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## LETTER OF APPRECIATION

## Esteemed Author (s)

Please accept my heartiest felicitations on very kindly sending your valuable article/research paper titled 'AN EMPIRICAL ANALYSIS OF SEMI-MONTH AND TURN OF THE MONTH EFFECTS IN INDIAN STOCK MARKET' for publication in International Journal of Research in Commerce, Economics & Management (IJRCM), Volume No. 1 (2011), Issue No. 3 (July).

Our editorial board has highly appreciated your invaluable piece of research. The researchers and the academics have conveyed their views and its worth have been appreciated by one and all.

With sincerest regards and profuse thanks for your contribution.

Sincerely Yours

**Authorised Signatory** 

EJ. R. C. M.

Success has two roots merit & aggressiveness. In theory, merit suffices, but not in practice . Neither merit nor aggressiveness alone avail. They must be mixed in the right proportion. The Secret of success in life is for a man to be ready for his opportunity when it comes

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# EMPIRICAL ANALYSIS OF SEMI-MONTH AND TURN OF THE MONTH EFFECTS IN INDIAN STOCK MARKET

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#### **ABSTRACT**

more roses various issues all over the world. Earlier research studies give evidence that the capital markets are informational and the market consistently on the basis of price change predictions. However, some researchers have also brought into light anomaly (Semi-month and Turn of the month effects) in an anomaly (Semi-month and Turn of the month effects) in an anomaly (Semi-month and Turn of the month effects) in an anomaly (Semi-month and Turn of the month effects) in an anomaly (Semi-month and Turn of the Month Effect and analyzed for a period of six years from 1<sup>st</sup> January 2005 to the study found that the semi-month and turn of the Month Effect not exists in Indian Stock Market during the study period.

#### **ETWORDS**

Seesonal effects / Calendar Anomalies, Monthly Effects, Semi-month Effect, Turn of the Month Effect.

#### NURRODUCTION

EMH) is one of the highly researched areas of financial economics. One of the significant anomalies of EMH is seasonal effect.

The existence of the significant anomalies of EMH is seasonal effect. The existence of the significant anomalies of EMH and it implies market inefficiency. Several research studies and tests investigated the seasonal differences among stock returns were found to occur with regularity. These shades been termed as Anomalies. An investigation in to these anomalies can be used to frame investment strategy to outperform the officerent patterns identified in stock returns include the January Effect, Day of The Week Effect, different monthly effect like the seasonal differences among stock returns are found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity. These seasonal differences among stock returns were found to occur with regularity.

#### MEWEW OF LITERATURE

which is a second secon \*\*\* The study found that the response to meeting that the impact of good and bad news was not the same. The return and volatility on various weekdays have somewhat The second of soling Settlement. There was mixed evidence of return and volatility spillover between the US and Indian Markets. B. S Badla I was a second control of the anomalies by segmenting pre and post rolling settlement. The result of this study found that the returns of the and the sample of 75 companies from the Indian Stock Market. Guneratne B Wickremasinghe (2007) using the sample of 75 companies from SEE, found that there were no statistically significant differences among the returns for different days of the week. The analysis of The study found that daily and monthly and be used to devise any method to profit from trading in shares in the Colombo Stock Exchange (CSE) Hareesh Kumar. V and Malabika The property of Indian Stock Market by using S&P CNX 500 Index. They discovered the presence of Day of the Week Effect in the Indian The stock returns and volatility, thereby proving the Indian Stock Market to be inefficient. Ushad Subadar Agathee (2008) Secretary of Stock Exchange of Mauritius (SEM) to be the lowest in the Month of March and Highest in the Month of June. The equality of The same statistically the same across all months. The regression analysis reveals that returns are not independent on the Section 2015 and a second for languary. Khokan Bepari and Abu Taher Mollik (2009) investigated the existence of seasonality in return series of DSE of The study found that The second second invalidated the paradigm of the efficient market hypothesis in DSE. Selvarani, M and Leena Jenefa (2009) analyzed the means and daily returns. A set of parametric and non-parametric tests were employed to test the equality of mean returns and standard The second state in the NSE, there was strong evidence of April and January Effect. After the introduction of the Rolling Settlement, Find the Decome significant. As far as the Day Effect was concerned, Tuesday Effect was more prevalent than Monday Effect. Nageswari.P and Selvam.M seasoned the Day of the Week Effect on the Indian Stock Market after the introduction of the Compulsory Rolling Settlement. It was found that the The second secon Section 1981 Section 1981 Servam. M and Karpagam. V(2011) examined the existence of Semi-month Effect in Indian Stock Market. The study found that The mean returns in the first half calendar month was lower than the mean returns in the second half calendar month during the study period. The paper ins an insignificant semi-monthly effect across all years except for 2005-06.

an overview of the presence of Monthly Effects in various Stock Markets. An attempt has been made in this study to analyze the

#### STATEMENT OF THE PROBLEM

Somewhat generally release good and bad news between First half month and last half Month respectively. As a result, the bad news prices and good news is reflected in higher stock prices. When new positive information reaches the market, the prices become The active trading strategies, based on the knowledge of market anomalies, would provide benefits to the investors; but the also exploit the excess return over time. In the process, observed anomalies will eventually disappear and pave the way to make the there has been little published work on seasonalities in the Indian Stock Market. The previous researchers on the Indian Stock Market. The previous researchers on the Indian Stock of the week or month of the year. To the author's knowledge, there has not been any published article on the semi-effect in Indian context. In this environment, it is necessary to study the Semi-Month and turn-of the Month Effects in Indian Stock

#### MEETS OF THE PRESENT STUDY

efficiency, timing of investment, and the market integration with other developed countries. The present study would be useful to arbitrageurs who could formulate profitable trading strategies if they were able to predict the share price behavior with full arbitrageurs. The share price behavior in one market spreads slowly to the other developing and developed markets. Since the presence of the markets was proven, these anomalies should be investigated in India. Such detailed investigation of the Calendar Anomalies like

#### **COMMENTALES OF THE STUDY**

The second state of the accomplish the following objectives

- The Turn of the Month Effect in the Indian Stock Market.
- Semi-Month Effect prevalent in the Indian stock market.
- The summarize the findings, Suggestions and Conclusions.

#### HHPROTHESIS OF THE STUDY

The comments are importnesses were tested in this study.

The same semificant difference between the returns of the first half month and rest of the month.

#### WETHODOLOGY OF THE STUDY

MISHIPPE SESTION

S&P CNX Nifty and BSE Sensex Index were considered as sample since these two indices are important indices of the Indian Stock senses indices are considered to be the best indicators of the performance of the whole economy. Hence, this study considered these

#### BESTURES OF DATA

The present study were the daily closing prices of S&P CNX Nifty Index and BSE Sensex and they were collected from the Prowess,

#### DIRECTOR THE STUDY

December 2010.

#### EM-MONTH EFFOT

To the return of first 15 days (1-14 days of the current month and 30th &31st days of the preceding month) have been compared with rest of

## TURN OF THE WONTH EFFECT

and spices to increase during the last two days and the first three days of each month, is called Turn of the Month Effect. For the purpose of the return on last two trading days of the month, and the first three days of the subsequent month has been computed and compared the rest of the days in the subsequent month.

#### THESE SEED FOR ANALYSIS

and sensex Index. The following were calculated,

for each of the index series as the continuously compounded daily percentage change in the Closing value index as given below:

$$R_t = \ln \left[ \frac{I_t}{I_{t-1}} \right] * 100$$

To Class return on the Index (I),

market series (I),

and a given index (I) on a specific trading day (t), and

walle of the given index (I) on preceding trading day (t-1).

and dividing by the number of observations. It is the most common measure of central

$$Mean = \frac{1}{n} \sum_{i=1}^{n} X_{i}$$

STRees.

= represents the mean.

= Symbol of Summation
Xi = Value of the i<sup>th</sup> item x, i= 1, 2, 3 ....n

T-Test

The Elect compares the actual difference between two means in relation to the variation in the data (expressed as the standard deviation of the difference between the means).

$$\mathbf{z} = (\overline{X} - \overline{Y}) \sqrt{\frac{n(n-1)}{\sum_{i=1}^{n} (\hat{X}_i - \hat{Y}_i)^2}} \cdot \bar{\mathbf{x}}_i = (\mathbf{x}_i - \overline{X}), \hat{\mathbf{y}}_i = (\mathbf{y}_i - \overline{Y}),$$

Mane Mare paired sets, n = number of years.

w CLS Regression Model

test the equality of mean returns across halves of calendar months, the following ordinary least squares (OLS) regression is run for the period 2005 to

# #0+ #201t + ut

= 1 if day t is in the second half of a calendar month (exclusive of the fifteenth day of a month), and 0 otherwise. The OLS coefficient B1 is the mean exceeding to the first half of calendar months while the estimate of B2 is equal to the difference between the sample means of the first and second months. The stochastic disturbance term is indicated by ut. The null hypothesis to be tested is: B2 = 0

MALESS OF SEMI-MONTH AND TURN OF THE MONTH EFFECTS IN SELECTED SAMPLE INDEX RETURNS

The purpose of the analysis, the Semi-month and Turn of the month Effect in Index returns were classified as follows,

Management and SSE Sensex Index returns for the period from January 2005 to December 2010

Management of Semi monthly Effect in BSE Sensex Returns

Regression Model of Semi-month Effect

Turn of the month Effect BSE Sensex Returns, and

Regression Model of Turn of the month Effect

The second of the period from January 2005 to December 2010

Semi monthly Effect in S&P CNX Nifty Returns.

Regression Model of Semi-month Effect

Tam of the month Effect in S&P CNX Nifty Returns, and

Model of Turn of the month Effect

## MANAGESS OF BSE SENSEX INDEX RETURNS FOR THE PERIOD FROM JANUARY 2005 TO DECEMBER 2010

MONTHLY EFFECT IN BSE SENSEX RETURNS

effect in BSE Sensex index returns from January 2005-December 2010 is presented in **Table-1**. The analysis clearly shows that there return recorded for the first half month than the Second half (0.0465). This indicates that the corporate may announce the positive first half month period. The highest value (1.9244) and lowest value (1.7545) of standard deviation recorded for the second and first half lowest mean return revealed there was non-linear relationship between the return and risk in the study period.

was platykurtic for the first half and leptokurtic for the second half month returns and highest (9.96) for the second half of the general period in the second half month returns during the study period. The t-test the critical value both one and two tail test and the p-value shows that there was no significant difference between the returns of the month. It is observed that the semi-month effect does not exist in BSE Sensex index returns during the study period. Hence, There is no significant difference between the returns of the first half month and second of the month," is accepted.

TABLE -1: ANALYSIS OF SEMI MONTHLY EFFECT IN BSE SENSEX FOR THE PERIOD FROM 01.01.2005-31.12.2010

Statistics	First Half	Second Half
Mean	0.096753	0.046561
Standard Deviation	1.754554	1.924416
Kurtosis	2.630503	9.962015
Skewness	-0.22093	0.354016
Observations	821	667
df	1486	
t Stat	0.525405	
P(T<=t) one-tail	0.29969	
t Critical one-tail	1.64588	
P(T<=t) two-tail	0.59938	
t Critical two-tail	1.961562	

Source: Computed from PROWESS

## SOURCE OF SEMI-MONTH EFFECT IN BSE SENSEX RETURNS

Model of semi-month Effect in BSE Sensex returns for the period of 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2010. The
was negative coefficient and t-statistic value recorded for the second half month and positive coefficient and treturn during the study period. The insignificant p-value found that there was no significant difference between
R2 is 0.00018 which is very low, and F-statistic indicates that the overall fit of the model is poor. Further,

TABLE-2: RESULTS OF OLS REGRESSION MODEL OF SEMI-MONTH EFFECT IN BSE SENSEX RETURNS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Second Half	-0.0131	0.0380	-0.3457	0.7297
С	0.0788	0.0730	1.0798	0.2806
Adjusted R-squared	0.00018	F-statistic	2	0.1195
Durbin-Watson stat	1.9668	Prob(F-statistic)		0.7297

Source: Computed from PROWESS

#### 3. ANALYSIS OF TURN OF THE MONTH EFFECT IN BSE SENSEX RETURNS

me analysis of Turn of The Month Effect in BSE Sensex Returns for the period from January 2005 to December 2010 is given in **Table-3**. The results indicate that me index returns on first half (0.2414) was higher than that of second half (0.0248). The value of standard deviation of the return was 1.7312 in the first half. But me second half, it (1.8592) was higher than that of the first half. This shows that there was inverse relationship between risk and return of the series. That is neturn was associated with low risk.

high and positive t-statistic value found that there was significant difference between the returns of first half and rest of the days of the month at 5% scant level. The present study identified the Turn of The Month Effect in the Indian Stock Market during the study period. Hence, the null hypothesis [18, 18], namely, "There is no significant difference between the returns of the first half month and rest of the month," is rejected

#### **ANALYSIS OF OLS REGRESSION MODEL OF TURN OF THE MONTH EFFECT**

results of OLS Regression Model of Turn of the month Effect in BSE Sensex returns for the period of 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2010 is exhibited in 24. The table shows that the coefficient and t-statistic value of the first half month return was higher than that of the rest of the days of the month. The stalf month return significantly different from zero at 1% level during the study period. The significant p-value found that there was significant difference the first half and rest of the days of the month. R-squared is very low, and F-statistic indicates that the overall fit of the model is poor. Further, was statistic of 1.97 indicates autocorrelation in the residuals.

TABLE -3 ANALYSIS OF TURN OF THE MONTH EFFECT IN BSE SENSEX DURING 2005-2009

Statistics	First Half	Second Half
Mean	0.2414831	0.0248252
Standard Deviation	1.7312173	1.8592363
Kurtosis	2.6612443	7.6423191
Skewness	-0.270817	0.1700481
Observations	359	1130
df	1487	
t Stat	1.9543055*	
P(T<=t) one-tail	0.0254261	
t Critical one-tail	1.645879	
P(T<=t) two-tail	0.0508523	
t Critical two-tail	1.9615606	

Source: Computed from PROWESS

Senificant at 5% level

TABLE-4: RESULTS OF OLS REGRESSION MODEL OF TURN OF THE MONTH EFFECT IN BSE SENSEX RETURNS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Second Half	0.0430	0.0644	0.6673	0.5050
C	0.2359*	0.0914	2.5808	0.0103
R-squared	0.001245	F-statistic		0.4453
Durbin-Watson stat	1.9708	Prob(F-statistic)		0.5050

Source: Computed from PROWESS

Senificant at 5% level

## **B. ANALYSIS OF S&P CNX NIFTY INDEX RETURNS**

### S. AMALYSIS OF SEMI MONTHLY EFFECT IN S&P CNX NIFTY INDEX RETURNS

was higher than that of the second half month (0.0460). But, the standard deviations of return series were 1.707 for the first half and 1.966 for the month. The peak of the return distribution was platykurtic for the first half month and leptokurtic for the second half month return series. Highest [11.00] recorded for the second half month return series indicates the non normality of the return distribution. The return distribution positively skewed for the first half month returns.

Hence, the null hypothesis (NHo1), namely, "There is no significant difference between the returns of the first half month and rest of the month," is

TABLE -5: ANALYSIS OF SEMI MONTHLY EFFECT IN S&P CNX NIFTY INDEX DURING 2005-2009

First Half	Second Half
0.093736	0.046064
1.707764	1.965942
2.201344	11.00796
-0.30031	0.171453
823	666
1487	
0.500101	
0.308539	
1.645879	
0.617078	
1.961561	
	0.093736 1.707764 2.201344 -0.30031 823 1487 0.500101 0.308539 1.645879 0.617078

Source: Computed from PROWESS

#### 5. ANALYSIS OF OLS REGRESSION MODEL OF SEMI-MONTH EFFECT IN S&P CNX NIFTY INDEX RETURNS

Table-6 shows the OLS Regression results of Semi-month effect in S&P CNX Nifty index returns for the period of January 2005 to December 2010. The co-efficient value and t-statistic value of the first half month return was positive but the second half month return and t-statistic value was recorded negative co-efficient value. The insignificant F-value showed that there was no significant difference between the returns first half and rest of the days of the month.

TABLE-6: RESULTS OF OLS REGRESSION MODEL OF SEMI-MONTH EFFECT IN S&P CNX NIFTY INDEX RETURNS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Second Half	-0.0084	0.0360	-0.2346	0.8146
C	0.0694	0.0708	0.9801	0.3273
R-squared	0.00014	F-statistic		0.0550
Durbin-Watson stat	1.9968	Prob(F-statistic)		0.8145

#### IL ANALYSIS OF TURN OF THE MONTH EFFECT IN S& P CNX NIFTY INDEX RETURNS

e analysis of the Turn of the Month Effect in S&P CNX Nifty Index for the study period from January 2005 to December 2010 is presented in Table-7. It is derstood that the S&P CNX Nifty Index returns of the first half (0.2302) was higher than that of the second half (0.0238) but the standard deviation of the min the first half was lower (1.69) than that of the second half (1.867). It indicates that the market was more volatile for the second half month and least effor the first half month return during the study period. The kurtosis measure of the return distribution was platykurtic for the First half month return and the second half month return. It is found that the return was normally distributed for the first half month only. The return distribution was severally skewed for the first half month and positively skewed for the second half month return during the study period. The t-test statistic value was cant at 5% level on one tail test. It indicates that the Turn of the Month Effect exists in S&P CNX Nifty Index returns during the study period.

TABLE -7: ANALYSIS OF TURN OF THE MONTH EFFECT IN S& P CNX NIFTY INDEX DURING 2005-2009

Statistics	First Half	Second Half
Mean	0.230213	0.023849
Standard Deviation	1.690917	1.866582
Kurtosis	2.103058	8.703816
Skewness	-0.41222	0.055134
Observations	359	1130
Df	1487	
t Stat	1.865013*	
P(T<=t) one-tail	0.031188	
t Critical one-tail	1.645879	
P(T<=t) two-tail	0.062376	
t Critical two-tail	1.961561	

Source: Computed from PROWESS

Significant at 5% level

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### MANAGES OF OLS REGRESSION MODEL OF TURN OF THE MONTH EFFECT IN S&P CNX NIFTY INDEX RETURNS

results of Turn of the month effect in S&P CNX Nifty index returns for the period from January 2005 to December 2010 is shown in Table-8. The insignificant positive co-efficient value and t-statistic value recorded for the second half month return and high positive significant costatistic value recorded for the first half month return. The first half month return was significant at 5% level. It found that there was between the returns first half and rest of the days of the month. But the insignificant F-value revealed that there did not find any S&P CNX Nifty index returns during the study period.

TABLE-8: RESULTS OF OLS REGRESSION MODEL OF TURN OF THE MONTH EFFECT IN S&P CNX NIFTY INDEX RETURNS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Second half	0.0208	0.0619	0.3367	0.7365
С	0.2271	0.0892	2.5439*	0.0114
R-squared	0.000232	F-statistic		0.1134
Durbin-Watson stat	2.0111	Prob(F-statistic)		0.7364

Source: Computed from PROWESS

#### SUGGESTIONS OF THE STUDY

major findings of the study

exected indices (BSE Sensex and S&P CNX Nifty) showed that highest mean returns was recorded for the first half month than the rest

🔭 🚉 📬 investors should invest either on the first or last trading days of the month. It will give better returns than the other trading days

the highest value and lowest value of standard deviation recorded for the second and first half month respectively for both the

deviation with lowest mean return found out that there was non-linear relationship between the return and risk in selected

bution was platykurtic for the first half month and leptokurtic for the second half month return series.

estribution normally distributed for the first half month return and non- normality of the second half month return series of the second half month return series of the study period.

skewed for second half month and negatively skewed for the first half month returns for both the BSE Sensex and S&P

than the t critical value for both one and two tail test and the p-value shows that there was no significant difference and rest of the days of the month. Hence, Semi Monthly Effect did not exist in Indian Stock Market.

effect does not exist in BSE Sensex and S&P CNX Nifty index returns during the study period.

Wonth Effect shows that there was significant difference between the returns of the first and the second half return series.

Beginning the study period.

merse relationship between risk and return of the series. That was high (low) return was associated with lower (high) risk.

#### CONCLUSION

This paper examined the existence of Semi-month and Turn of the Month Effect (a calendar anomaly) for S&P CNX Nifty and BSE Sensex in the Indian Stock Market. The finding of the Study shows that the Semi-month and Turn of the Month Effect was not prevalent in the Indian Stock Market during the study period. By analyzing these anomalies in Indian Stock Market, it is concluded that most of the cash flows come in to the Indian Stock Market in the first few days of the month, which induces stock prices to move upward. Hence, the Indian Stock Market cannot be treated as fully efficient till now. The existence of these anomalies may provide opportunities to formulate profitable trading strategies so as to earn the abnormal return.

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