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An Examination of Stock Market Anomalies: A Study in the Context of Make in India Movement

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ABSTRACT : *The existence of calendar anomalies is the violation of Efficient Market Hypothesis (EMH). Stock Market anomalies are the patterns that do seem to lead to abnormal returns more often than not, and since some of these patterns are based on information which is publicly visible, market anomalies present a challenge to the semi-strong form of the EMH, indicating that fundamental analysis does have some value for the individual investor. The existence and predictability of stock market anomalies has been a subject of different studies which detects empirical evidences of abnormal yield distribution. The predictable seasonal returns behavior may lead to profitable trading strategies and in turn abnormal returns. The Day-of-the-Week Effect is the most common tested anomaly in India and abroad. In the current research paper, the main focus is to examine the impact of Make in India Movement on stock market anomalies with reference to BSE Sensex. The closing prices for Sensex have been taken for the purpose of analysis. However, the investor must keep in mind that these anomalies can persist or disappear in a certain course of time.*

Keywords: *abnornmal returns, disappear, efficient market hypothesis, existence, predictability.*

I. INTRODUCTION

In financial economics, the efficient-market hypothesis (EMH) states that asset prices fully reflect all available information. The EMH was developed by Professor Eugene Fama who stated that stocks always trade at their fair value. This in turn, leaves no chance for investors to either buy the undervalued securities or sell the overpriced securities. Therefore, it becomes difficult for some stocks to perform well because of expert stock selection wisdom and market timing selection. Consequently, the gain in the stock returns might be the matter of chance sometimes. The EMH states various forms of market efficiency which in turn depicts that how rapidly and correctly the stock market responses to the new available information. The new information is easily available in the market in different means through company disclosures, political announcements, company's economic reports and public surveys. Generally, as per EMH, security prices reflect all the available information prevailing in the stock market. Therefore, it becomes difficult for the investors to make any excess returns out of that information.

On the contrary, stock market sometimes documents the presence of the excess returns. These patterns are known as Calendar Anomalies. The documentation of anomalies in finance literature violates the weak form of market efficiency because equity prices are no longer follow random trend and can be predicted based on past behaviour. This in turn, facilitates market participants to prepare the trading strategies which could help them to earn abnormal returns on the basis of past performance of the stock market. Day-of-the-Week anomaly states that investors may devise a trading strategy of selling securities on Fridays and buying on Mondays in order to make excess profits. Considering economic issues, Prime Minister Mr. Narendra Modi launched 'Make in India' movement on 25th September, 2014 to invite large business houses from around the world to invest and manufacture in India. It is expected that it will result in efficient utilization in a maximum extent of Indian natural resources, labour, money, technological and machinery across the country will be possible. Consequently, this step, will create big opportunities for the new generation, produce products and services of good quality. As a result, it will help to transform India as a self relient country.

The scope of the current study is restricted to study the day-of- the week effect and weekend effect in stock returns of BSE Sensex in India in the period since when Make In India movement started in India i.e. 25th September, 2014 upto December 31, 2015.

EMH assumes that at any given time, security prices fully reflect all available information which implies that the excess price and trading returns are not possible on any other trading day of the week (11). But the pioneering work done by a number of researchers has proved the existence of different trading returns on different trading days of the week known as Day-of-the-Week effect. Table 1 provides an overview of a number of studies representing the research work undertaken by different researchers in India and abroad. This section summarises the main conclusions drawn by them in the investigation of the Day-of-the-Week effect in stock markets, fixed income securities markets, option markets and futures market.

II. REVIEW OF LITERATURE

It is evident from Table 1 that a huge literature is available on Day-of-the-Week effect in developed and developing economies. The various empirical studies are supporting the refutation of EMH and different trading days of the week are documenting different trading returns. The main results presented by the financial literature investigating the Day-of-the-Week effect indicate that different trading returns on different trading days are observed not only in domestic and International stock markets, but also in bond, option and commodities markets.

Table 1 shows that negative Tuesday returns are provided in Indian and international markets (1, 2, 7, 15, 23, 25, 30, 32). The studies provide the evidence that negative Tuesday effect is mainly caused by the stocks with the lowest turnover ratio and the higher trading returns on Friday and Saturday (15) are observed in non-January months most of the times (21). The most common explanation that has been provided for negative Tuesday's returns are that the bad news of the week-end affecting the US market can have negative influence over some other markets globally. The impact of that negative information is depicted on next day i.e. Tuesday as the market is lagged by one day (25).

Further, the correlation of Monday and Tuesday trading returns with other trading days of the week has been found (9). The reason of correlation between these two trading days might be the availability of fresh information at the start of the week which makes the trading system dynamic one relative to the rest of the week. Empirical evidences are available to support the positive Wednesday effect which is documented (10, 16, 30)

TABLE I. Empirical Evidence on Day-Of-The-Week Effect

Sr. no.	Author	Data	Period of study	Findings
1.	Loughani and Chappel (2001)	KSE (Kuwait)	1993-1997	Trading returns are highest on the first trading day of the trading week.
2.	Bayar and Kan (2002)	Stock indices of Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong-Kong, Italy, Japan, The Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK and USA.	1993-1998	Volatility is lowest towards the end of the week in local currency returns and on Tuesday in terms of dollar returns.
3.	Hellstrom (2002)	207 stocks (Sweden)	1987-1996	(+ve) Tuesday and (-ve) Friday effect is confirmed.
4.	Bhattacharya et al. (2003)	BSE 100 Index	1991-2000	(+ve) Fri. return and (+ve) Thus. return.
5.	Kiymaz and Berument (2003)	1. TSE-Composite (Canada) 2. DAX (Germany) 3. Nikkei-225 (Japan) 4. FT-100 (UK) 5. NYSE-Composite (NYSE)	1988-2002	High volatility is accompanied with low trading volume.
6.	Kaur (2004)	1. BSE Sensex 2. S & P CNX Nifty 3. S & P 500 (US) 4. NASDAQ (US)	1993-2003	(+ve) Wed. returns.
7.	Lian and Chen (2004)	1.Kaula Lumpur Stock exchange Composite Index (Malaysia) 2.Singapore Stock Exchange (Singapore) 3.Jakarta Composite Index (Indonesia)	1992-2002	Day-of-the-Week effect exists. Different trading day's returns have been found in different sub-periods.

		4.Thailand Index (Thailand) 5.Philippines Composite Index (Philippines)		
8.	Nath and Dalvi, (2004)	S&P CNX Nifty	1999-2003	(+ve) Wed. return and (+ve) Fri. return.
9.	Savva et al. (2004)	1. DAX-30 (Germany) 2. FTSE-100 (UK) 3. CAC-40 (France) 4. IBEX-35 (Spain)	1993-2005	Negative news have greater impact on the market than the positive news. Spain, Greece, Finland, Netherlands, Denmark and Norway have exhibited Day-of-the-Week effect in trading returns.
10.	Holden and Thompson (2005)	1. ATX (Austria) 2. DAX (Germany) 3. BUX (Hungary) 4. WIG (Poland) 5. PIX (Czech Republic) 6. FTSE 100 (UK) 7. FTSE 250 (UK) 8. S & P 500 Share price (US)	1994-2004 1994-2004 1994-2004 1994-2004 1995-2004 1986-2004 1986-2004 1984-2005	No Day-of-the-Week effect is present in USA returns and very little evidence for Monday effect is found in Austria, Hungary, Germany, Czech Republic and Poland.
11.	Keef and Roush (2005)	S & P 500 (US)	1930-1999	Monday effect is absent in Pre-Holiday trading returns in the pre 1987era. The mean trading returns on the day before holiday falling on Wednesday are four times larger than the typical Pre-Holiday.
12.	Mangala and Mittal, (2005)	CNX Nifty Junior	1997-2003	(+ve) Wed. return and (-ve) Fri. return.
13.	Peng (2005)	ASX (Australia)	1992-03	Tuesday effect is present.
14.	Yakob et al. (2005)	Daily closing returns of Australia, China, Hong Kong, Japan, India, Indonesia, Malaysia, South Korea and Taiwan.	Jan, 2000-March, 2000.	Day-of-the-Week effect is found in Indonesia, China, Australia and Taiwan.
15.	Apolinario et al. (2006)	Daily closing returns of Germany, Austria, Belgium, Denmark, Spain, France, The Netherlands, Italy, Portugal, The United Kingdom, The Czech Republic, Sweden and Switzerland.	1997-2004	Monday effect is present in French and Swedish markets. Day-of-the-Week effect is present in all the financial markets except Portugal and Czech Republic.
16.	Boynton et al. (2006)	PACAP VW index (Hong-Kong)	1975-2001	Until 1990s, Tuesday has exhibits abnormal losses. In 1990s, Monday is exhibiting (-ve) return and there is a decrease in volume as well.
17.	Davidson (2006)	S & P 500 (US)	1970-2005	Monday has lowest trading returns and Wednesday has exhibited the highest trading returns.
18.	Mazumdar et al. (2006)	SPDRS (US)	1996-2003	Thursday effect is found and highest standard deviation is found on Monday.
19.	Sharma and Singh (2006)	BSE Sensex (India)	1992-2005	(-ve) Tues. and (+ve) Wednesday trading returns.
20.	Wickremasinghe (2007)	Daily and monthly share prices of 75 Companies (Sri Lanka)	1987-1999	(-ve) Tues. and (-ve) Wed. effect has been found.
21.	Kenourgios and Samitas (2008)	ASE Index Three major industry Index FTSE- 20 FTSE- 40	1995-2000	Stock market anomaly has weakened in both returns and volatility.
22.	Ali and Akbar (2009)	KSE 100 VW Index (Karachi)	1991-2006	Thursday effect has been documented.
23.	Rahman (2009)	DSI (Dhaka) DGEN (Dhaka) DSE 20 (Dhaka)	2005-2008	(-ve) Monday and (+ve) Thursday returns.
24.	Singhal and Bahure (2009)	BSE Sensex (India) BSE 200 (India) S & P Nifty (India)	2003-2008	(+ve) Fri. returns in all the three indices.

Where, AMEX EW = America Stock Exchange Equally weighted, AMEX VW = America Stock Exchange Value-weighted, ASX = Australian Index, ATX = Austrian Traded Index, BSE = Bombay Stock Exchange, BUX = Budapest Stock Exchange Index, CAC = Cotation Assiste En Continu, CNX = Crisil and National Stock Exchange Index of Fifty Stocks, DAX = Deutsche Aktien Indexe, DGEN = DSE General Index, DJIA = Dow Jones Industrial Average, DM = German Ma, DSI = Dhaka All Share Price Index, FT = Financial Times, Fri = Friday, FTSE = Financial Times Stock Exchange, HSI = Hang-Sang Index, IBEX = Iberia Index, ISECI = Istanbul Securities Exchange Composite Index, JCI = Jakarta Composite Index, KLSECI = Kuala Lumpur Stock exchange Composite Index, KSC = Korea South Composite, KSE = Karachi Stock Exchange, KUSE = Kuwait Stock Exchange, Mon = Monday, MSEC = Manila Stock Exchange Composite, NASDAQ EW = National Association of Security Dealers Automated Quotational Equally Weighted, NASDAQ VW = National Association of Security Dealers Automated Quotational Value Weighted, NYSE = New York Stock Exchange, PACAP VW = Pacific Basin Capital Market, PIX = Private Internet Exchange, SES = Stock Exchange of Singapore, SETI = Securities Exchange of Thailand Index, S & P 500 = Standard & Poor, SPDRS = Standard and Poor's Depository Receipts, TL = Turkish Lira, TSEI = Taiwan Stock Exchange Index, TOPIX =Tokyo Stock Price Index, Tues = Tuesday, USD = US Dollar, Wed = Wednesday, WIG = Warszawski Indeks Gieldowy, (+) indicates positive and (-) indicates negative trading returns on the particular day.

Source: Compiled from Various Research Studies.

The literature has supported that the reason for positive Wednesday trading returns might be due to the optimistic attitude of the Indian investors to make their dealings on Wednesday most of the times (2, 12, 27, 30) In Indian capital market, a number of studies have documented the positive Thursday effect (6, 8, 26).

There are some studies which are available to support the positive Friday effect (6, 25, 31) in the Indian stock market. The cause suggested by some of the pioneer studies for this particular effect might be the uncertainty of the opening position of the stock market on Monday. Some of the Indian researchers i.e. Goswami and Anshuman 2000; Bhattacharya et al. 2003 have employed the data based on mid-1980s and mid-1990s in their studies. All these studies except (6, 8) have used conventional methods like serial autocorrelation tests and or fitting an Ordinary Least Square (OLS).

The foregoing review of literature will be of immense help to the academicians, market investors, practitioners, market agents and regulatory authorities to understand whether information dissemination at Week-Ends affects the trading returns on other trading days or not. In such a way, empirical findings of the study can guide the future policy framework to exploit the opportunities arising in the stock market.

III. DATA BASE AND METHODOLOGY

The data constitutes a sample of 313 daily close-to-close observations for BSE-Sensex. The present study has selected the sample for the period from September 25, 2014 through December 31, 2015.

For the purpose of analysis, daily stock prices have been converted to daily returns. The present study employs the logarithmic difference for the first order as the logarithmic difference is symmetric between up and down movements and is expressed in percentage terms for ease of comparability with the idea of percentage change. If Pt be the closing level of prices on date t and Pt-1 be the same for the previous business day (omitting intervening weekend or stock exchange holidays), then the one day return on the market portfolio is calculated as:

$R_t = \log (Pt / Pt\text{-}1)$

Descriptive analysis has been used to examine Day-of-the-Week and Day-of-the-Week effect in Indian stock market.

Where,

$$Di = \begin{cases} 1: \text{ith day} \\ ; i = \text{Tues, Wed, Thurs, Fri} \\ 0: \text{otherwise} \end{cases}$$

IV. ANALYSIS & INTERPRETATIONS

EMH assumes that the returns for all trading days of the week are equal, which implies that in the market nobody has the capacity to secure abnormal returns. The results from analysis refute the existence of EMH and provide the evidence of existence of day-of-the-week anomaly in Indian stock market. The descriptive

statistics has been used for the analysis for the entire study period and with a view to obtain the overall assessment of Indian capital market to examine the features of the return distributions.

TABLE II. Descriptive Statistics (Sensex)

Variables	N	Mean	Maximum	Minimum	Standard Deviation	Skewness
Monday	64	0.219	3.11	-1.83	0.923	0.964
Tuesday	65	-0.029	2.66	-1.57	0.861	0.593
Wednesday	64	-0.168	2.35	-2.62	0.904	0.0220
Thursday	59	-0.117	2.20	-2.13	0.953	0.0421
Friday	59	0.112	6.11	-1.86	1.199	2.169
Total	311	0.004	6.12	-2.62	0.976	1.010

From the above Table, it has become evident that the trading returns in the period undertaken are not independent across different trading days and Indian stock market has proved inefficient, indicated the seasonal nature of Indian stock market. The trading returns are found highest on Monday, which is known as "Reversal of Monday Effect". The literature documents the presence of "Monday Effect, which states that trading returns are lowest and sometimes negative on Monday. But, the current study documents the opposite scenario of that. It clearly replicates that the Indian stock market is moving towards the efficiency.

However, trading returns are found lowest on Tuesday. Thus, a strong evidence for the presence of day of the week anomaly has been documented. Therefore, it is evident that the results from the above analysis refute the presence of EMH and help the investors by timing their strategies in advance to exploit the maximum benefit from trading activities. Summarizing the results of BSE-Sensex, there are different trading returns on different trading days in the period. The study has covered the period when the Make in India Project has been started in India. Reversal of Monday effect is found for the period.

V. CONCLUSION

The summary results of descriptive analysis of BSE-Sensex demonstrate that Monday is causing the highest variability in the weekly distribution of mean returns during the period. From the above discussion, it can be concluded that trading anomalies provide an opportunity to the investor with reference to the period undertaken in the context of Day-of-the-week effect help to earn maximum benefit, so that they might earn super-normal profits by keeping their investment decisions based on the purchase of securities on the day with lowest possible mean returns and sell them on a day which is providing the maximum possible average trading returns. The results clearly indicate that Indian stock market is moving towards the efficiency due to the presence of Reversal of Monday Effect. Above findings could possibly help in understanding and explaining stock market anomalies for the Indian capital markets. Hence, the need of the hour is to further look for the alternative explanations and to search for some new aspects related to the existing factors. Furthermore, the regulatory bodies, institutional investors and public figures may get a positive and creative impact on the presence and persistence of investment planning in the context of Day-of-the-Week effect.

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