Evidence for Seasonality and Change in Seasonal Trends **9**
in Indian Stock Market
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EVIDENCE FOR SEASONALITY AND CHANGE IN SEASONAL TRENDS IN INDIAN STOCK MARKET

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──────── **ABSTRACT** ────────

The existence of calendar anomalies is a denial of the frail form of the efficient market hypothesis that positions that the returns of the shares are invariable over period, which means that there is no short-term foreseeable model in the returns of the shares of the seasonal pattern or calendar anomalies in the act of securities indicates that a market is incompetent and investors should be able to obtain anomalous returns. This is the reason why the researcher was interested in finding out the being of anomalies of the calendar in the returns of the shares in diverse markets. Investors worry about market efficiency, investor timing and market integration with other established republics. The present study would be useful for the investor, traders and arbitrageurs who could formulate profitable business strategies if they were able to predict the behavior of the share price with complete info on such anomalies.

Keywords : Calendar Anomalies, Efficient Market Hypothesis, Investors, Arbitrageurs

INTRODUCTION ABOUT TOPIC

The inconsistencies of the monetary markets are time-arrangement and transversal time-arrangement plans which are not anticipated by an imperative worldview or hypothesis. As per Efficient Market Hypothesis, security costs completely mirror all the required information accessible in the market. A market is agent with a given arrangement of required information/data in the event that it is difficult to have anomalous return balanced for the hazard and cost of exchange by share exchanging based on that accessible information and data. Instability is high second world budgetary emergency. At the point when money markets is more unstable, the cost of offers might be increment or abatement haphazardly at various time and speed. With the assistance of this make break even with open doors for the financial specialist. In a gathering or a subsidence, certain activities will prompt your part and the tremendous market. All in all, you ought to compose the hardest activities in a rally and abbreviate the delicate in a specialty. One must keep away from the supporters. In any case, under specific conditions, a supporter can be a chaste choice. Of late, a forceful follower can race to defeat a pioneer. This gives you least two intends to make a benefit – begin running with a pioneer, at that point change your cash and keep running with a damaging supporter. The effective market theory prescribes all qualities are valued productively to completely mirror all key data. A proficient market is one in which every undiscovered return are dispensed with by arbitrage. In money related market, particularly on account of offer returns different regulatory impacts have been watched that it produces higher or bring down profits depending for the time. They are called anomalies as they can't be depicted by antiquated models at deciding resource costs. Cases of such events incorporate - the effect of January, the day of the week effect and the effects of the seven day stretch of the month. The nearness of such inconsistencies damages the feeble type of market productivity, since resource costs are not easy going, but rather predictable based on a timetable impact. This enables agents to develop business plots that produce irregular benefits in light of such peculiarities. For instance, agents will offer stocks on Friday and will purchase on Monday to exploit these effects. The seasonality effect is also called a calendar effect. The

effect of seasonality incorporates numerous effects connected to the time factor and is one of the principle models of anomalies in market efficiency. Seasonality in stock returns is a theme firmly identified with the Efficiency of the Weak Form. When the efficiency of the weak form is analyzed, the arrangement of applicable data is restricted to the past costs. Be that as it may, the seasonality of equity returns, as a relentless marvel, suggests that financial specialists have diverse rates of return required in unsafe resources, contingent upon which calendar month a month to month investment is made. Financial specialists attempt to determine a specific timeframe or a gathering of time, to test the uncommon marvel on value returns and afterward check whether any of the tenets can be taken after or any open door for hypothesis that can be gotten a handle on. Calendar effects include: January effect, Effect of the day of the week, Effect of the month of the year, Effect of the semimarring, Effect of the holidays, Monday effect, Effect of the weekend and Effect of the change of the year and so forth. Point by point clarifications are given underneath.

LITERATURE REVIEWS

Understanding of any subject depends on a knowledge of the related literature. A knowledge of the literature helps not only to identify the scope of the subject, but also facilitates the design of the study in a better way. Therefore, a review of the studies available in the field of investment in the stock market.

Holiday Effect is one of the factors that influenced Sensex Returns in the Indian market, which was studied by Shankar G. and Kallarackal T. (2016) 1 examine the festive effect in the BSE Indian BSE Indices. Data collected by BSE sensex from December 31, 2009 to December 28, 2015. This survey considered the return of sensex after the holidays and after the holidays and the influence of six national holidays considered for the study. Data collection for this study is secondary information. With the help of Wilcoxon, the signed-rank test of the nonparametric statistical hypothesis test is used to compare the two related samples. The study found that there is a significant change in the sensex returns after the holidays compared to the sensex returns before the holidays.

Day of the week is one of factor that affected return was studied by Allan Muchemi Kuria and Dr. George Kamau Riro (2013)9, surpassed that the time interval between the end of the week and Nairobi Securities Exchange (NSE). Malavalli N. and Satyanarayana S (2015) 4

examine the anomaly effect of the Week Day in the emerging stock market in a developing economy such as India and Prateek V. (2016) 2 BSE indices in India in 2016 and found that Investors are more worried about which day of the week is the best day for the exchange. The researcher found that BSE Sensex does not show the effect of the "Day of the week" effect or seasonality. The index is efficient and there is no anomaly in effect on the day of the week in the Indian stock market. It was also discovered that Monday yields and Friday returns are not significant compared to other days of the week. (Prateek V., 2016). Several hypotheses have been formulated with the ANOVA model for the study. The analysis shows the presence of the day of the effect in the NSE. (Allan Muchemi, Dr. George, 2013).

Another similar anomaly is the effect of the month variation that exists when the average daily yield of the month change is higher than the daily return on the remaining days of the month. Desai J. and Joshi N. (2015) 3 in their study found that the average daily performance of the shares was positive and higher during the first half of the month compared to the second half. The study also examines the effect of seasonality on Indian indices and indices through different approaches, such as the calendar day approach, the day of the week approach and the week of the month approach. The results of all the approaches reveal that the returns were significantly higher in some days and periods in a month. It was observed that no effect of the day of the week was observed in the study. The researcher could find different explanations for the anomalies observed on the basis of previous studies, but none could provide adequate explanations for the observed regularities of return.

RESEARCH METHODOLOGY

RESEARCH OBJECTIVES: The objectives of the studies are as follow;

- To investigate the existence of Day of the Week effect in the BSE SENSEX & NSE NIFTY Indices.

- To identify the Monthly Effect in the BSE SENSEX & NSE NIFTY Indices.

- To check the Turn of the year effect in the BSE SENSEX & NSE NIFTY Indices.

- To check the Holiday Effect in the BSE SENSEX & NSE NIFTY Indices.

HYPOTHESES OF THE STUDY

The following Hypotheses were developed and verified.

Ho : There is no Holiday effect in BSE Sensex.

(Other Hypothesis Day of week effect, Monthly effect, Turn of month effect)

H1 : There is Holiday effect in BSE Sensex.

(Other Hypothesis Day of week effect, Monthly effect, Turn of month effect)

In this Researcher has used descriptive research design. For this study, researcher has considered an India's two main Indices BSE and NSE. Researcher has used secondary data by collecting daily closing value of indices from Indian stock market. The closing values are collected from different websites like nseindia.com & bseindia.com. The researcher has also collected information from various research journals, Articles, from newspaper and Annual reports of various organization. Researcher has collected required data ranging from January 2009 to December 2018. For data analysis, researcher has used various statistical tools like Ms. Excel and SPSS. Researcher has used non parametric test to measure the significance difference between mean of daily return of each investigate month against other month of year.

DATA ANALYSIS AND INTERPRETATION

Table No. - Wsilcoxon Signed Ranks Test for Holiday effect in NSE Index Return

Ranks

		N	Mean Rank	Sum of Ranks
Friday Return NSE - Monday Return NSE	Negative Ranks Positive Ranks Ties Total	255[a] 230[b] 0[c] 485	236.51 250.20	60310.00 57545.00

a. Friday Return NSE < Monday Return NSE

b. Friday Return NSE > Monday Return NSE

c. Friday Return NSE = Monday Return NSE

Test Statistics[a]

	Friday Return NSE - Monday Return NSE
Z Asymp. Sig. (2-tailed)	-.448[b] .654

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

INTERPRETATION

The table shows the results of wilcoxon sign rank test. The negative mean rank = 236.51 and positive mean rank =250.20, z = -0.448 and p=0.654(>0.05) Hence Ho cannot be rejected at 5 percent level of significance. So it can be concluded that there is no holiday effect on NSE index.

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Table : Descriptive Statistics for Days in NSE

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
NSERMON DAY	485	-5.92	17.74	.0900	1.45630	3.369	.111	45.401	.221
NSERTUES DAY	485	-3.77	3.81	.0026	1.06086	-.037	.111	1.751	.221
NSERWEDNES DAY	485	-6.18	3.87	.0846	1.04136	-.069	.111	3.909	.221
NSERTHURS DAY	485	-4.08	4.92	.0226	1.08078	-.049	.111	1.808	.221
NSERFRI DAY	485	-4.08	3.89	.0838	1.10913	.155	.111	.656	.221
Valid N (listwise)	485								

Above table indicates that results of Descriptive Statistics for day wise return for NSE Indexes during the study period of from 1st January 2009 to 31st December 2018. The above table clearly indicates that there is highest mean return (0.900) recorded on Monday with the Standard deviation of 1.45630. It is to be noted that all the returns of all-day of week are positive. The highest value of Standard deviation (1.45630) was recorded on Monday during the study period. This clearly states that the Market was more volatile on Monday and least volatile on Wednesday during the study period. The least value of standard deviation (1.04136) was observed on Wednesday. The kurtosis measure of return distribution was leptokurtic for all the days of the week, i.e greater than 3 showing the highest Value on Monday. The Day wise return is positively skewed on Monday and Friday while negatively on and Tuesday, Wednesday, and Thursday.

Table : Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
BSERJAN	210	-7.25	3.80	-.0044	1.24913	-.963	.168	5.954	.334
BSERFEB	197	-3.79	3.04	-.0741	1.10983	-.517	.173	1.157	.345
BSERMAR	207	-4.78	5.10	.1613	1.21853	.345	.169	3.236	.337
BSERAPR	189	-3.25	4.51	.1263	1.04284	.429	.177	2.362	.352
BSERMAY	210	-2.77	17.34	.1572	1.71877	5.060	.168	47.822	.334
BSERJUNE	210	-2.91	3.14	.0827	1.04198	-.019	.168	1.025	.334
BSERJULY	210	-5.83	3.47	.0931	1.02732	-.552	.168	5.710	.334
BSERAUG	209	-5.94	3.58	-.0560	1.14620	-.834	.168	4.275	.335
BSERSEPT	203	-4.13	3.77	.1022	1.10396	-.060	.171	1.530	.340
BSEROCT	200	-2.31	2.98	.0787	1.01487	.339	.172	.244	.342
BSERNOV	201	-3.09	3.29	-.0045	1.01760	.027	.172	.767	.341
BSERDEC	210	-2.31	3.36	.0231	.90494	.288	.168	1.195	.334
Valid N (listwise)	189								

From the Above table no 4.6 we can interpret that result of Descriptive Statistics for Monthly return for BSE SENSEX during the study period from 1st January 2009 to 31 December 2018. Table clearly indicates that there is highest mean return (0.1613) in month of the March followed by May (0.1572) with the Standard deviation of (1.71877). The Highest mean return is Observed in the Month of March and May. The highest value of Standard deviation is 1.71877 was noted in the month of March during the Study period. The skewness measure of return was 5.060 in May and with kurtosis measure (47.822). And least return in skewness is (-0.019) in June and in kurtosis is (0.244) in October. The return is positively skewed in Mar, Apr, May, Oct, Nov and Dec, while negative on Jan, Feb, June, Jul, Aug, Sep. The kurtosis was positive for every return of the month.

Table : Descriptive Statistics For yearly Return of BSE Sensex

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
BSER2009	242	-7.25	17.34	.2588	2.22576	1.714	.156	14.027	.312
BSER2010	242	-2.92	3.35	.0584	1.02068	-.193	.156	.551	.312
BSER2011	242	-4.13	3.58	-.1006	1.32795	.305	.156	.065	.312
BSER2012	242	-2.67	2.72	.0950	.92998	.132	.156	.592	.312
BSER2013	242	-3.97	3.77	.0355	1.10583	-.058	.156	1.349	.312
BSER2014	242	-2.02	2.91	.1097	.79640	.127	.156	.598	.312
BSER2015	242	-5.94	2.66	-.0244	1.02767	-.956	.156	4.136	.312
BSER2016	242	-3.40	3.38	.0031	.93615	.008	.156	1.129	.312
BSER2017	242	-1.39	1.76	.0999	.56652	-.028	.156	.180	.312
BSER2018	242	-2.34	2.15	.0200	.79706	-.287	.156	.431	.312
Valid N (listwise)	242								

From the Above table we can interpret that result of Descriptive Statistics for Yearly return for BSE SENSEX during the study period from 1st January 2009 to 31 December 2018. Table clearly indicates that there is highest mean return (0.2588) in year of the 2009 followed by 2014 (0.1097) with the highest Standard deviation of (2.22576) was recorded on year 2009. The Highest mean return is Observed in the year of 2009 and 2014. The highest value of Standard deviation is 2.22576 was noted in the year 2009 during the Study period. The skewness measure of return was 1.714 in 2009 and with kurtosis measure (14.027). Least return in skewness is (-.028) in 2017 and in kurtosis is (.180) in 2017. The return is positively skewed in 2009,2011,2012,2014 and 2016, while negative on 2010,2013,2015,2017 and 2018. The kurtosis was positive for every return of the month.

FINDINGS (BSE)

• In descriptive statistics for days in BSE Sensex , there is highest mean return (0.949) recorded on Monday with the Standard deviation of 1.45568. It is to be noted that all the returns of Monday, Tuesday, Wednesday and other rest of the days are positive. The highest value of Standard deviation (1.45568) was recorded on Monday during the study period.

• This indicates that return is positively skewed on Monday, Tuesday and Friday while negatively on and Wednesday and Thursday.

• In descriptive statistics for Monthly in BSE Sensex , there is highest mean return (0.1613) in month of the March followed by May (0.1572) with the Standard deviation of (1.71877). The Highest mean return is Observed in the Month of March and May. The highest value of Standard deviation is 1.71877 was noted in the month of March during the Study period.

• This indicates that return is positively skewed in Mar, Apr, May, Oct, Nov and Dec, while negative on Jan, Feb, June, Jul, Aug, Sep. The kurtosis was positive for every return of the month.

- In descriptive statistics for Yearly in BSE Sensex, there is highest mean return(0.2588) in year of the 2009 followed by 2014 (0.1097) with the highest Standard deviation of (2.22576) was recorded on year 2009 during the Study period.

- This indicates that return is positively skewed in 2009,2011,2012,2014 and 2016, while negative on 2010,2013,2015,2017 and 2018. The kurtosis was positive for every return of the month.

FINDINGS (NSE)

- In descriptive statistics for days in NSE Nifty , there is highest mean return (0.900) recorded on Monday with the Standard deviation of 1.45630. It is to be noted that all the returns of all-day of week are positive. The highest value of Standard deviation (1.45630) was recorded on Monday during the study period.

- This indicates that Day wise return is positively skewed on Monday and Friday while negatively on and Tuesday, Wednesday, and Thursday.

- In descriptive statistics for Monthly in NSE Nifty , there is highest mean return (0.1716) in month of the March followed by May (0.1476) with the Standard deviation of (1.71477). The Highest mean return is Observed in the Month of March and May. The highest value of Standard deviation is 1.71477 was noted in the month of May during the Study period.

- This indicates that return is positively skewed in Mar, Apr, May, Oct, and Dec, while negative on Jan, Feb, June, Jul, Aug, Sep and Nov.

- In descriptive statistics for Yearly in NSE Nifty, there is highest mean return (0.2462) in year of the 2009 followed by 2014 (0.1142) with the highest Standard deviation of (2.18603) was recorded on year 2009. The Highest mean return is Observed in the year of 2009 and 2014. The highest value of Standard deviation is 2.18603 was noted in the year 2009 during the Study period.

- This indicates that return is positively skewed in 2009,2011,2012 and 2014 while negative in the year 2010,2013,2015,2016,2017 and 2018.

CONCLUSION

- The Present study investigated the existence of the day effect (Calendar Anomalies) on BSE and NSE indices. The study analyzed the calendar anomaly in BSE Sensex and NSE return for the study period. The study found that there was positive mean return recorded for all days of the week except Wednesday and Thursday and highest mean return was recorded on Monday in BSE and NSE, and lowest mean return recorded on Tuesday in both indices. For the BSE Sensex, It was found that all the returns of Monday, Tuesday, Wednesday and other rest of the days are positive. The highest value of Standard deviation was recorded on Monday during the study period. The Market was more volatile on Monday and least volatile on Tuesday during the study period. The return is positively skewed on Monday, Tuesday, and Friday while negatively on Wednesday and Thursday

- To find out the holiday effect, the daily return of Friday and Monday has been calculated. T-test has been used to test the hypothesis that there is no holiday effect. We found that there is no holiday effect. We do not find any holiday effect on the return. It may be a positive signal for investors' psychology. The results of the study suggest that in most of the case calendar anomalies are not present in Indian stock market.

- The monthly analysis found that the highest mean return is observed in the Month of September followed by March. The highest value of Standard deviation was noted in the month of May during the Study period. The return is positively skewed in Mar, Apr, May, Oct, Nov and Dec, while negative on Jan, Feb, June, Jul, Aug, Sep. The kurtosis was positive for every return of the month.

- For the NSE, The day wise analysis found that the all the returns of Monday, Tuesday, Wednesday, Thursday, and Friday are positive. The highest value of Standard deviation was recorded on Monday during the study period. That the Market was more volatile on Monday and least volatile on Tuesday during the study period. The Day wise return is positively skewed on Monday and Friday while negatively on and Tuesday, Wednesday, and Thursday.

SUGGESTIONS

Based on the research, the followings are some suggestion for the investors:

- From the analysis of the day of the week effect, it is suggested to the trader/financer may buy the share on Monday and sell the share on Friday because they may be the better return on other days of the week.

- Analysis of month of year effect, it is suggested that highest return of mean (BSE) in the month of March and mean (NSE) month of March. Hence we can say

that seller want to share the share in case of BSE and NSE for the better return than March and March could give better profit.

- Based on the finding, it is suggested to the investor to sell the security on pre-holiday and wait to a buy share on post-holiday. Also, investors have to prepared plan for buying.

- The existence of turn of the month effect of market anomalies in Indian stock market is against the theory of market efficiency, which is an alarming situation. The policymakers may make appropriate arrangement to control this calendar anomalous behaviour of the market to protect the interest of buyer and seller.

- The implication of acceptance of weak and semi strong form of efficiency for buyer and seller is that they have to adopt a risk-free return strategy by holding a well-diversified portfolio while investing in the stock market.

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