



## International Journal of Economic Research

ISSN : 0972-9380

available at <http://www.serialsjournal.com>

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Volume 14 • Number 8 • 2017

### “Jio” Mere Lal: Disruption in the Indian Telecom Sector

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**Abstract:** Markets today have become extremely competitive. New players are increasingly entering the market and endeavouring to catch a share of the pie and make their presence felt with new and innovative strategies. On the other hand, consumerism and a desire for efficient services at affordable prices are tempting customers to switch loyalties. Researchers have been depending on event studies to gauge the impact of an unanticipated event and news on existing players. However such studies mostly relate to mergers and acquisition announcements, CEO turnover or news related to death of a CEO. The present study aims to investigate the impact of the entry of a new player on the performance of three existing players in the Indian telecommunication landscape by utilising the event study methodology. The study illustrates that the entry of a new player does not have a significant negative impact on the performance of the incumbents.

**Keywords:** Event Study, Unanticipated news, New player, Telecommunication, Performance.

#### INTRODUCTION

The Indian telecommunication market has witnessed a phenomenal growth in the past decade. According to India Brand Equity Foundation (IBEF, 2017) report, as of September 2016, the telecom industry in India was ranked as the second largest telecommunication market with a subscriber base of 1074.23 million and 3rd in terms of total internet users with 367.48 million internet subscribers. This momentous progression can be attributed to the proactive policies of the present government with regards to fair and transparent regulatory set up, ease of access to telecom equipment and deregulation of the FDI norms. The growing consumer demand on account of rising incomes and availability of telecom services at affordable prices have also acted as a catalyst to the growth of the sector.

The major players in the segment include Bharti Airtel, Vodafone, Idea, Reliance Communications and BSNL, to name a few. As of October 2016, Bharti Airtel was the market leader, with a 24.32% share in the wireless subscription, followed by Vodafone with 18.72% share, Idea 17.17%, BSNL 8.8% and Aircel 7.9%. Together the top five players accounted for 77.39% of the wireless subscribers in the country.

Under the broadband market, both wired and wireless, as of October 2016, Bharti Airtel accounted for the largest share of 22.05 per cent followed by Vodafone which accounted for the 2nd largest share of 18.40 per cent (IBEF, 2017).

The landscape of the sector changed in September 2016 when the Chairman of Reliance Industries Ltd. Mr. Mukesh Ambani announced the entry of Reliance Jio. Reliance Jio is Reliance Industries fourth generation wireless broadband service with 4<sup>th</sup> generation Long term evolution (LTE) service that entails significant data speed. Reliance Jio Infocomm Ltd (RJIL) a wholly owned subsidiary of Reliance Industries Ltd swept the market off its feet with its disruptive strategies and services. It announced free voice calls and free roaming for its customers till December 2016 and also announced the lowest fares on data at Rs 50 per GB and 5 paise per MB. The attractions also included the introduction of 4G devices from Rs 2,999, cheap data plans, and unlimited night-time 4G connection. As a conduit to the Indian Prime minister's Digital India campaign, Mukesh Ambani voiced,

“Supply of oxygen for digital life should be affordable. Data is oxygen for digital life,” said Ambani, and added: “Reliance Jio’s goal is to take our nation from data shortage to data abundance. It is an entire ecosystem that’ll allow Indians to live the digital life to the fullest.” (www.hindustan times.com)

With its entry Jio captured a market share of 19.50% between October and December 2016, under wireless internet subscription base, bringing down the share of the existing players (TRAI report October-December 2016).

While the retail customers hastily tried to adopt Jio as their second SIM, the incumbent operators were shocked and were fretful of the loss in customers and revenues. Though they were aware of Jio’s entry, they were caught unawares of the bouquet of services and competitive tariff plans that were unveiled.

Fear of losing hold on the market, major players like Airtel and Idea started slashing tariffs to allure and retain the existing customers. According to Telecom Regulatory Authority of India (TRAI), by December

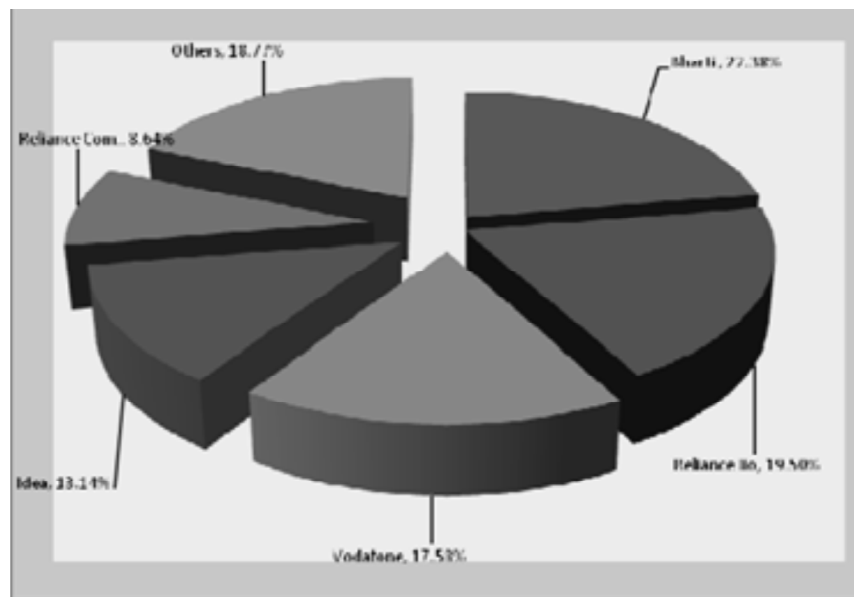


Figure 1: Wireless internet subscription

Source: TRAI Telecom Services Performance Indicator Report December, 2016.

2016, Jio had acquired one-third market share of the broadband service providers. On the other hand players like Airtel (which was the market leader in wireless broadband) and Vodafone witnessed a fall of 3% and 3.6% decline in market share over October 2016. To add on to the miseries of the incumbents, Jio which was to charge for its services from 1<sup>st</sup> April 2017 extended its offer to buy various plans till 15<sup>th</sup> April 2017. Any customer availing the same would continue to enjoy Jio's free services till June 2017.

Against this background, the present study aims to investigate the impact of announcement of launch of Jio on the performance of stocks of Airtel, Idea and Reliance Communications (RCom)

## LITERATURE REVIEW

Event studies typically have focused upon the impact of unanticipated announcements and events on share returns and have assumed that equity markets are relatively efficient Koch and Fenili (2013). To provide some insights into how equities market reacts to new information, financial economists conduct event studies. These studies study the impact of events on company valuations through a proxy in the form of stock prices. Event studies are applicable both at the micro level: firm specific and at the macro level: economy specific.

Unexpected events can change the stock prices of a firm by changing the profit potential or riskiness of that firm. Event studies offer insights into issues as events like how bad news affects bank's stock returns. Unexpected events can change the stock prices of a firm by changing the profit potential or riskiness of that firm, Schweitzer (1989). Event studies rely upon a factual-counterfactual model that takes the firm's actual stock price return after a specific event and compares it with a counterfactual share price return that assumes the event never took place. The difference between the actual return and the counterfactual return is an "abnormal return". Koch and Fenili (2013).

A number of event studies have been conducted which range across the domains of finance, economics and marketing. There have been studies which have studied the impact on share returns of announcements such as corporate earnings, dividend declaration, stock splits and mergers and acquisitions. There have also been other studies that have analysed product recalls and failures, executive compensation and regulatory mechanisms to name a few. Bowman (1983), Armitage (1995), MacKinlay (1997), McWilliams and Siegel (1997), Binder (1998), and Johnston (2007) have catalogued many of these studies and also have examined some of the theoretical and empirical issues that arise when one performs such studies.

Trifts and Scanlon (1987) investigated analysed the effect of interstate bank mergers on banks' stock returns and found that the target banks experienced significant positive abnormal gains. Similarly, Jensen *et al.* (1983) event analysis reveals that the shareholders of targeted firms gain substantial and statistically significant, positive abnormal returns of almost 30 percentage points. In the case of unsuccessful merger attempts, shareholders of targeted firms gained some positive returns when the merger was initially announced, but lost these gains when it became certain that the merger would not go through.

Chaturvedula and Kamaiah (2008) studied the impact of derivatives on the returns of spot segment using event study methodology suggested by FFJR in 1969 and observed statistically significant positive abnormal returns around the listing announcement dates on NSE. Chen *et al.* (2013) tested the impact of inclusion announcement of stocks having options with those not having options trading. They found that Inclusion of stocks in index with option listings generates larger abnormal returns than the announcement

of inclusion of stocks without options trading. Tuli and Shukla (2015) analyzed the impact of private placement information. They found that markets under reacted to the 21 and 11 day event periods and reacted immediately to 3 day period. Laxmi and Joshi (2016) studied the effects of listing of the stocks on Futures and Options (F&O) segment of NSE on their spot market values. They found positive response after the event day for the futures' segment and insignificant response for the Option's segment.

Chance and Ferris (1987) examined the impact of 46 airplane crashes on the returns to the carrier involved in the crash as well as to other carriers. They found that the carriers involved in an airplane crash lost, on average, 1.2 per cent of their market cap one trading day after the crash. Carvalho *et al.* (2011) analysed the impact of an incorrect news about a prospective bankruptcy declaration by United Airlines in 2008. It was found that United's share price dropped by 76 per cent after the false announcement and was down more than 11 per cent even after the erroneous nature of the information was revealed. In another study, Swary (1986) investigated the market's reaction in 1984 to the bad-news that Continental Illinois National Bank was in financial distress. This event study, conducted on a consortium of large banks, found significant negative abnormal returns (approximately 3 percentage points) following the news of Continental's distress.

Worrell *et al.* (1986) studied the impact of a sudden death of a company's CEO (including CEOs-only and CEOs-Chairmen) and found that the event had a negative impact on firm's value. Similarly, Johnson *et al.* (1985) conducted an event study of 47 unexpected deaths of founding senior executives (Chairmen, CEOs or Presidents) and found positive abnormal returns followed the deaths of these executives. However, Koch *et al.* (2011) found that fake Internet blog news that Steve Jobs had suffered a heart attack did not have a statistically significant impact on Apple's share price. They did, however, find that by the end of the event period, the counterfactual price was lower than the actual price.

Another set of studies analysed the impact of CEO turnovers. These depict that all types of changes in executive leadership result (on average) in equity volatility increases. Furtado and Karan (1990) illustrated 10 studies that estimate and evaluate the effect of CEO changes. They found that abnormal returns around the announcement were typically 25 to 50 basis points for all changes. Berkovitch and Israel (1996) as well as Grinstein (2000) assume that volatility increases following managerial change. The most significant increase is associated with forced turnover. Forced turnovers increase volatility more than voluntary turnovers - a finding consistent with the view that forced departures imply a higher probability of large strategy changes accompanied by uncertainty about the future direction of the company Rosenberg et al (2003). In contrast, Dewatripont and Tirole (1994) assume that volatility decreases following turnover.

Researchers like Borah and Tellis (2014) conducted event studies to investigate the impact of the announcement of new products. They found that investors exhibit a positive response to the announcement on making new products and reacted negatively when the decision involved buying the product from other firms. Gielens *et al.* (2008) studied the entry of a large competitor in the market. Considering the announcement of Walmart's entry in to the UK market as an event, Gielens established that the event led to a fall in the stock prices of European retailers.

Baring a few studies, the literature related to the entry of a new player is limited and sparsely researched. The present study is thus an attempt to throw light on the impact of the entry of a new player in the Indian telecom landscape thereby contributing significantly to the existing literature.

## OBJECTIVE AND METHODOLOGY

The objective of the study is to understand whether the entry of Reliance Jio exerted a downward pressure on the stock returns of Airtel, Idea and Reliance Communications.

Event Study Methodology: The researcher has used the Event Study methodology to analyse the objective. Event study tries to evaluate the extent to which investors earn abnormal returns or incur abnormal losses due to an unanticipated event. The underpinning of event studies is that the markets are efficient. The semi-strong form of market efficiency posits that the all publicly available information is reflected in the current stock prices and that the market reacts immediately to any new piece of information. The investors form expectations regarding the future based on the event and these expectations are reflected through the sale or purchase of the stocks.

An event study considers a stocks actual return after a particular event and compares it to a counterfactual return that assumes that the event never took place. The difference between the actual and assumed return is the abnormal return or loss. If the number of trading days post event taken are more than one, Daily Abnormal Returns (DARs) for each of the days are computed, followed by the Cumulative Abnormal Returns (CARs) which are the accumulation of DARs of the days post the event. This post event time period is generally of a short span as it should be free of any contamination by other events or factors. The researcher has used the market model to obtain the estimated/counterfactual return. Actual returns are calculated by the formula  $\ln(P_t/P_{t-1})$  which represents the continuous compounded daily returns in the stock price between  $P_{t-1}$  and  $P_t$ . The estimated return is expressed as a linear function of the benchmark return, usually represented by an index. Using the regression equation  $R_t = \alpha + \beta R_{mt} + \varepsilon_t$  for estimation period (time period before the event date), the values of  $\alpha$  and  $\beta$  are calculated. These are then used to calculate the DARs in the event period by using the formula:

$$DAR_g = R_g - (\alpha + \beta R_{mg})$$

Where,

$\alpha$  and  $\beta$  are the coefficients obtained from the regression equation,

$g$  is the particular day of the event and following the event date.

This is followed by comparing the actual prices of the stocks during the event period with the prices that would have existed had the event not taken place. The predicted prices are calculated by dividing the actual closing prices of the stocks on a particular event day by the antilog of the abnormal returns on that day.

## DATA FOR THE STUDY

The data incorporated the closing prices of the 3 stocks: Airtel, Idea and Reliance Communications (RCom) along with the closing prices of the benchmark which in this case was the NIFTY 50. The information was sourced from Yahoo Finance.

The event window consisted of the time period from 1<sup>st</sup> September 2016 to 15<sup>th</sup> September 2016, 1<sup>st</sup> September being the event date. An estimation period prior to the event date (1<sup>st</sup> August 2016 to 31<sup>st</sup> August) was also taken.

## ANALYSIS AND FINDINGS

Table 1 indicates the association between the Nifty 50 and the daily stock returns of the mobile operators. The slope - Beta values for Idea Cellular and RCom depicts co movements with the benchmark index. Airtel however depicts an inverse relationship with the Index. Volatility as reflected through the beta values is observed higher for both Idea and RCom and low and inverse for Airtel. This further implies that Airtel was not affected to a great extent on account of the announcement. The relationship is further explored in the following discussion.

**Table 1**  
***a* and *b* values for the stocks during the estimation period**

<i>Variable/ Stock</i>	<i>AIRTEL</i>	<i>IDEA</i>	<i>RCOM</i>
Intercept ( $\alpha$ )	-0.00178	-0.00238	0.00033
X-Variable ( $\beta$ )	-0.16923	0.81918	1.33771

An analysis of Nifty returns was also undertaken to estimate whether the market experienced any volatility during the period prior to the event. It was observed that the Nifty benchmark index was reasonably stable during the event period as shown in table 2. To eliminate market anomalies log returns were considered and exogenous variables were assumed to be constant during the event period.

**Table 2**  
**Nifty returns during event period**

<i>Date</i>	<i>Closing Prices</i>	<i>Returns</i>	<i>Log Returns</i>
01-09-2016	8774.65	0.99869	-0.00057
02-09-2016	8809.65	1.00399	0.00173
06-09-2016	8943	1.01514	0.00652
07-09-2016	8917.95	0.99720	-0.00122
08-09-2016	8952.5	1.00387	0.00168
09-09-2016	8866.7	0.99042	-0.00418
12-09-2016	8715.6	0.98296	-0.00746
14-09-2016	8726.6	1.00126	0.00055
15-09-2016	8742.55	1.00183	0.00079

Daily abnormal returns were estimated for the three operators at the time of the event to examine the significance of the event on the shareholders returns as compared to the benchmark returns. Cumulative Abnormal Return for Airtel scrip was (0.00377), Idea (-0.02053) and RCom (-0.03394), as reflected in table 3, 4 and 5 This indicates that Idea and RCom witnessed negative returns post the event date and Airtel was not affected to a great extent. This further reinforces the findings of Table 1. RCom depicted the highest negative abnormal returns in the period under study.

To check whether the difference in Actual and Estimated price is significant, the researcher applied test of significance. For this t test has been used to check for the significant difference at 95%. It was assumed that there was no difference between the actual closing prices of the security and the estimated closing prices of the security during the event period which lead to the formulation of Null hypothesis,

**Table 3**  
**Airtel daily abnormal returns and expected price during the event period**

<i>Date</i>	<i>Closing Price</i>	<i>Log Returns</i>	<i>Abnormal Returns</i>	<i>Daily Abnormal Returns</i>	<i>Antilog DAR</i>	<i>Expected Price</i>	<i>Difference</i>
01-09-2016	310.85	-0.0281	-0.00168	-0.02645	0.973901	319.1803	-8.33034
02-09-2016	318.9	0.0111	-0.00207	0.013176	1.013263	314.7257	4.17433
06-09-2016	321.5	0.0035	-0.00288	0.006411	1.006431	319.4456	2.054422
07-09-2016	320.15	-0.0018	-0.00157	-0.00025	0.999746	320.2312	-0.08121
08-09-2016	324.4	0.0057	-0.00206	0.007792	1.007822	321.8822	2.51775
09-09-2016	322.1	-0.0030	-0.00107	-0.00202	0.997984	322.7506	-0.65061
12-09-2016	318.05	-0.0054	-0.00052	-0.00498	0.995034	319.6374	-1.58739
14-09-2016	319.85	0.00245098	-0.00187	0.004324	1.004333	318.4701	1.379944
15-09-2016	322.7	0.003852618	-0.00191	0.005767	1.005783	320.8444	1.8556
CAR = 0.003773							

**Table 4**  
**Idea daily abnormal returns and expected price during the event period**

<i>Date</i>	<i>Closing Price</i>	<i>Log Returns</i>	<i>Abnormal Returns</i>	<i>Daily Abnormal Returns</i>	<i>Antilog DAR</i>	<i>Expected Price</i>	<i>Difference</i>
01-09-2016	83.65	-0.0481	-0.00285	-0.04527	0.955744	87.523	-3.87345
02-09-2016	84.45	0.0041	-0.00096	0.005097	1.00511	84.020	0.429383
06-09-2016	84.85	0.0020	0.002965	-0.00091	0.999088	84.927	-0.07747
07-09-2016	83.7	-0.0059	-0.00338	-0.00255	0.997455	83.913	-0.21358
08-09-2016	84.5	0.0041	-0.001	0.005136	1.005149	84.067	0.432847
09-09-2016	83.6	-0.0046	-0.00581	0.001156	1.001156	83.503	0.096556
12-09-2016	82.8	-0.0041	-0.00849	0.004319	1.004328	82.443	0.356848
14-09-2016	83.75	0.0049	-0.00193	0.006886	1.006909	83.175	0.574699
15-09-2016	84.5	0.0038	-0.00173	0.005602	1.005618	84.027	0.472065
CAR				-0.02053			

alternatively it was assumed that there existed a considerable difference between the actual and the estimated closing prices.

**H<sub>0</sub>** : There is no difference between the actual closing prices of the security and the estimated closing prices of the security during the event period.

**H<sub>1</sub>** : There is a difference between the actual closing prices of the security and the estimated closing prices of the security during the event period.

Based on the t values for the three stocks, we find that since the t value for all the three stocks of Airtel, Idea and RCom are less than the critical value, the null hypothesis stands accepted (Table 6). The same is also evident from the p values which are more than 0.05.

**Table 5**  
**RCOM daily abnormal returns and expected price during the event period**

<i>Date</i>	<i>Closing Price</i>	<i>Log Returns</i>	<i>Abnormal Returns</i>	<i>Daily Abnormal Returns</i>	<i>Antilog DAR</i>	<i>Expected Price</i>	<i>Difference</i>
01-09-2016	49.1	-0.0409	-0.00053	-0.04038	0.960428	51.123	-2.02302
02-09-2016	49.25	0.0013	0.002543	-0.00122	0.998783	49.310	-0.06002
06-09-2016	49.65	0.0035	0.008958	-0.00544	0.99457	49.921	-0.27108
07-09-2016	49.95	0.0026	-0.0014	0.004016	1.004024	49.749	0.200188
08-09-2016	50.5	0.0047	0.002476	0.002279	1.002282	50.385	0.114982
09-09-2016	50.8	0.0025	-0.00536	0.007937	1.007969	50.398	0.401606
12-09-2016	49.75	-0.0090	-0.00976	0.000685	1.000685	49.715	0.034068
14-09-2016	51.15	0.0120	0.000963	0.01109	1.011152	50.585	0.56411
15-09-2016	49.8	-0.0116	0.001291	-0.01291	0.987176	50.446	-0.64694
			CAR	-0.03394			

**Table 6**  
**Output for T test**

<i>Company</i>	<i>Mean of Actual closing price</i>	<i>Mean of Estimated closing price</i>	<i>t value</i>	<i>p-value</i>
Airtel	319.8333	319.6853	0.098071	0.923094
Idea	83.97778	84.17801	-0.3833	0.706545
RCom.	49.99444	50.18179	-0.63579	0.533901

## DISCUSSION AND MANAGERIAL IMPLICATIONS

The study reveals that an entry of a new competitor in the market may not have an impact on the performance of the existing incumbents. In the case of Jio, the three players taken in the sample: Airtel, Idea and Reliance Communications were not adversely affected by its entry. There has been a fall in the stock prices during the event period; however it is not statistically significant. This could be on account of the fact that players like Airtel enjoyed the largest market share before Jio's entry and also had an enormous base of loyal customers. The other incumbents are also established players. Moreover, most customers had adopted Jio as the second SIM. Since markets are highly competitive, it is imperative for incumbents to be prepared to meet any eventuality in the form of any new products or services introduced by the competitors or any other strategic announcements.

The incumbents affected by the entry of a new player have been proactive and adopted appropriate strategies to communicate with the customers. They continue to instil confidence and trust in the existing customer base thereby influencing customers to hold on to the current providers. Since the incumbents have been in the market for long and understand the markets better, they can venture into domains not covered by the new entrant. Sometimes the entry of a new player may also be positive for the existing incumbents. For instance, the challenges of size and profitability can be countered effectively through merger of two or more providers. The Indian telecommunication sector is witnessing activity on this front



with Idea and Vodafone merger being announced and Airtel's acquisition of Telenor's India business. However, it should not lead to cartelization and prevent healthy competition.

In a country like India, customers are highly deal prone and look for options that give the most without taking much (prices). This is exactly how Jio engaged the customers. However, this lasts only till the deals are on. Post culmination of the offers, customers value quality of service. Jio has been experiencing call drops and network issues and most of the customers continue using their old SIM. A lot also depends on whether the new entrant is a novice or already has an existence in another segment within the same country. Reliance Industries Limited has a significant presence in the country and is acknowledged as company that provides quality products and has an exemplary reputation in the Indian market. Moreover, it understands the Indian market and hence could make a mark for itself in the telecommunications domain as well in a short period of time. The real test of Reliance Jio would however be after July 2017 when it starts charging customers for the services.

Future studies could thus explore the impact of entry of a totally new player. It could also focus on the preparedness of the existing players to counter any unexpected information and news.

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