

An Impact of Reliance Jio 4G on the Telecom Sector: a Comparative Study of Financial Performance and Stock Prices Pre and Post Launch

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Abstract:

India has the world 2nd largest telecommunication market. Telecom is one of the fastest growing sectors that provide services to millions of customers. With the increasing competition in the sector, Telecom companies are launching alluring schemes and plans to attract customers. The advent of Reliance-Jio brought the ripple effect in the telecom sector by providing the free data and call services for 10 month to 130 million subscribers. This has jolted the entire telecom companies and resulted into huge loss. This paper aims to study the financial performance and stock performance of Telecom sector against Pre- Launch and Post –Launch of Reliance Jio 4G. The study has been conducted by applying granger causality, impulse response, and variance decomposition to know the impact of Reliance jio on Telecom industry. It has been observed that the Reliance Jio has a short term impact on Telecom sector which later ceased to exist in 2017-18.

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1. Introduction

Telecommunication sector is one of the fastest growing sectors in India in against to other sectors. It has gone through a huge transformation from postal to telecommunication services and ongoing from wireline to wireless services. Due to liberalisation of new telecom policy 1999 Indian telecom sector has showed up well. Since India's telecom sector stand as second most in the world, so it is one of the major revenue generating sector. Telecom services have been recognized comprehensively as a basic means for the socio-economic progress of a country.

Telecommunication is one of the prime help administrations required for quick development and modernisation of different segments of the economy.

According to the statistics of Telecommunication Regulatory Authority of India (TRAI) on 31st January 2018, the total subscribers (wireless-1151.94 million and wireline-23.07 million) were 1175.01 million as compared to 1174.80 million (as on 31st January 2017). The revenue of the Indian telecom sector grew at a compound annual growth rate (CAGR) of 7.31%, USD 42.6 billion in 2017-

18 from USD 19.6 billion in 2006-07 (TRAI annual report April 2018). The latest survey in the Indian telecom scenario, it has been found that the average earning from each customer has been falling down evenly. The leading operators in Indian telecom market are Airtel, Vodafone, Idea, BSNL, MTNL, Reliance Communication, TATA Teleservice, MTS.

Reliance Industries by launching of Reliance Jio 4G jolted the predominating operators in the telecom sector on 5th September 2016. Reliance Jio is the auxiliary to Reliance Industries founded in the year 2010. It started with an initial investment of Rs.1,50,000 crore which made it the biggest start up in the world.

As on 30th Sept. 2016 i.e. within one month of launch, Jio acquired 15.97 million subscribers (TRAI press release as on 30th September 2016), where as in February 2017 Jio crossed 10 crore subscribers. It became the first fastest mobile network operator to gain majority of subscribers in such a short span of time. The entire nation got engulfed with the dispatch of 4G in India and the alluring free trial period which was supposed to get over by December 2016 got stretched out by till march 31st 2017, whereby the endorser both new and existing were permitted to utilise the service free of cost. This freebie made the company to acquire 50 million subscribers in around 83 days. On the directives of TRAI Jio was ordered to withdraw the freebies offer (free voice calls for life time and data service for the year end), the number of active subscribers got declined to 75.50% from September 2016. (as per TRAI on 30th June 2017). This paper focuses on the impact of Reliance Industries on telecom sector in respect to arrival of Jio by comparing Reliance Industries stock prices and performance with telecom service sector stock prices and their performance. The objective of this research paper is to analyse the financial performance and stock performance of Telecom

sector against Pre- Launch and Post –Launch of Reliance Jio 4G in India.

REVIEW OF LITERATURE

There is a good number of empirical studies establishing the trends and movements in the Indian telecom Industry. (**Pritish & Taruna, 2015**) analysed the evolution and present trends of Indian Telecom Industry, review the Government Telecom policies, and also to examine the future growth opportunities in the Indian Telecom Industry. He found that the Indian Telecom provides considerable to the overall socio-economic growth of India.

(**Vaishali & Parvin, 2014**) discovered Industry investigation for RJio utilizing Porters five powers display, methodologies embraced by RJio, and additionally to locate the conceivable future systems of RJio. She also discovered the introduction of a short diagram of the basic leadership progression of the CMD, for making a rebound in Telecom part and furthermore gives an open door for advance future strategies of RIL.

(**Satyanarayana, Rao, & Naidu, 2017**) aims to make an endeavor to analyze the effect of new participant Reliance Jio on aggressive moves of competitor in the business and also evaluate the major changes in Indian telecom industry. Reliance Jio's free offer makes part of essential and sudden change in customer's behaviour and rival's methodologies. The effect of new customers influence balance in the mobile business and make rivals helpless that they fall back on mergers and acquisitions in Indian mobile network providers. (**Nandini, 2017**) talk about the major policy reforms in the Indian telecommunication sector, discussed the changes strategies adopted by Vodafone and Airtel. And also provide all-inclusive awareness on the new developments in the sector. Airtel and Vodafone in the coming years is predicted to be even more competitive and aggressive with launch of new technology. (**Haq,**

2017)inspected the effect of Reliance JIO on the Indian telecom industry. This investigation depends on the secondary data and it was discovered that Airtel has reported its greatest value cut of 1 GB of information has tumbled from around Rs 190 to Rs 125, With this move, Airtel is currently the second least expensive 4G administrator in India after Reliance Jio, Also to be in the aggressive market, No. 3 telco Idea Cellular cut successful information rates by presenting to 45% more information benefits for its prepaid clients in India. **(Holla, 2017)** gave qualities, shortcoming, openings and difficulties are to be looked by Reliance Jio. In 83 days Reliance Jio crossed 50 million subscriber mark while Airtel took 12 years to get 50 million subscribers milestone, Vodafone and Idea took 13 years each. This is coming about into gigantic misfortunes and diminishing productivity of the operators in India. The telecom part however confronting needs legitimate foundation, which has grabbed its development to just 2G and 3G organize organizations while advancements in the LTE space is as yet overdue.

(Kalyani, 2016) likely discovered the impact and think about the Jio offer and what are the duties made by the contenders like Airtel, Vodafone, BSNL, what is the propelling technique picked by the Reliance Jio to get the market and what could be the conceivable impact could be seen after the dispatch of Reliance Jio. She also talked about bona fide improvements in the current past in telecom division, Product systems, Pricing techniques, Place philosophy, Promotion strategies, Service related and Marketing structures got a handle on by Reliance jio. The Reliance JIO influence has set the world record for having JIO relationship in restricted capacity to focus day and age, Indian circumstance is the cost responsive circumstance where individuals move appropriate on time with one seller then onto the accompanying for little refinement of total, here Reliance JIO is giving "

free voice and data " till 31st Dec, 2016 it is an essential plunder offer for clients.

(Arulkemilas & Esakkiammal, 2016)aims to know the different applications of Jio, and to study the business strategy of RJIO. She founded that Jio is a thing other than a trade and also assured to improve the existence of every Indian said by Mukesh Ambani. Jio has acknowledged for Digital India dream. **(P. Sharma, 2017)**investigated the effect of different JIO administrations i.e. jio cash, 4G information administrations, Wi-Fi hotspots and etc. The present market incline show that the dependence will going to hamper alternate organizations to greater extent.

(Dholakiya, 2017) discovered that the primary purpose is to position itself to get solid base of subscribers, the RJIO"s value base market impact - Myth or Reality, to advertise correspondence system that contenders need to execute. It was discovered that it might be conceivable in up and coming brief time traverse buyers may go over heap of declarations of other specialist organizations on bring down the price.

(Mahalaxmi & Suresh, 2017)examined to distinguish the components which make the consumers to incline toward the jio service and their fulfillment of satiety level in Trichy district. He attempt to make discoveries that the promotional offers makes the most of the consumers to incline towards the Jio service. Through the market strategy, Reliance jio occupied almost 1/3rd of the market share within the period of 5 months. Also **(Bhosale & Ashwin, 2016)**have endeavored to figure out the changing discernment amongst the buyer, beside the innovative changes in the telecom sector with the entry of Jio scheme. The study is made to know the result of entry of Reliance Jio scheme on customer's mindset in Jalgaon city. The finding says that the most affecting component about Jio plan amid the customer's observation is that, "Free Data and voice calls". As per as customers point of view, Jio

need plans or schemes for controlling boundless monopoly of different organizations in telecom industry" will be the most effective thing in such manner. **(Prasath, N, & Amutha, 2017)** considered promotional strategies and client attitude of RJio, to investigation the purposes behind choosing particular network connection, to discover issues looked by RJio promotions in Coimbatore city, and furthermore to offer recommendations to advance the administrations of RJio in Coimbatore city. She discovered that majority of the respondents are under the class of people utilizing cell phone, suggesting enhance administrations, preferable most economical and friendly packages. **(R, Rajkumar, & Velmurugan, 2017)** distinguished the components which make the clients to incline toward Jio and their fulfillment of satiety level in Coimbatore area. This examination uncovers that, a large portion of the Jio clients are Male and has a place with the age gathering of 20 – 25 years. Major share of the clients are in to Students" people group. Greater part of the clients spends through Rs.100 – Rs.300 on versatile every month on a normal premise.

(Geetha, 2017) made an exertion to look at the adequacy of customer acquisition strategies utilized by RIL (Reliance Industries Ltd) in securing and holding customer dedication even with regards to withdrawal of free service offers. An endeavor is likewise made to outline impression of customers by virtue of free offer withdrawal. She focused on investigate the current customer readiness to proceed with Jio Sim post - withdrawal of free offers. **(Boobalan & Jayaraman, 2017)** intends to think about the awareness and satisfaction level of the customers towards Reliance Jio sim, to discover the components and reasons affecting the clients to purchase the Reliance Jio sim, and furthermore to give assessment about the Reliance Jio administrations. The findings were 41.02% of the respondents are feeling satisfied. 44.66% of the respondents are completely aware of Reliance Jio.

Majority of the respondents go under boundless information administration to 30.56%. The vast majority of the respondents feel network coverage to 53.20%. (S. Singh, 2017) aims to know the perception, consumer attitudes, and consumer loyalty about Jio network. It recommends that out of 200 sample size of clients, 168 clients are happy with Reliance Jio administrations and 32 clients are disappointed. Further, it was recognized that nine components are the premise of strong client towards Reliance Jio. The utilization of Jio for Internet use is high. Jio has given most extreme utility to their clients as rapid wifi, economy, responsiveness, and innovation.

DATA

The method of data collection is secondary. The stock prices of Reliance industries and telecom service sector has been collected from BSE official website and data for financial performance has been collected from annual report of Reliance Industries Limited for 3 years (2015-16, 2016-17, 2017-18) and TRAI annual report, various financial charts and ratio has been collected from moneycontrol.com.

METHODOLOGY

This research paper is quantitative in nature. The impact has been shown with the help of stock prices of Reliance Industries with Telecom services sector by running a Granger Causality test in E-views.

Stationarity of data has been established by taking "dlog" values for each stock price. In Unit root test,

Augmented Dickey-Fuller test has been applied to check the stationarity of the data

Granger Causality is a statistical tool which helps in determines the causality between two variables based on forecast. In this paper simple granger causality is applied where two variables are tested with lags. The two variables i.e. Reliance Industry stock price return and Telecom sector stock price return are being tested at 1st difference where the data is stationary in E-Views.

Variance Decomposition has been performed to know the impact in detail. Variance Decomposition facilitates to decide the amount of the fluctuation in dependent variable is slacked by its own difference. Furthermore, it demonstrates to which of the autonomous factors is "more grounded" in clarifying the fluctuation in the dependent factors after some time.

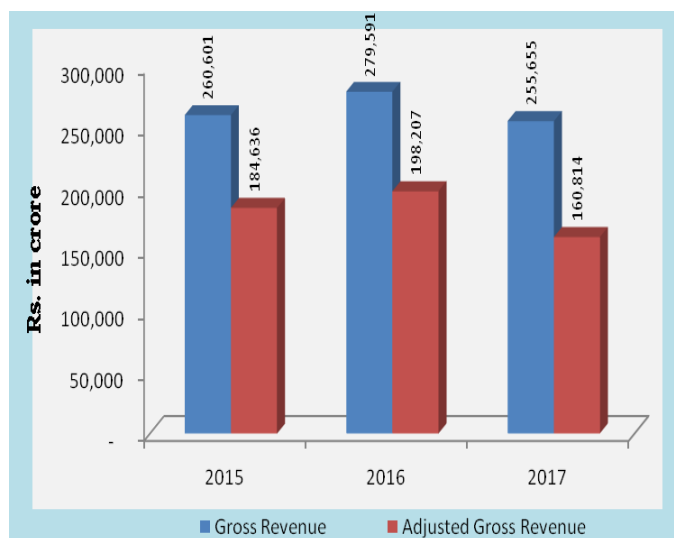
Impulse Response has been done to know the responses of stock prices of Reliance Industries and telecom sector against each other.

An Impulse Response is the reaction of any powerful framework in light of some outer change. In the two cases, the Impulse Response depicts the response of the framework as a component of time.

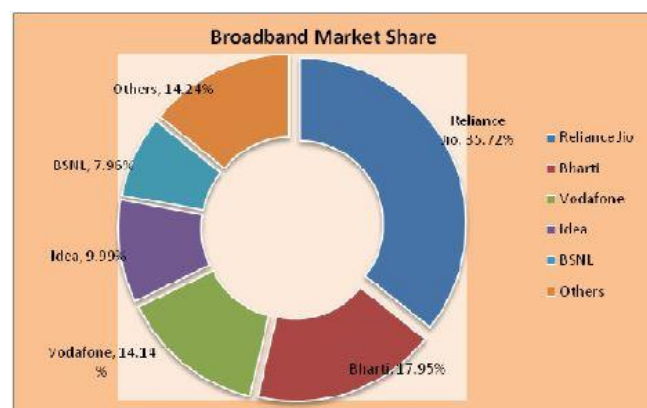
PERFORMANCE ANALYSIS

Comparison of Gross Revenue and Adjusted Gross Revenue

From the above graph, financial performance of telecom sector is shown in terms of Gross and Adjusted gross revenue. It has been observed that from the year 2015 to 2016 the gross revenue has been increased by 7.29% and adjusted gross revenue has been increased by 7.35%. Whereas from the year 2016 to 2017 the gross revenue has been decreased by 8.56% and adjusted gross revenue by 18.87%.

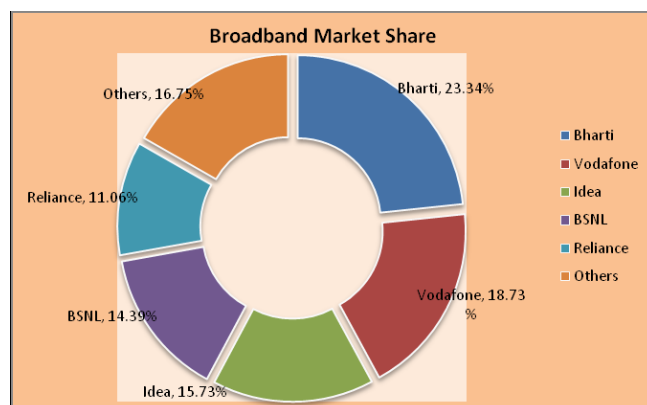


Service Provider-wise Market Share of Broadband (wired+wireless) Services as on 31.01.2017



Source: (Press Release No. 33/2017)
Telecom regulatory authority of india
New Delhi, 28th April, 2017

Service Provider-wise Market Share of Broadband (wired+wireless) Services as on 31.01.2016



Source:-

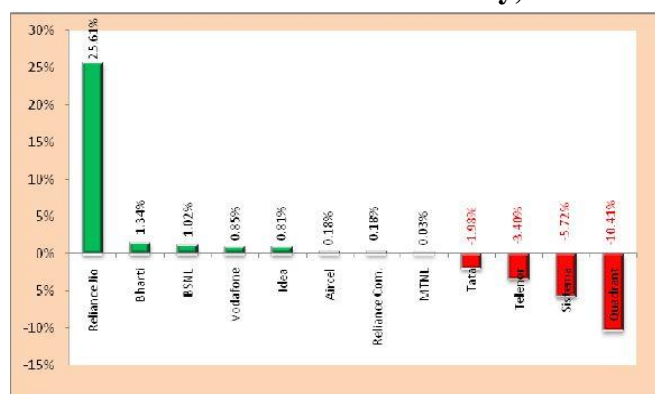
(Press Release No. 22/2016) Telecom regulatory authority of india New Delhi, 23rd March, 2016
(www.trai.gov.in)

As on 31st January 2017, i.e 4 months after the launch of Reliance Jio it acquired 35.72% of market share of broadband i.e for both wired and wireless services in comparison to other top operating companies in telecom sector. The major players like Bharti Airtel, Vodafone, Idea, BSNL, etc lose a significant portion of market share due to entrance of Reliance Jio in the market.

The market share of the companies reduced:-

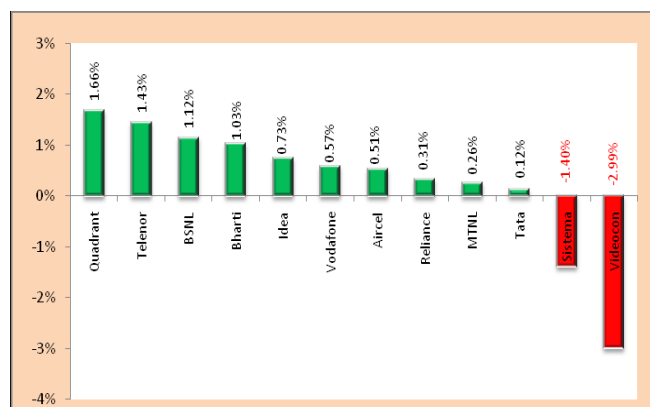
Bharti Airtel- 23.34% to 17.95%, Vodafone - 18.73% to 14.14%, Idea – 15.73% to 9.99%, BSNL- 14.39% to 7.96%, Others- 16.75% to 14.2%.

Subscribers in the Month of January, 2017



Source: (Press Release No. 33/2017)
Telecom regulatory authority of india
New Delhi, 28th April, 2017

Access Service Provider-wise Monthly Growth Rate of Wireless Subscriber base in the Month of January, 2016



Source:-

(Press Release No. 22/2016)
Telecom regulatory authority of india
New Delhi, 23rd March, 2016
(www.trai.gov.in)

Upto the month of January 2017, Reliance Jio was successfully able to acquire 25.61% growth rate of wireless subscribers for access service. Bharti Airtel, BSNL, Vodafone, Idea, Airtel, Reliance com., MTNL followed the same with 1.34%, 1.02%, 0.85%, 0.81%, 0.18%, 0.03% respectively. The topmost operator Quadrant whose growth rate was +1.66% (highest among all in the Jan 2016) experience a drastic setback of growth rate - 10.41% in 1 year. Whereas Tata, Telenor, Sistema, growth rate were negative in 2017. Videocon was not in the picture.

It can be seen all other operator were affected by the entrance of Reliance Jio in some ways.



Revenue (₹ crore)



Source: Reliance Industries Ltd. Integrated annual report 2016-17



Source: moneycontrol.com

Figure 1 depicts EBIT, PBT and PAT of Reliance Industries for the year 2012-2017, there is a slow growth of EBIT, PBT and PAT from the year 2013-2015. But there is a hike in growth of these variables in 2016 and 2017. During 2016, EBIT

almost touched Rs.48000crore and in the subsequent year 2017 EBIT crossed the same.

Figure 2 depicts Revenue of Reliance Industries for the year 2012-17, from the year 2013-2014 the revenue of the company has been in a declining phase which rose in the year 2016-17 at the growth rate of 12.6%.

Figure 3 depicts Operating profit of Reliance Industries for the year 2012-17, the operating profit is increasing at a slow rate from the year 2012-15. Thereon the operating profit boosted and touched Rs.40000crore and crossed the same in the year 2016-17.

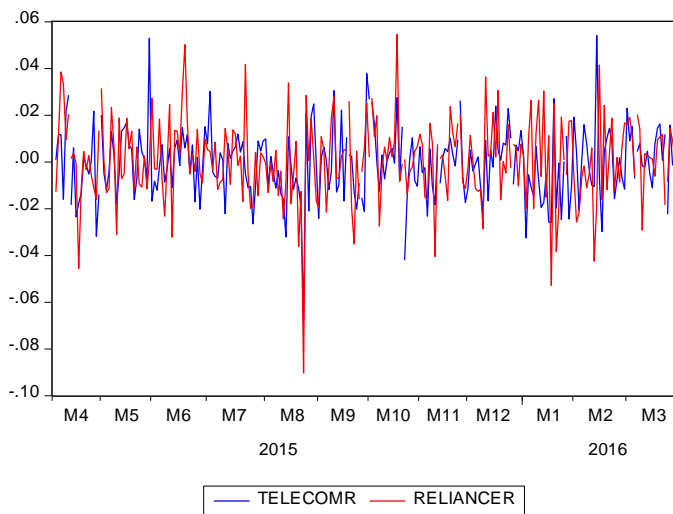
DATA ANALYSIS AND INTERPRETATION 2015-16

Figure 1.1: Granger causality

Pairwise Granger Causality Tests
Date: 05/04/18 Time: 11:54
Sample: 4/01/2015 3/31/2016
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
RELIANCER does not Granger Cause TELECOMR	244	4.55559	0.0114
TELECOMR does not Granger Cause RELIANCER		1.07704	0.3422

In the above table shown in the figure 1.1 we can infer that, for the year 2015-16 Granger Causality has been done to demonstrate the causality of Reliance industries stock price return on telecom sector and vice versa. Here we can see that p value of first null hypothesis is 0.0114 which is less than 0.05, so by rejecting null hypothesis we can state that the Reliance stock price returns is causing telecom stock value return. Where in, for the second null hypothesis p value is 0.3422 which is in more than 0.05 hence we accept null hypothesis, There is one way causality.

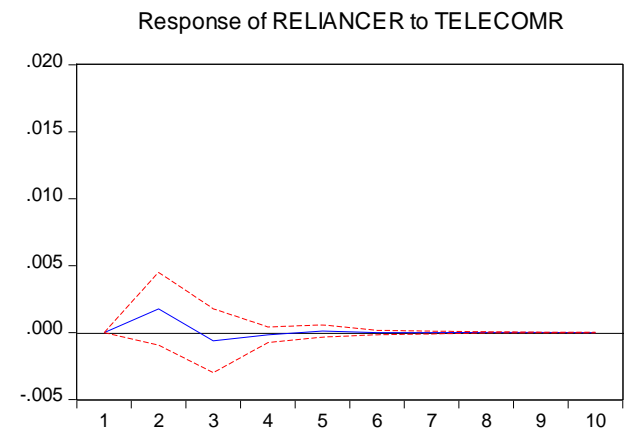


From the above graph, it can be surmised that the pattern of stock value returns of Telecom area and Reliance Industry is moving together. At the point when the stock returns of Reliance is rising the stock returns of telecom is rising likewise though when the stock return of Reliance is declining the stock returns of telecom is also diminishing as well.

Figure 1.2 Impulse Response

Response to Nonfactorized One S.D. Innovations ± 2 S.E.

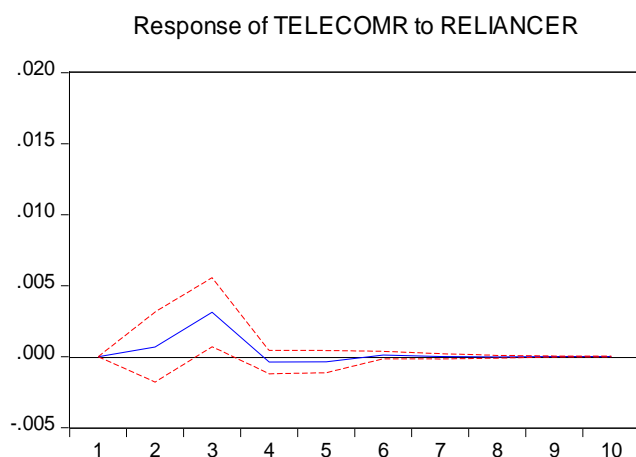
Response to Nonfactorized One S.D. Innovations ± 2 S.E.



Impulse response refers to response of one variable to a change in another variable.

From the figure 1.2, for the year 2015-16, the left one represents the impulse response of Telecom return to Reliance stock value return. At the point when the impulse is Reliance stock value return, the reaction of Telecom return is certain at beginning period for 3 days, then the reaction began to end up negative on the 4th day, later the value vary around the line zero and blurs off.

The right one represents to the impulse reaction of Reliance stock value return to Telecom returns. At the point when the impulse is Telecom return, the reaction of Reliance stock value return has not much fluctuation, it has positive reaction in initial 2 days and falls negative from the 3rd day and later on blurs away.



2016-2017

Figure 2.1: Granger Casuality

Pairwise Granger Causality Tests

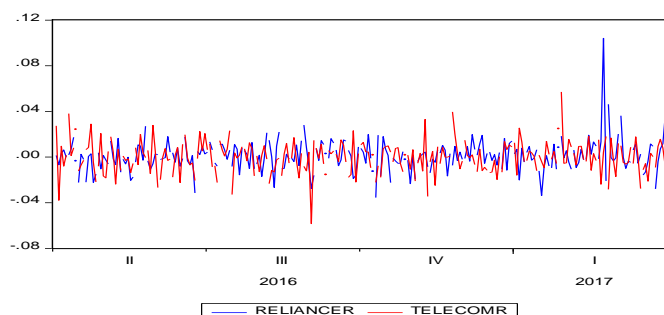
Date: 05/04/18 Time: 11:56

Sample: 4/01/2016 3/31/2017

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
TELECOMR does not Granger Cause RELIANCE	245	0.81418	0.4442
RELIANCE does not Granger Cause TELECOMR		3.05174	0.0491

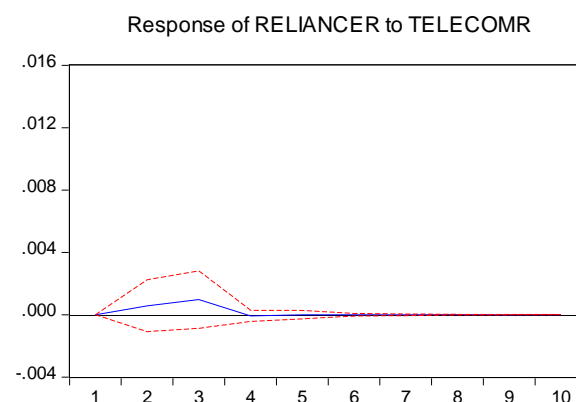
In the above table shown in the figure 2.1 for the year 2016-17 granger causality has been done to show the causality of reliance industries stock price return on telecom sector and vice versa. Here we can see that p value of first null hypothesis is 0.4442 which is more than 0.05, so accepting null hypothesis we can say that the telecom sector stock price returns is not causing reliance stock price return whereas reliance stock price return is causing telecom sector stock price return as the p-value of 2nd null hypothesis is 0.0491 (less than 0.05) lead to one way causality once again.



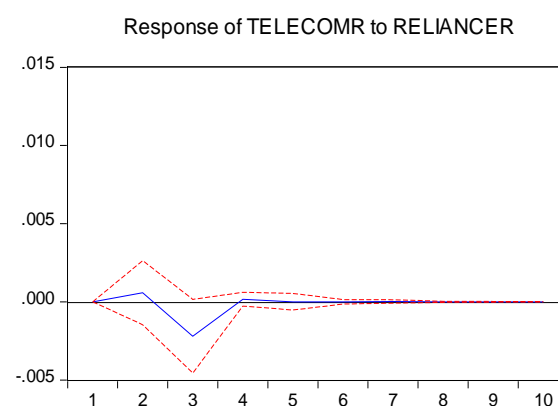
From the above graph, it can be inferred that reliance and telecom stock return is at intercept throughout but in the 3rd quarter the telecom sector return got decline and return back again whereas reliance stock return has been on increase. Later on in the 1st quarter of 2017 the reliance stock return has drastically increased leaving behind no significant influence on telecom sector.

Figure 2.2 Impulse Response

Response to Nonfactorized One S.D. Innovations ± 2 S.E.



Response to Nonfactorized One S.D. Innovations ± 2 S.E.



From the figure 2.2, for the year 2016-17, the left one is the impulse response of Reliance stock price return to Telecom returns. When the impulse is Telecom stock returns, the response of Reliance stock price return has positively impacted for the first 4 days and later on falls back to the zero line and the response got vanished.

The right one is the impulse response of Telecom return to Reliance stock price return. When the impulse is Reliance stock price return, the response of Telecom return is almost negligible for 2 days, started falling on the same day becomes negative on 3rd day, the value fluctuate around the line zero on the 4th day and the response got neutralized later on.

2017-18

Figure 3.1: Granger Causality

Pairwise Granger Causality Tests

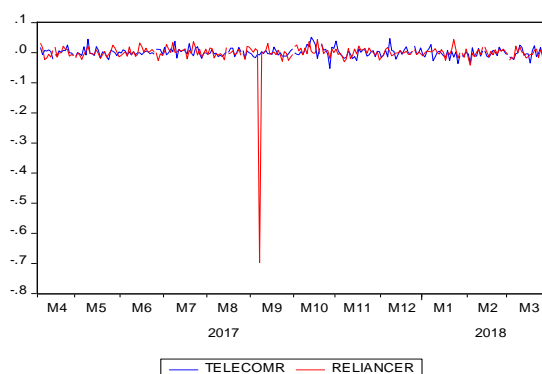
Date: 05/04/18 Time: 11:58

Sample: 4/03/2017 3/28/2018

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
RELIANCER does not Granger Cause TELECOMR	243	0.22677	0.7973
TELECOMR does not Granger Cause RELIANCER		0.92379	0.3984

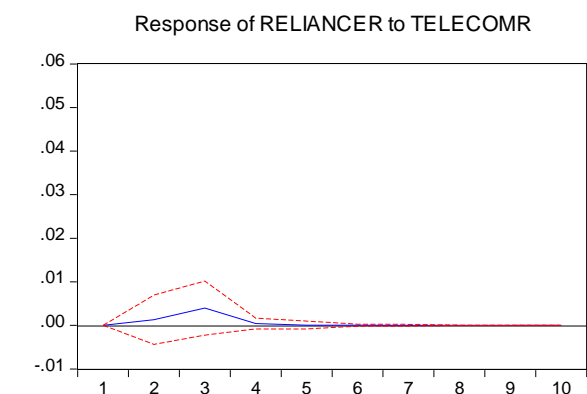
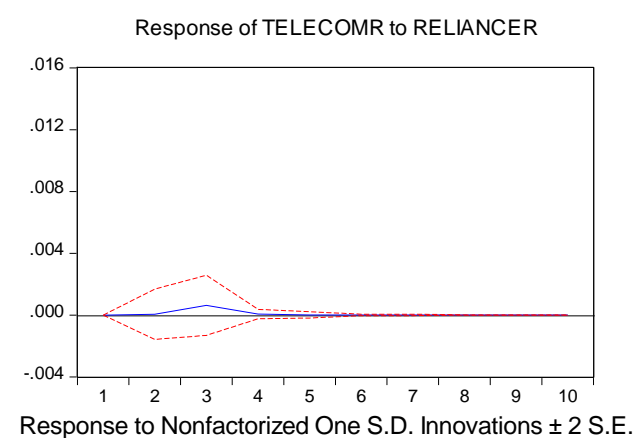
In the above table shown in the figure 3.1 for the year 2017-18 granger causality has been done to show the causality of reliance industries stock price return on telecom sector and vice versa. Here we can see that p value of first null hypothesis is 0.7973 (more than 0.05), wherein in the second null hypothesis the p value is 0.3984 (more than 0.05), so accepting both the null hypothesis, we can say that the reliance stock price return is not causing telecom stock price return and vice versa.



From the above graph, it can be inferred that reliance and telecom stock return is moving together except in the month of September there is a drastic fall in the reliance stock return which again bounces back to normal and following the same trend as before leaving no impact on telecom sector.

Figure 2.2 Impulse Response

Response to Nonfactorized One S.D. Innovations ± 2 S.E.



From the figure 3.2, for the year 2017-2018, the left most is the impulse response of Telecom return to Reliance stock price return. When the impulse is Reliance stock price return, the response of Telecom return is almost negligible for 2 days, become maximum on the 3rd day and started falling on the same day, return back to value zero on the 4th day and later on response fades away.

The right most is the impulse response of Reliance stock price return to Telecom returns. When the impulse is Telecom stock returns, the response of

Reliance stock price has positive impact initially from the 1st day ,becomes maximum on 3rd day ,started falling off on the same day till the 4th day when it becomes zero and response continued to disappear.

VARIANCE DECOMPOSITION

		TELECOMR (%)	RELIANCER (%)
2015-16	TELECOMR	97.05446	2.9455409
	RELIANCER	6.9301644	93.069836
2016-17	TELECOMR	99.471377	0.5286238
	RELIANCER	19.031828	80.968172
2017-18	TELECOMR	99.847085	0.1529134
	RELIANCER	2.0343837	97.965615

The above table represents variance decomposition of both Reliance Industries and Telecom stock price returns. Variance decomposition has been done to know the variance from its own as well as external changes shocks in the stock market.

In the year 2015-16, Telecom service sector return has largely got influenced by its own shocks i.e. 97% and only 2.94% it is influencing Reliance returns. On the other hand Reliance got majorly influenced by its own shock i.e. 93.06% and 6.93% it is transmitted to telecom sector stock return.

In the year 2016-17, the telecom service stock return is majorly influenced by its own shocks to an amount of 99.47% and rest 0.52% is transmitting to reliance stock return. Whereas Reliance return is influencing telecom return to an extent of 19.03% which got increased in comparison to previous year and reliance getting influenced by itself has been reduced to 80.96%. It can be attributed that due to acquisition of greater part of market capitalization by Reliance Jio, Telecom sector is highly influenced than before.

In the year 2017-18, Telecom service sector return is largely influenced by its own shocks to an amount of 99.84% and slightly influencing reliance

stock return by 0.15%, Whereas Reliance stock return also has been mostly affected by its own shock to an amount of 97.96% and only 2.03% influencing telecom sector.

Altogether, telecom stock return is mostly affected by Reliance in the year 2016-17 whereas it got least influence in 2017-18. But Reliance being a strong market player is largely influenced by its own stock movement.

CONCLUSION

Indian telecom industry is experiencing an adjustment in consummation, before there is rivalry in regards to less expensive rates of voice calls and staying yet now the battle is moved over data packs, quickest speed, most recent innovation and less expensive rates. Reliance Jio's extraordinary laissez faire approach, reflected in extensive capital effective utilisation, enormously affects the industry. This study was conducted by applying granger causality, impulse response, and variance decomposition to know the presence of impact of Reliance jio on Telecom industry. The result of the analysis support the presence of impact in 2016-17, the period in which Jio was launched. The impact stretched for the period when the services were offered free and it got reduced once the freebie offers withdrawn. Some of the observations were: gross revenue of telecom sector experienced a hike in 2016-17, Reliance Jio covered 35.72% of market share reducing the share of other operators like Airtel, Vodafone, Idea. There was a drastic growth rate of 25.61% within 5 months. It has not only impacted the telecom sector but its parent company Reliance Industries also by enhancing the profit in terms of EBIT, PAT, PBT, Operating profit and Revenue.

	2015-16	2016-17	2017-18
Granger Causality	Impact has been found by	Reliance Industry has a	Neither Reliance Industries

	Reliance Industries on Telecom sector	granger cause on Telecom sector	nor Telecom sector has an impact on each other
Impulse Response	Positive response of both on each other. Impact lasted upto 3-4 days.	Positive response of Reliance to Telecom, negative response of Telecom to Reliance	Negligible response of Telecom sector to Reliance, some amount of positive response of Reliance to Telecom sector.
Variance Decomposition	Only 2.94% of telecom sector is influenced by Reliance and 6.93% of Reliance is influenced by Telecom Sector	0.52% of Reliance is getting influenced by Telecom sector and 19.03% of Telecom sector is influence by Reliance.	0.15% of Reliance is getting influence by Telecom sector, the influence of Reliance on Telecom sector reduced to 2.03%

It can be concluded that the Reliance jio has a short term impact on Telecom sector which later ceased to exist in 2017-18, even though the stock price return of Reliance dropped down drastically has no significant effect on Telecom sector.

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