Mukesh Ambani's Reliance Industries is considering selling as much as 25 per cent of its refinery business in a deal that could fetch at least \$10 billion. Reliance is sounding out potential investors including state-owned Saudi Arabian Oil Co. and Abu Dhabi National Oil Co. to gauge their interest. Another news with title "RIL-Aramco deal fits well for both their future strategies" published on the same date talks about Reliance Industries (RIL), which owns the world's largest refinery, appears to be making a shift towards consumer businesses, while Saudi Arabia has been taking conscious steps towards de-linking its economy from oil. The two strategies--one corporate and the other national--could find a point of convergence to make way for an RIL-Saudi Aramco deal.[6] The next day news with title "Reliance Industries stands to gain from Saudi Aramco deal: Experts" published on 18 April 2019, says about that the Saudi Aramco was putting sincere efforts to de-risk its economy from oil's uncertainties by picking stakes in business not related to oil, for instance SoftBank and electric vehicles. Saudi Aramco with annual profit of \$111 billion reported for 2018, has enough funds for both - a stake in RIL's refining and petchem business as well as the mega refinery business.

**DATA COLLECTION**

The daily historical stock prices index data, i.e., S&P BSE 100, and S&P BSE Oil & Gas were obtained from the Bombay Stock Exchange.[7] Similarly, the share-price values of RIL, IOCL, BPCL, HPCL were obtained from the historical equity data base of BSE.[8] The traded value of traded FUTCOM instrument for CRUDEOIL commodity under Energy segment was retrieved from Multi Commodity Exchange (MCX, [9]).

**RESEARCH METHODOLOGY**

**Stationarity Test:**

Price series' evolution can encounter stationarity cycles. So, to prove the existence of connection between time series data (stock prices) without imposing the non-stationarity condition, we estimated the "co-movement" between time-series data in pairs. To exist such relation between time-series data, a certain combination or ratio between the two time series' variances should be remain within a defined confidence interval. In order to define this combination, we will use the concept of covariance[10]

$$cov(X, Y) = \sum_{i=1}^n \frac{(x_i - \bar{x})(y_i - \bar{y})}{n} \tag{1}$$

Where  $cov(X, Y)$  is co-variance between two time series data,  $\bar{x}$  and  $\bar{y}$  are the mean values of the respective series.

In totality, in order to exist the co-movement relation, the covariances series (for varied time-window) will have to lie within a certain confidence interval. So, in the first place, for the co-movement relation to exist between two series, we will have to prove the stationarity of the covariance's series.

**Hypothesis of the Study**

**H=0:** Indicates failure to reject the unit-root null. Time-series data of the share-prices of various oil-marketing companies contain unit root. Means time-series is non-stationary and further data-analysis will provide trivial information.

**H=1:** Indicates rejection of the unit-root null in favor of the alternative model. Time-series data of the share-price of various oil-marketing companies doesn't contain unit root. Means time-series is stationary and further data-analysis will provide useful information.

To prove the stationarity of the time-series data of RIL, IOCL, BPCL and HPCL, we have implemented the null hypothesis of the ADF test with Trend-stationary (TS) model variant whether data has unit root or not.[11] The test statistics has been summarized in the following Table 1 for all four oil-companies. The results indicate that all four time-series data of oil-marketing companies does not have a unit root at any of the significance levels at 1%, at 5% and 10%. In conclusion, we can state that the analyzed time series are stationary.

**Table 1. Augmented Dicky-Fuller (ADF) test statistics for RIL, IOCL, BPCL and HPCL**

Hypoth. No.	Significance Level	RIL		IOCL		BPCL		HPCL		
		t-value	stat	t-value	stat	t-value	stat	t-value	stat	
1. True	1%	0.001	-15.0401	-3.98896	0.001	-16.014	-3.99896	0.001	-15.1106	-3.99896
2. True	5%	0.001	-15.0401	-3.43063	0.001	-16.014	-3.43063	0.001	-15.1106	-3.43063
3. True	10%	0.001	-15.0401	-3.13058	0.001	-16.014	-3.13058	0.001	-15.1106	-3.13058

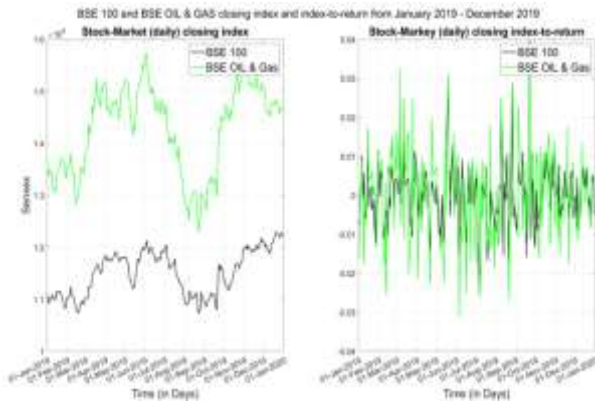
**Table 2. Augmented Dicky-Fuller (ADF) test statistics for different time window for RIL, IOCL, BPCL and HPCL**

S. No.	Lags (in Days)	RIL				IOCL				BPCL				HPCL			
		ADF Test Stats	t-val	p-val	Kurt	ADF Test Stats	t-val	p-val	Kurt	ADF Test Stats	t-val	p-val	Kurt	ADF Test Stats	t-val	p-val	Kurt
1.	15	-4.362	-3.432	0.004	0.554	-3.518	-3.432	0.048	0.452	-3.371	-3.432	0.050	0.243	-4.117	-3.432	0.007	0.044
2.	30	-2.294	-3.432	0.467		-3.234	-3.432	0.001		-2.822	-3.432	0.350		-2.994	-3.432	0.167	
3.	45	-1.407	-3.434	0.031		-2.601	-3.434	0.257		-2.426	-3.434	0.383		-2.977	-3.434	0.162	
4.	60	-2.990	-3.436	0.547		-1.921	-3.436	0.030		-2.396	-3.436	0.347		-2.368	-3.436	0.411	
5.	75	-2.278	-3.438	0.455		-2.020	-3.438	0.577		-1.967	-3.438	0.607		-2.991	-3.438	0.138	
6.	90	-1.216	-3.440	0.880		-0.770	-3.440	0.965		-1.373	-3.440	0.865		-0.606	-3.440	0.972	
7.	105	-1.336	-3.444	0.874		-2.113	-3.444	0.525		-1.760	-3.444	0.787		-0.809	-3.444	0.955	
8.	120	0.000	-3.448	0.996		0.000	-3.448	0.996		0.000	-3.448	0.996		0.000	-3.448	0.996	

t-val: critical value; Kurt: Kurtosis

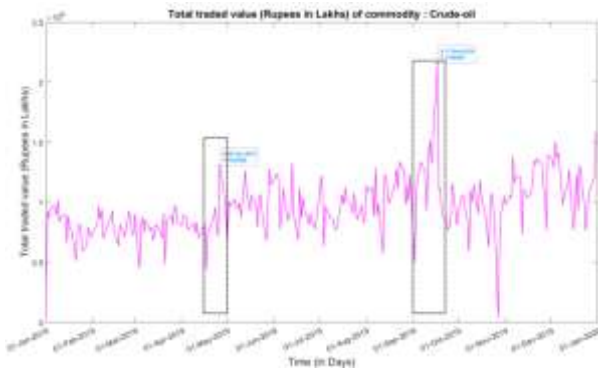
**RESULTS AND DISCUSSION**

SENSEX data reflects the overall economic health status of any country. Any significant policy change or shock occurred both at the national as well as International can be gauged from the Sensex volatility. Therefore, the Sensex was first cross-sectional measure to identify the India's demonetization policy shock, which is well understood and also synchronizes with real-world entrepreneurial theory. Figure 1 shows the BSE100 and BSE Oil & Gas stock-market index variation (left column) and their index-return values (right column).



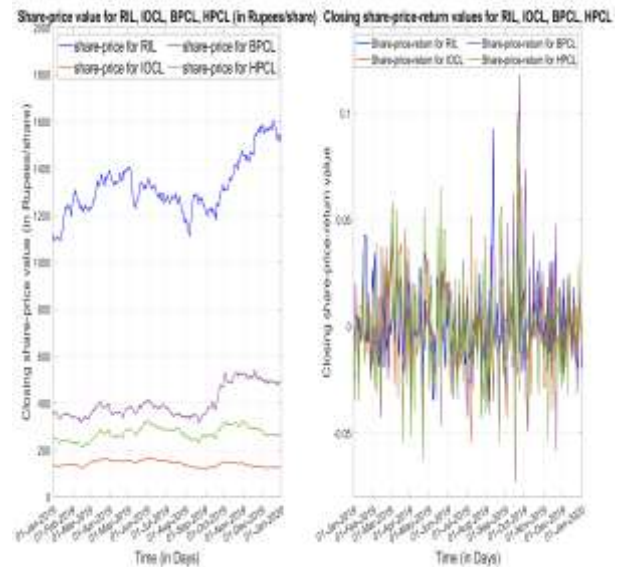
**Figure 1. BSE100 and BSE Oil & Gas SESEX data (daily data in the left column), and their index-return (right column). Index-to-return values eventually starts one datetime lagged as per the standard method of estimation.**

Because deal was in early-stage negotiations, so the traded FUTCOM instrument for CRUDEOIL commodity under Energy segment was the correct parameters to unearth the propensity of deal, and therefore data for the duration of January 2019 to December 2019 from the MCX database was considered. As it is evident from the Figure 2 that total traded values saw significant upward rise in the early days of January 2019 on account of deal reports and then subsequent high volatility clustering in the following month of May 2019 when deal couldn't be finalized, and sincere efforts were still going on.



**Figure 2. Total traded FUTCOM instrument for CRUDEOIL commodity under Energy segment.**

In order to quantify the changes in the share-price of RIL, IOCL, BPCL and HPCL in the backdrop of RIL-Saudi Aramco deal, author obtained the daily share-price data from BSE[8] as shown in Figure 3 (left column) and their respective share-price-return values (in the right column). RIL share values was significantly higher than other oil-marketing companies for the said period of study and also saw upwards rising trend from mid-January 2019 until mid-March 2019 in the optimistic hope of getting the deal sealed. However, there was marginal rise in the share-price values of the BPCL, HPCL and IOCL in the decreasing order.



**Figure 3. Share-price values of oil-marketing companies including RIL, IOCL, BPCL and HPCL**

**CONCLUSION**

From the BSE 100 and BSE Oil & Gas stock-market index analysis, it was found that market-index keeps on increasing from mid-February 2019 until March 2019 that can be surely credited to the bright prospect of early-stage mega-deal news reports published in December 2018 to April 2019. When the deal couldn't be finalized and sealed, the trend sees declining. By the time this manuscript was prepared, the RIL-Saudi Aramco deal was still not arrived for final stamping. The share-price values of RIL experienced significant upward trend from mid-January 2019 to mid-March 2019 due to early-stage news reports and negotiation between two giant conglomerates. However, the share-prices of other oil-marketing companies such as Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL), and Hindustan Petroleum Corporation Limited (HPCL) didn't see upward trend as RIL received. The traded FUTCOM instrument for CRUDEOIL commodity under Energy segment received major jump in total traded value (Rupees in Lakhs) in early January 2019 which exhibited high volatility in the following month of May 2019 on account of

persistent uncertainty of RIL-Saudi Aramco deal. In nutshell, the early-stage deal negotiation influenced the share prices values of the directly concerned companies only, leaving behind the others related companies unaffected.

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