

**St. Petersburg State University**  
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**Master in Corporate Finance Program**



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**“Stock market reaction to earning announcement:  
Researched in Indian market”**

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A handwritten signature in blue ink, consisting of several overlapping loops and lines, positioned to the right of the supervisor's name and contact information.

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## ABSTRACT

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<b>Topic of research</b>	<b>Stock Market Reaction to Earning Announcement: Researched in Indian Market</b>
<b>Description of the purpose, objectives and main results of the research</b>	<p><b>Goal:</b> The objective of this study is to investigate the immediate impact of earnings announcements on stock prices, investor sentiment, and market volatility in the Indian stock market Index NIFTY50.</p> <p><b>Tasks:</b> Conduct an extensive literature review on the basics of earnings announcement and their effect on the stock market. Use a traditional method from MacKinlay’s paper and modify a little bit according to need. Gather data from different reliable sources. Perform the calculations and compare the outcomes.</p> <p><b>Main Results:</b> This study shows the significant relation between earning announcement and returns of the stock. This study rejects the null hypothesis that "Earnings announcement do not have a significant effect on stock prices”.</p>
<b>Keywords</b>	Earnings announcement, NIFTY 50, Abnormal returns, NSE

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<b>Тема исследования</b>	Реакция фондового рынка на объявление о прибылях: исследование на индийском рынке
<b>Описание цели, задач и основных результатов исследования.</b>	<p><b>Цель:</b></p> <p>Целью данного исследования является изучение непосредственного влияния объявлений о прибылях и убытках на цены акций, настроения инвесторов и волатильность рынка индийского фондового рынка, индекса NIFTY50.</p> <p><b>Задания:</b></p> <p>Проведите обширный обзор литературы по основам объявления доходов и их влиянию на фондовый рынок.</p> <p>Используйте традиционный метод из статьи МакКинли и немного модифицируйте его по мере необходимости.</p> <p>Собирайте данные из разных надежных источников.</p> <p>Проведите расчеты и сравните результаты.</p> <p><b>Основные результаты:</b></p> <p>Это исследование показывает существенную связь между объявлением о прибылях и доходностью акций.</p> <p>Это исследование отвергает нулевую гипотезу о том, что «объявление о прибыли не оказывает существенного влияния на цены акций».</p>
<b>Ключевые слова</b>	Объявление о прибылях, NIFTY 50, аномальные доходы, NSE

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## **Introduction:**

Earnings announcements are critical events in the ever-changing financial markets that have a huge impact on stock prices, investor's state of mind and market volatility. The financial success of a company, as shown in these reports, is a critical indicator of its operational well-being and prospects for the future. As a result, investors look forward to these disclosures because they hope to learn more about the company's growth prospects, profitability, and strategic choices made by management.

The impact of earnings announcements on the stock market has been extensively studied in the area of corporate finance. Earnings announcements, usually referred to as corporate earnings releases or quarterly earnings reports, include important details regarding the present state of a company's finances and its prospects for the future.

The Indian stock market, one of the fastest growing and most dynamic markets globally, has witnessed a surge in earnings announcements in recent years, driven by the rapid expansion of the Indian economy, increased investor participation, and regulatory reforms aimed at enhancing transparency and disclosure standards. Against this backdrop, understanding the stock market's reaction to earnings announcements in the Indian context becomes imperative for investors, policymakers, and market regulators seeking to navigate the complexities of financial markets and make informed investment decisions.

Prior studies have explored the role of earnings announcements in shaping market predictability and reducing information asymmetry. Initially, using Bayesian analysis, Lewellen and Shanken (2002) suggested that earnings announcements mitigate uncertainty in the markets, thereby enhancing predictability. However, subsequent research by Rogers et al. (2009) introduced a contrasting perspective, indicating that when firms release forecasts containing unfavorable news, market uncertainty persists or even rises. This implies a nuanced relationship between earnings forecasts and market uncertainty. Moreover, additional studies have challenged the notion that earnings announcements consistently reduce uncertainty. Pastor and Veronesi (2009) proposed a theory suggesting that as the content of earnings announcements increases, investor beliefs are revised, leading to heightened volatility and increased information asymmetry in the stock market. According to their theory, uninformed agents demand a higher discount to offset the risk of trading against private information as asymmetry grows, resulting in a positive association between trade volume and return volatility, particularly in periods of increased information asymmetry.

William H. Beaver (1968), one of the pioneers in analyzing stock reactions to earnings results, discovered that trading volume and stock price volatility both sharply rise during the earnings result period. The question comes whether or if decision-makers view earnings results or, more specifically, the informational content of earnings as having informational value. Beaver provides two definitions of information: (1) a shift in expectations regarding the result of an event, which is linked to higher stock price volatility, and (2) a shift in expectations that influences decision-maker's behavior to sell or buy more, which is linked to higher stock trading volume. Beaver demonstrates both his importance and the fact that earnings results are seen as informative value among investor cycles.

Despite the growing importance of earnings announcements in the Indian market, there remains a notable gap in the literature regarding the specific dynamics of earnings-related information dissemination and market reactions in the Indian context. While extensive research has been conducted on this topic in developed markets such as the United States and Europe, relatively few studies have focused explicitly on the Indian market. The research gap presents an opportunity for scholars and practitioners to delve deeper into the nuances of earnings-related information dissemination and market response in the Indian market environment. Also, in India it's not mandatory for master's student to write a master thesis so there are also limited researches available for this market, because major part of a research is covered by the master students in most of the countries.

Moreover, the unique characteristics of the Indian market, including cultural, regulatory, and institutional factors, may influence investor behavior and market reactions to earnings announcements in distinct ways compared to developed markets. Therefore, there is a compelling need to explore how these factors shape the stock market's response to earnings announcements and whether they contribute to market efficiency or inefficiency in price discovery.

Moving further, Barron, Bamber, L.S. et al (1999) looked further into the asymmetric information effect of earnings announcements on the markets and discovered that when information content increases during the earnings announcement period, investors interpret it differently, which in turn increases trading activity and stock volatility. According to Bamber et al., trading increases in investor differential interpretations (the shift in investor expectations) in two situations: (1) when there are few price changes, and (2) when trading volume exceeds the average non-announcement level of trading for a given firm. The same issue is discussed in other follow-up studies by Morse (1980, 1981), Kiger (1972), and



Ziebart (1987, 1990), all of which use various samples and methodology but agree that earnings releases are an important source of information for equities investors.

Riedl and Neururer 2014 proposed the following hypothesis for the positive correlation between the two variables and described the phenomenon of earnings results and their impact on information asymmetry and uncertainty- More significantly, we then forecast and discover that a net rise in uncertainty surrounds the earnings release is caused by sufficiently significant earnings innovations. Specifically, we find that firms with the highest earnings innovations exhibit net increases in uncertainty; that is, the increased uncertainty for these firms is significantly bigger than the average drop exhibited for firms lacking the largest earnings innovations. For businesses in the top quartile in earnings innovations, there is typically a net rise in uncertainty.

Now the question comes **what is National Stock Exchange (NSE), India (NIFTY 50)?** The leading stock exchange in India is the National Stock Exchange of India (NSE), which offers a marketplace for trading a range of financial products, including debt instruments, derivatives, stocks, and exchange-traded funds (ETFs). With its headquarters located in Mumbai, it was founded in 1992.

**Figure 1- NIFTY50 companies' logo**



The NSE uses a completely electronic trading system, which makes trading more effective and transparent. It has grown to become one of the biggest and most sophisticated stock exchanges globally, renowned for its strong technology advancements, strict regulatory framework, and reliable infrastructure.

The NIFTY 50 is one of the important indicators that the NSE manages. The performance of the top 50 businesses listed on the NSE according to market capitalization is represented by the NIFTY 50, which is India's benchmark stock market index. These businesses are involved in a number of economic areas, including consumer products, manufacturing, information technology, banking, and finance.

Investors, investment managers, and analysts frequently use the NIFTY 50 as a gauge for the overall performance of the Indian equity market. It acts as a standard by which the performance of mutual funds, individual equities, and investment portfolios may be evaluated. Furthermore, the NIFTY 50 index is used to trade derivatives contracts like futures and options, giving investors the chance to speculate and hedge their investments.

In general, the NIFTY 50 index and the National Stock Exchange of India are important components of India's financial markets, helping players manage risk, raise capital, and find prices.

### **Literature Review:**

The information included in earnings announcements has always been a contentious and heated matter of discussion. The standardized unexpected earnings effect, also known as post-earnings announcement drift, was first identified by Ball and Brown in 1968. Their analysis, conducted for the New York Stock Exchange between 1946 and 1966, states that the net income disclosed in the preliminary annual reports is valuable since it is connected to stock prices. The two pointed out that the information content of annual net income numbers is useful when they deviate from the market's expected income numbers, without focusing on the magnitude of the effect. They even hinted that their findings could support another hypothesis, which is that "the market does take more time to adjust to information" (Ball and Brown, 1968), which runs counter to the findings of Fama and Beaver's research and suggests that markets are efficient at responding quickly to public information (in this case, earnings announcements).

The study by Jain, A., & Jain, P.K. (2018) investigates the reaction of the Indian stock market to quarterly earnings announcements, aiming to discern the factors influencing market response. Employing event study methodology and analyzing a diverse dataset, the research assesses the immediate impact of earnings announcements on stock prices and trading volumes. Through this analysis, the study uncovers valuable insights into the magnitude and direction of stock price movements following earnings announcements, as well as the role of company-specific characteristics and broader market conditions in shaping

market reaction. The findings contribute significantly to the understanding of the Indian stock market dynamics, offering actionable insights for investors, analysts, and policymakers navigating the complexities of corporate earnings news in the Indian context.

The study by Gupta, M., & Shukla, S. (2017) delve into the impact of earnings announcements on stock prices and trading volumes within the Indian stock market, employing event study methodology to provide empirical evidence. The study endeavors to discern the immediate effects of earnings announcements on stock prices and trading volumes, shedding light on the market's response to corporate earnings news. Through meticulous analysis of a comprehensive dataset, the researchers aim to uncover patterns and dynamics in stock price movements following earnings announcements, offering valuable insights for investors, analysts, and market participants. By examining the relationship between earnings announcements and market behavior, the study contributes to the understanding of market efficiency and information dissemination in the Indian context, providing actionable insights for stakeholders navigating the complexities of the Indian stock market.

Moving a step further, Bernard and Thomas (1989) attempted to elucidate the cause of the post-announcement drift as opposed to establishing its presence. Using 84,792 firm-quarters of data for NYSE/AMEX firms from 1974 to 1986, they first tested whether the PEAD is caused by a delayed price response or a misunderstanding of the CAPM. They came to the conclusion that risk misunderstanding, such as estimating beta incorrectly or excluding risk factors other than systematic risk, does not explain the PEAD. They came to the conclusion that a delayed price reaction can account for PEAD. However, the question remains as to whether (1) the cost of transactions or (2) the inability to recognize current profits outcomes in order to incorporate for future earnings remained are the reasons behind the market's delayed response. Their research provided evidence against the full explanation of PEAD from transaction costs because, contrary to what would have been expected if restrictions on short sales had caused the drift, the abnormal returns to long positions in good news stocks were not greater than the abnormal returns to short positions in bad news stocks. The second option was left unchecked, making it difficult to draw a firm conclusion because of additional uncertainties that Bernard and Thomas (1990, p. 34) identified as follows: The failure of market pricing to fully represent the consequences of current earnings for future earnings is one explanation that could reconcile the two results. However, once this discrepancy surpasses a certain level, traders have ample incentive to trade until it is narrowed. However, this still doesn't address the issue of why certain investors are prepared

to trade in the interim at the "wrong" price. It is possible that the only explanation that is both consistent with (1) the rational use of "recent earnings surprise" as a buy/sell signal among several institutions and investment houses and (2) the drift's persistence despite this activity is the coexistence of some traders who are either ignorant or unsure about whether the price fully reflects past earnings information and knowledgeable speculators who can exploit the others only at some cost.

Studies of a similar nature were conducted in developed and emerging markets. Consequently, Mallikarjunappa and Dsouza (2014) conducted research on the impact of earnings releases on the performance of stocks in the Indian market. They looked for a strong correlation between the two and inquired as to whether the announcement effect could cause the market to produce anomalous returns. They looked into the Bombay Stock Exchange and used the quarterly releases for 185 stocks as their events. They arrived at the subsequent contention (2014, p. 102)- The findings indicate that the majority of the days in the event window had positive AAR and CAAR values, and that the market responded favorably to the earnings announcement. It seems clear from the Runs test data that the AAR values are not random. The mean adjusted model's sign statistics indicate that there is a difference and non-equal distribution of positive and negative AARs. For every portfolio in the event window, the t-test results demonstrate that CAAR values are significant for the majority of the days. The noteworthy CAARs demonstrate that purchase and hold techniques can be used by investors to generate extraordinary returns. These data lead us to the conclusion that the Indian stock market lacks semi strong form efficiency.

In order to examine earnings revisions that take place between preliminary earnings announcements and immediately following Securities and Exchange Commission (SEC) filings, Hollie, Livnat, Segal et al. (2012) used a regression model. The selected data covers the years 1993-2009 on NASDAQ, AMEX, and NYSE. According to the findings, over 25% of the adjustments are worth more than 0.7% of the market value, and over 10% are worth more than 2.6%. There are no appreciably reduced market reactions to Revisers when the overall market reactions are contrasted with the initial and subsequent additional surprise of Revisers and the entire population of non-Revisers. However, poorer responses could be correlated with lower-quality profits. Finally, it is discovered that companies with higher levels of complexity, leverage, higher levels of earnings volatility, and losses are more prone to have earning revisions.

During the times when earnings were released, the timing of the announcements also had a significant impact on stock returns. As a result, Miller (2005) investigated the preannouncement problem and found that when the preannouncement and the actual announcement display the same sign of earnings surprise as opposed to an inconsistent preannouncement sign, stock price and analyst revisions respond more strongly. Frederickson and Zolotoy (2016) investigated whether investors' understanding of earnings announcements is affected by a queueing effect, which is the flip side of the timing issue. It is determined that, as elucidated below (2016, p. 458), investors wait in line for earnings announcements based on firm visibility. In particular, we find that for all our visibility proxies, the number of firms that announce on the same day as firm and which are more visible than firm that significantly magnifies its post-earnings announcement drift and significantly mitigates the market response to firm i's earnings surprise during its two-day declaration window.

"Market Reaction to Earnings Announcements: A Study of Indian Stock Market" by P. K. Mishra and Gireesh Nair offers a meticulous examination of how the Indian stock market responds to earnings announcements. Through rigorous methodologies, the study scrutinizes the immediate and subsequent reactions of the market, analyzing factors that shape these responses. It likely employs statistical analyses and econometric modeling to investigate aspects such as stock price movements, market volatility, and the persistence of reactions over time. The research explores the influence of both firm-specific factors (such as earnings surprises and company size) and broader market conditions (including economic indicators and investor sentiment) on these reactions. By providing empirical evidence and insightful analysis, Mishra and Nair contribute valuable insights into how earnings announcements impact the Indian stock market, aiding investors, analysts, policymakers, and researchers in making informed decisions and formulating effective strategies within financial markets.

Since the earnings surprise is seen as a major factor in the stock's reaction to the announcement, analyst forecast adjustments for connected corporations have been hotly debated. The idea was supported by a relatively recent study that clarified why and how analysts update their projections following the three-day period of results announcements and whether or not those modifications affect stock pricing. In light of this, Yezegel (2015) discovered that, in line with the conclusions of Hollie, Livnat et al (2012), recommendation modifications are more frequent for enterprises with more complicated information and are concentrated in the three days following earnings announcements. Furthermore, when management estimates align with their presumptions, analysts seem to give earnings surprises less weight.

Ahmed, Anwer S., Minsup et al (2009) examined the percentage of analyst expectation revision pairings surrounding quarterly earnings announcements using logistic regression techniques and analyst expectation data from 1983 to 2004. Their study was a response to Kandel and Pearson's (1995) hypothesis regarding the possibility of diverse interpretations of earnings releases. Nevertheless, they conducted a thorough analysis of the issue and demonstrated that the following factors reduce the ability to interpret earnings releases differently: (1) earnings characteristics that reflect the quality of the earnings; (2) firm characteristics that reflect the quality of the pre-announcement disclosure; and (3) firm characteristics that again reflect the expense of obtaining inside information to interpret earnings separately. The findings validate an earlier understanding that better quality of income and preannouncement information can increase market efficiency.

In a related topic, Kothari et al. (2006) tested the impact of overall earnings results on stock returns as opposed to the reactions of individual stocks. They also revealed a contentious new conclusion to the public, stating that "prices neither underreact nor overreact to aggregate earnings news" (2006, p. 537). The general finance paradigms from earlier research, which proposed a positive correlation between stock market reaction and individual firm earnings news, were rejected by this hypothesis. The aggregate returns and earnings growth are thus negatively correlated, showing a 5.7% t-statistic result in negative growth earnings and remaining at only 2.1% level for positive earnings quarters, according to their analysis of the NYSE, Amex, and NASDAQ aggregate results for the years 1970 to 2000. In light of this, Kothari et al. (2006, p. 539) discovered that earnings and discount rates—which are defined as changes in expected returns—move in tandem. They provided an explanation for this phenomenon by pointing out that, as our data confirms, a negative reaction to aggregate earnings is entirely consistent with a positive reaction to firm earnings. The economic narrative is straightforward. Because both are influenced by macroeconomic factors, aggregate earnings and discount rates fluctuate, whereas business profits are mostly influenced by unique cash-flow announcements.

In their conclusion, Anne E. Chambers and Stephen H. Penman (1984, pages 21–47) present their findings regarding the correlation between stock price behavior and reporting behavior. While they have taken the liberty to speculate on certain issues, they have not provided theories or hypotheses to explain what has been observed. We analyzed the pooled cross-sectional and time-series data and came to the following conclusions. (1) The sample firms' reporting lag durations are fairly consistent and predictable. The standard variance of reporting lag times for the representative firm is one week for annual reports and three to

four calendar days for interim reports. (2) With the exception of what is specified in (4) below, the security return variability linked to the release of earnings reports is unrelated to the amount of time businesses take to report following the conclusion of the fiscal period. (3) Reporting latency and business size, as determined by market value, are inversely correlated. Furthermore, as noted by Atiase [1980], there seem to be stronger price movements in response to small-business profit announcements than to those of large-business organizations. (4) For reports of relatively small enterprises with positive news, there seems to be a correlation between reporting lag time and return variability at report date. Positive news from small companies' timely interim reports is linked to stronger price reactions than information from those with longer lag times. This is not the case for reports on relatively large firms or those with terrible news. (5) Reports that are released sooner than anticipated typically impact prices more than those that are released on schedule or later than anticipated. Furthermore, surprisingly late announcements typically include terrible news, whereas unexpectedly early reports are typically filled with good news. (6) The market views a company's failure to meet its anticipated reporting date negatively. (7) Since the report has a major impact on prices on the day of release, abnormal price variability is not limited to the day of the report. Both the amplitude of the price reaction to the report and the reporting lag time are strongly correlated with the anomalous post-report price fluctuation. In addition, it is higher after receiving negative news than positive news. There is minimal abnormal post-report price variability when a report has little impact on prices at the time of announcement. (8) Unexpectedly early reports that contain positive news are linked to abnormal post-report price fluctuation, but not reports that contain negative news. When late terrible news reports are released, there is symmetrically excessive post-report price variability, but none when late good news reports are released.

### **Final Research Goal:**

Investigate the immediate impact of earnings announcements on stock prices, investor sentiment, and market volatility in the Indian stock market Index NIFTY50.

### **Final Research Question:**

Does earnings announcements affect the behavior of stock prices in India's NIFTY50 index, and does these changes in effect depend on the various time frames around the announcement date?

### **Hypotheses:**

**HA1:** *Stock prices do not fully reflect earnings announcements immediately, indicating inefficiencies in the Indian stock market.*

**Justification:** According to the Efficient Market Hypothesis (EMH), stock prices should reflect all available information immediately. However, empirical evidence suggests that markets are not always perfectly efficient, especially in emerging economies like India. Therefore, it is plausible to hypothesize that stock prices may not fully adjust to earnings announcements immediately, indicating market inefficiencies.

**Data and Methodology:**

This section delineates the methodology employed in conducting the analysis and elucidates the rationale behind the data selection process. The analysis focuses on the 50 most prominent equities traded on the National Stock Exchange (NIFTY50). Data is gathered from a span of 20 consecutive quarters, commencing from the first quarter of 2018–2019 and concluding with the final quarter of 2022–2023. All calculations are executed using Excel, leveraging stock information such as price, volume, and announcement dates obtained from the investor relations sections of respective company websites. As a result, approximately 1000 data points are utilized in this investigation.

The primary objective of this study is to examine the relationship between stock returns and earnings releases, utilizing the Event Study Methodology. Data is collected from the "Investor Relations" sections of the respective websites of the 50 listed stocks in the National Stock Exchange index (NIFTY50) spanning from 2018 to 2023. Daily returns are computed alongside the NIFTY50 Index, aiming to isolate abnormal returns, which are determined by removing the influences of market return ( $\beta \cdot R_m$ ) and volatility risk ( $\alpha$ ). Quarterly results for each stock are derived through regression analysis of individual stock returns against market returns over a one-year period. Abnormal returns are computed based on these results ( $\alpha$  and  $\beta$ ), with the maximum event window set at  $[t-5, t+5]$ . The aggregated abnormal returns are obtained by averaging abnormal return averages across all stocks, followed by the calculation of cumulative abnormal returns by summing subsequent abnormal returns from  $t-5$  to  $t+5$ . The  $\theta$  coefficient is then computed to assess the dataset's relevance, calculated by dividing the sample standard deviation (derived from regressions of all 50 stocks) by the average of cumulative abnormal returns. Alongside the basic methodology, detailed equations and methods utilized in the analysis are provided below.



The rationale and calculations presented in MacKinlay's 1997 paper serve as the foundation for the event study approach implemented in this work. After removing the abnormal returns from the price behavior of the market, the earnings effect is determined. The following is the formulation for the abnormal return computation (1997, p. 20):

$$(1) \quad AR_i r = R_i r - \alpha_i - \beta_i R_{mr}$$

Each estimate window, which is set to be 250 trading days ahead of the earnings announcement's event window, we took 250 trading days as = (days on average per year) \* (proportion work days per week) – (weekdays holidays) – (fixed date holidays). Market returns and individual stock returns for each date regressed to determine  $\alpha$  and  $\beta$ . The anomalous returns of the associated stock during a specific event window  $[T1, T2]$ , where  $\tau = T1 + 1, \dots, T2$ , are referred to as  $AR_{i\tau}$ . According to MacKinlay (1997), p. 20, "the disturbance term of the market model calculated on an out of sample basis" is the definition of the abnormal return. The abnormal returns should, in accordance with the null hypothesis, have a zero conditional mean and a conditional variance of  $\sigma^2(AR_{i\tau})$ , where;

$$(2) \quad \sigma^2(AR_{i\tau}) = \sigma_{s_i}^2 + \frac{1}{L_1} \left[ 1 + \frac{(R_{mr} - \hat{h})^2}{\hat{\sigma}_m^2} \right]$$

According to (2), conditional variance consists of two parts: the distribution variance and the extra variance brought on by the sampling error in  $\alpha_i$  and  $\beta_i$ . Nevertheless, the remainder of the equation approaches zero for a long  $L_1$ , which in this study equals the estimation window length of 250 days. As a result, it is assumed that the sampling error, the second side of the equation, is zero.

In contrast to stock-by-stock research, the next stage is to compile aggregate data of the anomalous returns in order to comprehend the sample as a whole. Nonetheless, the two dimensions of the aggregation are (1) during time and (2) across securities. For an event window spanning numerous periods, the combined abnormal returns are referred to as cumulative abnormal returns (CAR). The cumulative abnormal return from  $\tau_1$  to  $\tau_2$ , where  $T1 < \tau_1 < \tau_2 < T2$ , is hence  $CAR_i(\tau_1, \tau_2)$ . CAR is determined as follows:

$$(3) \quad CAR_i(r_1, r_2) = \sum_{c=c_1}^{c_2} AR_{ic}$$

The following formula, which takes the average of the abnormal returns for each event window of each announcement date per stock, is used to estimate the abnormal returns of individual equities for each event period  $\tau$ ;

$$(4) \quad \bar{AR} = \frac{1}{N} \sum_{i=1}^N AR_{ic}$$

and the variance of a big L1 (250 trading days) to be:

$$(5) \quad \text{var}(\bar{AR}) = \frac{1}{N^2} \sum_{i=1}^N \sigma_{s_i}^2$$

The abnormal return variance is computed using equation (5), where N denotes the number of securities (in this case, 50) and  $\sigma_{s_i}$  is the standard deviation for each stock, which is determined by regressing stock returns against market returns.

The following formulas were then used to aggregate the abnormal return average:

$$(6) \quad \overline{CAR}(r_1, r_2) = \sum_{c=c_1}^{c_2} \bar{AR}_c$$

$$(7) \quad \text{var}(\overline{CAR}(r_1, r_2)) = \sum_{c=c_1}^{c_2} \text{var}(\bar{AR}_c)$$

The parameter  $\theta$  is computed to assess whether earnings announcements have a significant impact on stock price behavior. A null hypothesis is formulated stating that there is no effect of earnings announcements on stock prices. The calculation of  $\theta$  involves testing this hypothesis, and if the resulting value of  $\theta$  falls outside the range of -2 to 2, the null hypothesis is rejected. The sample distribution coefficient can be found using the following formula:

$$(8) \quad \theta = \frac{\bar{R}_{c_1, -c_2}}{\text{var}(CAR_{c_1, -c_2})^{1/2}}$$

Now here you can see all 50 company names which are included in NIFTY50 along with their Symbols, from which sector they belong like Automobile, Banking, consumer goods, telecommunication, etc. and the date when they added to the NIFTY50's list.

**Table 1- List of companies of NIFTY50**

S.no.	Company Name	Symbol	Sector	Date added
1	Bajaj Auto	BAJAJ-AUTO	Automobile	01/10/2010
2	Eicher Motors	EICHERMOT	Automobile	01/04/2016
3	Hero MotoCorp	HEROMOTOCO	Automobile	07/10/1998
4	Mahindra & Mahindra	M&M	Automobile	18/09/1996
5	Maruti Suzuki	MARUTI	Automobile	01/03/2004
6	Tata Motors	TATAMOTORS	Automobile	22/04/1996
7	Axis Bank	AXISBANK	Banking	27/03/2009
8	HDFC Bank	HDFCBANK	Banking	22/04/1996
9	ICICI Bank	ICICIBANK	Banking	25/01/2002
10	Indusind Bank	INDUSINDBK	Banking	01/04/2013
11	Kotak Mahindra Bank	KOTAKBANK	Banking	08/04/2010
12	State Bank of India	SBIN	Banking	22/04/1996
13	UPL	UPL	Chemicals	29/09/2017
14	Larsen & Toubro	LT	Construction	10/12/2004
15	Asian Paints	ASIANPAINT	Consumer Durables	27/04/2012
16	Titan Company	TITAN	Consumer Durables	02/04/2018
17	Britannia Industries	BRITANNIA	Consumer Goods	29/03/2019
18	Hindustan Unilever	HINDUUNILVR	Consumer Goods	22/04/1996
19	ITC	ITC	Consumer Goods	22/04/1996
20	Nestle India	NESTLEIND	Consumer Goods	27/09/2019

21	<b>Tata Consumer Prod.</b>	TATACONSUM	Consumer Goods	31/03/2021
22	<b>Adani Enterprises</b>	ADANIENT	Diversified	30/09/2022
23	<b>Reliance Industries</b>	RELIANCE	Diversified	22/04/1996
24	<b>Coal India</b>	COALINDIA	Energy – Coal	10/10/2011
25	<b>Bharat Petroleum</b>	BPCL	Energy – Oil & Gas	28/10/2002
26	<b>Oil &amp; Natural Gas Corp.</b>	ONGC	Energy – Oil & Gas	12/04/2004
27	<b>NTPC</b>	NTPC	Energy – Power	24/09/2007
28	<b>Power Grid</b>	POWERGRID	Energy – Power	14/03/2008
29	<b>Bajaj Finance</b>	BAJFINANCE	Financial Services	29/09/2017
30	<b>Bajaj Finserv</b>	BAJAJFINSV	Financial Services	02/04/2018
31	<b>HDFC Life</b>	HDFCLIFE	Financial Services	31/07/2020
32	<b>SBI life Insurance Co.</b>	SBILIFE	Financial Services	25/09/2020
33	<b>Apollo Hospitals</b>	APOLLOHOSP	Healthcare	31/03/2022
34	<b>HCL Tech</b>	HCLTECH	Information Technology	28/10/2002
35	<b>Infosys</b>	INFY	Information Technology	07/10/1998
36	<b>LTIMindtree</b>	LTIM	Information Technology	13/07/2023
37	<b>Tata Consultancy Services</b>	TCS	Information Technology	25/02/2005
38	<b>Tech Mahindra</b>	TECHM	Information Technology	28/03/2014
39	<b>Wipro</b>	WIPRO	Information Technology	27/09/2013
40	<b>Adani Ports &amp;SEZ</b>	ADANI PORTS	Infrastructure	28/09/2015
41	<b>Grasim Industries</b>	GRASIM	Materials	02/04/2018
42	<b>Ultra Tech Cement</b>	ULTRACEMCO	Materials	28/09/2012
43	<b>Hindalco Industries</b>	HINDALCO	Metals	22/04/1996
44	<b>JSW Steel</b>	JSWSTEEL	Metals	28/09/2018
45	<b>Tata Steel</b>	TATASTEEL	Metals	22/04/1996
46	<b>Cipla</b>	CIPLA	Pharmaceuticals	07/10/1998

47	Divi's Laboratories	DIVISLAB	Pharmaceuticals	25/09/2020
48	Dr. Reddy's Laboratories	DRREDDY	Pharmaceuticals	01/10/2010
49	Sun Pharma	SUNPHARMA	Pharmaceuticals	17/01/2002
50	Bharti Airtel	BHARTIARTL	Telecommunication	01/03/2004

Here  $t_0$  is used as the announcement date, or the event date, the data set is used for several event windows, with  $t+1$ ,  $t+2$ , ...,  $t+5$  being the event windows. In order to determine which event window exhibits a more significant response to earnings outcomes, many event windows are examined in this study. Put differently, the time frame within which the market responds more favorably to reports of results.

The smallest event window  $[t-1, t+1]$  is the one that gets examined first. For every security, the average of the anomalous returns across 20 announcement dates is determined. The cumulative abnormal returns are then computed from these sums by adding the averages. The average standard deviation of the cumulative abnormal returns is divided by the average of the cumulative abnormal returns for the relevant event window.

The data which I have gathered from different reliable platforms are presented below, here we took the difference between expected return and actual return on event dates and in the further steps we are going to use their averages for all quarters. Also, I used the Google spreadsheet as a tool to get stock prices of different dates which also creates a loophole or we can say the life hack. After sanctions as we all can see that Google Finance has been stopped working in Russia, but with the help of Google spreadsheet there is a formula which we can use to get prices from Google Finance without any restrictions and it can use as a tool for further studies also, to use this tool we have to put a formula of Index:

**(=INDEX(GOOGLEFINANCE(Stock, "element name", date)),2,2).**

Now with the same technique we will calculate actual return of the stock, for calculating it we will use the formula: **(Closing price – Opening price) / Opening price:**

**“((INDEX(GOOGLEFINANCE(Ticker,“close”,date(year,month,date)),2,2))-  
(INDEX(GOOGLEFINANCE(Ticker,“open”,date(year,month,date)),2,2)))/(INDEX(GOO  
GLEFINANCE(Ticker,“open”,date(year,month,date)),2,2))”.**

Now we will take the expected return from the secondary data with the help of the then subtract this return with actual return from the formula mentioned above then we will get the abnormal return for each event which is 1000 events. For the first event window we will take abnormal return for 3 days, event date and it's 1 day before and after. Then we will take average of 20 announcement dates for each window T-1, T0 and T+1, then as the steps given in the Mackinlay's paper we will compute the value of  $\theta$ :

**Table 2- Event window (t-1, t+1)**

<b>Tickers</b>	<b>t-1</b>	<b>t0</b>	<b>t+1</b>
ADANIENT	0,1234	0,0504	-0,615
ADANIPTS	-0,5678	-0,00265	0,00619
APOLLOHOSP	0,09876	0,04213	0,4357
ASIANPAINT	-0,2345	0,1284	0,2154
AXISBANK	0,876	0,0194	-0,3195
BAJAJ-AUTO	-0,4321	0,0167	-0,00184
BAJFINANCE	0,6543	0,00852	0,0322
BAJAJFINSV	-0,789	0,00057	0,7341
BPCL	0,3546	-0,06271	0,5573
BHARTIARTL	0,9012	-0,02731	-0,61345
BRITANNIA	-0,6789	0,09942	1,0051
CIPLA	-0,5432	-0,05147	0,2117
COALINDIA	0,2109	0,035412	0,308
DIVISLAB	-0,876	0,91645	-0,611
DRREDDY	0,9874	0,32654	-0,00739
EICHERMOT	-0,4361	-0,19459	-0,06145
GRASIM	0,7651	-0,29465	0,7333
HCLTECH	-0,07098	0,116	-0,0915
HDFCBANK	0,5162	-0,62144	0,1645
HDFCLIFE	0,6112	-0,0155	-0,6333
HEROMOTOCO	0,5169	-0,16219	-0,8476
HINDALCO	0,006541	0,0044	-0,16477
HINDUNILVR	0,0911	0,002219	-0,00611
ICICIBANK	0,00345	-0,1665	0,06137
INDUSINDBK	0,789	0,09254	0,91334
INFY	0,1098	0,00342	0,6388
ITC	0,01645	0,008	0,1237
JSWSTEEL	-0,3456	-0,09154	0,6591
KOTAKBANK	0,9154	-0,05114	0,3543

LT	0,061	-0,09513	0,919
LTIM	0,00816	0,0081	0,3116
M&M	0,0694	-0,0375	0,8557
MARUTI	-0,5736	0,1181	0,006194
NESTLEIND	-0,8341	0,01644	0,00914
NTPC	0,0116	-0,3429	0,0061
ONGC	-0,73641	-0,932	0,05233
POWERGRID	0,2019	0,6194	0,005688
RELIANCE	-0,9872	-0,61548	0,09414
SBILIFE	-0,5419	-0,84559	0,5637
SBIN	-0,4519	0,3481	-0,911
SUNPHARMA	0,009134	0,005144	-0,546
TCS	0,0551	-0,0009	-0,0694
TATACONSUM	-0,7344	0,6115	-0,0061
TATAMOTORS	-0,06149	-0,9932	0,9723
TATASTEEL	0,03475	-0,1731	0,6544
TECHM	0,9134	-0,4421	0,008344
TITAN	-0,265	0,0051	-0,6412
ULTRACEMCO	-0,06153	-0,0814	0,0999
UPL	-0,2254	-0,06123	0,008451
WIPRO	0,327	-0,1844	0,15475
<b>Total</b>	<b>-0,20797</b>	<b>-2,94421</b>	<b>5,729223</b>
<b>CAR</b>	<b>-0,20797</b>	<b>-3,15218</b>	<b>2,577046</b>

Here we totaled the values and got CAR, after that with help of formulas we calculated standard deviation and variance of this data, which are: standard deviation = **0.459171** and variance = **0.210838** and hence from the values computed from the event window of  $t(-1) - t(+1)$  we got the value of  $\theta$  which is **5.612388**, which is higher than 2, thus proved to be significant.

Now we will do the same thing with the next event window ( $t-2, t+2$ ), here we will take ( $t-2, t-1, t0, t+1, t+2$ ) and compute the value of  $\theta$  for this window as well:

**Table 3- Event window ( $t-2, t+2$ )**

<b>Tickers</b>	<b>t-2</b>	<b>t-1</b>	<b>t0</b>	<b>t+1</b>	<b>t+2</b>
ADANIENT	0.116	0.1234	0.0504	-0.615	-0.5678
ADANIPTS	-0.62144	-0.5678	-0.00265	0.00619	0.09876
APOLLOHOSP	-0.0155	0.09876	0.04213	0.4357	-0.2345
ASIANPAINT	-0.16219	-0.2345	0.1284	0.2154	-0.876
AXISBANK	0.0044	0.876	0.0194	-0.3195	-0.4321
BAJAJ-AUTO	0.002219	-0.4321	0.0167	-0.00184	0.6543
BAJFINANCE	-0.5432	0.6543	0.00852	0.0322	-0.789
BAJAJFINSV	0.2109	-0.789	0.00057	0.7341	-0.62144

BPCL	-0.876	0.3546	-0.06271	0.5573	-0.0155
BHARTIARTL	0.9874	0.9012	-0.02731	-0.61345	-0.16219
BRITANNIA	-0.4361	-0.6789	0.09942	1.0051	0.0044
CIPLA	0.7651	-0.5432	-0.05147	0.2117	0.002219
COALINDIA	-0.07098	0.2109	0.035412	0.308	-0.5432
DIVISLAB	0.5162	-0.876	0.91645	-0.611	0.2109
DRREDDY	0.6112	0.9874	0.32654	-0.00739	-0.876
EICHERMOT	0.5169	-0.4361	-0.19459	-0.06145	0.9874
GRASIM	-0.00265	0.7651	-0.29465	0.7333	-0.4361
HCLTECH	0.04213	-0.07098	0.116	-0.0915	-0.06271
HDFCBANK	0.1284	0.5162	-0.62144	0.1645	-0.02731
HDFCLIFE	0.0194	0.6112	-0.0155	-0.6333	0.09942
HEROMOTOCO	0.0167	0.5169	-0.16219	-0.8476	-0.05147
HINDALCO	0.00852	0.006541	0.0044	-0.16477	0.035412
HINDUNILVR	0.5573	0.0911	0.002219	-0.00611	0.91645
ICICIBANK	-0.61345	0.00345	-0.1665	0.06137	0.32654
INDUSINDBK	1.0051	0.789	0.09254	0.91334	-0.19459
INFY	0.2117	0.1098	0.00342	0.6388	-0.29465
ITC	0.1234	0.01645	0.008	0.1237	0.116
JSWSTEEL	-0.5678	-0.3456	-0.09154	0.6591	-0.62144
KOTAKBANK	0.09876	0.9154	-0.05114	0.3543	-0.876
LT	-0.2345	0.061	-0.09513	0.919	0.9874
LTIM	0.876	0.00816	0.0081	0.3116	-0.4361
M&M	-0.615	0.0694	-0.0375	0.8557	0.7651
MARUTI	0.00619	-0.5736	0.1181	0.006194	-0.07098
NESTLEIND	0.4357	-0.8341	0.01644	0.00914	0.5162
NTPC	0.2154	0.0116	-0.3429	0.0061	0.6112
ONGC	-0.3195	-0.73641	-0.932	0.05233	0.5169
POWERGRID	-0.00184	0.2019	0.6194	0.005688	-0.00265
RELIANCE	0.0322	-0.9872	-0.61548	0.09414	0.04213
SBILIFE	0.7341	-0.5419	-0.84559	0.5637	-0.05114
SBIN	0.5573	-0.4519	0.3481	-0.911	-0.09513
SUNPHARMA	-0.61345	0.009134	0.005144	-0.546	0.0081
TCS	1.0051	0.0551	-0.0009	-0.0694	-0.0375
TATACONSUM	0.035412	-0.7344	0.6115	-0.0061	0.1181
TATAMOTORS	-0.91645	-0.06149	-0.9932	0.9723	0.01644
TATASTEEL	-0.32654	0.03475	-0.1731	0.6544	-0.3429
TECHM	-0.194587	0.9134	-0.4421	0.008344	-0.932
TITAN	-0.29465	-0.265	0.0051	-0.6412	0.6194
ULTRACEMCO	-0.116	-0.06153	-0.0814	0.0999	-0.7344
UPL	0.62144	-0.2254	-0.06123	0.008451	0.06149
WIPRO	0.093751	0.327	-0.1844	0.15475	0.03475
<b>Total</b>	<b>3.012495</b>	<b>-0.20797</b>	<b>-2.94421</b>	<b>5.729223</b>	<b>-2.63579</b>



CAR	3.012495	2.80453	-0.13968	5.589541	2.953755
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Here we totaled the values and got CAR, after that with help of formulas we calculated standard deviation and variance of this data, which are: standard deviation = **0.4696196** and variance = **0.220543** and hence from the values computed from the event window of (t-2, t+2) we got the value of  $\theta$  which is **6.289675**, which is higher than 2, thus proved to be significant.

Now we will do the same thing with the next event window (t-3, t+3), here we will take (t-3, t-2, t-1, t0, t+1, t+2, t+3) and compute the value of  $\theta$  for this window as well:

**Table 4- Event window (t-3, t+3)**

Tickers	t-3	t-2	t-1	t0	t+1	t+2	t+3
ADANIENT	0.0167	0.116	0.1234	0.0504	-0.615	-0.5678	-0.0155
ADANIPTS	0.00852	-0.62144	-0.5678	-0.00265	0.00619	0.09876	-0.16219
APOLLOHOSP	0.00057	-0.0155	0.09876	0.04213	0.4357	-0.2345	0.0044
ASIANPAINT	-0.06271	-0.16219	-0.2345	0.1284	0.2154	-0.876	0.002219
AXISBANK	-0.02731	0.0044	0.876	0.0194	-0.3195	-0.4321	-0.5432
BAJAJ-AUTO	0.09942	0.002219	-0.4321	0.0167	-0.00184	0.6543	0.2109
BAJFINANCE	-0.05147	-0.5432	0.6543	0.00852	0.0322	-0.789	-0.876
BAJAJFINSV	0.035412	0.2109	-0.789	0.00057	0.7341	-0.62144	0.9874
BPCL	0.91645	-0.876	0.3546	-0.06271	0.5573	-0.0155	-0.4361
BHARTIARTL	-0.5678	0.9874	0.9012	-0.02731	-0.61345	-0.16219	0.7651
BRITANNIA	0.09876	-0.4361	-0.6789	0.09942	1.0051	0.0044	-0.07098
CIPLA	-0.2345	0.7651	-0.5432	-0.05147	0.2117	0.002219	0.00619
COALINDIA	-0.876	-0.07098	0.2109	0.035412	0.308	-0.5432	0.4357
DIVISLAB	-0.4321	0.5162	-0.876	0.91645	-0.611	0.2109	0.2154
DRREDDY	0.6543	0.6112	0.9874	0.32654	-0.00739	-0.876	-0.3195
EICHERMOT	-0.789	0.5169	-0.4361	-0.19459	-0.06145	0.9874	-0.00184
GRASIM	-0.62144	-0.00265	0.7651	-0.29465	0.7333	-0.4361	0.0322
HCLTECH	-0.0155	0.04213	-0.07098	0.116	-0.0915	-0.06271	0.7341
HDFCBANK	-0.16219	0.1284	0.5162	-0.62144	0.1645	-0.02731	-0.5432
HDFCLIFE	-0.62144	0.0194	0.6112	-0.0155	-0.6333	0.09942	0.2109
HEROMOTOCO	-0.0155	0.0167	0.5169	-0.16219	-0.8476	-0.05147	-0.876
HINDALCO	-0.16219	0.00852	0.006541	0.0044	-0.16477	0.035412	0.9874
HINDUNILVR	0.0044	0.5573	0.0911	0.002219	-0.00611	0.91645	-0.4361
ICICIBANK	0.002219	-0.61345	0.00345	-0.1665	0.06137	0.32654	0.7651
INDUSINDBK	-0.5432	1.0051	0.789	0.09254	0.91334	-0.19459	-0.07098
INFY	0.2109	0.2117	0.1098	0.00342	0.6388	-0.29465	0.5162
ITC	-0.876	0.1234	0.01645	0.008	0.1237	0.116	0.6112
JSWSTEEL	0.9874	-0.5678	-0.3456	-0.09154	0.6591	-0.62144	0.5169
KOTAKBANK	-0.4361	0.09876	0.9154	-0.05114	0.3543	-0.876	-0.00265
LT	0.7651	-0.2345	0.061	-0.09513	0.919	0.9874	0.04213

LTIM	-0.07098	0.876	0.00816	0.0081	0.3116	-0.4361	0.09876
M&M	0.5162	-0.615	0.0694	-0.0375	0.8557	-0.7651	-0.2345
MARUTI	0.1234	0.00619	-0.5736	0.1181	0.006194	-0.07098	0.876
NESTLEIND	-0.5678	0.4357	-0.8341	0.01644	0.00914	0.5162	-0.4321
NTPC	0.09876	0.2154	0.0116	-0.3429	0.0061	0.6112	0.6543
ONGC	-0.2345	-0.3195	-0.73641	-0.932	0.05233	0.5169	-0.789
POWERGRID	0.876	-0.00184	0.2019	0.6194	0.005688	-0.00265	0.3546
RELIANCE	-0.4321	0.0322	-0.9872	-0.61548	0.09414	0.04213	-0.07098
SBILIFE	0.6543	0.7341	-0.5419	-0.84559	0.5637	-0.05114	0.5162
SBIN	-0.789	0.5573	-0.4519	0.3481	-0.911	-0.09513	0.1234
SUNPHARMA	0.3546	-0.61345	0.009134	0.005144	-0.546	0.0081	-0.5678
TCS	0.9012	1.0051	0.0551	-0.0009	-0.0694	-0.0375	0.09876
TATACONSUM	-0.07098	0.035412	-0.7344	0.6115	-0.0061	0.1181	-0.2345
TATAMOTORS	0.5162	-0.91645	-0.06149	-0.9932	0.9723	0.01644	0.876
TATASTEEL	-0.6112	-0.32654	0.03475	-0.1731	0.6544	-0.3429	-0.4321
TECHM	-0.5169	-0.194587	0.9134	-0.4421	0.008344	-0.932	0.6543
TITAN	-0.00265	-0.29465	-0.265	0.0051	-0.6412	0.6194	-0.789
ULTRACEMCO	0.04213	-0.116	-0.06153	-0.0814	0.0999	-0.7344	-0.61548
UPL	0.1284	0.62144	-0.2254	-0.06123	0.008451	0.06149	-0.84559
WIPRO	0.0194	0.093751	0.327	-0.1844	0.15475	0.03475	0.3481
<b>Total</b>	<b>-1.759819</b>	<b>3.012495</b>	<b>-0.20797</b>	<b>-2.94421</b>	<b>5.729223</b>	<b>-4.16599</b>	<b>2.278569</b>
<b>CAR</b>	<b>-1.759819</b>	<b>1.252676</b>	<b>1.044711</b>	<b>-1.8995</b>	<b>3.829722</b>	<b>-0.33626</b>	<b>1.942305</b>

Here we totaled the values and got CAR, after that with help of formulas we calculated standard deviation and variance of this data, which are: standard deviation = **0.4788924** and variance = **0.229338** and hence from the values computed from the event window of (t-3, t+3) we got the value of  $\theta$  which is **4.055828**, which is higher than 2, thus proved to be significant.

Now we will do the same thing with the next event window (t-4, t+4), here we will take (t-4, t-3, t-2, t-1, t0, t+1, t+2, t+3, t+4) and compute the value of  $\theta$  for this window as well:

**Table 5- Event window (t-4, t+4)**

Tickers	t-4	t-3	t-2	t-1	t0	t+1	t+2	t+3	t+4
ADANIENT	-0.789	0.0167	0.116	0.1234	0.0504	-0.615	-0.5678	-0.016	0.116
ADANIPTS	0.3546	0.0085	-0.6214	-0.568	-0.0027	0.0062	0.0988	-0.162	0.6214
APOLLOHOSP	0.9012	0.0006	-0.0155	0.0988	0.0421	0.4357	-0.2345	0.0044	-0.0155
ASIANPAINT	0.6789	-0.0627	-0.1622	-0.235	0.1284	0.2154	-0.876	0.0022	-0.1622
AXISBANK	-0.5432	-0.0273	0.0044	0.876	0.0194	-0.32	-0.4321	-0.543	0.0044
BAJAJ-AUTO	0.2109	0.0994	0.0022	-0.432	0.0167	-0.002	0.6543	0.2109	0.0022
BAJFINANCE	-0.876	-0.0515	-0.5432	0.6543	0.0085	0.0322	-0.789	-0.876	-0.5432
BAJAJFINSV	0.9874	0.0354	0.2109	-0.789	0.0006	0.7341	-0.6214	0.9874	-0.5678
BPCL	-0.4361	0.9165	-0.876	0.3546	-0.0627	0.5573	-0.0155	-0.436	0.0988

BHARTIARTL	0.7651	-0.5678	0.9874	0.9012	-0.0273	-0.613	-0.1622	0.7651	-0.2345
BRITANNIA	-0.071	0.0988	-0.4361	-0.679	0.0994	1.0051	0.0044	-0.071	0.876
CIPLA	0.5162	-0.2345	0.7651	-0.543	-0.0515	0.2117	0.0022	0.0062	-0.4321
COALINDIA	0.6112	-0.876	-0.071	0.2109	0.0354	0.308	-0.5432	0.4357	0.6543
DIVISLAB	-0.5678	-0.4321	0.5162	-0.876	0.9165	-0.611	0.2109	0.2154	-0.789
DRREDDY	0.0988	0.6543	0.6112	0.9874	0.3265	-0.007	-0.876	-0.32	0.3546
EICHERMOT	-0.2345	-0.789	0.5169	-0.436	-0.1946	-0.061	0.9874	-0.002	0.9012
GRASIM	-0.876	-0.6214	-0.0027	0.7651	-0.2947	0.7333	-0.4361	0.0322	-0.6214
HCLTECH	-0.4321	-0.0155	0.0421	-0.071	0.116	-0.092	-0.0627	0.7341	-0.0155
HDFCBANK	0.6543	-0.1622	0.1284	0.5162	-0.6214	0.1645	-0.0273	-0.543	-0.1622
HDFCLIFE	-0.789	-0.6214	0.0194	0.6112	-0.0155	-0.633	0.0994	0.2109	0.0044
HEROMOTOCO	-0.6214	-0.0155	0.0167	0.5169	-0.1622	-0.848	-0.0515	-0.876	0.0022
HINDALCO	0.0155	-0.1622	0.0085	0.0065	0.0044	-0.165	0.0354	0.9874	-0.5432
HINDUNILVR	-0.1622	0.0044	0.5573	0.0911	0.0022	-0.006	0.9165	-0.436	0.2109
ICICIBANK	0.0044	0.0022	-0.6135	0.0035	-0.1665	0.0614	0.3265	0.7651	-0.876
INDUSINDBK	0.0022	-0.5432	1.0051	0.789	0.0925	0.9133	-0.1946	-0.071	0.9874
INFY	-0.5432	0.2109	0.2117	0.1098	0.0034	0.6388	-0.2947	0.5162	-0.4361
ITC	0.2109	-0.876	0.1234	0.0165	0.008	0.1237	0.116	0.6112	0.7651
JSWSTEEL	-0.876	0.9874	-0.5678	-0.346	-0.0915	0.6591	-0.6214	0.5169	-0.071
KOTAKBANK	0.1234	-0.4361	0.0988	0.9154	-0.0511	0.3543	-0.876	-0.003	-0.0627
LT	-0.5678	0.7651	-0.2345	0.061	-0.0951	0.919	0.9874	0.0421	-0.0273
LTIM	0.0988	-0.071	0.876	0.0082	0.0081	0.3116	-0.4361	0.0988	0.0994
M&M	-0.2345	0.5162	-0.615	0.0694	-0.0375	0.8557	-0.7651	-0.235	-0.0515
MARUTI	0.876	0.1234	0.0062	-0.574	0.1181	0.0062	-0.071	0.876	0.0354
NESTLEIND	-0.4321	-0.5678	0.4357	-0.834	0.0164	0.0091	0.5162	-0.432	0.9165
NTPC	0.6543	0.0988	0.2154	0.0116	-0.3429	0.0061	0.6112	0.6543	-0.5678
ONGC	-0.789	-0.2345	-0.3195	-0.736	-0.932	0.0523	0.5169	-0.789	0.0988
POWERGRID	0.3546	0.876	-0.0018	0.2019	0.6194	0.0057	-0.0027	0.3546	-0.2345
RELIANCE	-0.0515	-0.4321	0.0322	-0.987	-0.6155	0.0941	0.0421	-0.071	-0.876
SBILIFE	0.0354	0.6543	0.7341	-0.542	-0.8456	0.5637	-0.0511	0.5162	-0.4321
SBIN	0.9165	-0.789	0.5573	-0.452	0.3481	-0.911	-0.0951	0.1234	0.6543
SUNPHARMA	-0.5678	0.3546	-0.6135	0.0091	0.0051	-0.546	0.0081	-0.568	-0.1622
TCS	0.0988	0.9012	1.0051	0.0551	-0.0009	-0.069	-0.0375	0.0988	0.0044
TATACONSUM	-0.2345	-0.071	0.0354	-0.734	0.6115	-0.006	0.1181	-0.235	0.0022
TATAMOTORS	-0.876	0.5162	-0.9165	-0.061	-0.9932	0.9723	0.0164	0.876	0.5432
TATASTEEL	0.4321	-0.6112	-0.3265	0.0348	-0.1731	0.6544	-0.3429	-0.432	0.2109
TECHM	0.6543	-0.5169	-0.1946	0.9134	-0.4421	0.0083	-0.932	0.6543	-0.876
TITAN	-0.1648	-0.0027	-0.2947	-0.265	0.0051	-0.641	0.6194	-0.789	0.9874
ULTRACEMCO	-0.0061	0.0421	-0.116	-0.062	-0.0814	0.0999	-0.7344	-0.615	0.4361
UPL	0.0614	0.1284	0.6214	-0.225	-0.0612	0.0085	0.0615	-0.846	-0.0627
WIPRO	0.9133	0.0194	0.0938	0.327	-0.1844	0.1548	0.0348	0.3481	-0.0273
<b>Total</b>	<b>-0.5112</b>	<b>-1.7598</b>	<b>3.0125</b>	<b>-0.208</b>	<b>-2.9442</b>	<b>5.7292</b>	<b>-4.166</b>	<b>2.2786</b>	<b>0.7377</b>
<b>CAR</b>	<b>-0.5112</b>	<b>-2.271</b>	<b>0.7415</b>	<b>0.5335</b>	<b>-2.4107</b>	<b>3.3185</b>	<b>-0.8475</b>	<b>1.4311</b>	<b>2.1688</b>

Here we totaled the values and got CAR, after that with help of formulas we calculated standard deviation and variance of this data, which are: standard deviation = **0.4898346** and variance = **0.239937** and hence from the values computed from the event window of (t-4, t+4) we got the value of  $\theta$  which is **4.427639**, which is higher than 2, thus proved to be significant.

Now we will do the same thing with the next event window (t-5, t+5), here we will take (t-5, t-4, t-3, t-2, t-1, t0, t+1, t+2, t+3, t+4, t+5) and compute the value of  $\theta$  for this window as well:

**Table 6- Event window (t-5, t+5)**

Tickers	t-5	t-4	t-3	t-2	t-1	t0	t+1	t+2	t+3	t+4	t+5
ADANIENT	0.09876	-0.789	0.0167	0.116	0.1234	0.0504	-0.615	-0.5678	-0.0155	0.116	0.6789
ADANIPTS	-0.2345	0.3546	0.00852	-0.6214	-0.5678	0.00265	0.00619	0.09876	-0.1622	0.62144	-0.5432
APOLLOHOSP	0.876	0.9012	0.00057	-0.0155	0.09876	0.04213	0.4357	-0.2345	0.0044	-0.0155	0.2109
ASIANPAINT	-0.4321	0.6789	-0.0627	-0.1622	-0.2345	0.1284	0.2154	-0.876	0.00222	-0.1622	-0.876
AXISBANK	0.6543	-0.5432	-0.0273	0.0044	0.876	0.0194	-0.3195	-0.4321	-0.5432	0.0044	0.9874
BAJAJ-AUTO	-0.789	0.2109	0.09942	0.00222	-0.4321	0.0167	-0.0018	0.6543	0.2109	0.00222	-0.4361
BAJFINANCE	0.3546	-0.876	-0.0515	-0.5432	0.6543	0.00852	0.0322	-0.789	-0.876	-0.5432	0.7651
BAJAJFINSV	0.9012	0.9874	0.03541	0.2109	-0.789	0.00057	0.7341	-0.6214	0.9874	-0.5678	-0.071
BPCL	-0.6789	-0.4361	0.91645	-0.876	0.3546	0.06271	0.5573	-0.0155	-0.4361	0.09876	0.5162
BHARTIARTL	-0.5432	0.7651	-0.5678	0.9874	0.9012	0.02731	-0.6135	-0.1622	0.7651	-0.2345	0.6112
BRITANNIA	0.2109	-0.071	0.09876	-0.4361	-0.6789	0.09942	1.0051	0.0044	-0.071	0.876	-0.5678
CIPLA	-0.615	0.5162	-0.2345	0.7651	-0.5432	0.05147	0.2117	0.00222	0.00619	-0.4321	0.09876
COALINDIA	0.00619	0.6112	-0.876	-0.071	0.2109	0.03541	0.308	-0.5432	0.4357	0.6543	-0.2345
DIVISLAB	0.4357	-0.5678	-0.4321	0.5162	-0.876	0.91645	-0.611	0.2109	0.2154	-0.789	-0.876
DRREDDY	0.2154	0.09876	0.6543	0.6112	0.9874	0.32654	-0.0074	-0.876	-0.3195	0.3546	-0.4321
EICHERMOT	-0.3195	-0.2345	-0.789	0.5169	-0.4361	0.19459	-0.0615	0.9874	-0.0018	0.9012	0.6543
GRASIM	-0.00184	-0.876	-0.6214	-0.0027	0.7651	0.29465	0.7333	-0.4361	0.0322	-0.6214	-0.5678
HCLTECH	0.3546	-0.4321	-0.0155	0.04213	-0.071	0.116	-0.0915	-0.0627	0.7341	-0.0155	0.09876
HDFCBANK	0.9012	0.6543	-0.1622	0.1284	0.5162	0.62144	0.1645	-0.0273	-0.5432	-0.1622	-0.2345
HDFCLIFE	0.6789	-0.789	-0.6214	0.0194	0.6112	-0.0155	-0.6333	0.09942	0.2109	0.0044	0.876
HEROMOTOCO	-0.5432	-0.6214	-0.0155	0.0167	0.5169	0.16219	-0.8476	-0.0515	-0.876	0.00222	-0.4321
HINDALCO	0.2109	0.0155	-0.1622	0.00852	0.00654	0.0044	-0.1648	0.03541	0.9874	-0.5432	0.6543
HINDUNILVR	-0.876	-0.1622	0.0044	0.5573	0.0911	0.00222	-0.0061	0.91645	-0.4361	0.2109	-0.789
ICICIBANK	0.9874	0.0044	0.00222	-0.6135	0.00345	-0.1665	0.06137	0.32654	0.7651	-0.876	0.3546
INDUSINDBK	-0.4361	0.00222	-0.5432	1.0051	0.789	0.09254	0.91334	-0.1946	-0.071	0.9874	0.9012
INFY	0.7651	-0.5432	0.2109	0.2117	0.1098	0.00342	0.6388	-0.2947	0.5162	-0.4361	-0.6789

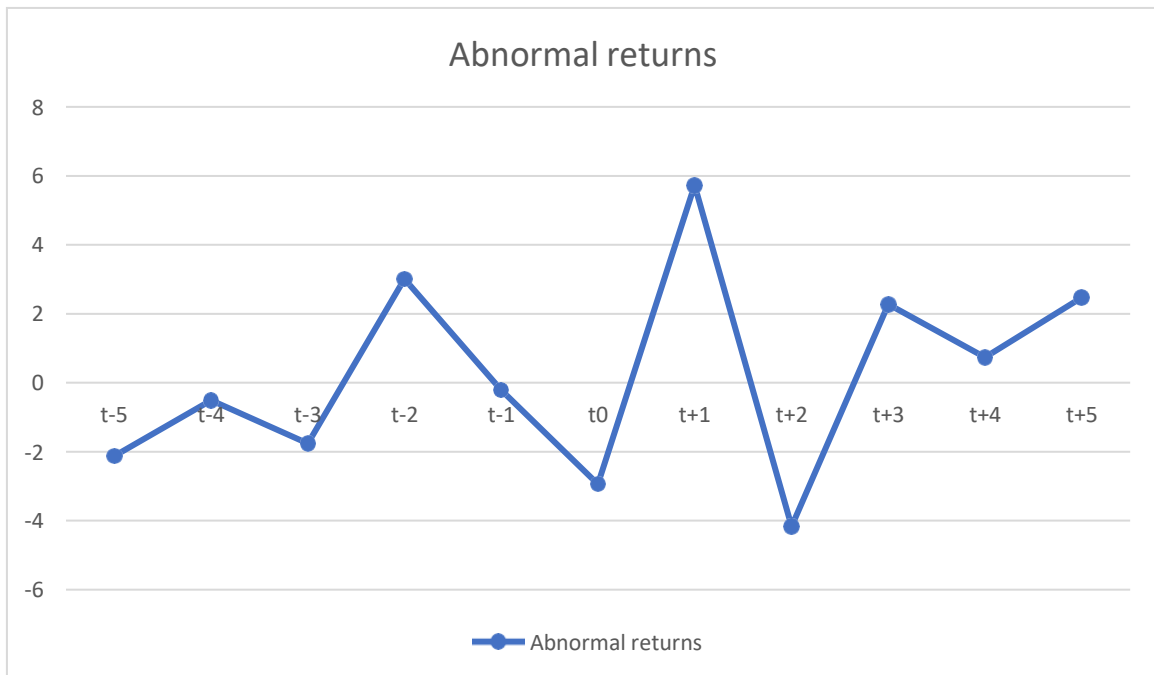
ITC	-0.06271	0.2109	-0.876	0.1234	0.01645	0.008	0.1237	0.116	0.6112	0.7651	-0.5432
JSWSTEEL	-0.02731	-0.876	0.9874	-0.5678	-0.3456	0.09154	0.6591	-0.6214	0.5169	-0.071	0.2109
KOTAKBANK	0.09942	0.1234	-0.4361	0.09876	0.9154	0.05114	0.3543	-0.876	-0.0027	-0.0627	-0.876
LT	-0.05147	-0.5678	0.7651	-0.2345	0.061	0.09513	0.919	0.9874	0.04213	-0.0273	0.9874
LTIM	0.035412	0.09876	-0.071	0.876	0.00816	0.0081	0.3116	-0.4361	0.09876	0.09942	-0.4361
M&M	0.91645	-0.2345	0.5162	-0.615	0.0694	-0.0375	0.8557	-0.7651	-0.2345	-0.0515	0.7651
MARUTI	-0.5678	0.876	0.1234	0.00619	-0.5736	0.1181	0.00619	-0.071	0.876	0.03541	-0.615
NESTLEIND	0.09876	-0.4321	-0.5678	0.4357	-0.8341	0.01644	0.00914	0.5162	-0.4321	0.91645	0.00619
NTPC	-0.2345	0.6543	0.09876	0.2154	0.0116	-0.3429	0.0061	0.6112	0.6543	-0.5678	0.4357
ONGC	-0.876	-0.789	-0.2345	-0.3195	-0.7364	-0.932	0.05233	0.5169	-0.789	0.09876	0.2154
POWERGRID	-0.4321	0.3546	0.876	-0.0018	0.2019	0.6194	0.00569	-0.0027	0.3546	-0.2345	-0.3195
RELIANCE	0.2109	-0.0515	-0.4321	0.0322	-0.9872	0.61548	0.09414	0.04213	-0.071	-0.876	-0.0018
SBILIFE	-0.876	0.03541	0.6543	0.7341	-0.5419	0.84559	0.5637	-0.0511	0.5162	-0.4321	0.0322
SBIN	-0.9874	0.91645	-0.789	0.5573	-0.4519	0.3481	-0.911	-0.0951	0.1234	0.6543	0.7341
SUNPHARMA	-0.4361	-0.5678	0.3546	-0.6135	0.00913	0.00514	-0.546	0.0081	-0.5678	-0.1622	0.5573
TCS	0.7651	0.09876	0.9012	1.0051	0.0551	-0.0009	-0.0694	-0.0375	0.09876	0.0044	-0.6135
TATACONSUM	-0.07098	-0.2345	-0.071	0.03541	-0.7344	0.6115	-0.0061	0.1181	-0.2345	0.00222	1.0051
TATAMOTORS	0.00619	-0.876	0.5162	-0.9165	-0.0615	-0.9932	0.9723	0.01644	0.876	0.5432	0.2117
TATASTEEL	-0.4357	0.4321	-0.6112	-0.3265	0.03475	-0.1731	0.6544	-0.3429	-0.4321	0.2109	0.09254
TECHM	-0.2154	0.6543	-0.5169	-0.1946	0.9134	-0.4421	0.00834	-0.932	0.6543	-0.876	0.00342
TITAN	-0.3195	-0.1648	-0.0027	-0.2947	-0.265	0.0051	-0.6412	0.6194	-0.789	0.9874	0.008
ULTRACEMCO	-0.00184	-0.0061	0.04213	-0.116	-0.0615	-0.0814	0.0999	-0.7344	-0.6155	0.4361	0.09154
UPL	0.0322	0.06137	0.1284	0.62144	-0.2254	0.06123	0.00845	0.06149	-0.8456	-0.0627	-0.0511
WIPRO	-0.876	0.91334	0.0194	0.09375	0.327	-0.1844	0.15475	0.03475	0.3481	-0.0273	-0.0951
<b>Total</b>	<b>-2.12457</b>	<b>-0.5112</b>	<b>-1.7598</b>	<b>3.0125</b>	<b>-0.208</b>	<b>2.94421</b>	<b>5.72922</b>	<b>-4.166</b>	<b>2.27857</b>	<b>0.7377</b>	<b>2.47387</b>
<b>CAR</b>	<b>-2.12457</b>	<b>-2.6358</b>	<b>-4.3956</b>	<b>-1.3831</b>	<b>-1.5911</b>	<b>4.53526</b>	<b>1.19396</b>	<b>-2.972</b>	<b>-0.6935</b>	<b>0.04424</b>	<b>2.51811</b>

Here we totaled the values and got CAR, after that with help of formulas we calculated standard deviation and variance of this data, which are: standard deviation = **0.5009688** and variance = **0.2509698** and hence from the values computed from the event window of (t-5, t+5) we got the value of  $\theta$  which is **5.02648601**, which is higher than 2, thus proved to be significant.

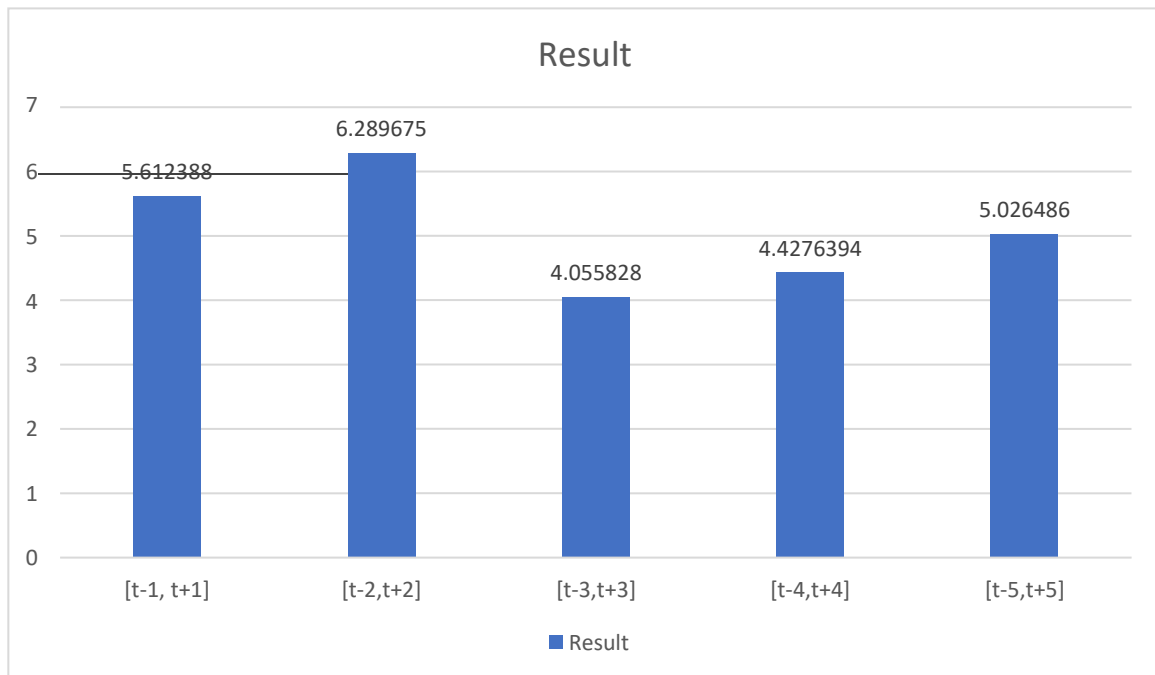
**Table 7- Abnormal Returns:**

Events	t-5	t-4	t-3	t-2	t-1	t0	t+1	t+2	t+3	t+4	t+5
ARs	-2.12457	-0.5112	-1.7598	3.0125	-0.208	-2.94421	5.72922	-4.166	2.27857	0.7377	2.47387

**Figure 2- Abnormal returns:**



**Figure 3- Event window results**



**Table 8- Event window results:**

Event windows	[t-1, t+1]	[t-2, t+2]	[t-3, t+3]	[t-4, t+4]	[t-5, t+5]
$\theta$	5,612388	6.289675	4.055828	4.4276394	5.026486
Significance	Significant	Significant	Significant	Significant	Significant

In analyzing the impact of earnings announcements on stock returns, a clear trend emerges across different event windows. Initially, from the first event window  $[t-1, t+1]$  to the subsequent window  $[t-2, t+2]$ , the significance of earnings announcements' effect on stock returns steadily increases. However, in the following event window  $[t-3, t+3]$ ,  $\theta$  falls back to 4.055828 before gradually increasing again, indicating a decline in the magnitude of the effect two days after the event for the National Stock Exchange's NIFTY50 index, followed by a return to normalcy. Notably, when examining the sum of abnormal returns (excluding CARs), the most significant reaction occurs one day after the announcement in  $t+1$ , with an abnormal return value of 5.72922. This suggests that investors may promptly act based on company webcasts/earnings calls, signaling a decisive move forward. Furthermore, the abnormal return value of 3.0125 two days prior to the event date ( $t-2$ ) implies potential information asymmetry before earnings, which gradually declines to -0.208 in  $t-1$  and then -2.94421 in  $t_0$ , indicating investor behavior primarily two days before the event date and subsequent assertiveness afterward. Overall, the rejection of the null hypothesis across all event windows suggests that earnings announcements indeed have a significant effect on stock returns.

### **Discussion and Conclusion:**

The analysis of stock market reactions to earnings announcements within the NIFTY50 index in India has provided valuable insights into the relationship between earnings news and stock price behavior. Building upon previous literature, which has explored this topic from various perspectives, including price volume, volatility, and analyst revisions, this study focused specifically on examining the impact of earnings announcements on stock returns. By analyzing 50 of the most liquid stocks over a period of 20 quarters from 2018-1Q to 2022-4Q, this research aimed to contribute to a deeper understanding of how earnings announcements influence stock price dynamics in the Indian market.

The findings of the study reveal a significant relationship between earnings announcements and stock price behavior across different event windows, ranging from  $[t-5, t+5]$ . The event study methodology employed in the analysis, supplemented by Excel and Google Spreadsheet tools, facilitated a comprehensive examination of stock returns surrounding earnings announcement dates. The rejection of the null hypothesis that earnings announcements have no significant effect on stock price behavior underscores the importance of earnings news as a key driver of investor sentiment and market volatility in the Indian stock market.

Specifically, the  $\theta$  values obtained for each event window demonstrate the magnitude of the reaction of stock returns to earnings announcements. The observed  $\theta$  values, such as 5.612388 for [t-1, t+1], 6.289675 for [t-2, t+2], 4.055828 for [t-3, t+3], 4.4276394 for [t-4, t+4], and 5.026486 for [t-5, t+5], all surpassing the threshold of 2, indicate statistical significance. These results suggest an aggressive reaction of stock returns to earnings announcements during the initial two days following the announcement, followed by a gradual normalization of reactions from the third day onward.

In this study, notable observations highlight the pronounced reaction to earnings announcements, particularly evident one day after the announcement in t+1, with an abnormal return value of 5.72922. This finding suggests that investors may promptly act upon information gleaned from company webcasts/earnings calls, potentially indicating a proactive approach towards future investment decisions. Moreover, the substantial abnormal return value of 3.0125 observed two days prior to the event date (t-2), the second highest abnormal return recorded, may signify pre-existing information asymmetry preceding earnings announcements. This asymmetry gradually diminishes to -0.208 in t-1 and further to -2.94421 in t0, indicating investor behavior primarily occurring two days before the event date, followed by an aggressive response the day after. These observations underscore the intricate dynamics at play surrounding earnings announcements and investor decision-making processes.

Overall, the answer for the research question “Does earnings announcements affect the behavior of stock prices in India’s NIFTY50 index, and does these changes in effect depend on the various time frames around the announcement date?” is YES.

This study may add to the body of knowledge for equities analysts, traders, financial analysts, and current writers. A potential avenue for future research in this area would be to compare the size of the earnings surprise to the size of the stock return reaction. The future implications of this research could be significant in several aspects:

- **Investor decision making:** Understanding the immediate and subsequent reactions of investors to earnings announcements can provide valuable insights for investors themselves. Armed with knowledge of how stock prices tend to behave following such announcements, investors can make more informed decisions about buying, selling, or holding their positions.
- **Market efficiency:** The findings of this research contribute to the ongoing discussion on market efficiency. If earnings announcements consistently lead to significant reactions in stock prices, it suggests that there may be opportunities for investors to profit from the



information contained in these announcements. This could have implications for the efficient market hypothesis and theories related to market anomalies.

- **Corporate communication strategies:** Companies may also benefit from understanding how investors react to their earnings announcements. Insights into the timing and magnitude of market reactions can help companies refine their communication strategies around earnings releases, potentially influencing investor perceptions and market sentiment.
- **Regulatory Policies:** Regulators may consider the implications of these findings for market integrity and investor protection. Understanding how investors respond to earnings announcements could inform regulatory policies aimed at ensuring transparency, fairness, and efficiency in financial markets.
- **Further research directions:** This study opens avenues for further research into the underlying mechanisms driving investor reactions to earnings announcements. Future studies could explore factors such as the role of information dissemination channels, the impact of market sentiment, or the behavior of different investor types in shaping market responses.

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Table 9- List of event dates

	ADANIEN T	ADANIPO RTS	APOLLOH OSP	ASIANPAI NT	AXISBAN K	BAJAJ- AUTO	BAJFINAN CE	BAJAJFINS V
2022	Q4	04-05-2023	29-05-2023	30-05-2023	10-05-2023	27-04-2023	25-04-2023	26-04-2023
	Q3	14-02-2023	08-02-2023	14-02-2023	19-01-2023	23-01-2023	25-01-2023	27-01-2023
	Q2	03-11-2022	01-11-2022	10-11-2022	21-10-2022	20-10-2022	14-10-2022	20-10-2022
	Q1	04-08-2022	09-08-2022	11-08-2022	25-07-2022	25-07-2022	26-07-2022	27-07-2022
2021	Q4	03-05-2022	23-05-2022	25-05-2022	09-05-2022	28-04-2022	27-04-2022	26-04-2022
	Q3	14-02-2022	01-02-2022	11-02-2022	20-01-2022	24-01-2022	19-01-2022	18-01-2022
	Q2	27-10-2021	27-10-2021	12-11-2021	21-10-2021	26-10-2021	27-10-2021	26-10-2021
	Q1	03-08-2021	03-08-2021	13-08-2021	20-07-2021	26-07-2021	22-07-2021	20-07-2021
2020	Q4	05-05-2021	03-05-2021	23-06-2021	11-05-2021	27-04-2021	29-04-2021	27-04-2021
	Q3	03-02-2021	09-02-2021	12-02-2021	20-01-2021	27-01-2021	21-01-2021	20-01-2021
	Q2	04-11-2020	04-11-2020	11-11-2020	21-10-2020	28-10-2020	22-10-2022	21-10-2020
	Q1	06-08-2020	10-08-2020	14-09-2020	23-07-2020	21-07-2020	22-07-2020	21-07-2020
2019	Q4	06-05-2020	06-05-2020	25-06-2020	22-06-2020	21-07-2020	15-05-2020	19-05-2020
	Q3	05-02-2020	04-02-2020	13-02-2020	21-01-2020	22-01-2020	30-01-2020	29-01-2020
	Q2	12-11-2019	10-11-2019	14-11-2019	22-10-2019	22-10-2019	23-10-2019	22-10-2019
	Q1	08-08-2019	07-08-2019	13-08-2019	23-07-2019	30-07-2019	26-07-2019	25-07-2019
2018	Q4	29-05-2019	27-05-2019	30-05-2019	10-05-2019	25-04-2019	17-05-2019	16-05-2019
	Q3	07-02-2019	05-02-2019	09-02-2019	23-01-2019	29-01-2019	30-01-2019	29-01-2019
	Q2	31-10-2018	23-10-2018	14-11-2018	21-10-2018	02-11-2018	24-10-2018	23-10-2018
	Q1	13-08-2018	09-08-2018	10-08-2018	24-07-2018	30-07-2018	19-07-2018	19-07-2018

BPCL	BHARTIA RTL	BRITANNI A	CIPLA	COALINDI A	DIVISLAB	DRREDDY	EICHERM OT	GRASIM	HCLTECH
27-04-2023	21-05-2023	15-05-2023	02-05-2023	12-05-2023	08-05-2023	20-05-2023	10-05-2023	11-05-2023	26-05-2023
30-01-2023	30-01-2023	06-02-2023	01-02-2023	25-01-2023	31-01-2023	03-02-2023	25-01-2023	14-02-2023	14-02-2023
22-10-2022	06-11-2022	30-10-2022	04-11-2022	03-11-2022	07-11-2022	07-11-2022	27-10-2022	10-11-2022	14-11-2022
28-07-2022	05-08-2022	07-08-2022	04-08-2022	28-07-2022	10-08-2022	12-08-2022	27-07-2022	10-08-2022	12-08-2022
28-04-2022	24-05-2022	16-05-2022	02-05-2022	10-05-2022	25-05-2022	23-05-2022	18-05-2022	13-05-2022	24-05-2022
20-01-2022	30-01-2022	07-02-2022	28-01-2022	25-01-2022	14-02-2022	11-02-2022	27-01-2022	14-02-2022	14-02-2022
28-10-2021	28-10-2021	02-11-2021	08-11-2021	25-10-2021	12-11-2021	06-11-2021	29-10-2021	03-11-2021	12-11-2021
21-07-2021	11-08-2021	02-08-2021	30-07-2021	04-08-2021	10-08-2021	07-08-2021	27-07-2021	12-08-2021	13-08-2021
28-04-2021	25-05-2021	16-05-2021	27-04-2021	13-05-2021	14-06-2021	29-05-2021	14-05-2021	27-05-2021	24-05-2021
20-01-2021	08-02-2021	02-02-2021	05-02-2021	29-01-2021	11-02-2021	06-02-2021	29-01-2021	10-02-2021	12-02-2021
21-10-2020	29-10-2020	26-10-2020	19-10-2020	05-11-2020	11-11-2020	07-11-2020	28-10-2020	12-11-2020	12-11-2020
22-07-2020	14-08-2020	28-07-2020	17-07-2020	06-08-2020	02-09-2020	08-08-2020	29-07-2020	13-08-2020	13-08-2020
21-05-2020	03-06-2020	17-05-2020	23-04-2020	18-05-2020	26-06-2020	06-06-2020	20-05-2020	12-06-2020	13-06-2020
29-01-2020	12-01-2020	03-02-2020	07-02-2020	04-02-2020	11-02-2020	05-02-2020	27-01-2020	06-02-2020	10-02-2020
22-10-2019	07-11-2019	19-11-2019	11-11-2019	06-11-2019	11-11-2019	21-10-2019	01-11-2019	08-11-2019	14-11-2019
25-07-2019	09-08-2019	31-07-2019	09-08-2019	06-08-2019	13-08-2019	10-08-2019	29-07-2019	31-07-2019	14-08-2019
16-05-2019	20-05-2019	06-05-2019	01-05-2019	21-05-2019	30-05-2019	25-05-2019	17-05-2019	10-05-2019	24-05-2019
29-01-2019	08-02-2019	30-01-2019	07-02-2019	05-02-2019	12-02-2019	02-02-2019	01-02-2019	11-02-2019	07-02-2019
23-10-2018	29-10-2018	25-10-2018	12-11-2018	04-11-2018	17-12-2018	05-11-2018	26-10-2017	12-11-2018	14-11-2018
19-07-2018	14-08-2018	27-07-2018	06-08-2018	10-08-2018	13-08-2018	04-08-2018	26-07-2018	09-08-2018	14-08-2018

HDFCBAN K	HDFCLIFE	HEROMOT OCO	HINDALC O	HINDUNIL VR	ICICIBAN K	INDUSIND BK	INFY	ITC	JSWSTEEL
22-04-2023	15-04-2023	26-04-2023	04-05-2023	10-05-2023	28-04-2023	22-04-2023	20-04-2023	13-04-2023	18-05-2023
12-01-2023	14-01-2023	20-01-2023	07-02-2023	08-02-2023	18-01-2023	21-01-2023	18-01-2023	11-01-2023	03-02-2023
29-11-2022	15-10-2022	21-10-2022	03-11-2022	11-11-2022	21-10-2022	22-10-2022	18-10-2022	13-10-2022	20-10-2022
15-07-2022	16-07-2022	31-08-2022	12-08-2022	09-08-2022	20-07-2022	23-07-2022	20-07-2022	24-07-2022	01-08-2022
21-04-2022	16-04-2022	26-04-2022	02-05-2022	26-05-2022	27-04-2022	23-04-2022	29-04-2022	13-04-2022	18-05-2022
14-01-2022	15-01-2022	21-01-2022	09-02-2022	10-02-2022	21-01-2022	22-01-2022	31-01-2022	12-01-2022	03-02-2022
14-10-2021	16-10-2021	22-10-2021	11-11-2021	11-11-2021	18-10-2021	23-10-2021	27-10-2021	13-10-2021	27-10-2021
19-07-2021	17-07-2021	01-09-2021	13-08-2021	05-08-2021	21-07-2021	24-07-2021	26-07-2021	14-07-2021	24-07-2021
22-04-2021	17-04-2021	26-04-2021	05-05-2021	20-05-2021	28-04-2021	24-04-2021	30-04-2021	14-04-2021	01-06-2021
15-02-2021	16-01-2021	22-01-2021	03-02-2021	09-02-2021	26-01-2021	30-01-2021	28-01-2021	13-01-2021	11-02-2021
15-10-2020	17-10-2020	02-12-2020	27-10-2020	09-11-2020	21-10-2020	31-10-2020	29-10-2020	14-10-2020	06-11-2020
16-07-2020	18-07-2020	02-09-2020	14-08-2020	13-08-2020	21-07-2020	25-07-2020	27-07-2020	14-07-2020	24-07-2020
06-05-2020	18-04-2020	22-04-2020	08-06-2020	11-06-2020	30-04-2020	09-05-2020	16-04-2020	20-04-2020	26-06-2020
28-01-2020	18-01-2020	26-02-2020	05-02-2020	11-02-2020	30-01-2020	25-01-2020	14-01-2020	10-01-2020	31-01-2020
18-10-2019	19-10-2019	27-11-2019	22-10-2019	11-11-2019	13-10-2019	26-10-2019	09-10-2019	11-10-2019	24-10-2019
06-08-2019	20-07-2019	28-08-2019	29-07-2019	08-08-2019	24-07-2019	27-07-2019	11-07-2019	12-07-2019	02-08-2019
09-05-2019	20-04-2019	29-05-2019	27-04-2019	16-05-2019	03-05-2019	06-05-2019	18-04-2019	12-04-2019	13-05-2019
28-01-2019	19-01-2019	27-02-2019	30-01-2019	11-02-2019	16-01-2019	30-01-2019	09-01-2019	11-01-2019	23-01-2019
19-10-2018	20-10-2018	28-11-2018	15-10-2018	02-11-2018	12-10-2018	26-10-2018	15-10-2018	16-10-2018	26-10-2018
27-07-2018	21-07-2018	29-08-2018	25-07-2018	14-08-2018	16-07-2018	27-07-2018	11-07-2018	13-07-2018	26-07-2018

KOTAKBA NK	LT	LTIM	M&M	MARUTI	NESTLEIN D	NTPC	ONGC	POWERGR ID	RELIANCE
19-05-2023	29-04-2023	09-05-2023	27-04-2023	26-05-2023	26-04-2023	25-04-2023	19-05-2023	26-05-2023	19-05-2023
20-01-2023	21-01-2023	29-01-2023	19-01-2023	10-02-2023	24-01-2023	16-02-2023	28-01-2023	14-02-2023	31-01-2023
21-10-2022	22-10-2022	31-10-2022	15-10-2022	11-11-2022	28-10-2022	19-10-2022	29-10-2022	13-11-2022	05-11-2022
22-07-2022	23-07-2022	26-07-2022	14-07-2022	05-08-2022	27-07-2022	28-07-2022	29-07-2022	11-08-2022	08-08-2022
27-05-2022	04-05-2022	12-05-2022	19-04-2022	29-05-2022	29-04-2022	21-04-2022	20-05-2022	27-05-2022	21-05-2022
21-01-2022	28-01-2022	28-01-2022	12-01-2022	10-02-2022	25-01-2022	17-02-2022	29-01-2022	11-02-2022	09-02-2022
21-10-2021	26-10-2021	26-11-2021	18-10-2021	09-11-2021	27-10-2021	19-10-2021	28-10-2021	11-11-2021	09-11-2021
23-07-2021	26-07-2021	26-07-2021	16-07-2021	06-08-2021	28-07-2021	28-07-2021	31-07-2021	15-08-2021	10-08-2021
21-05-2021	03-05-2021	14-05-2021	04-05-2021	28-05-2021	27-04-2021	20-04-2021	19-06-2021	24-06-2021	17-06-2021
22-01-2021	25-01-2021	25-01-2021	13-01-2021	05-02-2021	28-01-2021	16-02-2021	04-02-2021	13-02-2021	11-02-2021
23-10-2020	26-10-2020	28-10-2020	16-10-2020	10-11-2020	29-10-2020	23-10-2020	02-11-2020	13-11-2020	11-11-2020
24-07-2020	27-07-2020	22-07-2020	17-07-2020	07-08-2020	29-07-2020	28-07-2020	14-08-2020	01-09-2020	10-08-2020
22-05-2020	13-05-2020	05-06-2020	19-05-2020	12-06-2020	13-05-2020	12-05-2020	27-06-2020	30-06-2020	20-06-2020
04-02-2020	20-01-2020	22-01-2020	15-01-2020	07-02-2020	28-01-2020	13-02-2020	07-02-2020	14-02-2020	31-01-2020
23-10-2019	22-10-2019	23-10-2019	17-10-2019	08-11-2019	24-10-2019	08-11-2019	08-11-2019	14-11-2019	07-11-2019
26-07-2019	22-07-2019	23-07-2019	18-07-2019	07-08-2019	26-07-2019	02-08-2019	10-08-2019	13-08-2019	02-08-2019
24-05-2019	30-04-2019	10-05-2019	02-05-2019	29-05-2019	25-04-2019	09-05-2019	25-05-2019	30-05-2019	29-05-2019
06-02-2019	21-01-2019	25-01-2019	18-01-2019	08-02-2019	25-01-2019	25-04-2019	30-01-2019	14-02-2019	31-01-2019
25-10-2018	24-10-2018	31-10-2018	24-10-2018	14-11-2018	26-10-2018	09-11-2018	02-11-2018	03-11-2018	05-11-2018
01-08-2018	19-07-2018	25-07-2018	23-07-2018	07-08-2018	26-07-2018	26-10-2018	28-08-2018	02-08-2018	01-08-2018

SBILIFE	SBIN	SUNPHAR MA	TCS	TATACON SUM	TATAMOT ORS	TATASTEE L	TECHM	TITAN	ULTRACE MCO
21-04-2023	26-04-2023	18-05-2023	26-05-2023	13-04-2023	26-04-2023	12-05-2023	01-05-2023	26-04-2023	11-05-2023
20-01-2023	21-01-2023	03-02-2023	31-01-2023	09-01-2023	03-02-2023	25-01-2023	05-02-2023	30-01-2023	02-02-2023
21-10-2022	27-10-2022	05-11-2022	01-11-2022	09-10-2022	20-10-2022	09-11-2022	30-10-2022	01-11-2022	04-11-2022
22-07-2022	31-08-2022	06-08-2022	29-07-2022	08-07-2022	10-08-2022	26-07-2022	24-07-2022	25-07-2022	05-08-2022
06-05-2022	28-04-2022	13-05-2022	30-05-2022	11-04-2022	03-05-2022	11-05-2022	03-05-2022	13-05-2022	03-05-2022
21-01-2022	21-01-2022	05-02-2022	31-01-2022	12-01-2022	01-02-2022	31-01-2022	04-02-2022	01-02-2022	03-02-2022
22-10-2021	27-10-2021	03-11-2021	02-11-2021	08-10-2021	22-10-2021	31-10-2021	12-11-2021	25-10-2021	27-10-2021
23-07-2021	01-09-2021	04-08-2021	30-07-2021	07-07-2021	02-08-2021	25-07-2021	11-08-2021	29-07-2021	04-08-2021
30-04-2021	03-05-2021	21-05-2021	27-05-2021	12-04-2021	05-05-2021	18-05-2021	04-05-2021	26-04-2021	29-04-2021
22-01-2021	22-01-2021	04-02-2021	29-01-2021	08-01-2021	02-02-2021	29-01-2021	09-02-2021	30-01-2021	10-02-2021
30-10-2020	02-12-2020	04-11-2020	03-11-2020	07-10-2020	06-11-2020	04-11-2020	13-11-2020	23-10-2020	28-10-2020
30-07-2020	02-09-2020	31-07-2020	31-07-2020	08-07-2020	04-08-2020	30-07-2020	14-08-2020	27-07-2020	10-08-2020
30-04-2020	03-06-2020	05-06-2020	27-05-2020	15-04-2020	26-05-2020	14-06-2020	30-06-2020	30-04-2020	08-06-2020
17-01-2020	26-02-2020	31-01-2020	06-02-2020	17-01-2020	10-02-2020	29-01-2020	07-02-2020	31-01-2020	04-02-2020
18-10-2019	27-11-2019	25-10-2019	07-11-2019	10-10-2019	07-11-2019	25-10-2019	06-11-2019	05-11-2019	05-11-2019
19-07-2019	28-08-2019	02-08-2019	13-08-2019	09-07-2019	06-08-2019	24-07-2019	06-08-2019	30-07-2019	06-08-2019
18-04-2019	29-05-2019	10-05-2019	28-05-2019	12-04-2019	26-04-2019	21-05-2019	24-04-2019	21-05-2019	08-05-2019
17-01-2019	27-02-2019	01-02-2019	12-02-2019	10-01-2019	06-02-2019	07-02-2019	09-02-2019	05-02-2019	01-02-2019
17-10-2018	28-11-2018	05-11-2018	13-11-2018	11-10-2018	05-11-2018	31-10-2018	12-11-2018	30-10-2018	09-11-2018
27-08-2018	29-08-2018	10-08-2018	14-08-2018	10-07-2018	14-08-2018	30-07-2018	14-08-2018	30-07-2018	02-08-2018



UPL	WIPRO	ADANIEN T
28-04-2023	08-05-2023	27-04-2023
21-01-2023	31-01-2023	13-01-2023
19-10-2022	01-11-2022	12-10-2022
22-07-2022	31-07-2022	20-07-2022
29-04-2022	08-05-2022	29-04-2022
17-01-2022	30-01-2022	12-01-2022
18-10-2021	29-10-2021	13-10-2021
22-07-2021	29-07-2021	15-07-2021
07-05-2021	12-05-2021	15-04-2021
23-01-2021	29-01-2021	13-01-2021
21-10-2020	30-10-2020	13-10-2020
28-07-2020	31-07-2020	14-07-2020
20-05-2020	22-05-2020	15-04-2020
24-01-2020	07-02-2020	13-01-2020
21-10-2019	07-11-2019	15-10-2019
08-08-2019	31-07-2019	17-07-2019
24-04-2019	17-05-2019	16-04-2019
24-01-2019	31-01-2019	18-01-2019
19-10-2018	26-10-2018	24-10-2018
18-07-2018	31-07-2018	20-07-2018

**Table 10- List for prices of shares on event date (part-1)**

	2018, Q1	2018, Q2	2018, Q3	2018, Q4	2019, Q1	2019, Q2	2019, Q3	2019, Q4	2020, Q1	2020, Q2
<b>ADANIEN T</b>	202.3	175	123.75	158.1	132.4	198.2	236.5	134.9	192.9	352.75
<b>ADANI PORTS</b>	379.3	314.15	330.35	412.65	373.95	387.9	366.6	282.4	335	368.65
<b>APOLLO HOSP</b>	1068.6	1262.1	1121.9	1238.8	1360.2	1397.25	1704.4	1388.15	1672.85	2110.45
<b>ASIAN PAINT</b>	1450.15	1200.4	1401.85	1332.5	1483.4	1767.4	1779.25	1683.9	1712.05	2099.9
<b>AXIS BANK</b>	550.4	624.4	690.95	759.9	674.1	714.85	723	478.95	478.95	493.85
<b>BAJAJ-AUTO</b>	2684.15	2477.55	2554.55	3006.3	2487.65	3167.85	3180.05	2477.45	3032.1	3654.1
<b>BAJFINANCE</b>	2721.35	2311.8	2595.5	3301.1	3264.6	4038.35	4364.3	2042.8	3253	3314.45
<b>BAJAJFINSV</b>	1332.79	1078.29	1249.44	1598.59	1446.6	1614.19	1927.93	863.11	1276.27	1174.68
<b>BPCL</b>	378.3	266.35	333.6	374.45	343.1	502.75	470.75	357.25	407.9	354.45
<b>BHARTIARTL</b>	345.34	268.48	276.09	318.96	317.93	429.24	509.34	528.13	555.77	425.36
<b>BRITANNIA</b>	3167.7	2906.28	3110	2783.05	2511.9	3269.75	3155.6	3062.15	3982.65	3553.15
<b>CIPLA</b>	628.3	562.5	534.95	553	518.3	471.85	447.55	594.95	728.65	789.95
<b>COALINDIA</b>	282.65	251.85	220.25	253.5	200.5	207.25	180.3	134.85	135.7	122.1
<b>DIVISLAB</b>	1192.7	1466.45	1609.45	1593.45	1524.4	1741.15	2023	2413.05	3117.8	3423.75
<b>DRREDDY</b>	2083.2	2394.95	2735.2	2589.4	2560	2797.8	3189.15	3847.5	4516.6	4941.95
<b>EICHERMOT</b>	2899.77	2324.19	2113.75	1875.18	1656.28	2137.69	1973.63	1648.2	2014.42	2514.6
<b>GRASIM</b>	991.53	802.29	712.26	927.88	746.29	749.16	753.28	577.29	623.96	834.68
<b>HCLTECH</b>	473.58	490.03	494.23	543.33	511.33	532.23	608.85	511.75	623.15	827.15
<b>HDFCBANK</b>	1078.22	999.45	1074.08	1134.35	1148.63	1239.3	1254.9	944.85	1133.05	1203.55

<b>HDFCLIFE</b>	466.65	392.7	352.25	435.6	541.7	576.2	566.7	488.5	582.2	647.95
<b>HEROMOTOCO</b>	3136.75	2895.2	2613.95	2511.85	2258.8	2712.9	2411.3	2387.3	2927.2	2946.2
<b>HINDALCO</b>	216.1	242.35	198.35	191.7	176.2	193.15	193.65	146.05	184.95	192.35
<b>HINDUNILVR</b>	1681.7	1526.3	1751.5	1668.9	1736.65	2014.25	2034.25	2082.65	2248.5	2179.35
<b>ICICIBANK</b>	307.35	349.4	364.45	386.5	429.35	467.8	537.25	320.15	358.5	417.45
<b>INDUSINDBK</b>	1938.15	1620.55	1565.9	1691	1509.5	1228.5	1400.5	474.45	526.95	585.7
<b>INFY</b>	9.71	10.22	10.41	10.55	11.4	10.97	10.65	8.51	10.59	16.36
<b>ITC</b>	302.55	283.5	278.9	294.35	259.8	247.7	218.45	197.25	196.4	172.8
<b>JSWSTEEL</b>	332.05	337.45	273.1	287.75	241.4	222.85	269.25	176.25	206.95	308.3
<b>KOTAKBANK</b>	1333.3	1185.8	1291.75	1406.35	1494	1613.65	1625.1	1173.1	1384.05	1587.65
<b>LT</b>	1305.95	1326.75	1300.45	1317.65	1387.35	1432.25	1332.3	961.35	916.55	934.5
<b>LTIM</b>	1721.2	1658.45	1807.25	1721.25	1576.25	1499.15	1933.6	1614.2	2264	3075.15
<b>M&amp;M</b>	928.3	766.5	647.55	661.7	539.55	575	528.4	508.15	628.9	633.2
<b>MARUTI</b>	9310.4	6798.7	6511.05	6842.85	5561.25	7471.15	7010.3	5114.05	6265.4	6965.15
<b>NESTLEIND</b>	774.06	1012.46	1097.13	1023.12	1171.28	1410.85	1635.65	1651.24	1659.79	1625.94
<b>NTPC</b>	138.38	127.92	116.42	133.2	117.15	118.25	113.5	94.9	95.3	85.95
<b>ONGC</b>	166.8	154.95	135	171.95	126.85	135.55	99.95	80.45	80.3	71.3
<b>POWERGRID</b>	106.14	104.85	106.99	107.55	113.15	107.8	102.32	100.46	99.48	106.59
<b>RELIANCE</b>	1306.61	1090.96	1173.23	1332.72	1268.48	1400.87	1517.96	1421.72	2067.1	1877.45
<b>SBILIFE</b>	664.2	571.65	578.55	679.9	835.1	971.15	905.35	794.8	852.3	858.15
<b>SBIN</b>	294.15	296.1	283.95	306.9	300.25	281.55	301.5	186.8	192.25	218.65
<b>SUNPHARMA</b>	619.7	520.1	431.25	423.8	417.15	422.1	430.8	459.1	519.4	504.65
<b>TCS</b>	8.46	10.16	5.71	8.52	7.66	4.25	4.55	2.04	4.19	8.8
<b>TATACONSUM</b>	239.35	219.75	191.1	209.2	269.4	295.2	390.6	368.55	447.6	509.85
<b>TATAMOTORS</b>	267.5	179.45	150.7	179.1	144.3	126.85	186.2	100.5	104.65	137.65
<b>TATASTEEL</b>	56.76	58.92	48.07	51.08	38.19	40.31	44.38	32.37	42.51	52.27
<b>TECHM</b>	655.45	743.9	811.35	749.95	636.25	771.9	809.75	502.45	684.35	819.25
<b>TITAN</b>	919.2	894.75	1025.75	1104.45	1028.45	1156.1	1279.85	997.1	1066.25	1178.2
<b>ULTRACEMCO</b>	3857.25	3463.25	3510.8	4619	4281.35	4249.3	4676.95	3571.5	4180.95	4614.55
<b>UPL</b>	427.9	421.07	519.9	679.23	576.8	555.85	574.1	367.05	452.15	445.35
<b>WIPRO</b>	207.34	238.91	253.35	284.8	269.1	248.9	257.2	187.85	262.75	350.45

**Table 10- List for prices of shares on event date (part-2)**

	<b>2020, Q3</b>	<b>2020, Q4</b>	<b>2021, Q1</b>	<b>2021, Q2</b>	<b>2021, Q3</b>	<b>2021, Q4</b>	<b>2022, Q1</b>	<b>2022, Q2</b>	<b>2022, Q3</b>	<b>2022, Q4</b>
<b>ADANIENIT</b>	589.7	1286.75	1429.55	1398.55	1744.25	2253.8	2698.4	3833.25	1779.1	1920.3
<b>ADANI PORTS</b>	576.85	768.75	694.7	688.1	745.2	752.15	790.55	833.4	582.3	734.05

<b>APOLLOHOSP</b>	3090.65	3203.25	4345.1	5080.95	4486.35	3662.8	4312.75	4421.4	4487.9	4621.95
<b>ASIANPAINT</b>	2716.35	2556.2	3106.75	2982.4	3274.85	3086.35	3108.5	3084.9	2787.8	3139.75
<b>AXISBANK</b>	670.7	708.15	731.7	787.5	752.2	728.6	706.45	900.4	910.2	860
<b>BAJAJ-AUTO</b>	4089.5	3833.75	3841.9	3700.7	3308.75	3834.4	3883.85	3629	3936.75	4299
<b>BAJFINANCE</b>	5118.3	5280.9	6195.55	7482.15	7571.8	6714.1	7076.6	7192.75	6021.8	6200.05
<b>BAJAJFINSV</b>	1810.56	2235.31	2612.92	3564.23	3267.04	2982.23	3009.52	1658.55	1342.45	1354.65
<b>BPCL</b>	419.35	472.2	448.15	417.7	397.05	326.15	325.65	309.75	343.25	361.6
<b>BHARTIARTL</b>	597.63	539.52	569.51	699.1	708.9	707.05	704.35	832	785.9	787.35
<b>BRITANNIA</b>	3473.7	3478.75	3504.65	3621.6	3535.3	3385.45	3688.1	4139.25	4573.05	4527.1
<b>CIPLA</b>	806.4	904.05	945.4	907.5	927.6	937.6	977.4	1146.1	1047.25	922.8
<b>COALINDIA</b>	133.85	157.15	143.95	159.75	163.65	183.25	218.6	255.8	220.65	236.35
<b>DIVISLAB</b>	3781.85	4194	4905.7	4896.7	4277.9	3661.7	3732	3298.75	2778	3265
<b>DRREDDY</b>	4428.15	5250.3	4731.75	4801.45	4218.6	3929.45	4260.05	4459.95	4314	4532
<b>EICHERMOT</b>	2818.15	2638.45	2546.8	2661.6	2724	2617.95	3176.45	3519.65	3311.15	3626.35
<b>GRASIM</b>	1218.21	1364	1485	1848.5	1705.32	1370.1	1585.25	1726.63	1619.71	1706.51
<b>HCLTECH</b>	952.3	955.65	977.2	1221.4	1258.75	1102.05	900.3	1120.8	1077.8	1054.05
<b>HDFCBANK</b>	1483.1	1412.4	1471	1670.3	1521.5	1395.45	1347.55	1446.55	1585.3	1666.65
<b>HDFCLIFE</b>	680.4	678.75	759	683.25	627.6	547.65	575.6	533.45	589.2	517.85
<b>HEROMOTOCO</b>	3440.7	2913.3	2747.35	2683.05	2734.1	2409.5	2817	2588.9	2614.65	2547.25
<b>HINDALCO</b>	279.4	389.8	442.15	468.55	542.7	409.15	440.1	455.55	444.55	420.85
<b>HINDUNILVR</b>	2391.3	2407.6	2378.15	2546.8	2284.6	2241.85	2607.45	2505.4	2649.75	2451.7
<b>ICICIBANK</b>	603.8	591.1	676.75	841.7	798.45	752.2	800.9	925.05	871.7	904.75
<b>INDUSINDBK</b>	846.1	913.6	975.8	1176	922.3	1018.1	948.1	1218.4	1200.55	1116.35
<b>INFY</b>	18.43	17.31	21.39	22.65	25.75	21.19	18.56	18.05	18.12	15.4
<b>ITC</b>	217.45	209	211.15	225.1	234.3	275.65	309.95	345.6	383.4	419.85
<b>JSWSTEEL</b>	382.45	681.45	704.55	667.8	621.8	538.85	585.5	644.35	733.95	704.6
<b>KOTAKBANK</b>	1764.7	1732.65	1697.95	2188.25	1857.25	1797.6	1795.55	1846.6	1783.75	1921.15
<b>LT</b>	1359.85	1386.75	1608.25	1767.25	1909.2	1534.5	1796.65	2024.45	2112.9	2364.45
<b>LTIM</b>	4402.45	3846.4	4288.6	5905.85	7170.75	5472.35	3873.6	4668.55	4268.05	4419.45
<b>M&amp;M</b>	928.4	807.95	774.95	919.65	853.65	998.35	1276.7	1278.15	1353	1330.15
<b>MARUTI</b>	7206.65	6573.8	6993.5	7369.7	8820.2	7634.75	8721.05	9527.6	8784.1	8542.95
<b>NESTLEIND</b>	1674.12	1679.05	1791.48	1927.77	1800.93	1818.78	1935.91	2006.11	1902.13	2102.63
<b>NTPC</b>	99.5	118	117.75	132.65	142.05	150.15	156.5	173.1	168.85	174.1
<b>ONGC</b>	98.45	120.9	115.5	154.65	166.2	144.05	139.2	139.25	147.5	159
<b>POWERGRID</b>	119.62	131.06	132.26	138.3	159.04	168.45	167.63	171	162.41	175.76
<b>RELIANCE</b>	1941	1959.05	2076.85	2601.8	2377.9	2518.3	2420.4	2441.55	2430.3	2358

<b>SBILIFE</b>	862.85	982.9	1243.4	1167.1	1225	1105.5	1296.55	1252.8	1295.4	1137.05
<b>SBIN</b>	393.1	412.05	441.85	530.45	533.25	455	520.4	614.15	545.4	575.15
<b>SUNPHARMA</b>	590.15	669.75	775	787.95	891.75	860.6	918.7	1051.95	1014.9	968.45
<b>TCS</b>	11.36	15.25	11.94	10.03	10.76	7.86	6.8	4.94	4.83	3.36
<b>TATACONSUM</b>	580.15	653.1	767.65	788.95	742.45	803.3	773.45	761.65	729.75	754
<b>TATAMOTORS</b>	279.6	314.45	293.15	485.7	504.3	372.3	444.05	412.2	445.6	530.85
<b>TATASTEEL</b>	69.03	107.02	143.54	124.55	118.3	126.14	96.07	101.55	117.45	110.3
<b>TECHM</b>	941.75	969.25	1209.55	1563.3	1482.95	1189.05	999.35	1082	1015	1003.15
<b>TITAN</b>	1524.7	1491.65	1799.3	2375.15	2471.15	2289.95	2446.95	2741.55	2458	2773.2
<b>ULTRACEMCO</b>	5368.4	6403.1	7490.3	7170.1	7555.9	6679	6382.9	6302.3	6849.75	7456.6
<b>UPL</b>	534.1	743.3	819.7	720.05	776.5	777.6	767.35	717.55	742.15	694.4
<b>WIPRO</b>	454.35	469.2	577.75	708.25	649.75	495	414	379.1	398.6	385

## **Results of regression of stocks:**

### **ADANIENT**

<i>Regression Statistics</i>	
Multiple R	0.514462379
R Square	0.264671539
Adjusted R Square	0.223819958
Standard Error	940.2537044
Observations	<u>20</u>

### **ANOVA**

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	5727808.351	5727808.351	6.478856666	0.020295665
Residual	18	15913386.52	884077.0287		
Total	19	21641194.87			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	447.9147217	314.1388625	1.425849442	0.171024486
X Variable 1	339.8785917	133.528701	2.54535983	0.020295665

## APOLLOHOSP

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<i>Regression Statistics</i>	
Multiple R	0.65582492
R Square	0.43010632
Adjusted R Square	0.39844556
Standard Error	1154.62663
Observations	20

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### ANOVA

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	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	18110799.84	18110800	13.58484	0.00169145
Residual	18	23996927.64	1333163		
Total	19	42107727.48			

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	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	1555.81591	425.3877205	3.657407	0.001802
X Variable 1	134.980674	36.62219279	3.685762	0.001691

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## BPCL

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<i>Regression Statistics</i>	
Multiple R	0.427409874
R Square	0.182679201
Adjusted R Square	0.13727249
Standard Error	56.61715445
Observations	20

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### ANOVA

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	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	12896.30017	12896.3	4.023176	0.06014823
Residual	18	57699.03921	3205.502		
Total	19	70595.33938			

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	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	364.85350	14.867030	24.5411	2.74E-15
X Variable 1	1.5973434	0.7963679	2.0058	0.060148

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## CIPLA

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### *Regression Statistics*

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Multiple R	0.362916744
R Square	0.131708563
Adjusted R Square	0.08347015
Standard Error	203.7856857
Observations	<u>20</u>

### ANOVA

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	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	113388.3272	113388.3	2.7303668	0.1157928
Residual	18	747514.9023	41528.61		2
Total	19	860903.2295			

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	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	482.0174123	178.7399602	2.696752	0.0147531
X Variable 1	38.3261877	23.19450578	1.652382	0.1157928

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