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IMPACT OF HINDEBURG RESEARCH REPORT ON STOCK PRICE OF LIC INDIA: AN EVENT STUDY

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ABSTRACT

The Hindenburg Research report was issued on January 24, 2023, and included a negative assessment of Adani group companies, leading to a drop in their stock prices. As a result, the report substantially affected LIC India's stock prices because LIC India had lent Rs 36474.78 crore to the Adani group. This research paper examined the impact of Hindenburg Research's report on the stock prices of Life Insurance Corporation of India (LIC India) by utilizing an event study approach. The analysis covers a 31-day event window period and a 120-day estimation period. The study concluded that the Hindenburg Research report did not significantly affect LIC India's stock prices, suggesting that the market quickly assimilated the information. Moreover, this implies that investors cannot earn abnormal profits in this efficient market.

Keywords: *Efficient Market Hypothesis, Hindenburg, Market Model, Abnormal Returns. Sub-Event Window.*
JEL Classification: *E44, G14, G41*

1. Introduction

The stock market plays a crucial role in measuring the success of a country's economy. In recent years, the Indian stock market has experienced tremendous growth, primarily due to the emergence of the insurance sector, which has increased public interest in stock market performance (Bedi & Singh, 2011). However, on January 24, 2023, the Hindenburg Research report published negative information regarding Adani group companies, significantly declining Adani stock prices (Mallesha & Archana, 2023). This decline also affected loaned companies, including the largest insurer in the country, Life Insurance Corporation (LIC) of India. Life Insurance Corporation of India (LIC India) is one of India's largest state-owned insurance companies, providing millions of

customers with life insurance, pension plans, and investment options. LIC has a significant presence in the Indian stock market, with investments in various companies. According to The Times of India, LIC has stated that it has an exposure of Rs. 36,474.78 crore to Adani. So, keeping in mind, the study is to investigate the impact of the Hindenburg Research report on the stock price of LIC. The event study methodology is a widely used approach in finance to analyze the impact of an event on a firm's stock price (Liargovas & Repousis, 2011). In recent years, numerous studies have used this methodology to investigate the effects of various events on stock prices. One such event study that has gained attention in the financial market is the release of research reports by analysts or other third-party entities. The methodology used in this study is based on the efficient market hypothesis (EMH) proposed by (Fama, 1970), which assumes that the market has the ability to incorporate all available information. To analyze the market's response to a specific event, such as the Hindenburg Research report, we observed the movement of share prices over a short period (known as the event window). By analyzing these price movements, we can deduce how the market reacted to the event in question, assuming that no other significant events occurred during the event window (Sprenger et al., 2014).

2. LITERATURE REVIEW

The event study methodology is utilized to investigate the impact of an event on stock prices, with the dependent variable being the stock prices themselves (Lodha & Kumawat, 2022). Several prior studies have utilized this methodology in the Indian context to understand the speed at which the market absorbs new information related to various events (Bhargava & Agrawal, 2015; Bhullar et al., 2018; Dsouza, 2016; Jain & A. Sunderman, 2014; Lalwani et al., 2019; Lodha & Kumawat, 2022; Rohit et al., 2016; Sharma & Verma, 2020; Sivashanmugam & Sowmya, 2019). Using the event study methodology, Lodha and Kumawat (2022) conducted a study on the effects of Covid-19 lockdown announcements on the banking sector during different phases of the lockdown. The announcement day of each lockdown phase was treated as the event day, and AAR was calculated and tested for significance. The study showed that investors were able to earn abnormal returns during the event window period. Sharma and Verma (2020) investigated the reaction of Indian bank stock prices to announcements of fraud using the event study methodology. The study found that the stock prices of Indian banks reacted negatively to announcements of fraud. Rohit et al.

(2016) analyzed the impact of stock splits and rights issue announcements on stock returns of companies listed on the Bombay Stock Exchange from 2011 to 2014, using the market model to calculate abnormal returns. The study found positive Average Abnormal Returns on the day of announcement, but they were not statistically significant. The study concludes that the Indian stock market is efficient in its semi-strong form. Dsouza (2016) investigated the significance of quarterly earnings announcement news on the Indian stock market and to test the semi-strong form Efficient Market Hypothesis (EMH) using event study methodology. The study found that the Indian stock market fails to absorb publicly available information, and investors can forecast future returns based on new information flow. Sivashanmugam and Sowmya (2019) examined the effect of share buyback announcements by manufacturing companies in India, using the event study methodology to obtain Abnormal Returns (AR) from the market model. The study found that the market reaction to buyback offers was positive for select manufacturing companies. Bhargava and Agrawal (2015) examined the returns on the announcement of share buybacks for a sample of 42 companies listed on the National Stock Exchange of India using the market model and event study methodology. The study found significant announcement effects on share prices in about 50% of the companies, but the Average Abnormal Returns were not significant, indicating that the news of the buyback announcement was already reflected in share prices. Bhullar et al. (2018) analyzed the impact of capital employed in share buyback on firm value for 180 firms listed in the Bombay Stock Exchange of India from 2006 to 2016. The study found that the proportion of paid-up equity capital employed by companies for share buyback did not have any significant effect on firm value. Lalwani et al. (2019) investigated the presence of post-event over- or under-reaction in stock markets of the top 10 countries by market capitalization. The study found the presence of over- or under-reaction in 8 out of 10 countries, indicating that investors display psychological biases that lead to profit-making opportunities. Jain and Sunderman (2014) examined stock price movements for the existence of insider trading before a merger announcement for companies listed on emerging markets in India from 1996 to 2010, using event study methodology and regression analyses. The study found strong evidence of insider trading in the case of industry mergers and mergers during recessions.

3. STATEMENT OF THE PROBLEM

The impact of the corporate announcement on stock prices has been a topic of interest in the finance literature. However, none of the research has been conducted on the impact of short-seller research reports on the stock price of Indian companies. Specifically, using an event study approach, there is a research gap on the effects of the Hindenburg Research Report on LIC India stock price. Therefore, there is a need for research on the impact of the Hindenburg Research Report on LIC India stock price using an event study approach. Such a study would provide valuable insights into the effectiveness of information in the Indian market and how investors react to such reports. Furthermore, it would contribute to the existing literature on the impact of research reports on stock prices and add to our understanding of the Indian stock market.

4. OBJECTIVES AND HYPOTHESIS OF THE STUDY

4.1.Objective of the Study

To examine the impact of the Hindenburg Research Report on LIC India stock prices. The study aims to evaluate how the report's release affects the stock prices of LIC India and how investors react to the information provided in the report

4.2.Hypothesis of the Study:

H0: Hindenburg Research report has no significant impact on LIC India stock price.
H1: Hindenburg Research report significant impact on LIC India stock price.

The study will test these hypotheses by analyzing the changes in the stock price of LIC India before and after the report's release. The event study approach will be used to identify abnormal returns and assess the market's reaction to the report's release.

5. RESEARCH METHODOLOGY

5.1.Data Source

In this research, we utilized secondary data from three distinct sources. The first data set was obtained from the Hindenburg Research Report, which we collected from the official Hindenburg Research website. The second data set consisted of daily closing prices of LIC, which we sourced

from the bseindia.in website. Lastly, we collected the third data set, which was comprised of S&P BSE 500 closing index prices, also from the bseindia.in website. These closing prices are converted into logarithm returns.

5.2.Methodology

The event study approach is a widely used methodology to analyze the impact of an event on a stock price (Arora et al., 2015). In this study, we use a market model to estimate the expected stock price of LIC India. Here's the steps for conducting an event study using the market model:

- **Identify the event:** Determine the event's date and the securities expected to be impacted by it. In this instance, Hindenburg Research released a report on January 24, 2023.
- **Define the event window:** Decide on the length of time before (-15) and after (+15) the event that will be included in the analysis. overall, the event window is 31 days around the event date. The event window is starts from January 3, 2023, to February 15, 2023.
- **Estimate the market model:** Use regression analysis to estimate the parameters of the market model using historical data. The estimation period, from July 11, 2022, to January 2, 2023, included 120 days of data. The market model equation is as follows:

$$Rit = \alpha i + \beta i * Rmt + \varepsilon it \qquad \text{Equation 1}$$

Where: Rit = the return of security i at time t, αi = the intercept of security i's regression equation, βi = the sensitivity of security i to market returns, Rmt = the return of the market at time t, εit = the error term or residual for security i at time t.

Calculate abnormal returns: Compute the expected returns for each security during the event window based on the market model, and subtract them from the actual returns to obtain abnormal returns. The formula for abnormal returns is:

$$ARit = Rit - (\alpha i + \beta i * Rmt) \qquad \text{Equation 2}$$

Calculate cumulative abnormal returns (CAR): Sum the abnormal returns for each security over the event window to obtain the cumulative abnormal returns. The formula for CAR is:

$$CARt = \Sigma\, ARit \qquad \text{Equation 3}$$

- **Test for statistical significance:** Determine whether abnormal and cumulative abnormal returns are statistically significant using a t-test. This will help to determine whether the event had a significant impact on the security's returns.

6. RESULTS AND DISCUSSION

This section will present and interpret the statistical results obtained from the analysis.

Table 1: Abnormal Returns of LIC India over the Window Period

Days	AR	T-Stat	Days	AR	T-Stat
-15	0.0342	2.4456*	0	0.0040	0.2861
-14	0.0049	0.3492	1	-0.0051	-0.3656
-13	-0.0025	-0.1754	2	-0.0164	-1.1716
-12	-0.0219	-1.5660	3	-0.0114	-0.8156
-11	-0.0031	-0.2228	4	-0.0084	-0.6003
-10	0.0132	0.9434	5	-0.0811	-5.7968*
-9	0.0016	0.1174	6	0.0019	0.1346
-8	-0.0107	-0.7685	7	-0.0066	-0.4726
-7	0.0071	0.5040	8	0.0041	0.2953
-6	-0.0010	-0.0691	9	0.0086	0.6178
-5	-0.0107	-0.7657	10	0.0044	0.3116
-4	-0.0014	-0.1030	11	0.0062	0.4396
-3	-0.0037	-0.2665	12	0.0129	0.9205
-2	0.0008	0.0576	13	-0.0142	-1.0156
-1	0.0006	0.0442	14	-0.0172	-1.2276
0	0.0040	0.2861	15	0.0016	0.1147

**Significance at 5 per cent level*

In this table 1, the event period starts 15 days before the event (day 0) and ends 15 days after the event. The ARs show that on some days, the stock had positive abnormal returns (e.g., on day -15 and day 10), while on other days, it had negative abnormal returns (e.g., on day 5 and day 15). The t-stat indicates whether these abnormal returns are statistically significant. A t-statistic greater than 1.96 or less than -1.96 is generally considered significant, meaning the abnormal return is unlikely to have occurred by chance. Most of the day's abnormal returns are insignificant except days -15 and +5. Therefore, we can conclude that the report does not create any significant signal on the

stock price of LIC India, and we fail to reject the null hypothesis (H0). It indicates that the information was quickly incorporated by the Indian stock market, suggesting that the Indian stock market is efficient in its semi-strong form.

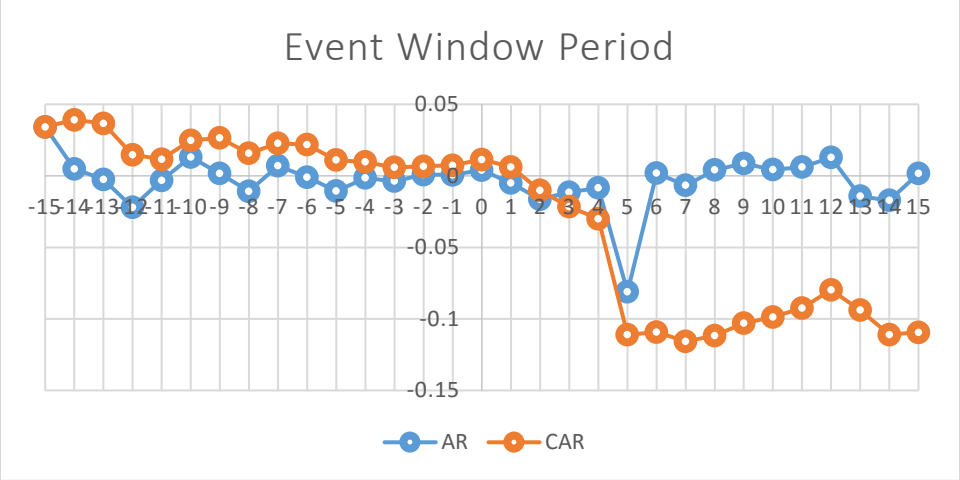

Figure: 1. Abnormal Returns and Cumulative Abnormal Returns over the Event Window Period

Table 2: Sub-Event Window Period of LIC India

Days	CAR	T-stat
-1, +1	-0.0005	-0.0205
-3, +3	-0.0312	-0.8470
-5, +5	-0.1329	-2.8756*
-10, +10	-0.1103	-1.7275
-15, +15	-0.0051	-0.0659

**Significance at 5 per cent level*

Table 2 shows that the Hindenburg Research report significantly impacted LIC India's stock price. This is because the t-statistic for the -5, +5 days window is -2.8756, greater than the conventional critical value of 1.96 for a 5% significance level. The other windows (-1, +1; -3, +3; -10, +10; and -15, +15 days) do not show significant impact as their t-statistics are all less than the critical value indicates the stock price of LIC India is quickly assimilated the information.

7. CONCLUSION

This research paper examined the impact of Hindenburg Research's report on the stock prices of Life Insurance Corporation of India (LIC India) by utilizing an event study approach. The event window period is 31 days, and estimation period of 120 days are chosen for analysis. The study reveals that the Hindenburg Research report does not create any significant signals on LIC India's stock prices. The study concluded that the information quickly incorporated into LIC India's stock prices in the Indian stock market, indicating that investors cannot earn abnormal profits in an efficient market. It reveals that the Indian stock market is efficient in its semi-strong form. The findings of this research can be useful for making informed decisions by investors, professionals, and policymakers. However, it should be noted that the study has some limitations, such as the fact that it is focused solely on the LIC India company and examines a short-term observation period. Although this study offers valuable evidence from India in the context of a short seller report, it also highlights the need for additional research that explores the impact of corporate actions and financial crises as significant events.

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