

# Market anomalies and individual investors reactions: a study of calendar anomalies in India

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## Abstract

Market anomalies refer to patterns in stock returns that deviate from the predictions of traditional financial theories such as Efficient Market hypothesis which assumes investors as rational thinker and price fully reflects all available information in market. There are different types of market anomalies which are resulted due to changes in economic policies, market factors or psychological factors of individual investors. This study explores January effect, Holiday effect and Weekend effect in Indian stock market. Small cap Nifty index were used for analyzing January effect while Nifty 50 index was used for Holiday and weekend effect for 5 years from 2020 to 2024. The study applies statistical tools paired t-test through SPSS, to identify and evaluate result. The findings suggest that on an average we can find January effect, Weekend effect and Holiday effect. While applying paired t-test we found that results differ as p value is more than 0.05 at 95% confidence level in each effect which shows no strong evidence of persistence of January effect, Weekend effect or Holiday effect in Nifty stock market in India

**Keywords:** Market anomalies, Nifty 50, January effect, Weekend effect, Holiday effect.

## I. Introduction

In the realm of finance and financial markets one of the most significant and contentious ideas is the efficient market hypothesis (EMH). EMH which was first presented and developed by Fama in 1965 and 1970 asserts that current stock prices accurately reflect all information that is available to the public and that they react instantly to new information that is randomly introduced to the market. Although the idea is sound and appealing there is conflicting empirical support for the EMHs validity. In the finance literature anomalies are the empirical departures from the EMH that are reported by numerous studies based on the unusual behavior of stock returns.(Shehadeh & Zheng, 2023)

By questioning the conventional economic and financial theories that presume that investors and markets are completely rational behavioral finance has become an important area of research. In contrast to the Efficient Market Hypothesis which holds that asset prices accurately reflect all available information behavioral finance emphasizes how investor decisions are influenced by psychological biases emotions and cognitive limitations. When it comes to market anomalies differences from expected market behavior that conventional theories are unable to explain this viewpoint offers a more sophisticated understanding. (Arya & Singh, 2025)

According to the behavioral perspective frame effects individual cognitive errors and peoples decision-making heuristics are partially to blame for these price deviations from equilibrium. Economists must first define efficiency before examining market inefficiencies though. Since they reveal inefficiencies that defy conventional financial models market anomalies such as asset bubbles stock price overreactions and calendar effects have enthralled both professionals and scholars. By examining these anomalies through the lens of human behavior behavioral finance examines factors such as anchoring loss aversion herd mentality and overconfidence. A behavioral explanation that goes beyond plausible hypotheses is required as evidenced by the persistence of certain anomalies like momentum strategies and the January effect. Anomalies in the market are often the result of collective human actions some of which are illogical. Individual investors typically do poorly because of biases like the disposition effect and under-diversification. Furthermore data from specific markets like Italy shows how overconfidence and attention-driven decisions affect trading behaviors.

Calendar regularity is also known as Monday effect or Weekend effect which is defined by historically lower average returns on Mondays than on other days of the week. According to the conventional wisdom this occurs when negative news is released while markets are closed usually on weekends and Mondays decline is a reflection of those reactions. The behavioral explanation on the other hand attributes this evidence to the fact that investors moods are generally lower on Mondays as they return to work which causes a selling tendency that lowers stock markets. This mood-based interpretation also explains the Friday effect which states that market participant's optimism and expectation of the weekend cause returns on Fridays to typically be higher than on other days. (Cervellati, 2024)

The term month-of-the-year effect describes regular trends or unusual market behavior that is unique to a given month. These effects cast doubt on the idea of a consistently efficient market in the context of the Indian economy where they appear as irregular market returns. These studies conclusions emphasize how crucial it is to take time into account when evaluating investment strategies in the Indian context. (Jhanwar & Shrikant, 2024)

## II. Literature review

(Nikunj & Sewell, 2015) Finding the general consensus for each of the calendar anomalies was made easier by this critical evaluation. Upon analyzing the empirical data we discovered compelling evidence of a positive Friday and a negative Monday effect on the global stock market nonetheless some researchers have disregarded the findings. One of the most common calendar irregularities in developed markets is the January effect but in emerging and underdeveloped markets the effect is negligible. In most markets the pre-holiday effect was found to be strong by the majority of researchers however some researchers discovered that the pre-holiday effect had decreased.

(Padmavathy, 2024) This study suggests that market anomalies like the value premium and momentum effect can be caused by behavioral biases that extend beyond an individual. Its vulnerability is demonstrated by market bubbles such as the one that happened in 2008. To overcome biases solutions such as rules-based investment are required. The implications are significant for experts and investors underscoring the need for a thorough understanding of biases and customized recommendations. Prospect theory emphasizes the complexity of situations including uncertainty by introducing a new dimension. Loss aversion influences peoples' inclination for risk and framing effects highlight the importance of how information is presented. Prospect Theory is essential when creating investment portfolios that match an individuals' risk tolerance. Behavioral finance according to researchers is revolutionizing the financial sector by questioning accepted wisdom and providing perceptive perspectives. The creation of complex models is made easier by this study which enhances knowledge of the connection between behavioral finance and market anomalies. Investment plans must include important knowledge in order to successfully navigate complex financial environments.

(Dr. Sandeep Arya, 2025) Its potential to reduce risks and enhance market stability is demonstrated by an examination of how behavioral finance shapes investment strategies and regulatory policies. New developments in behavioral finance are also examined such as the use of big data analytics and artificial intelligence to better forecast investor sentiment. The results highlight how behavioral finance insights must be integrated into financial education policy-making and investment strategies in order to promote more robust and effective markets. By providing a thorough comprehension of the psychological factors influencing market anomalies this work adds to the expanding corpus of research that unites behavioral science and traditional finance.

(Khamis & Ali, 2022) According to the study which was conducted on the Kenyan stock market investors and stock market participants should first analyze the market to identify trends in order to help them build a portfolio that will optimize returns consistently. This is due to the fact that market returns can be impacted by external factors such as symmetric risks and stock return volatility.

### Objective

- I. To identify calendar anomalies in stock market.
- II. To analyze the impact of investor psychology on stock market.
- III. To assess the returns provided by Nifty 50 index across different years.

### Limitations

- I. This study is limited to 5 years data (2020-2024) which may not depict long term patterns.
- II. This study focus on specific market (Nifty 50 index & Small cap Nifty market)
- III. Statistical tool used for calculating result may differ if other tools applied.

### III. Data Analysis

#### 1. January Effect

The January Effect is known as a seasonal increase in stock prices that occurs in January. Prices typically decline in December as a result of tax-loss harvesting which usually occurs before the increase in stock demand. An additional rationale for the surge in demand is the effect of year-end bonuses that market investors obtained.

The January Effect appears to affect small-cap companies' more than mid- or large-cap companies due to their lower liquidity. Some economists postulate that the January effect substantiates the fact that markets are inefficient, as efficient markets stem from the belief that higher returns are only possible by taking on higher-risk stocks. In this study Nifty small cap Index is used to analyze the presence of January effect and year under preview was from 2020-2024 (5 years).

$H_0$  : There is no significant difference between January returns and average of other months

$H_1$ : January returns are significantly higher than average of other months

Table 1: Analysis of average January effect in Nifty Small cap Index

#### Average Return of Other Months

We calculate the average return of Feb to Dec for each year and compare: Nifty 50 index data was studied to know presence of January effect.

- 1) **2020**- Average of Feb–Dec =  $(-6.31 + (-35.89) + 15.17 + 1.43 + 11.71 + 7.66 + 10.39 + 3.81 + 0.72 + 14.74 + 6.85)/11 = 2.66\%$
- 2) **2021**-  $(9.95 + (-1.26) + 3.41 + (-7.03) + 5.72 + 7.38 + (-3.34) + 5.75 + (-1.26) + (-1.83) + 5.67)/11 = 2.37\%$
- 3) **2022** -  $(-12.83 + 5.48 + (-3.34) + (-9) + (-8.5) + 8.18 + 3.05 + (-1.99) + 3.27 + 2.76 + (-2.87))/11 = -1.31\%$
- 4) **2023** -  $(-2.52 + (-3.05) + 6.7 + 4.38 + 5.52 + 6.68 + 3.91 + 2.92 + (-1.29) + 12.1 + 6.35)/11 = 3.41\%$
- 5) **2024** -  $(0.94 + (-4.91) + 7.89 + (-1.9) + 7.13 + 2.93 + 1.88 + (-0.34) + (-3.77) + (-0.77) + (-0.4))/11 = 0.62\%$
- 6) **Average Return** (Feb–Dec across years)

$$\text{Average} = (2.66 + 2.37 + (-1.31) + 3.41 + 0.62) / 5 = 1.55\%$$

#### Result

Average January Return (2020–2024): 3.09%

Average Feb–Dec Return (2020–2024): 1.55%

A Paired t-test was performed to evaluate the presence of the January Effect in the monthly stock returns from 2020 to 2024. The average return for January (3.09%) was compared against the average return for the other months (1.55%). Average return for January compared to other months was higher which shows January effect but to validate further Paired t-test was performed in SPSS software.

Table 2 : Hypothesis testing: Analysis of January effect in Nifty Small cap Index

Paired Samples Test									
		Paired Differences				T	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	January return other month return	1.01400	5.93695	2.65509	-6.35770	8.38570	.382	4	.722

Mean Difference is 1.014% which means January returns are on average 1.01% higher than average of other average monthly returns (Feb to December). Standard deviation 5.94 shows high variability difference across five years. t value is 0.382 and p value which according to calculation comes to 0.722 which is greater than 0.05 . Here we can say that at 95% confidence level we fail to reject null hypothesis. This shows that there is no strong evidence of January effect in stock returns during five years period been analyzed.

## 2. Weekend Effect

The Monday Effect also known as the Weekend Effect is a market anomaly in which stock returns on Mondays are lower than those on Fridays. This could be because of information asymmetry over the weekend or investor sentiment. In an effort to explain the weekend effect some theories suggest that businesses often release negative news on Fridays after the markets close which lowers stock prices on Monday. According to some the weekend effect may be connected to short selling which would impact stocks that have a large number of short interest positions. On the other hand the effect might just be the consequence of traders declining optimism from Friday through Monday.

For a long time the weekend effect has been a consistent aspect of stock trading trends. Prior to 1987 there was a statistically significant negative return over the weekends per a Federal Reserve study. Nevertheless the study did note that between 1987 and 1998 this negative return vanished. Weekend volatility has risen once more since 1998 and the reason behind the weekend effect is still up for debate.

$H_0$  : There is no significant difference between Monday and Friday stock returns

$H_1$ : Monday stock returns are significantly lower than Friday returns

Table: 3 Analysis of Average Weekend effect in Nifty 50 Index

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2020	5.95	-6.31	-35.89	15.17	1.43	11.71	7.66	10.39	3.81	0.72	14.74	6.85
2021	9.9	9.95	-1.26	3.41	-7.03	5.72	7.38	-3.34	5.75	-1.26	-1.83	5.67
2022	-2.64	- 12.83	5.48	-3.34	-9	-8.5	8.18	3.05	-1.99	3.27	2.76	-2.87
2023	-3.03	-2.52	-3.05	6.7	4.38	5.52	6.68	3.91	2.92	-1.29	12.1	6.35
2024	5.26	0.94	-4.91	7.89	-1.9	7.13	2.93	1.88	-0.34	-3.77	-0.77	-0.4
Average	3.088	-2.154	-7.926	5.966	-2.424	4.316	6.566	3.178	2.03	-0.466	5.4	3.12

Year	Monday	Friday	Weekend Effect	Inference
2020-21	12023.04	12009.82	0.11	Slight <b>positive</b> return on Monday. This contradicts the traditional weekend effect.
2021-22	15031.72	16690.24	-9.93	Strong <b>negative</b> Monday return. Classic example of the weekend effect.
2022-23	17337.07	17339.86	-0.016	Very small negative return. Nearly <b>neutral</b> , weekend effect is negligible.
2023-24	19971.98	20060.56	-0.44	Mild <b>negative</b> return. Suggests a weak weekend effect.
2024-25	23780.14	23798.11	-0.08	Very small negative return, almost <b>no weekend effect</b> .
		Average	-2.0712	

From above table we can analyzed weekend effect from 2020-21 to 2024-25. The result shows that the weekend effect is present in some years (2021–22) and absent or very weak in others. The negative average weekend return across the 5-year period indicates a general tendency for the market to perform slightly worse on Mondays than on Fridays. However, the variability across years implies that other factors, such as macroeconomic conditions or investor behavior, likely influence this anomaly.

Table 4 : Analysis of weekend effect for Nifty 50 Index

#### Paired Samples Test

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Monday return Friday return	-350.85200	732.04583	327.38085	-1259.80695	558.10295	-1.072	4	.344

A paired samples t-test was conducted to examine the presence of the weekend effect in Nifty index levels by comparing Monday and Friday returns over a five-year period (2020–2025). The analysis revealed a mean difference of –350.85 index points, indicating that Monday values were generally lower than those on the preceding Friday. However, the result was not statistically significant,  $t(4) = -1.072$ ,  $p = 0.344$ . The 95% confidence interval for the mean difference ranged from –1259.81 to 558.10, suggesting a high degree of variability and the inclusion of zero, which further implies the absence of a consistent pattern. These findings indicate that while a negative average return was observed on Mondays, there is insufficient statistical evidence to support the existence of a significant weekend effect in the Indian stock market during the period under study.

### 3. Holiday Effect

The general optimism and high spirits among investors during festive times are frequently cited as the causes of the holiday effect. A primary cause of this trend is the rise in holiday spending by consumers which has a favorable effect on the stock prices of retail businesses and other consumer-driven industries. The existence of a holiday effect is still up for debate among investors in the dynamic Indian stock market. Certain market behaviors around holidays suggest that this phenomenon may have an impact even though there isn't a clear established trend to support it. Some have speculated about the influence of the holiday effect because for example the markets have frequently shown a tendency to rally during recent festive periods like Diwali and



Dussehra. However it's crucial to remember that holiday cheer isn't the only factor driving these market movements. (Alina, 2024)

$H_0$ : There is no significant difference between holiday and daily returns.

$H_1$ : There is significant difference between holiday and daily returns.

Table : 5 Analysis of Average holiday return for Nifty 50 Index

Year	Daily return	Holiday Return	Difference
2020-21	0.23	0.59	0.36
2021-22	0.08	0.14	0.06
2022-23	0	0.41	0.41
2023-24	0.11	0.11	0
2024-25	0.03	-0.14	-0.17

$$\text{Average difference} = 0.36 + 0.06 + 0.41 + 0 + (-0.17) / 5$$

$$= 0.132$$

It shows that holiday returns are 0.132% higher than daily returns. It shows holiday effect is available in Nifty 50 Index.

Table : 6 Hypothesis testing: Analysis of Average holiday return for Nifty 50 Index

Paired Samples Test									
		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Holiday return Daily return	.13200	.24652	.11025	-.17409	.43809	1.197	4	.297

Paired sample Test was performed to further examine the presence of the holiday effect in the Indian stock market by comparing average holiday returns with regular daily returns over the five financial years from 2020–21 to 2024–25. The holiday effect refers to the tendency of stock markets to yield higher returns on trading days adjacent to public holidays compared to normal trading days.

The results indicated an average return difference of 0.132%, with holiday returns being slightly higher than daily returns. However, the difference was not statistically significant,  $t(4) = 1.197$ ,  $p = 0.297$ . The 95% confidence interval for the difference ranged from -0.174% to 0.438%, which includes zero, suggesting that the observed difference may have occurred due to random variation rather than a consistent market pattern.

The findings do not provide sufficient evidence to support the presence of a statistically significant holiday effect in the Nifty 50 stock market during the selected period. While holiday returns were marginally higher, the effect is inconsistent and not reliable for predictive or strategic use.

## IV. Conclusion

This study aimed to examine existence of market anomalies such as January effect, Weekend and Holiday effect in Nifty 50 Index stock market. Based on Empirical study of historical return data from NSE and statistical testing using SPSS, the results indicate that these calendar anomalies do not have significant impact on stock market. On an average it shows positive results but the results are not consistently present across all years. The observed differences in returns during 2020-2024 were statistically insignificant, suggesting that the Nifty market operates in a relatively efficient manner with respect to these anomalies. This study is limited to Nifty 50 stock market other stocks can be analyzed to know the effect of market anomalies.

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