A Study on Impact of Earnings Announcements on Share Prices in Indian Stock Market

Jalihal Sharanappa[1*], Dr. Mallikarjun Naik[2]

[1]*Research Scholar, Karnatak University Post Graduation Centre, Gadag; E-mail: j.sharanappa7@gmail.com*

[2]*Assistant Professor, Karnatak University Post Graduation Centre, Gadag*

Abstracts: We made an attempt to examine the stock prices response to quarterly earnings announcements in Indian stock market. To test the market efficiency, the event study methodology is applied and the abnormal returns are measured using the market model method. We have included NSE nifty 500 companies as sample. We observed that the majority of days during the prior to and post-announcement periods, the Abnormal returns are positive and significant. That implies that investors may experience unusual gains as a result of earnings news. So, we came to the conclusion that the Indian stock market is inefficient at the semi-strong level.

Keywords: Earnings Announcements, Indian Stock Market, Event Study, Market Efficiency, And Abnormal Returns.

1. INTRODUCTION

Earnings announcements refer to the periodic release of a company's financial results to the public. These announcements include crucial details regarding a company's performance, including its earnings, costs, and other pertinent financial indicators. Earnings reports are normally released on a quarterly basis, while certain businesses could also release reports on a semi-annual or annual basis. Keeping shareholders, investors, and the general public informed about a company's financial situation and ability to generate profit is the goal of earnings announcements. These announcements often include a company's financial statements, such as the income statement, balance sheet, and cash flow statement, along with management's analysis and commentary on the results. Earnings announcements are important financial events that can significantly affect a company's stock price. Stock prices may rise or fall depending on the findings of an earnings report. Positive earnings results that outperform market expectations may result in a rise in stock value. Investors and analysts therefore pay great attention to earnings announcements, as they utilize the data to assess a company's performance and make investment decisions. According to the Fama's Efficient Market Theory, asset prices accurately reflect all available information, and financial markets are efficient. The EMH contends that because stock prices already reflect all relevant information, actively buying and selling stocks is not a reliable way to continuously generate above-average returns. The EMH is predicated on the supposition that information is equally accessible to all participants and that financial markets are completely competitive. It implies that it is challenging to constantly outperform the market since market players behave logically and swiftly modify their investing strategies in response to fresh facts. The Efficient Market Hypothesis has been a subject of debate among economists and finance professionals. We have applied event study methodology to examine the stock market response to quarterly earnings announcements in general and test the contents of earnings news in particular. Thereby shed light on the efficiency of the Indian stock market. The remainder of the paper is structured as follows: section II discusses the literature review; section III provides objectives and hypotheses; section IV discusses the sample, data, and methodology; and section V provides empirical results. In Section VI, concluding remarks are provided.

2. REVIEW OF LITERATURE

Ball and Brown (1968) found that at least half of the information on each individual firm that becomes accessible in a given year is reflected in the income figures for that year. Consequently, it contains a lot of information. **Brown and Warner (1980)** analyzed event-study security price performance measurement methods. The data includes abnormal performance. They found that a simple market-model-based strategy works effectively

in many scenarios. Even simpler strategies that do not explicitly compensate for market-wide characteristics or risk can perform as well as the market model. Two potential causes of PEAD were investigated by **Bernard and Thomas (1989)**: insufficient risk adjustment for aberrant returns and a lag in the response to earnings announcements. The study concluded that the majority of its evidence is consistent with a delayed price reaction as opposed to arguments based on risk mismeasurement in light of its findings. **Gao and Tse (2004)** examined the trading activity of Chinese local and foreign investors in the segmented Chinese A- and B-share markets. The study found that in the B market, positive ARs are associated with good earnings surprises, and negative ARs are associated with bad earnings surprises. In the A market, however, this pattern is not so clear-cut. **Stuerke (2005)** suggests that the usefulness of earnings releases is related to the magnitude of new information in the release, the persistence of earnings innovations, the firm-specific mapping between earnings and returns, and prior uncertainty about earnings. **Jegadeesh and Livnat (2006)** examined how sales or revenue surprises predict differential drift levels. The study showed that security returns after earnings announcements depend on revenue or sales surprises. Revenue surprises indicate organizations whose earnings surprises should have a more enduring effect on future profit growth; thus, when the two signals confirm each other, the drift is larger. **Truong (2010)** found evidence that the PEAD anomaly exists in the New Zealand stock market and that a hedge strategy of going long the top 20% of earnings surprise stocks and short the bottom 20% of earnings surprise stocks can generate an average excess return of more than 6% in 60 days following the earnings announcement. **Iqbal and Faroogi (2011)** found that the information in the earnings disclosure has been absorbed on or before the earnings announcement date and also found that there is no abnormal return and a stable CAAR post-earnings announcement. **Jurgita and Simas (2014)** examined the relationship between the value of stock prices and the price changes in the Lithuanian stock market due to public announcements by companies, and their results prove that types and categories of public announcements do not play an important role in changes in stock prices. **Mallikarjunappa and Dsouza (2014)** investigated the behavior of the stock prices to determine whether there are any significant abnormal returns around quarterly earnings announcements and concluded that the Indian stock market is not efficient in its semi-strong form and investors can use the quarterly earnings announcement to earn abnormal profits in the Indian stock market. **Dsouza & Mallikarjunappa (2016, 2017)** examined the effect of quarterly earnings announcements on the Indian stock market. Overall results of the study show that the market fails to adjust price quickly to the quarterly earnings news, and hence it is inferred that the market is inefficient in semi-strong form. It has been concluded that domestic and global investors can estimate their revenue growth during earnings news by observing the market closely. **Syed and Bajwa (2017)** revealed the existence of significant abnormal returns in the days around the announcement event. It has been witnessed that the contents of earnings are considered useful by the market. The study results suggested that the bad news sample caused a stronger market reaction as compared to the good news sample, particularly on announcement day. And they also found that in the negative earnings surprise sample, especially for CAAR, they observed a strong post-announcement drift. **Baidhani (2018)** evaluated the usefulness and relevance of accounting earnings disclosures as the key determinant of stock price changes. The results of the study suggest that accounting earnings change disclosures positively affect stock prices when EPS increases and negatively if EPS decreases. **Dangol and Bhandari (2019)** examined the stock returns and trading volume reactions to quarterly earnings announcements using the event analysis methodology. The study revealed an inefficient adjustment of stock prices and volume reactions to information contained in earnings announcements. **Linh and Linh (2021)** conducted an event study regarding the effect of earnings announcements on the Vietnam stock market. It reveals that the reaction of the market to earnings announcements is significant on the announcement day itself and also in the several days surrounding it. The results of the study are successfully brought into agreement with the efficient market hypothesis. **Jaglinski (2020)** investigated how investors react to quarterly earnings statements and whether the Warsaw Stock Exchange had an anomaly. It discovered no PEAD in businesses that beat market expectations. Only corporations that missed earnings expectations showed the anomaly. The results satisfy the semi-strong type of market efficiency. **Kundu and Banerjee (2021)** examined how quarterly earnings reports affected stock returns. They discovered that companies that publish earnings numbers that are higher than the prior period's generate noticeably larger stock returns. It is implied that the market can predict whether the company will report more earnings than it did the previous quarter. The study demonstrates that revenue and core earnings variations can be predicted more accurately. Stock price responses to earnings announcements and the efficacy of markets are topics of debate. While some research has shown substantial abnormal returns around earnings release time, casting doubt on market efficiency, other research has failed to find

any such anomalies, lending support to EHM. The empirical study of the EMH of the capital market has more room to grow as a result of this contradictory evidence. Investors can now access information online more quickly than ever before thanks to continuous financial reporting. Thus, the market may show efficiency. We conducted this study to determine the effectiveness of the Indian capital market and to provide investors with information to help them make more informed decisions.

2.1. Objectives and Hypotheses

The study is being carried out to achieve the following goals;

i. To examine the stock market reactions to quarterly earnings announcement

ii. To examine the information content in the quarterly earnings news

iii. To test whether the Indian stock market follows semi-strong form of EMH

The following propositions to be examined;

i. The AARs and CAARs values are nearly zero
ii. The occurrence of AARs is completely at random.
iii. The difference between the number of positive and negative AARs is not statistically significant.

2.2. Sample, Data and Methodology

The present study uses event study methodology to test the effect of quarterly earnings announcements on stock returns. An event study model is the most powerful and widely used tool in modern financial research. The index based NSE Nifty 500 companies are selected as an initial sample for our study. Those companies that are never delisted from the stock market, even for a shorter period, are considered for the final sample. Hence, our final sample covers only 504 earnings announcements from the March and June 2020 quarters. We used data such as the dates on which sample companies' quarterly reports were announced in the media, their adjusted closing share prices on the National Stock Exchange, daily closing prices of the NSE Nifty 500 index, and net sales, net profit, and EPS data collected for classifying announcements into good and bad news portfolios. On the basis of the percentage change in net sales, net profit, and earnings per share of the current and corresponding quarters, the sample companies are categorized as ‘good news’ and ‘bad news’ portfolios. Companies that observed a positive change in any two of the variables, such as net sales, net profit, and EPS of the current and corresponding quarters, are referred to as having "good news portfolios," whereas those that experienced a negative change in any two of these variables, such as net sales, net profit, and EPS, are referred to as having "bad news portfolios."The data is collected from CMIE’s Prowess IQ Data Base. The date on which the sample companies announce their quarterly earnings is known as the "Event Date". The event window is defined as the 61 days surrounding the announcement of earnings (i.e., t =-30,..., 0..., +30). The "estimation" period is the days before the event period (i.e., -282,..., -31). The Market model is used to estimate stock returns under normal circumstances. We have calculated α and β coefficients by fitting the OLS regression model for stock and index returns. Then ARs, AARs, and CAARs are calculated. Later, AARs and CAARs are tested for significance. It is assumed that if the market is efficient, the AAR and CAAR values are nearly zero. Further Run and Sign tests are used to test the randomness and signs of AARs.

3. RESULTS ANALYSIS AND DISCUSSION

We examine stock prices reactions to quarterly earnings announcements. We measure abnormal returns using market model. Table 1(a) shown below presents the results of the AARs and CAARs and their test statistics, and in figure 1, CAARs movements along with the corresponding threshold limit are plotted. Table 1(b) shows the results of CARs for the multi-event window, and Table 1(c) exhibits the results of the non parametric tests.

Table 1(a): AAR and CAAR values associated with Earnings Announcements

Days	Full Sample (N=504)			Good News (N=179)			Bad News (N=325)		
	AAR (%)	CAAR (%)	T Test	AAR (%)	CAAR (%)	T-Test	AAR (%)	CAAR (%)	T-Test
-30	0.14	0.14	2.32*	0.28	0.28	2.77*	0.06	0.06	0.85
-29	0.13	0.27	2.13*	0.05	0.33	0.52	0.17	0.23	2.30*
-28	0.10	0.37	1.62	0.01	0.34	0.06	0.15	0.38	2.01*
-27	0.05	0.42	0.81	0.02	0.36	0.19	0.06	0.45	0.85
-26	0.10	0.51	1.71	0.11	0.47	1.08	0.09	0.54	1.33
-25	0.15	0.66	2.54*	0.19	0.65	1.84	0.13	0.67	1.78
-24	0.09	0.75	1.54	0.03	0.68	0.29	0.12	0.79	1.71
-23	-0.03	0.72	-0.59	0.01	0.69	0.06	-0.05	0.74	-0.74
-22	0.03	0.75	0.43	0.01	0.70	0.12	0.03	0.77	0.44
-21	0.08	0.83	1.45	0.07	0.77	0.73	0.09	0.86	1.25
-20	0.01	0.84	0.13	0.02	0.79	0.25	0.00	0.86	-0.03
-19	-0.04	0.80	-0.62	0.00	0.79	0.01	-0.06	0.81	-0.84
-18	0.12	0.92	1.78	0.10	0.90	0.96	0.13	0.93	1.51
-17	0.10	1.02	1.76	0.04	0.93	0.34	0.13	1.07	2.05*
-16	0.14	1.15	2.39*	0.23	1.16	2.49*	0.09	1.15	1.19
-15	0.08	1.24	1.37	0.17	1.33	1.68	0.04	1.19	0.47
-14	0.05	1.28	0.83	-0.03	1.30	-0.32	0.09	1.28	1.38
-13	0.12	1.40	2.10*	0.00	1.30	0.03	0.18	1.46	2.49*
-12	0.05	1.45	1.09	0.07	1.37	0.92	0.04	1.49	0.67
-11	-0.01	1.44	-0.21	-0.09	1.28	-1.15	0.03	1.53	0.61
-10	0.03	1.47	0.63	0.04	1.32	0.45	0.03	1.55	0.45
-9	0.07	1.54	1.47	0.00	1.32	-0.01	0.11	1.66	1.84
-8	0.18	1.72	4.20*	0.31	1.63	4.55*	0.11	1.78	2.02*
-7	0.08	1.81	1.69	0.08	1.71	1.02	0.08	1.86	1.35
-6	0.09	1.89	1.79	0.14	1.85	1.69	0.06	1.91	0.95
-5	0.19	2.08	3.49*	0.08	1.94	0.98	0.24	2.15	3.60*
-4	0.10	2.17	1.95	0.18	2.12	2.03*	0.05	2.20	0.83
-3	0.15	2.32	3.30*	0.08	2.20	1.06	0.18	2.38	3.33*
-2	0.14	2.45	2.92*	0.21	2.41	2.82*	0.10	2.48	1.64
-1	0.24	2.69	4.60*	0.30	2.71	3.40*	0.20	2.68	3.19*
0	**0.27**	**2.97**	**4.43***	**0.61**	**3.31**	**4.95***	**0.09**	**2.77**	**1.37**
1	0.28	3.25	3.34*	0.64	3.95	4.11*	0.09	2.86	0.89
2	0.10	3.35	1.74	0.14	4.09	1.46	0.08	2.94	1.08
3	0.07	3.41	1.31	-0.01	4.08	-0.11	0.11	3.05	1.78
4	0.13	3.54	3.00*	0.09	4.16	1.13	0.16	3.20	2.92*
5	0.15	3.69	3.39*	0.14	4.30	1.81	0.16	3.36	2.87*
6	0.10	3.79	2.11*	0.00	4.30	-0.07	0.15	3.52	2.58*
7	0.00	3.80	0.07	-0.02	4.27	-0.31	0.02	3.53	0.35
8	0.10	3.90	2.23*	0.13	4.40	1.68	0.08	3.62	1.52
9	0.08	3.97	1.81	-0.01	4.39	-0.19	0.12	3.74	2.38*
10	0.14	4.11	3.18*	0.06	4.45	0.92	0.19	3.93	3.20*
11	0.17	4.29	3.39*	0.13	4.58	1.65	0.19	4.12	2.98*
12	0.04	4.33	0.94	-0.04	4.55	-0.61	0.08	4.20	1.43
13	0.02	4.34	0.43	-0.07	4.47	-1.23	0.07	4.27	1.20
14	-0.05	4.30	-1.18	-0.11	4.37	-1.57	-0.01	4.26	-0.29
15	0.03	4.33	0.84	0.05	4.41	0.77	0.03	4.28	0.50
16	0.03	4.36	0.67	0.02	4.44	0.36	0.03	4.31	0.57
17	-0.04	4.32	-0.98	-0.03	4.40	-0.47	-0.04	4.27	-0.87
18	0.04	4.36	1.03	0.08	4.48	1.14	0.02	4.29	0.45
19	0.07	4.43	1.57	0.13	4.62	2.10*	0.03	4.32	0.55
20	0.01	4.44	0.20	-0.01	4.61	-0.14	0.02	4.34	0.35
21	-0.01	4.43	-0.14	-0.01	4.59	-0.16	0.00	4.34	-0.05
22	-0.01	4.42	-0.20	0.09	4.68	1.12	-0.06	4.28	-1.26
23	0.03	4.45	0.72	0.01	4.69	0.16	0.04	4.32	0.77
24	0.04	4.49	0.92	0.05	4.75	0.70	0.03	4.35	0.62

25	0.03	4.52	0.78	0.09	4.84	1.13	0.00	4.35	0.02
26	0.02	4.54	0.38	-0.04	4.80	-0.57	0.05	4.40	0.82
27	0.01	4.55	0.29	-0.05	4.74	-0.87	0.05	4.44	0.84
28	0.03	4.58	0.73	0.02	4.76	0.24	0.04	4.48	0.73
29	-0.06	4.52	-1.66	-0.07	4.69	-1.08	-0.06	4.42	-1.26
30	0.08	4.60	1.78	0.03	4.73	0.45	0.10	4.53	1.89
AVG.	0.08	2.71		0.08	2.84		0.07	2.64	
MD	0.08	2.97		0.05	3.31		0.08	2.77	
S.D	0.07	0.68		0.10	0.66		0.07	0.70	
S.E	0.01	0.09		0.01	0.08		0.01	0.09	
T	7.99*	31.12*		5.96*	33.88*		8.35*	29.56*	

Source: Computed from Prowess IQ Data Base of CMIE

Note:*Indicates AAR is statistically significant at 5% level of significance

A perusal of table 1(a) reveals that under full sample group AAR is 0.27% on the announcement day (t=0) which is significant at 95% confidence level. During the (-30, -1) period AARs are significant for 10 days (33.33%) and insignificant for 20 days (66.67%) while, they are significant for 7 days (23.33%) and insignificant for 23 days (76.67%) during the (1, 30) period. Overall (-30, 30) period AARs are significant for 18 days (29.50%) and insignificant for 43 days (70.50%). Hence it is accepted that AAR values are nearly zero. In the case of Good news group AAR is 0.61% on the announcement day (t=0) which is significant at 95% confidence level and which is 7 times higher than bad news group. During the (-30, -1) period AARs are significant for 6 days (20%) and insignificant for 24 days (80%) while, they are significant for 2 days (6.67) and insignificant for 28 days (93.33%) during the (1, 30) period. During the entire event window (-30, 30) AARs are significant for 9 days (14.75%) and insignificant for 52 days (85.25%). Hence it is accepted that AAR values are nearly zero. In the case of bad news group AAR is 0.09% on the announcement day (t=0) which is insignificant at 95% confidence level and which is 7 times lesser than good news group. During the (-30, -1) period AARs are significant for 8 days (26.67%) and insignificant for 22 days (73.33%) while, they are significant for 6 days (20%) and insignificant for 24 days (80%) during the (1, 30) period. During the entire event window (-30, 30) AARs are significant for 14 days (23%) and insignificant for 47 days (77%). Hence it is accepted that AAR values are nearly zero.

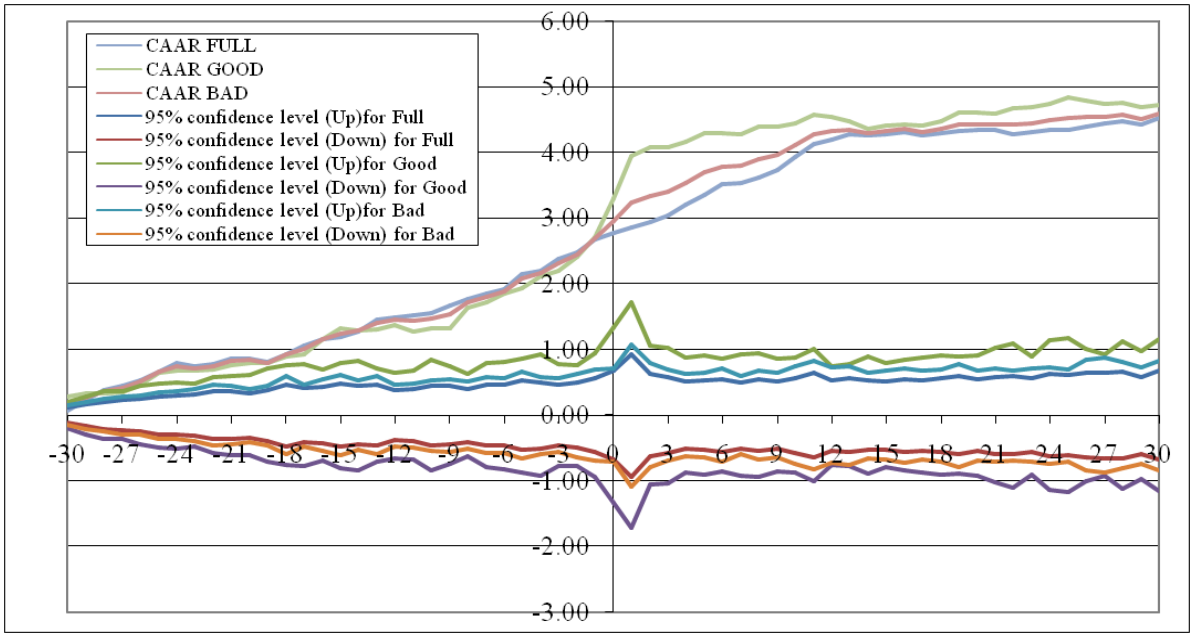

Figure 1: Movement of CAAR values around 61 days event window alongwith corresponding confidence thresehold

Overall effect of earnings announcements on stock returns is examined with the CAARs, they are shown in table 1(a) and movement of CAAR values alongwith corresponding confidence threseholds are plotted on Figure 1. If CAARs line exceeds the one(Up or Down) of the confidence thresehold at 99% and 95% then relevent CAAR is said to be significant. Under all groups entire CAARs crosses the threseholds, therefore during the entire period (-30, 30) CAARs values are positive and significant all days. Therefore it is accepted that CAAR values are nearly zero. Moreover, during April to August 2020 bullish trend was observed in the stock market and NSE nifty 500 rechached 9641 level on 28th August, 2020 from 6762 level on 1st april, 2020. As a result, the positive CAARs values observed for majority of the days during event window.

Table 1(b): Movement of CAR for various sub periods

Sub Period	Full Sample		Good News		Bad News	
	CAR	T-Value	CAR	T-Value	CAR	T-Value
(-5, 5)	1.80	10.43*	2.40	7.88*	1.47	7.11*
(-3, 3)	1.24	8.08*	1.95	6.77*	0.85	4.87*
(-1, 1)	0.81	6.78*	1.52	6.53*	0.41	3.24*
(1, 30)	1.59	6.49*	1.31	3.12*	1.75	5.77*
(-10, 10)	2.64	11.69*	3.08	7.73*	2.40	8.80*
(-20, 20)	3.57	12.24*	3.73	6.82*	3.49	10.29*
(-30, -21)	0.82	4.25*	0.74	2.43*	0.86	3.48*
(-20, -11)	0.61	4.05*	0.51	1.97*	0.66	3.60*
(-10, -1)	1.25	8.62*	1.42	6.36*	1.16	6.14*
(1, 10)	1.10	6.62*	1.01	3.46*	1.15	5.70*
(11, 20)	0.32	2.60*	0.15	0.79	0.41	2.61*
(21, 30)	0.17	1.47	0.15	0.73	0.18	1.30

Source: Computed from Prowess IQ Data Base of CMIE

Note:* Indicates CAR is statistically significant at 5% level of significance

The CARs are further examined for different holding periods of 61 day event window. It is clear from table 1(b) that CAR is significant for all holding period except in the case of full sample and bad news group (21, 30) and good news group (11, 20). Highest significant CAR i.e., 3.57%, 3.73% and 3.49% is observed for holding period of (-20, 20) for all groups respectively.

Table 1(c): Run and Sign Statistics on AAR

Days	Full Sample		Good News		Bad News	
	Run Statistics	Sign Statistics	Run Statistics	Sign Statistics	Run Statistics	Sign Statistics
-30 to -1 (pre)	-1.86	4.38*	0.03	4.38*	0.00	4.38*
1 to 30 (post)	-3.42*	3.77*	-0.48	0.90	-4.19*	3.77*
-30 to 30 (EW)	-3.23*	5.76*	-2.20*	3.71*	-2.97*	5.76*

Note:* Indicates relevant run and sign statistics are significant at 5% level significance

Table 1(c) presents non parametric tests on AARs. Firstly run test is used to detect trend in the AARs during the window. Sign test does not make assumption of data is normally distributed unlike parametric t test; hence sign tests are also being used in this paper. If the computed run/sign statistics on AARs is less than the threshold (±1.96) then the relevant null hypotheses are accepted. In the case of full sample group, the AARs are completely random only for the period 1 to 30 and -30 to 30. Further the difference between the signs of AARs are statistically significant for the all the periods. In the case of good news group, the AARs are completely random for the period -30 to 30. Further the difference between the signs of AARs is statistically significant for the period -30 to -1 and -30 to 30. The AARs are completely random for the period 1 to 30 and -30 to 30 for the bad news group. The difference between the signs of AARs is statistically significant for the all the periods for the Bad news group.

CONCLUSION

Earnings announcements are important financial events that can significantly affect a company's stock price. We have applied event study methodology to examine the stock market response to quarterly earnings announcements in general and test the contents of earnings news in particular. Thereby shed light on the efficiency of the Indian stock market. The index based NSE Nifty 500 companies are selected as an initial sample for our study. Those companies that are never delisted from the stock market, even for a shorter period, are considered for the final sample. Hence, our final sample covers only 504 earnings announcements from the March and June 2020 quarters. On the basis of the percentage change in net sales, net profit, and earnings per share of the current and corresponding quarters, the sample companies are categorized as 'good news' and 'bad news' portfolios. The 61 day event window is used and abnormal performance is measured using the market model. We have calculated AAR, CAAR, t test, run test, and sign tests for drawing inferences about market efficiency. We observed that the majority of days during the prior to and post-announcement periods, the CAARs are positive and significant. That implies that investors may experience unusual gains as a result of earnings news. As a result, we came to the conclusion that the Indian stock market is inefficient at the semi-strong level. We have found that during the bullish phase of market behavior, the information content of earnings is irrelevant, in addition to the empirical findings such as information leaking prior to the announcement and delayed price reactions. Our findings are inconsistent with the Fama's theoretical model.

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