Journal of IMS Group
Vol. 11, No. 2, July-Dec 2014, pp. 85-92

Month of The Year Effect: An Analysis on CNX NIFTY and NYSE Composite Index

Dr. Ruchi Gupta

Abstract

Conventionally, stock markets were considered extremely efficient in reflecting information about individual stocks and the market as a whole. The accepted view was that neither technical analysis nor fundamental analysis could enable an investor to achieve returns greater than those of the market portfolio as the stock prices reflected all new information without delay. The changing times have witnessed attenuation in the universality of the dominance of the efficient market hypothesis, with the rise in the belief that stock prices are at least partially predictable.

Various market anomalies are in trend and discussion since the past few decades, proving the existence of these non-random patterns, viz. calendar effects or because of various company announcements. The current research attempts to examine the attacks on the efficient market hypothesis, i.e. anomalies, with special reference to month of the year effect anomaly, using ANOVA.

Keywords: *Efficient Market Hypothesis, Stock Market, Anomalies.*

INTRODUCTION

The efficient-market hypothesis (EMH) asserts that financial markets are "informationally efficient", wherein investors' reactions need to be random and follow a normal distribution pattern so as to ensure that the net effect on market prices cannot be reliably exploited to make an abnormal profit. But, there have been various contradictions to the concept of EMH, referred to as market anomaly or inefficiency.

Dr. Ruchi Gupta
Faculty
Delhi Institute of Advanced Studies, affiliated to Guru Gobind Singh Indraprastha University.
ruchigupta212@yahoo.co.in

Anomalies can be categorized into fundamental, technical or calendar related. Fundamental anomalies include value effect, small-cap effect and the low volatility anomaly. Calendar anomalies involve patterns in stock returns from year to year or month to month, while technical anomalies include momentum effect.

Some of the most popular calendar effects include the weekend effect, the turn-of-the-month effect, the turn-of-the-year effect and the January effect. Some anomalies are linked to the announcement of information regarding stock splits, earnings, and mergers and acquisitions as well.

LITERATURE REVIEW

Various studies on stock market anomalies have been discussed below:

Pandey (2002) affirmed the existence of seasonality (Monthly Effect) in India's Stock Market for the post reform period. The results of the study indicated that the Stock Market in India was inefficient enabling investors to time their share investments to improve returns.

William Schwert (2002) showed that the size effect, the value effect, the weekend effect, small firm turn of the year effect and the dividend yield effect seem to have weakened enough not to be noticeable or disappeared. As per the author, the possibility of anomalies being more apparent than real, holds true.

Madhusudan Karmakar and Madhumita Chakraborty (2003) further found the presence of the turn-of-the month effect in Indian Stock Market.

Bodla, Jindal and Jindal (2006), presented an endeavor to investigate seasonal anomalies, if any, existing in stock returns in developed and developing countries. The former is represented by the US and the later by the Indian stock market. The findings of this study indicate that anomalies exist in the US market and thus it can be considered as informationally efficient. On the other hand, the Indian stock market reveals turn of the month effect as well as semi-monthly effect but the day effect is found to be absent.

Kumar and Deo Malabika (2007) analyzed the efficiency of Indian Stock Market by using S&P CNX 500 Index. The study found the presence of Day of the Week Effect in the Indian Stock Market, which affected both the stock returns and volatility.

Patel (2008) studied calendar effects in monthly returns of Indian stock markets, finding two distinct effects: a November-December effect, in which the mean returns for November and December were significantly higher than those in the other ten months, and a March-to-May effect, in which mean returns for the months March to May were significantly lower than those during the other nine months; and they showed that these effects were independent of each other.

Nageswari and Selvam (2011) explored the Indian Stock Market's Efficiency in the 'weak form' with reference to seasonal effects. The study found that the Day of the Week Effect and Monthly Effect Pattern did not appear to exist in the Indian Stock Market during the study period.

Loc Truong Dong (2012) investigated the day-of-the-week effect in stock returns for the Ho Chi Minh Stock Exchange (HOSE). The empirical findings confirmed the presence of day-of-the-week effects on stock returns in the market. Specifically, a negative effect is observed for Tuesday while a positive effect for Friday.

Allan Muchemi Kuria and George Kamau Riro (2013) examined the presence of day of the week effect anomaly in Nairobi Securities Exchange (NSE). Using t-test, F-test and the ANOVA analysis model three types of anomalies namely, day of the week effect, weekend effect and monthly effect were analysed. The evidence asserts the presence of the seasonal effect in the NSE, thus establishing the fact that the stock markets in Kenya are not yet free from seasonal anomalies despite increased use of information

technology and numerous regulatory developments.

Pathak (2013) examined stock market seasonality effect (month of the year effect and the day of the week effect) in Indian stock market for the S&P CNX NIFTY (NSE). One way ANOVA was used to identify significant difference in average daily returns across week day and monthly returns. The result of the study indicates the non-existence of the day effect and month of year effect, confirming thereby, the absence of seasonality in Indian stock Market.

Archana, Mohammed Safeer and S. Kevin (2014) investigated the existence of the market anomalies in the Indian market by comparing averages of the mean of the index values of BSE index from the year Jan 2008 to Dec 2012 by analyzing weekend effect, Turn of the Month effect, Turn of the Year effect-both in terms of price and volume and stock split effect of five selected companies. The weekend effect was proved in Indian stock market, while the Turn of the month effect and Turn of the year effect were minimally visible but not statistically proven for the analyzed period.

RESEARCH METHODOLOGY

Research Objective
The objective of the study is to examine the month of the year effect in the returns of CNX NIFTY and NYSE Composite Index.

Hypothesis of the Study
The present study tested the following null hypothesis:
H0: There is no significant difference among the month wise daily returns.

Sampling
The sample for the study consists of the major indices, CNX NIFTY and NYSE COMPOSITE INDEX of the 2 countries, India and USA respectively.

Data Collection
Daily closing prices for the sample stocks have been collected for the period from 1st April 2004 to 31st March 2013 from secondary sources.

Data Analysis Techniques
The following tools were used for the analysis of the returns for the sample indices taken for this study.

1. For computation of the daily returns for each of the index series, the following formula has been used:
   $R_t = Ln(P_t / P_{t-1})$

Where,
Rt = Daily return on the Index (I),

Ln = Natural log of underlying market series (I),

P_t = Closing value of a given index (I) on a specific trading day (t), and
P_{t-1} = Closing value of the given index (I) on preceding trading day (t-1).

2. Descriptive Statistics: Statistics of the Daily Mean Return, Standard Deviation, Skewness, Kurtosis were used for the purpose of analysis.

3. ANOVA Analysis has been done to test if any of the means are different from each other.

CONCEPTUAL FRAMEWORK

Amid the turn-of-the-year market optimism, there is one class of securities that consistently outperforms the rest. Small-company stocks outperform the market and other asset classes during the first two to three weeks of January. This phenomenon is referred to as the January effect. Of all the market anomalies, January effect is the most studied pattern of month of the year effect. It states that January stock return is higher than the other months of the year, and it is caused normally by a significant low return in December. Various studies have proved it to be a strong evidence against market efficiency hypothesis, making January effect an international phenomena.

The usual reason stated for the presence of January effect is tax-loss selling hypothesis. According to this hypothesis, normally the investors sell the losing stocks until the end of the tax year. They try to escalate the capital losses so as to be able to reduce the burden of the tax liability. Consequently, the declining stocks face a downward pressure, but at the beginning of the next year the downward pressure disappears due to the absence of selling pressure, resulting in the gain of the real market value by the stock prices.

An alternative justification of the January effect submits that abnormal returns in January are due to the new information provided by the firms at the end of the fiscal year, like the financial earning announcement is normally made in January.

DATA ANALYSIS

The data analysis has been done with the help of collected data to justify the stated objective.

Analysis of CNX NIFTY Returns (India)

Table 1: Descriptive Statistics of CNX NIFTY

	N		Mean	Median	Mode	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
	Valid	Missing								
JAN	9	1	-.0006086494	-.0000667897	-.00935547[a]	.00542631481	.128	.717	.281	1.400
FEB	9	1	-.0010743828	.0004829816	-.00663514[a]	.00303289458	-.952	.717	-.398	1.400
MAR	9	1	.0010717550	.0010077189	-.00578186[a]	.00355833475	-.741	.717	.056	1.400
APR	9	1	.0013996575	.0003050336	-.00249775[a]	.00322749525	.672	.717	-.655	1.400
MAY	9	1	-.0004720874	-.0024051250	-.01025507[a]	.00809864553	1.399	.717	2.692	1.400
JUNE	9	1	-.0000321597	.0007414369	-.00933668[a]	.00386347486	-1.986	.717	4.847	1.400
JULY	9	1	.0016010731	.0022480706	-.00156449[a]	.00198834853	-.306	.717	-1.360	1.400
AUG	9	1	.0002274321	.0003077342	-.00459161[a]	.00223738194	-.852	.717	3.248	1.400
SEPT	9	1	.0029384026	.0042156830	-.00589302[a]	.00396969753	-1.608	.717	2.585	1.400
OCT	9	1	-.0008799489	-.0001070312	-.01614026[a]	.00726436162	-.945	.717	1.951	1.400
NOV	9	1	.0005730352	.0006939794	-.00573190[a]	.00378429099	-.101	.717	-.365	1.400
DEC	9	1	.0017563515	.0023518680	-.00244143[a]	.00212899309	-.878	.717	.441	1.400

a. Multiple modes exist. The smallest value is shown

The descriptive Statistics of month wise daily returns for CNX NIFTY during the study period from 1st April 2004 to 31st March 2013 have been shown in the Table 1. It clearly indicates that the Highest Mean Return (.0029384026) was recorded in September. It is noted that months of January, February, May, June and October registered Negative Mean Returns. The possible reason for this is that January and February are the months during which income-tax is generally assessed and paid. Hence, investors normally sell the scrips during these months to settle their tax dues. This could possibly create a bearish trend, pushing the share prices down and the same is closely related to the Tax-Loss Selling Hypothesis. It is also found from the analysis that months of September and December witnessed reasonably high returns. Therefore, if investors want to sell their holdings, these two months could be considered as the best period.

The highest value (.00809864553) and the lowest value (.00198834853) of Standard Deviation were recorded in the Months of May and July respectively. This indicates that the market (CNX NIFTY) was more volatile in the Month of May and least volatile in the Month of July during the study period.

According to the analysis of skewness, the month wise return distribution was positively skewed for the month of January, April and May and negatively skewed for the remaining months. The peak of the distribution was platykurtic for the month of Feburary, April, July and November and leptokurtic for the remaining months.

Table 2: ANOVA Analysis of CNX NIFTY

VAR00002	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.003	11	.000	.790	.650
Within Groups	.658	1947	.000		
Total	.661	1958			

According to F-test, p value (0.650) was greater than 0.05, the level of significance which indicates that there was no significant difference between the returns of different months of the year. So, the null hypothesis has been accepted. In other words, the monthly effects did not exist for CNX NIFTY during the study period (Table 2).

ANALYSIS OF NYSE COMPOSITE INDEX RETURNS (USA)

Table 3: Descriptive Statistics of NYSE

	N		Mean	Median	Mode	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
	Valid	Missing								
JAN	9	1	.0000273519	.0007863508	-.00545878[a]	.00342005438	-.504	.717	-1.217	1.400
FEB	9	1	-.0003345146	-.0002438532	-.00694688[a]	.00278092268	-1.905	.717	4.330	1.400
MAR	9	1	.0009201052	.0007466543	-.00109418[a]	.00168524191	.619	.717	-.116	1.400
APR	9	1	.0011793086	.0017827853	-.00184276[a]	.00231458456	.131	.717	-.806	1.400
MAY	9	1	-.0002408158	.0004123627	-.00563539[a]	.00378766517	.377	.717	.720	1.400
JUNE	9	1	-.0030209974	-.0005067154	-.02335466[a]	.00784949271	-2.688	.717	7.591	1.400
JULY	9	1	.0005351883	.0003963439	-.00163968[a]	.00229500141	.671	.717	-1.167	1.400
AUG	9	1	-.0001881868	.0002112485	-.00396155[a]	.00181018615	-1.199	.717	1.628	1.400
SEPT	9	1	.0001832723	.0010053767	-.00593496[a]	.00356922715	-1.092	.717	.229	1.400
OCT	9	1	.0005854904	.0010259439	-.01144090[a]	.00564110271	-.951	.717	2.250	1.400
NOV	9	1	.0000294989	.0002631185	-.00495300[a]	.00251532212	-.864	.717	.650	1.400
DEC	9	1	.0010518908	.0007428383	-.00033671[a]	.00128269253	1.643	.717	3.355	1.400

a. Multiple modes exist. The smallest value is shown

Table 3 shows the results of descriptive statistics of month wise daily returns for NYSE Composite Index during the study period. The above table clearly indicates that the Highest Mean Return (.0011793086) was recorded in April. It is also noted that months of February, May, June and August registered Negative Mean Returns.

It is also found from the analysis that months of April and December witnessed reasonably high returns. Therefore, if investors want to sell their holdings, these two months could be considered as the best period.

The highest value (.00784949271) and the lowest value (.00128269253) of Standard Deviation were recorded in the Months of June and December respectively. This indicates that the market (NYSE Composite Index) was more volatile in the Month of June and least volatile in the Month of December during the study period.

According to the analysis of skewness, the month wise return distribution was positively skewed for the month of March, April, May, July, December and negatively skewed for the remaining months. The peak of the distribution was platykurtic for the month of January, March, April and July and leptokurtic for the remaining months.

Table 4: ANOVA Analysis of NYSE

VAR00002	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.001	11	.000	.251	.993
Within Groups	.452	1947	.000		
Total	.452	1958			

According to F-test, p value (0.993) was greater than the 0.05, the level of significance which indicates that there was no significant difference between the returns of different months of the year. So, the null hypothesis has been accepted (Table 4).

In other words, the monthly effects did not exist for NYSE Composite Index during the study period.

CONCLUSION

The analysis indicates the absence of market anomalies in the returns of the indices studied. The result can be summarized in the following table 5:

Table 5: Comparison

COUNTRY	INDEX	SIGNIFICANCE LEVEL	RESULT
INDIA	CNX NIFTY	0.650	H0 Accepted, hence no month of the year effect.
USA	NYSE COMPOSITE INDEX	0.993	H0 Accepted, hence no month of the year effect.

The absence of month of the year effect implies that the above mentioned indices lack efficiency. The predictable patterns or market anomalies are not dependable from period to period, i.e. the presence of these anomalies cannot be generalised. Furthermore, these nonrandom effects are very trivial as against the transaction costs involved in an attempt to exploit them. There is lack of arbitrage opportunities to enable investors to make excess risk adjusted returns on the basis of these patterns.

BIBLIOGRAPHY

Articles:

[1] Bodla BS, Kiran Jindal, Monthly Effects in Stock Returns: New Evidence from the Indian Stock Market, The ICFAI Journal of Applied Finance. 12(7), (2006). Pg 5-13.

[2] Dash Mihir; Dutta Anirban; Sabharwal Mohit, Seasonality and Market Crashes in Indian Stock Markets, Asian Journal of Finance & Accounting 3 (1), (2011) Pg 174-184

[3] Debasish Sathya Swaroop, Stock Price Seasonality Effect & Trading Strategy - An Empirical Study of Selected IT Companies in India, Business Management & Education 10 (2), (2012) available at http://www.bme.vgtu.lt.

[4] Elango, R., & Pandey, D., An Empirical Study on January Anomaly and Return Predictability in an Emerging Market: Evidence from India, (2008). available at SSRN: http://ssrn.com/abstract=1150080

[5] Kumar Hareesh.V and Deo Malabika, Efficiency of Indian Stock Market: A Case of Day of the Week Effect, Smart Journal of Business Management Studies. 3(2)(2007)Pg 28-35.

[6] Loc Truong Dong, Day-of-the-week effect on stock returns and volatility: The case of Ho Chi Minh Stock Exchange, Vietnam, Asian Journal of Management Research2 (1), (2012)Pg 711-721.

[7] Mehdian Seyed; Perry Mark J.Anomalies in US Equity Markets: a Reexamination of the January Effect, Applied Financial Economics. 12, (2002)Pg 141-145.

[8] Nageswari.P; Selvam M., An Empirical Study on Seasonal Analysis in the Indian Stock Market, International Journal of Management & Business studies,(December 2011): Pg 90-95.

[9] Pandey I.M., Is There Seasonality in the Sensex Monthly Returns? (2002). Available at http: //www.iimahd.ernet.in/-impandey/.

[10] Pandey I.M., Stock Return Seasonality in the Emerging Malaysian Market, International Journal of Business and Society, 5(2), (2004).Pg1-16.

[11] Patel, J.B., Calendar Effects in the Indian Stock Market, International Business and Economic Research Journal, 7(3), (2008).:Pg 61-69.

[12] Pathak Manish R., Stock Market Seasonality: A Study of the Indian Stock Market (NSE), Indian Journal of Research 2 (3), (2013): Pg 200-202.

Websites:

[1] https://www.academia.edu/4885677/Stock_Market_Anomalies_A_Study_of_Seasonal_Effects_on_Average_Returns_of_Nairobi_Securities_Exchange

[2] http://www.bme.vgtu.lt/index.php/bme/article/view/bme.2012.19

[3] http://emlab.berkeley.edu/~craine/EconH195/Fall_13/webpage/Malkiel_Efficient%20Mkts.pdf

[4] http://en.wikipedia.org/wiki/S&P_CNX_Nifty

[5] http://en.wikipedia.org/wiki/NYSE_Composite

[6] http://en.wikipedia.org/wiki/FTSE_100_Index

[7] http://en.wikipedia.org/wiki/Nikkei_225

[8] http://en.wikipedia.org/wiki/SSE_Composite_Index

[9] http://en.wikipedia.org/wiki/Stock_market

[10] http://en.wikipedia.org/wiki/Efficient-market_hypothesis

[11] http://en.wikipedia.org/wiki/Market_anomaly

[12] http://finance.yahoo.com/q/hp?s=000001.SS+Historical+Prices

[13] http://www.iimahd.ernet.in/publications/data/2002-09-08IMPandey.pdf

[14] http://ijbarr.com/downloads/2014/vol1-issue3/21.pdf

[15] http://in.finance.yahoo.com/q/hp?s=%5ENSEI

[16] http://in.finance.yahoo.com/q/hp?s=%5ENYA

[17] http://in.finance.yahoo.com/q/hp?s=%5EFTSE

[18] http://in.finance.yahoo.com/q/hp?s=%5EN225

[19] http://www.investopedia.com/articles/financial-theory/11/trading-with-market-anomalies.asp

[20] http://www.investopedia.com/articles/stocks/08/market-anomaly-efficient-market.asp

[21] http://iosrjournals.org/iosr-jbm/papers/vol3-issue2/G0326872.pdf

[22] http://www.ipublishing.co.in/ajmrvol1no1//voltwo/EIJMRS2061.pdf

[23] http://journal-archieves35.webs.com/641-648.pdf

[24] http://www.nber.org/papers/w9277.pdf

[25] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1150080

[26] http://www.spacapital.com

[27] http://shodhganga.inflibnet.ac.in/bitstream/10603/4863/13/13_chapter%205.pdf