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Impact of Economic Reforms on Stock Market Behaviour: A Short-Term Perspective

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Abstract

In 2012, the world economy is still showing signs of recovery and moderate growth in its performance. But amidst this, Indian security markets though seemed to be affected by recession, have shown no signs of remorse and have been seen to reach new heights. Between September 3rd - October 4th, Indian stock market indices showed phenomenal Bull Run breaching new heights. Majority of the analysts attribute this uptrend to the recent economic reforms announced by the union government and the steps taken by the RBI following the announcements. This study examines the impact of these announcements on the Indian stock markets. Twelve major indices of Indian stock markets listed on Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) and eight retail sector companies were considered for the study. The study concludes that the Indian stock markets are semi strong efficient and impact of economic reforms and the measures by RBI were found to be not factored in the prices of these indices in the short run.

Key words and Phrases: *Economic Reforms, Liberalization, Recession.*

Introduction

The economic reforms of 1990's led to the growth and progress of the country. This is evident from the phenomenal growth in services, manufacturing, mining and other sectors. Investors were seen to move from traditional fixed deposits to investing in stock markets. Foreign Institutional Investments (FIIs) brought momentum in the primary and secondary markets. In addition, strict regulatory measures brought transparency and security into the system.

Growth and stability are two faces of the same coin. For a stable economy, the concerted efforts of the government, central bank and other regulatory agencies are required in strengthening the expectations as well as achieving supernormal growth. It is generally perceived that stock markets are weak form efficient and semi strong efficient. Any news is factored into the prices reflecting market efficiency. This is an indication of transparency and safety of the stock market. The Indian stock markets (Bombay Stock Exchange (BSE) and National Stock Exchange (NSE)) recently witnessed

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phenomenal growth during September 3rd- October 4th, 2012. The market indices listed on Bombay in particular showed phenomenal uptrend during this short period of time. The trading activity of FIIs also reached new heights during this period. These recent trends can be attributed to the collective efforts by Indian government in the form of economic reforms as well as Reserve Bank of India's (RBI) initiatives to boost liquidity into the economy. Against this background, this paper attempts to examine the principles of semi-strong form of market efficiency. It also examines whether the recent announcements of economic reforms were incorporated into the stock prices in advance, thus making actual announcements insignificant or whether the announcements took the markets by surprise thus enabling abnormal profits.

The study is divided into six sections. The first section presents the overview of the recent reforms in the brink of the economic conditions, followed by review of literature, research design, analysis and discussion and conclusion in subsequent sections.

Section 1: The State of Economy and Economic Reforms: An Overview

The Index of Industrial Production (IIP) data was released on September 12th, 2012. The IIP number is an indicator of the performance of industrial production of three key sectors namely manufacturing, mining and electricity. These indicators have been negative over the years signalling the partial slowdown of the real economy. Analysts attributed this deterioration to the government's policy paralyses and slowdown in the corporate capital expenditure. Weak domestic demand and slow external growth are essentially the key drivers for this state of affairs. In fact, the industrial output remained almost flat registering a positive growth of mere 0.1 percent (September, 2012) when compared to negative 1.8 percent in August, 2012. On the other hand, consumer goods output as well as consumer non-durables sector were seen to be sluggish. Consumer durables output grew at 1.4 percent in July as compared to 9.0 percent a year ago. Consumer non-durables grew at a mere 0.1 percent. The electricity growth fell almost by half to 2.8 percent from nearly 6.4 percent. Global investors were also worried with the failure of Northern, Eastern and North-eastern grids in July 2012 which affected around 600 million people across the country. IIP data also reflected the contraction of mining and manufacturing output. Mining scandals and consequential banning of several mining companies have adversely impacted the sector. Most importantly manufacturing sector has not shown signs of recovery from the previous year which fell by another 0.2 percent. The output of eight out of twenty two manufacturing industries grew in July, against fourteen industry groups in June. The production of natural gas contracted itself by 13.5 percent, further affecting the manufacturing sector. The growth in sales of commercial vehicles dwindled from 21 percent (August, 2011) to 3.6 percent (September, 2012). Basic metals which have the highest weightage in manufacturing IIP, posted a poor growth of 1.0 percent. Global recession led to contraction in merchandise exports by 14.8 percent in July. Over the years, it is observed that the global recession and lack of political will slowed down the growth rate of Indian economy.

On September 12th, 2012, the Government led by Prime Minister Dr. Manmohan Singh announced on liberalising the retail sector and broadcasting and the aviation sectors. Along with these, a slew of other reforms such as reduction of withholding tax on long term infra bonds to 5 percent and the launch of Rajiv Gandhi Equity scheme were announced. The latter would allow retail investors with less than ten lakh rupees annual income to invest into stock markets. On September 17th, RBI took a cautious stance by reducing the Cash Reserve Ratio (CRR) ratio by 0.25 percent thereby reducing the CRR to 4.5 percent. This reduction released Rs.17,000 crores of primary liquidity into the system. The repo rate and reverse repo rates were unchanged at 8.0 and 7.0 percent respectively. RBI actions supplemented the efforts of the government. Further, the government on October 4th, 2012 announced significant policy initiatives: liberalizing the insurance sector by raising foreign investment limit from 26% to 49%, giving statutory status to pension regulator by passing the Pension Fund Regulatory and Development Authority bill, revamping of companies law by providing framework for corporate social responsibility (CSR) and specifying the role of independent directors, revamping the Competition (Amendment) Bill by bringing all regulators under the law and providing greater autonomy to the Forward Markets Commission.

Against this background, a need was thus felt examine the impact of concerted efforts of the government and central bank of India on the stock prices performance. The study also intends to know to what extent the markets are efficient and whether the announcements were incorporated into the share prices in advance. If markets are efficient, the new information will be will be factored in the prices and an individual or institutional investors cannot make abnormal returns by adopting different trading strategies. But, if the markets were not semi-strong efficient, it would allow managers to make abnormal profits by adopting trading strategies.

Section 2: Review of literature

The important studies undertaken so far to review the impact of economic reforms are presented hereunder.

Fama (1987) examined the capital markets based on the market efficiency and divided the markets into three categories depending on the efficiency of the markets. The first form of efficiency namely weak form efficiency rejected the influence of past data on the future prices. Weak form efficiency observes that one cannot make abnormal returns observing the correlation between the past and future prices. Second form of the efficiency points to the impact of events on the stock prices. According to the theory, the events cannot be judged in analysing the point of entry and exit in the stock markets to make abnormal returns. Third and last form of efficiency, points to the impact of influence of insider trading information in making abnormal returns in the markets.

Fixing the agenda for financial sector reforms, Baruva (1997) observed that there is a need to establish vibrant securities markets where financial assets are efficiently priced, based on their risk and return attributes to provide correct signals to the economy for investment decisions in the real sector.

Swarup and Verma (1998) have examined the importance of the stock exchange reforms during the period 1992-97 and their impact on capital market development as perceived by intermediaries. The study finds that the reforms have resulted in a fair, transparent and strong regulatory structure for the efficient and smooth functioning of the capital market. However, it finds that liquidity has been a major problem in the stock markets and proposes that the Indian regulatory framework needs to shift its focus from correction to prevention stage.

Dev and Jain (1999) find that the equity cult has no doubt developed but it is not based on pure information, fundamentals and rational behaviour of investors. Besides, the policy pronouncements of the Government and SEBI too have their impact on the market." The authors are of the opinion that the reforms can, to a great extent, bring vibrance to the market.

Balasubramanyam and Mahambre (2001) found a decline in debt / equity ratios in majority of industries, especially in new firms, which was seen as a consequence of financial reforms.

Chakraborthy (2001) finds the inflow of private foreign capital (foreign direct investment, portfolio investment and external commercial borrowings) increased sharply since 1993-94. With the opening of the Indian stock market to FII and allowing private corporate sector to issue global depository receipts (GBRs) in 1993, portfolio investments entered as a new category into the private foreign investment in India in the nineties.

Bimal Jalan (2002) is of the opinion that there has been progressive intensification of financial sector reforms and the financial sector as a whole is more sensitized than before to the needs for internal strength and effective market as well as to the overall concerns for financial stability.

Khanna (2002) examined the impact of capital account liberalization on Indian capital market (1989-2002) and found that the entry of international capital flows have helped to provide greater depth to domestic capital market and reduce the systematic risk of the economy.

Chaturvedi & Upadhya (2004) observed that per capita income (PCI) has consistently recorded higher growth during the post-reforms periodic as compared to pre-reform period. Though the poverty ratios have fallen, disparity is widened.

Siggel and Agarwal (2009) observe that economic reforms of 1991 were helpful to most industries by increasing access to foreign technology and cheaper capital goods and raw materials. It is further felt that improvement in infrastructure and more flexible labour laws will facilitate further growth of India's manufacturing sector.

The Economic Time Bureau (2012) reporting the Morning Star Investment Conference in Mumbai on 01.11.2012 writes that the government announced a slew of reforms since mid September (2012) which hosted market sentiments and helped a tepid sensex gain 6%. Some of the measures included allowing FDI in multi-brand retail, hiking FDI limit in insurance, a bailout package for decript state electricity boards and a 5% hike in diesel price. Among the emerging market cluster, India has been one of the best performing markets around 19% since the beginning of this year (2012). Excess global liquidity has helped Indian shares as foreign investors have pumped in $ 18 billion since January this year (2012).

Ahluwalia observed that the recovery from the 1991 crisis was exceptionally shift and the post-stabilization period (1994-95 to 1997-98) showed a significant acceleration in growth compared with the growth rate before reforms. The reforms involved a radical reorientation of foreign investment policy. The presence of FIIs which invested a total of around US $ 9 billion in the stock markets is an important force which will push the capital market to come close to international standards.

It is clear from the preceding review of literature that, a number of studies have examined the impact of economic reforms on the economy with a broader perspective with a longer time frame. The immediate impact of the reforms on the behaviour of stock markets has not been examined. To be able to conduct an immediate impact study, the sequence of events immediately after announcement of reforms has to be tracked. Obviously the time horizon for the inquiry would be short term. To fill up this gap, the present study has been undertaken to examine the impact of the recent reforms on stock markets in particular. A research on immediate impact of these recent reforms with short-term perspective is not yet undertaken except for the discussions made in the Morning Star Investment Conference in Mumbai on 01-11-2012. The signals that the reforms offer to FIIs is also an important issue to be examined as their perceptions and flows do impact on the Indian stock market behaviour. Hence this study assumes significance. These reforms for gearing up the economy were, however, found compelling consequent on announcement of IIP data reflecting the poor performance of the economy. To facilitate the reforms process, RBI too announced liquidity measures. Thus the issues preceding reforms (IIP data) and the issues proceeding reforms (liquidity measures of RBI) are together considered in understanding this impact study. The impact of the recent economic reforms is conducted from three perspectives:

1. Volatility and abnormal gains of select retail sector companies during the period of study
2. Broader and sectoral indices performance during the period of study
3. An overview of FII trading activity in response to these events.

Section 3: Research Design

Fama (1987) divided the capital markets into three form of efficiency, mainly weak form of efficiency, semi-strong form of efficiency and strong form of efficiency. The present study aims at testing the principles of semi-strong form of market efficiency by examining the impact of government economic reforms and Reserve Bank of India (RBI) steps on selected stocks and indices listed on BSE and NSE. The study tries to examine whether the announcements or events are incorporated into the stock prices, thus making actual announcements insignificant or whether these announcements took the markets by surprise by allowing for earning abnormal profits by trader adopting various trading strategies.

3.1 Objectives of the Study

The study is undertaken to fulfil the following objectives:

A. To evaluate the volatility and abnormal gains associated with select retail sector companies and stock market indices using Event study methodology
B. To trace the movements in broader and sectoral indices consequent to the announcement of reforms and after.
C. To examine the impact of reforms on the size of FII trading.

3.2 Hypotheses of the Study

The parametric t-test for the equality of the means for the abnormal returns before and after the announcements was tested on eight retail sector companies and twelve (Broader and sectoral) indices listed on BSE and NSE. The hypothesis tested with is:

H_0: There is no difference in mean of abnormal returns before and after the announcement date

H_1: There is difference in mean of abnormal returns before and after the announcement date

3.3 Data Requirements of the Study

Economic reforms of 2012 concentrated mainly on FDI in retail sector, aviation sector and automobiles sector and thus a representative sample of eight listed retail companies and representative sectoral indices were considered for the study.

The eight retail sector companies considered are;

Pantaloon Retail Limited, Cantabil Retail Ltd, Trent retail Ltd, V2 retail Ltd, Shoppers stop Ltd, Store one retail Ltd, ITC ltd, Raymond Ltd.

The six sectoral indices considered for the study are as follows:

BSE Auto, BSE Consumer Durables (BSE CD), BSE Metal, CNX Auto, CNX FMCG and CNX Metal.

The companies and indices were short-listed for analysis after applying the following criteria:

a. The companies and sectoral indices should be true representation of the respective sector and industry respectively.
b. Daily closing stock price data over a period of 45 days before the announcement date and 15 days after the announcement date is available from the database.

Methodology

This study is based on Event Study Methodology (Brown and Warner, 1985). Event study methodology is based on the concept of market efficiency. If the markets are efficient, security prices would be able to reflect all currently available information, and thus price changes will reflect only new information. Thus importance of an event is understood by examining the price changes during the period in which the event occurs.

Event Study Methodology describes the technique of empirically assessing the impact of a particular event on a firm's stock price or industry's average stock price represented by indices.

The event study methodology enables to compute cumulative abnormal returns (CAR) of the respective share indices during the days surrounding the announcement. To statistically understand whether there was significant difference in the distribution pattern of abnormal returns before and after the announcement, parametric t-test was conducted. If there existed possibility to gain abnormal returns due to the announcement, then the markets can be said to inefficient.

Analysing the impact of any particular event is difficult, since stock prices respond to wide range of macroeconomic news such as forecasts of corporate profitability, Gross Domestic Product, inflation rates, interest rates, global news etc. Isolating the part of a stock price movement that is attributable to a specific event is always a challenge.

To isolate the stock price movements from the specific event, general approach followed is to find a proxy for what the stock's return would have been in the absence of the event. The abnormal return due to the event is estimated as the difference between the stock's actual return and this benchmark. The approach followed in this study, is to find the normal returns using the asset pricing model such as the CAPM. The researchers often use the 'market model' or the single- index model, which holds that stock returns are determined by a market factor and a firm-specific factor.

The stock return, r_{it}, during a given period *t*, would be expressed mathematically as

$$\bar{r}_{it} = \alpha_i + \beta_i \bar{r}_{mt} + \xi_{it}$$

where

$\bar{r}_{it}$ = expected return of stock price returns on day t

$\bar{r}_{mt}$ = Market's rate of return during the period

β_i = systematic risk component or it measures sensitivity to the market return

α_i = Intercept term or average return of the stock in case of zero market return

ξ_{it} = white noise error term on day t with zero mean and constant variance

The deviation of actual return from the expected return is regarded as the abnormal return. The determination of the abnormal return in a given period is expressed mathematically as shown below;

$$AR_{it} = r_{it} - (\alpha_i + \beta_i \overline{r}_{mt})$$

Where, AR_{it} = abnormal return of stock 'i' on day 't'

r_{it} = actual return on stock 'i' on day 't'

The abnormal return is the stock's return over and above what one would predict based on broad market movements in that period, given the stock's sensitivity to the market.

The parametric't' test for the equality of means for the abnormal returns before and after the announcement date is conducted to test the hypothesis of no difference in the means of abnormal returns. The Parametric't' test was conducted to test for the equality of means at 95 percent level of significance, for the abnormal returns during 15 days prior and 15 days after the announcement date. The two tailed critical 't' value was found to be 2.20 which was compared with the t-statistic to accept or reject the null hypothesis.

In the methodology, 14th September, 2012 was considered as the "event day". 30 days surrounding the event day (15 days before and 15 days after the event) has been denoted as "event window". 15 days prior to the last day of the event window (-16 to -30 days from the event day) has been considered the "estimation window/benchmark period". BSE Sensex or NSE CNX Nifty was taken as proxies for the overall market.

Section 4: Analysis and Discussion

The analysis and discussion of the impact of recent economic reforms is approached through the following points:

4.1 An overview of FII trading activity

4.2 Broader and sectoral indices performance during the period of study

4.3 Volatility and abnormal gains of select retail sector companies during the period of study

4.1 Impact on FII trading

Year 2012 has been called as a revival period. FII activity as seen in Table 1 and Figure 1, confirms the fact the net purchases (in crores) has been positive and growing in the year 2012. The FIIs' trading activity in the month of September (2012) has surpassed all levels with net purchases/sales of over Rs 20,800 crores which is the highest amount received over two years except in the month of February 2012.

FII TRADING ACTIVITY IN INDIA

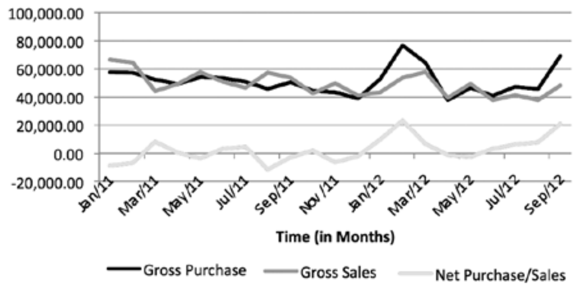

Figure 1: Foreign Institutional Investors trading activity between January 2011 to September 2012.

Source: http://www.moneycontrol.com/stocks/marketstats/fii_dii_activity/index.php

The reasons for FIIs flows in September, 2012 can be mainly attributed to three important events:

i. Announcement of IIP data on September 12th,

ii. Announcement of Economic reforms by government on September 14th and,

iii. Announcement of liquidity measures by RBI on September 17th, 2012

Date	Gross Purchase	Gross Sales	Net Purchase / Sales
Sep-12	68,789,70	47,981.89	20,807.81
Aug-12	45,533.62	37,786.51	7,747.11
Jul-12	47,179.02	41,276.07	5,902.95
Jun-12	40,956.28	38,161.60	2,794.68
May-12	46.301/71	49,057.97	-2,756.26
Apr-12	37,723.69	39,387.05	-1,663.36
Mar-12	63,999.11	57,472.38	6,526.73
Feb-12	76,648.78	53,412.40	23,236.38
Jan-12	52,903.37	43,434.23	9,469.14
Dec-11	38,711.73	41,098.87	-2,387.14
Nov-11	43,094.11	49,602.82	-6,508.71
Oct-11	44,233.02	42,390.55	1,842.47

Sep-11	50,283.64	53,372.51	-3,088.87
Aug-11	45,395.78	56,954.98	-11,559.20
Jul-11	50,802.29	46,520.79	4,281.50
Jun-11	53,473.22	50,810.46	2,662.76
May-11	53,777.46	57,482.83	-3,705.37
Apr-11	49,090.25	49,085.85	4.4
Mar-11	52,192.02	44,215.13	7,976.89
Feb-11	57,097.91	64,311.30	-7,213.39
Jan-11	57,526.07	66,429.67	-8,903.60

Table 1: Foreign Institutional Investors trading activity during period January 2011 - September 2012.

Source: www.moneycontrol.com

A micro look into September month as shown in Figure 2 clearly shows FII trading activity gaining momentum from September 12th 2012. The confidence seen among the global investors after September 12th was seen to be the highest over a period of five years.

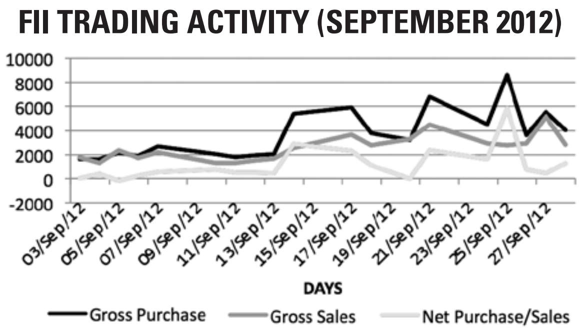

Figure 2: Foreign Institutional Investors trading activity (September 2012)

Source: http://www.moneycontrol.com/stocks/marketstats/fii_dii_activity/index.php

4.2 Broader and sectoral indices performance during the period of study

The response of markets had been very positive by the announcement of series of initiatives by the union government as well as the central bank. Figure 3 indicates that Sensex performed phenomenally well in September, 2012. Sensex trading at 17,354 points (September 3rd, 2012) reached a milestone of 18,000.03(September, 12th, 2012) and 19,000(October 4th, 2012) in a very short time frame. This uptrend was also supported by volumes.

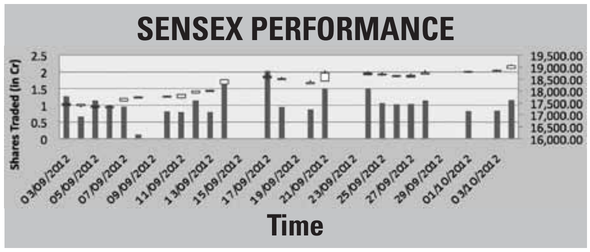

Figure 3: Sensex Performance for the period September-October, 2012.

Source: Bseindia.com

As shown in figure 4, the major indices traded on BSE and NSE such as BSE Sensex, S&P CNX Nifty, BSE/NSE Mid-cap index and BSE/NSE Small-cap index breached their resistance levels for the first time. Equity markets between September-October, 2012 witnessed sharp gains on account of stronger liquidity inflows. This led to strengthening of the rupee. According to NDTV and money control, Indian markets have received around $3.5 billion in net purchases and still lot of money is awaited. On October 5th, 2012, the rupee strengthened itself to Rs.51.70 compared to 53-55 levels a few months ago.

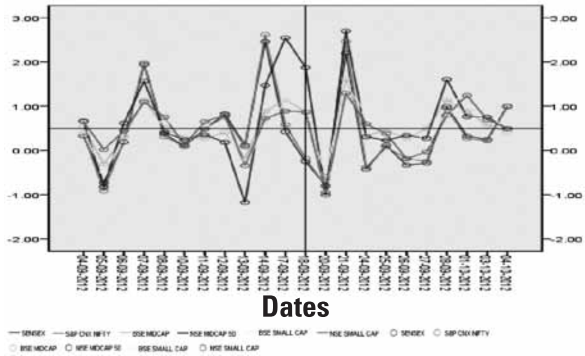

Figure 4: Major BSE and NSE broader indices performance for the period September 3rd - October 4th, 2012.

Source: Bseindia.com

The performance of the sectoral indices mainly traded on BSE and NSE namely auto, consumer durables, energy, metal, consumer goods is shown in figure 5. From the figure we can observe that the returns of the indices have changed significantly after the event day. The returns few days before and after the announcement day show extraordinary spike in the returns. But the impact has to be statistically proved to be significant.

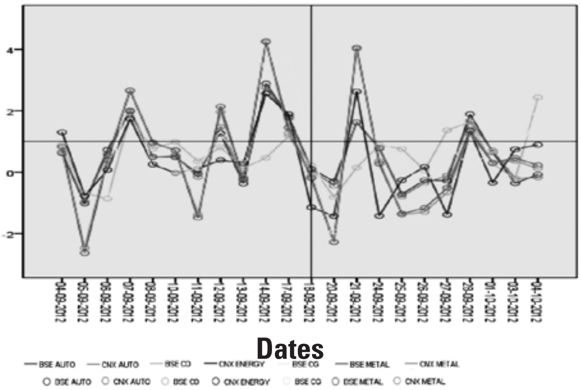

Figure 5: Major BSE and NSE sectoral indices performance for the period Sept. 3rd - Oct. 4th, 2012.

Source: Bseindia.com

The performance of various indices can be observed by the descriptive statistics, as shown in table 2. On any single day between September 3rd to October 5th, 2012, indices showed a maximum return ranging between 2-4 percentage. Especially these returns were observed either on September 14th (in expectations of measures) or September 17th (on the day of announcements).

Performance of Various Indices Between September 3rd - October 5th, 2012					
	N	Minimum	Maximum	Mean	Std. Deviation
SENSEX	22	-.793	2.459	.42227	.869708
S&P CNX NIFTY	22	-.916	2.618	.44491	.919421
BSE MIDCAP	22	-.650	1.614	.51782	.516557
NSE MIDCAP 50	22	-1.176	2.699	.65341	1.002522
BSE SMALL CAP	22	-.529	1.464	.54695	.516280
NSE SMALL CAP	22	-.954	1.298	.50068	.542579
BSE 100	22	-.849	2.348	.46791	.833854
NSE 100	22	-.873	2.369	.46855	.839484
BSE 500	22	-.756	2.176	.46818	.742018
NSE 500	22	-.794	2.230	.47545	.762847
BSE AUTO	22	-1.025	2.890	.54068	1.010893
CNX AUTO	22	-.964	2.756	.53086	.991715
BSE CD	22	-.863	2.436	.57223	.838340
CNX ENERGY	22	-1.429	2.626	.34609	1.209690
BSE CG	22	-2.539	4.119	.79800	1.672972
BSE METAL	22	-2.639	4.249	.46605	1.773505
CNX METAL	22	-2.477	4.276	.43595	1.748498

Table 2: Performance of various indices between Sept. 3rd - Oct. 4th, 2012.

Source: Authors

As observed in the table 3, the returns for the indices over the event period September 3rd to October 5th ranged between 7-18 percent in a matter of one month.

Rate of Returns obtained during Holding period September 3 to October 5, 2012	
INDICES	PERCENTAGE RETURNS
SENSEX	9.63
S&P CNX NIFTY	10.16
BSE MIDCAP	12.00
NSE MIDCAP 50	15.29
BSE SMALLCAP	12.72
NSE SMALLCAP	11.58
BSE-100	10.74
NSE 100	10.75
BSE-500	10.76
NSE-500	10.93
BSE AUTO	12.48
CNX AUTO	12.24
BSE CD	13.29
CNX ENERGY	7.73
BSE CG	18.76
BSE METAL	10.41
CNX METAL	9.70

Table 3: Rate of returns of various indices during the holding period Sept 3rd - Oct 4th, 2012.

Source: Authors

4.3 Volatility and abnormal gains of select retail sector companies and sectoral indices during the period of study

4.3.1 Cumulative average abnormal returns of retail companies

As observed from table 4, 15 days prior to announcements till the actual date of the announcement, the average abnormal return was equivalent of -0.56 percent per day. After the announcement, the five days preceding abnormal returns are -4.63 percent, 0.59 percent, 0,84 percent, -1.84 percent and -1.56 percent per day. It is noteworthy to observe that, on the day of the announcement, the abnormal return was -2.65 percent.

For the 15 days after the announcement, the cumulative average abnormal return was -0.726 percent per day.

This trend in fact points to the negative reaction of the retail sector companies to the announcement made by the government. Statistically, the cumulative average abnormal returns are significantly equal to zero. This reflects upon the important fact that, market expected the announcement and adjusted the prices accordingly. Thus, information was already integrated in the share prices before the actual announcement on the event day. Figure 6 shows the cumulative average abnormal returns of all the retail companies. There is thus no chance for making abnormal profits by making use of the announcement and henceforth, it can be inferred that market is semi-strong efficient.

Days	Pantaloon Retail Ltd.	Cantabil Retail Ltd.	Trent Retail Ltd.	V2 Retail Ltd.	Shoppers Stop Ltd.	Store One Retail Ltd.	ITC Ltd.	Raymond Ltd.	Cumulative Average Abnormal Returns
-15.00	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.003873	0.00000	-0.00048
-14.00	0.02280	-0.04111	-0.00757	0.00067	0.01186	0.02758	-0.014999	0.01981	0.00238
-13.00	0.02920	-0.00393	0.00303	0.01874	-0.00348	0.07343	-0.024587	0.01716	0.01370
-12.00	0.01985	-0.00030	0.00013	-0.00563	-0.01103	0.04035	-0.023258	-0.01186	0.00104
-11.00	-0.00943	-0.02770	0.00353	-0.02186	-0.00617	-0.04374	-0.018388	-0.02886	-0.01908
-10.00	-0.01648	-0.01021	0.00284	0.00001	-0.01508	-0.06911	-0.019289	-0.03505	-0.02030
-9.00	-0.00243	-0.04585	0.00302	-0.02733	-0.02563	-0.02370	-0.011385	-0.04317	-0.02206
-8.00	-0.04519	-0.03267	0.00758	-0.02084	-0.04088	0.01027	-0.022050	-0.05986	-0.02545
-7.00	-0.04749	0.01209	0.00045	-0.07856	-0.01962	0.01763	0.006951	-0.05303	-0.02020
-6.00	-0.02276	-0.09829	0.01558	-0.05442	0.00458	-0.21559	0.013474	-0.05823	-0.05196
-5.00	-0.03043	-0.04156	-0.00140	-0.14326	0.01097	-0.36988	0.014369	-0.05683	-0.07725
-4.00	-0.07391	-0.03570	0.00907	-0.07699	-0.00181	-0.16996	0.013024	-0.07232	-0.05107
-3.00	-0.03803	-0.02316	0.01609	-0.13584	0.00250	0.07225	0.006742	-0.06733	-0.02085
-2.00	-0.06538	-0.01603	0.01284	-0.18107	-0.00047	0.06496	0.003794	-0.06306	-0.03055
-2.00	-0.04675	0.00185	-0.00887	-0.17017	0.00748	0.02071	0.004323	-0.06668	-0.03226
0.00	-0.04959	-0.05334	-0.04759	-0.24258	0.01010	-0.06145	0.027726	-0.04482	-0.05769
1.00	-0.23554	-0.04578	-0.04242	-0.34679	-0.05096	-0.15361	0.086263	-0.07285	-0.10771
2.00	-0.21108	-0.06015	-0.01262	-0.32992	-0.04191	-0.04482	0.082663	-0.10562	-0.09043
3.00	-0.21423	-0.04770	-0.00288	-0.30654	-0.06235	0.07754	0.068901	-0.10587	-0.07414
4.00	-0.20270	-0.05516	-0.01149	-0.33847	-0.04042	-0.07137	0.064341	-0.10291	-0.09477
5.00	-0.25467	-0.08532	-0.04258	-0.35162	-0.06926	-0.10251	0.084875	-0.12172	-0.11785
6.00	-0.35572	-0.09435	-0.04499	-0.36110	-0.11301	-0.01741	0.067914	-0.15310	-0.13397
7.00	-0.41472	-0.08997	-0.05501	-0.36844	-0.09832	-0.07182	0.056149	-0.14430	-0.14830
8.00	-0.44224	-0.09926	-0.06478	-0.40165	-0.09678	-0.04113	0.042550	-0.16053	-0.15798
9.00	-0.40411	-0.10063	-0.07150	-0.38402	-0.10251	0.02103	0.029804	-0.15866	-0.14632
10.00	-0.38884	-0.10297	-0.05465	-0.36825	-0.08657	0.0081	0.027156	-0.15923	-0.14157
11.00	-0.40603	-0.09653	-0.03745	-0.37769	-0.06369	-0.00492	0.041170	-0.15767	-0.13785
12.00	-0.37522	-0.10131	-0.02370	-0.35460	-0.05806	-0.01926	0.031012	-0.13285	-0.12925
13.00	-0.41434	-0.11797	-0.02821	-0.35726	-0.08213	-0.02343	0.025436	-0.13112	-0.14113
14.00	-0.41050	-0.11272	-0.02273	-0.35224	-0.08149	0.02987	0.011566	-0.16289	-0.13764
15.00	-0.38440	-0.10973	-0.01627	-0.35668	-0.08626	0.00106	0.008258	-0.15993	-0.13799

Table 4: Cumulative average abnormal returns around event day for select retail companies.

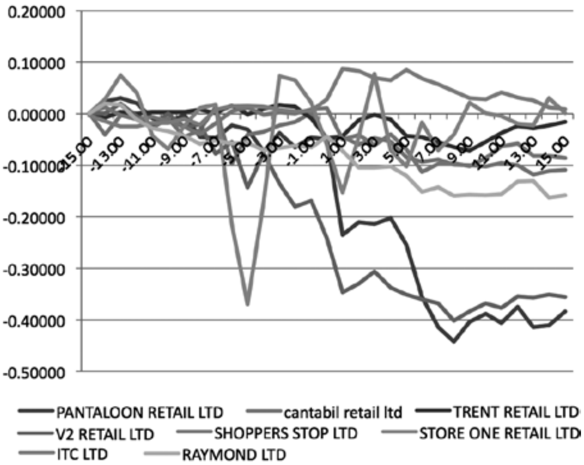

Figure 6: Cumulative abnormal returns of all retail companies. **Source:** Author

The parametric t-test results for equality of the means at 95% level of significance, for the abnormal returns 15 days before and after the announcement of economic reforms is shown in table 5.

	Mean Before Announcement	Mean After Announcement	Variance Before Announcement	Variance After Announcement	T-Statistic	T-Critical Two Tail	Acceptance/ Rejection of Null Hypothesis
Pantaloon Retail Ltd.	-0.002	-0.022	0.001	0.004	1.159	2.145	Acceptance
Cantabil Retail Ltd.	0.002	0.000	0.002	0.000	0.564	2.145	Acceptance
Trent Retail Ltd.	0.000	0.002	0.000	0.000	-0.325	2.145	Acceptance
V2 Retail Ltd.	-0.010	-0.008	0.002	0.001	-0.170	2.145	Acceptance
Shoppers Stop Ltd.	-0.002	-0.006	0.000	0.001	0.814	2.145	Acceptance
Store One Retail Ltd.	-0.019	-0.011	0.006	0.002	-0.330	2.145	Acceptance
ITC Ltd.	0.000	-0.001	0.000	0.000	0.273	2.145	Acceptance
Raymond Ltd.	-0.004	-0.008	0.000	0.000	0.571	2.145	Acceptance

Table 5: Parametric t-test results for abnormal returns 15 days before and after announcement. **Source:** Author

It can be observed that, for all the eight retail companies the null hypothesis is accepted. This leads us to conclude that there is no difference in the mean of the abnormal returns prior to and after the announcement of the bonus issue. This is also consistent with cumulative abnormal returns chart as shown in Figure 6. Thus though announcement of economic reforms news was a surprise for the markets, the retail sector companies did not appear to be surprised.

It was thus felt a necessity to understand the impact of the announcement by few representative industries. Indices reflect the true impact of news upon an industry due to favourable/unfavourable news.

4.3.2 Cumulative Average Abnormal Returns of Select Sectoral Indices

Though event study methodology revealed no much difference in the mean returns for the retail companies, it was found necessary to study the impact of the announcements on different industries. In order to study the impact on a particular industry of interest, a representative index representing each industry was considered for the study. The indices considered are BSE Auto, BSE Consumer Durables (BSE CD), BSE Metal, CNX Auto, CNX FMCG and CNX Metal.

An overall performance of broader and sectoral indices of BSE and NSE are shown in figure 7 and figure 8. At first sight, the returns seem to be more volatile after the event day.

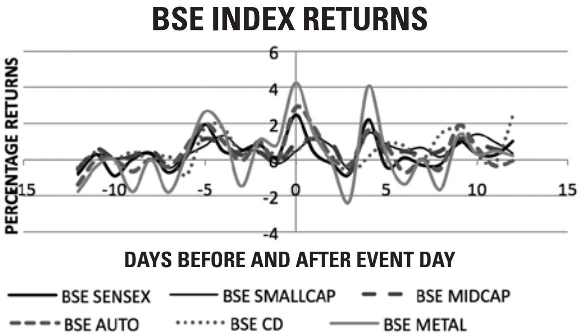

Figure 7: BSE Indices returns for the period Sept. 3rd - Oct. 4th, 2012

Source: Author

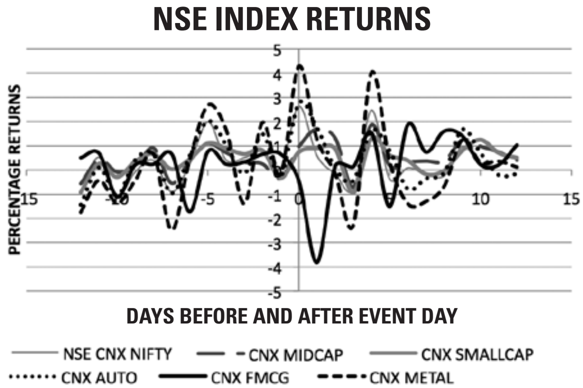

Figure 8: NSE Indices returns for the period Sept. 3rd - Oct. 4th, 2012

Source: Author

The difference between the mean returns (After mean returns-Before mean returns) for the major indices as shown in table 6 is seen to be positive after the event day. This observation reflects upon the possibility of abnormal returns by using trading strategies after the announcement date. To prove whether these mean returns were statistically different or not, event study methodology was conducted on specific sectoral indices and parametric t-test was conducted. The result are shown in table 6 below.

Indices	Difference Between After and Before Mean Returns	Parametric T-Test Results for Difference in Means Before and After	Parametric T-Test Results for Difference in Variances Before and After
Sensex Returns	0.082170811	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
BSE Smallcap Returns	0.487181401	Rejection of Null Hypothesis	Rejection of Null Hypothesis
BSE Midcap Returns	0.360012059	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
BSE Auto Returns	0.234291523	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
BSE CD Returns	0.278186743	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
BSE Metal Returns	0.276714762	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE CNX Nifty	0.152480982	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE Midcap	0.510774129	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE Smallcap	0.213461706	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE Auto Returns	0.177548695	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE FMCG Returns	0.121666484	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis
NSE Metal	0.209001009	Acceptance of Null Hypothesis	Acceptance of Null Hypothesis

Table 6: Difference between after and before mean returns for the event window. **Source:** Authors

The parametric t-test for equality of the means and variances at 95 percent level of significance, for mean returns during 15 days prior and 15 days after as shown in Appendix 1 and 2, after the event day suggests that the null hypothesis is accepted for all indices considered for the study.

Abnormal returns for the period Sept. 3rd - Oct. 4th, 2012 were also calculated.

The difference between the mean abnormal returns (After mean returns-Before mean returns) for the twelve indices was seen to be positive for the event window (Sept. 3rd - Oct. 4th, 2012) as seen in Table 6 and Figures 8 and 9. It is noticeable that the returns for auto and metal indices listed on BSE and NSE were negative but it is statistically significant.

Indices	Difference Between Abnormal Returns After and Before The Event Day
Sensex Returns	0.001769652
BSE Smallcap Returns	0.313332722
BSE Midcap Returns	0.178070388
BSE Auto Returns	-0.043850106
BSE CD Returns	0.122770645
BSE Metal Returns	-0.196278901
NSE CNX Nifty	-0.149363065
NSE Midcap	0.313494342
NSE Smallcap	0.025902425
NSE Auto Returns	-0.112796098
NSE FMCG Returns	0.095292408
NSE Metal	-0.279241527

Table 7: Difference between after and before mean abnormal returns for the event window.

Source: Authors

BSE ABNORMAL RETURNS

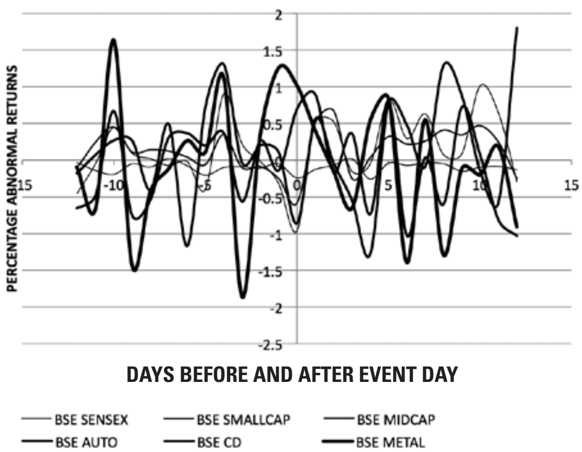

Figure 9: BSE Indices Abnormal returns for the period Sept. 3rd - Oct. 4th, 2012.

Source: Authors

NSE ABNORMAL RETURNS

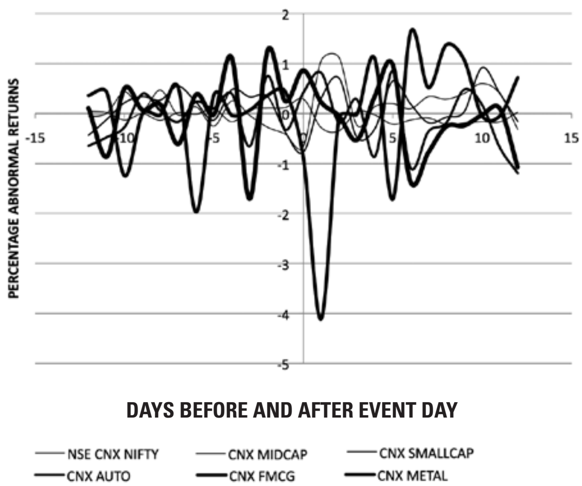

Figure 10: NSE Indices Abnormal returns for the period Sept. 3rd - Oct. 4th, 2012.

Source: Authors

As shown in Table 6, the t-test for the equality of the means at 95 percent level of significance, for abnormal returns during 15 days prior and 15 days after the event day suggests that the null hypothesis is accepted for all the indices considered for the study. This concludes that there is no difference in the abnormal returns prior to and after the event day. The announcement on economic reforms on September 14th, 2012 and the RBI action on September 17th, 2012 were already factored into the stock prices.

Thus the parametric t-test suggests acceptance of the null hypothesis that 'there is no difference in the distribution pattern of the return between before and after the announcement of economic reforms by the government and actions taken later by RBI.

Section 5: Conclusion

Announcement of positive or negative news theoretically should have an impact positively or negatively on the stock markets. But in reality, it will not hold good. The stock markets tend to predict the announcement of the news through various forward looking (leading) indicators. IIP data are forward looking indicators revealing the health of the major industries such as mining, manufacturing, electricity and other important industries. A positive outlook by this indicator would help understand the health of the economy, which in turn, gives a clue to RBI to take appropriate steps initiating in its key indicators such as cash reserve ratio (CRR), Repo rates and Reverse repo rates. The study however supports the hypothesis that the Indian stock markets to a larger extent are semi-strong efficient.

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