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Calendar Variances in Indian Stock Market – Conceptual Perspective through Literature Survey (Day-of-the-Week Effect)

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ABSTRACT

The stock markets are vital economic institutions in developing countries like India, since they facilitate the transfer of private savings in to business investment and provide liquidity to investors. They are associated with wealth creation and capitalism. Stock exchanges allow businesses access to capital and provide opportunity to enhance their visibility and public image. This study investigates the existing literature in the field of Calendar Variances in Indian Stock Market. Calendar anomalies are market patterns that lead to abnormal returns and present a challenge to the EMH. The main intention of this Literature survey is to review various stock market variances that were experimental over time in different stock indices in India. The Variance analysed in this literature survey is the Day-of-the week-effect.

1. Introduction

The Efficient Market Hypothesis (EMH), popularly known as the Random Walk Theory, is the proposition that current stock prices fully reflect available information about the value of the firm, and there is no way to earn excess profits, (more than the market overall), by using this information. It deals with one of the most fundamental and exciting issues in finance – why prices change in security markets and how those changes take place. It has very important implications for investors as well as for financial managers.

The weak form of the theory states that public market information is fully reflected in prices and that past performance has no relationship to future returns – in other words, trends don't matter. The semi-strong form says that stock prices are updated to reflect both market and non-market public information. The strong form states that all public and private information is fully and immediately factored intoprices. The implication of EMH is that the market can't be beaten because all information that could predict performance is already built into the stock price. It states that all stocks are properly priced, and that abnormal returns cannot be earned by searching for mispriced stocks and future prices cannot be predicted. However, sometimes there are market patterns that can lead to abnormal returns, thus violating the efficient market hypothesis, particularly the **semi-strong EMH**, which predicates that abnormal returns cannot be earned by learning all the available public information on companies and their stocks.

2. Variances in Indian stock market

A market anomaly in a financial market is a price and/ or rate of return distortion that seems to contradict the efficient-market hypothesis.

Anomalies / Variances could be fundamental, technical, or calendar related. Fundamental anomalies include value effect, small-cap effect (low P/E stocks and small cap companies do better than index on an average) and the low-volatility anomaly. Calendar variances involve patterns in stock returns from year to year or month to month, while technical anomalies include momentum effect.

The Calendar Variances can be categorized as follows:

- Day-of-the-Week effect
- End-of-the-Day-effect
- Holiday effect
- Intra-Day effect
- January effect
- Monday/Week-End effect
- Monthly/Turn-of-the Month effect
- Tax-Year effect
- Week-of-the-Month effect

This paper investigates only the Day-of-the week-effect in the Indian Stock market.

2.1 Day of the Week Effect

The day-of-the-week effect describes a situation in which returns are significantly different on one day of the week compared to other days. Negative Monday returns and positive Friday returns are the most com mon. The day-of-the-week effect has been one of the most frequently studied variances over the years.

3. Review of Literature

Day – of – the – Week Effect

The Literature review will give an idea about the existence/non-existence of Day-of-the-week effect in the Indian Stock Market.

- **P. Srinivasan and M. Kalaivani** in their study entitled **"Day-of-the-Week Effects in the Indian Stock Market"** analysed empirically the Day-of-the-Week effect on stock returns and volatility of the Indian stock Markets. They chose two indices – BSE Sensex and NSE Nifty. The analysis was done for the period ranging from 1st July 1997 ti 29th June 2012. GARCH, EGARCH and TGARCH Models were utilized to indicate the existence of the Day-of-the-Week effects on stock returns. The study revealed Positive Monday and Wednesday and Negative Tuesday Effects. Moreover the average return of Monday is significantly higher than average return of Wednesday. The study also signifies that the traders have a great opportunity for predicting the future prices and earning abnormal profits in the Indian Stock Markets because of the Day-of-the-Week variances.

- **Dr. Vandana Khanna** in her study **"An Analysis of Day-of-the-Week Effect in Indian Stock Market"** examined the effect of trading days in the Indian Stock Market by analysing the daily closing prices of BSE – Sensex for the period January 31, 2006 to December 31, 2010. Descriptive Statistics and ARIMA models were used for the analysis. The study observed that there is a significant relationship between the returns of different trading days of the week. Maximum average positive returns were present on Tuesday. The study proved the presence of Day-of-the-week anomaly in the Indian stock market.

- **Dr. Sanjeet Sharma** in his study entitled **"Day Of Week Effect: Evidences From Indian Stock Market"** attempted to test the existence of Day-of-the-Week effect in Indian Stock Market. For this purpose, data was collected for the period from January 2008 to December 2009 for two indices: Sensex and Nifty. Unit Root Tests, Runs Test, Kolmogorov-Smirnov Test, T-test and ANOVA were used for the purpose of analysis. Contradictory to the previous studies, the result of this study showed that the the Day-of-the-Week effect do not exist in the Indian Stock Market. However the scope of the study was limited since it was carried out with data for two years only.

- A research was carried out by **Geetha Sulur Nachimuthu** and **Shanmugha Priya Sulur Nachimuthu** on **"Day of the Week effect in Indian Stock Markets An Analysis across Major Sectors in National Stock Exchange, India"** by analysing the daily closing values of S&P CNX Nifty and indices of ten major industrial sectors for a period of 5 years from January 2009 to December 2013 to investigate the weak form efficiency across various sectors of Indian stock market. Tools used for the study were Descriptive Statistics, Kruskal Wallis Test and Regression Equation. The study provided evidence for seasonality of returns with high returns on Wednesday in majority of the Indices.

- **J. Sudarvel, Dr. R. Velmurugan and Dr. K. Kumuthadevi** in their study **"Day of The Week Effect in Indian Stock Market"** attempted to investigate the existence of Day-of-the-Week effect in Indian Stock market by utilizing the Daily return data of BSE – Sensex and NSE – Nifty Index for the period April 2015 to March 2016.The data collected were analysed by applying Ordinary Least Square (OLS) and Descriptive Statistics. The study revealed that Indian Stock market is full of anomalies and Day-of-the-week effect patterns in return and volatility can enable investors to take advantage of relatively regular market shifts by designing trading strategies.

- A study made by **Vandana Sharma** and **Balwinder Singh** on "**Day-Of-The-Week Effect And Indian Stock Market"** revealed the presence of Weekend effect i.e., negative Monday and positive Friday returns. For this purpose, data was collected for a period of 14 years from January 1992 to October 2005. The study was based on daily closing prices of Sensex. Tools used for the study were Descriptive Statistics and ARIMA models.

- **Amitabh Gupta** in his study entitled **"Day-of-the-Week Effect on the Indian Stock Market: New Evidence"** re-examined the Day-of-the-Week Effect on the Indian Stock Market after the introduction of the compulsory rolling settlement for a three year period April 1 2002 to March 31 2005 for BSE -100 and S&P CNX 500 Index. Non-parametric test was used for the analysis and the study proved the existence of the Day-of-the-Week effect and showed that the returns on Friday was the highest compared to other trading days.

- **Nagesh Malavalli** and **S Sathyanarayana** in their study entitled **"An Analysis of the Day-of-the-Week Effect in the Indian Stock Market: Evidence from Bombay Stock Exchange"** attempted to empirically analyse the Day-of-the-week effect in the Indian Stock Market by choosing the BSE – Sensex index for the period April 2004 to March 2014. The tools used for the study were Unit Root test, Descriptive Statistics, OLS Regression Models and ANOVA. Contrary to the other studies, the study failed to support the existence of Day-of-the-Week Effect in Indian Stock Markets, This again might be due to the fact that the study was conducted for a long period of time.

- **Prateek Verna** in his study **"An Empirical Analysis of Day of the Week Effect in BSE BANKEX"** explored Day-of-the-Week effect in BSE – BANKEX. The Index has been analysed for a period of 10 years from 1st April 2005 to 31st March 2015. The tools used for analysis were dummy variable regression and ANOVA. BSE BANKEX is an important representative index of top banks in India. The Empirical results of the study revealed that there is no day of the week effect in Indian Stock Market with respect to BSE – BANKEX.

- **S N Sarma** in his study entitled **"Stock Market Seasonality in an Emerging Market"** observed three indices Sensex, Natex and BSE – 200 for a period ranging from 1st January 1996 to 10th August 2002 to explore the day-of-the-week effect. The study employed the daily mean index value for generating the daily returns. A Non parametric test – Kruskall Wallis test using 'H' Statistic was employed to test the seasonality. The study concluded that Indian stock markets do manifest seasonality in their returns' pattern.
- **Dr. Hem Chandra Kothari, Dr. Praveen Singh and Dr. Sidheswar Patra** in their study entitled **"Existence of Day-of-the-Week Effect: Evidence from Indian Stock Market"** attempted to empirically analyse the Day-of-the-Week effect on the return and volatility of BSE and NSE indices for the period of 2005 to 2014. The tools used for the study include Descriptive Statistics, T-test and ANOVA. This study did not find such effect in most of the indices taken for the study.

SL. No.	Name of the Authors	Period of Study	Tests Applied	Indices Used	Findings
1	Srinivasan.P & Kalaivani.M	1st July 1997 to 29th June 2012	GARCH , EGARCH & TGARCH models	NSE – Nifty BSE - Sensex	Indian Stock Markets are weak-form inefficient.
2	Dr. Vandana Khanna	1st January 2006 to 31st Dec 2010	ARIMA model	Daily closing prices of Sensex	Refutes the presence of EMH
3	Dr. Sanjeet Sharma	Jan 2008 to Dec 2009	Unit Root tests, Run test, Regression models	Sensex & NIFTY	Day of the week effect do not exist.
4	Geetha Sulur Nachimuthu & Shanmugha Priya Sulur Nachimuthu	Jan 2009 to Dec 2013	Descriptive Statistics, Kruskal Wallis test & Multiple Linear regression	S&P CNX NIFTY, Indices of 10 Major Industrial Sectors	Efficient in its weak form across major industrial sectors.
5	Ramaswamy Velmurugan, J. Sudarvel & K. Kumuthadevi	April 2015 to March 2016	Descriptive Statistics, Ordinary Least Square	Sensex & NIFTY	Prevalence of the Day of the week effect
6	Vandana Sharma, Balwinder Singh	January 1992 to Oct 2005	ARIMA tests, Descriptive Statistics	Closing prices of Sensex	Presence of weekend effect
7	Amitabh Gupta	April 2002 to March 2005	Non- Parametric tests	BSE 100 & S&P CNX 500	Presence of the Day of the week effect
8	Nagesh Malavalli & S. Sathyanarayana	2004 to 2014	Unit Root test, Descriptive Statistics, Ordinary Least Square	BSE Sensex	Absence of the Day of the week effect
9	Prateek Verma	1st April 2005 to 31st March 2015	Regression, ANOVA	BSE - BANKEX	Presence of the Day of the week effect
10	S N Sarma	1st Jan 1996 to 10th Aug 2002	Kruskall – Wallis test	Sensex, Natex & BSE 200	Indian Stock Markets do manifest seasonality
11	Hem Chandra Kothari, Praveen Singh & Sideshwar Patra	2005 to 2014	Descriptive Statistics, t-test & ANOVA	BSE – Small Cap, Mid Cap Nifty Junior	Existence of the Day of the week effect

4. Conclusion

Stock Market efficiency is a very important concept while attempting to understand the working of the capital markets. The day-of-the-week effect refers to the existence of a pattern on the part of stock returns. These stock returns are linked to a particular day of the week. This study attempts to understand the concept of volatility in the prices of stock market and to provide a conceptual framework of Analysis of Calendar Variances in Indian Stock Market with the evidence of several literature. The study is limited only to the available literature on this specific area, but the scope for further investigation is very high While Reviewing Literature, the studies relating to the analysis of Day-of-the-week effect alone were chosen. The indices mostly chosen for the study were BSE – Sensex, S&P CNX Nifty and Indices for selected sectors.

Majority of the articles reviewed suggest the existence of calendar anomalies. This study suggests to investors that the existence of calendar variances may provide opportunities to formulate profitable trading strategies so as to earn abnormal return and adopt a fair return for risk strategy but SEBI should take necessary steps to increase the efficiency of Indian Stock Markets and thereby protect the genuine investors.

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