Accountancy Business and the Public Interest
ISSN: 1745-7718

Volume: 41
Issue Number: 05

IMPACT OF BONUS ISSUES ON THE BSE 500 INDEX: REVISITING THE INFORMATION SIGNALLING HYPOTHESIS

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Abstract

Purpose* -** The research investigates the impact of bonus share issue announcements of a particular company on its share price and the relevant index. The study revisits the information signalling hypothesis in the Indian capital market. ***Design/methodology/approach* -** This study employs a market-adjusted model and event study methodology to examine abnormal returns 20 days preceding and following bonus share announcements. The sample comprises 56 companies from the BSE 500 index that issued bonus shares between January 2018 and December 2023. ***Findings* -** The study reveals mixed results, with 36 companies witnessing positive returns in the pre-announcement period and 33 in the post-announcement period. Twenty-one companies supported the information signalling hypothesis, and 35 experienced neutral or negative impacts. Bonus announcements impacted the BSE 500 9 times positively and 11 times negatively out of 56 instances. ***Originality* –** The study is different in that it analyses the impact of bonus share announcements on its share price and the BSE index movement to which it belongs. ***Research limitations/implications - Further work may be done considering the company's bonus ratio, market sentiments and capitalisation. ***Practical implications* –** The study helps investors to make suitable investment decisions in a company before, during, and after the bonus to maximise return and minimise loss.

Keywords*:* Bonus Share, Information signalling Hypothesis, Event study, Abnormal return, Cumulative Abnormal Returns.

1. INTRODUCTION

Bonus issues and their impact on stock returns have been widely studied in finance, particularly in developing markets such as India. A bonus issue is described as nothing but a “cosmetic amendment” within the owner’s equity statement (Kalay & Zhang, 2021). Bonus shares, scrip dividends or capitalisation shares are supplementary shares a firm distributes to its existing shareholders as compensation or incentive. When a company has generated profits but lacks sufficient resources to distribute cash dividends, it may issue bonus shares instead. The shares are distributed to shareholders by their current holdings and incur no direct expense for the recipients.

This process does not affect the company's cash flow or net assets. However, it alters the share capital structure and allows companies to adjust their financial policies based on investment opportunities and earnings performance. According to the Companies Act of 2013, bonus shares can be issued by utilising the company's free reserves, securities premium account, or capital redemption reserve account. Companies align with diverse policies while deciding to bring the bonus issue to the market. It can attract more retail investors by reducing the share price and increasing liquidity, as they are not required to pay any taxes upon receipt of the bonus shares in India.

Additionally, it provides an alternative to dividend payments for rewarding shareholders besides signalling the company's robust financial health and ability to continue growing and creating shareholder value. Examining stock price reactions to bonus share announcements of publicly traded companies from 2006 to 2012 reveals a notable response around the event date suggesting that stock prices increased following these announcements; however, the abnormal returns observed were relatively modest, averaging 1.81% for the announcement day and up to three days post-announcement, compared to earlier findings of 5.9% while these metrics are also slightly lower than the 2.01% stock price reaction documented from 1987 to 1996 (Khanal & Mishra, 2017).

The role of stock distributions has been a subject of ongoing debate among researchers. Even though a firm's equity value is not affected by bonus shares, announcements tend to elicit favourable market responses. In this context, the study examines the impact of bonus share issue announcements on the Bombay Stock Exchange (BSE) share prices, Asia's oldest stock exchange. The article is structured into 5 sections: Section I contains the introduction, Section 2 deals with the literature review, Section 3 contains materials and methods, Section 4 contains the results and discussion, and Section 5 contains the conclusion.

2. LITERATURE REVIEW

From a theoretical standpoint, bonus shares hold no intrinsic value for investors. The shareholders only get additional shares per the bonus ratio without altering their proportional ownership. Consequently, the share price should adjust downward proportionately without any change in the overall value of their holdings. Essentially, bonus shares are seen as a cosmetic change. Despite this, share prices often react to bonus share announcements, which has intrigued scholars. Various theories have been proposed to explain these reactions, including the Information Signalling Theory, the Retained-Earnings Hypothesis (REH), and the Market Maker Hypothesis.

The information-signalling hypothesis justifies the positive price reactions observed with bonus shares. Due to information asymmetry between managers and investors, managers might use bonus shares to signal their confidence in the firm's prospects (Foster III & Vickrey, 1978). Shareholders often anticipate that a bonus issue will increase total dividend payouts, which can signify management's outlook on the company's future. As a result, the share price might rise in response to this perceived positive information, benefiting shareholders (Lakonishok & Lev, 1987). Brennan & Copeland (1988) advanced the signalling hypothesis to explain bonus share, suggesting that managers use these announcements to reveal favourable private information about future profitability.

According to this hypothesis, bonus shares are associated with positive excess returns at the announcement because they signal anticipated future success. Conversely, some empirical studies (Mcnichols & Dravid, 1990); (Kadiyala & Vetsuypens, 2002) found limited evidence that stock distributions reliably convey favourable information about future profitability over the long term. In a different study, Woolridge suggested that due to the incremental nature of US stock price changes ($0.125), bonus shares may only partially adjust on the announcement day.

Woolridge observed that smaller bonus shares tend to have a more pronounced announcement effect than larger ones, attributing this to factors such as transaction costs and taxes associated with odd lots and fractional shares. He argued that bonus shares are a relatively straightforward and inexpensive signalling mechanism compared to other methods like stock repurchases or dividend adjustments, which can be more ambiguous (Woolridge, 1983). Further research by (Ikenberry and Ramnath, 2002) indicated that the price drift following an announcement is linked to market underreaction.

Their study found that financial analysts often underestimate earnings for companies issuing bonus shares, and this underestimation diminishes as actual earnings are reported. (Kunz and Rosa-Majhensek, 2008) observed that Swiss firms use stock distributions to communicate positive signals to the market, supporting the signalling hypothesis. (Adaoglu and Lasfer, 2011) found that the market response tends to be more pronounced for firms that had underperformed before the announcement, suggesting that these firms use bonus shares to indicate a potential recovery. On the other hand, (Nguyen & Wang, 2013) found no evidence that bonus share in China contained helpful information for the first two years following the announcement. Overall, the empirical evidence remains mixed regarding whether stock distributions effectively signal favourable future profitability.

2.1 Positive Reactions of Bonus Issues

In line with negative reactions to the issue, Adaoglu and Lasfer (2011) found positive excess returns on dates of bonus announcements mainly among firms with weaker financial health, such as those that do not pay cash dividends. This aligns with the 'paid-in capital hypothesis,' which posits that corporations issue bonus shares to alleviate the effects of inflation on their diminishing paid-in capital. Reducing the debt-to-paid-up capital ratio improves creditworthiness and facilitates loan acquisition, especially in markets with limited access to external equity financing.

While the findings support the retained earnings and signalling hypotheses, there was no evidence for the attention-getting hypothesis and only limited support for the liquidity enhancement hypothesis seen in other markets. Similarly, Ahsan et al. (2014) analysed stock price reactions to bonus issue announcements on the Dhaka Stock Exchange (DSE) from 2009 to 2012 and found significant abnormal returns around the bonus announcement dates, supporting the signalling hypothesis in the Bangladeshi market. This indicates that investors may have anticipated the informational value of the announcements or potentially had access to insider information.

Notably, the sectoral analysis yielded mixed results. While sectors like cement, food, allied fuel and power, and pharmaceuticals and chemicals responded positively to bonus issue announcements aligned with established theories, the engineering and textile sectors reacted negatively. These outcomes suggest DSE may not exhibit semi-strong market efficiency regarding past bonus issue information.

Furthermore, information leakage before the announcements raises critical concerns about the adequacy of regulation and the effectiveness of oversight on the DSE. Further, Chang et al. (2019) discovered a positive relationship between returns and stock distributions across all three types— bonus share, splits, and reverse splits—during pre- and post-decimalisation periods. This return-factor relationship is more pronounced in cases where investors are more prone to anchoring, characterised by lower attention from the investors, higher arbitrage problems, increased uncertainty around valuation and heightened market mood. Besides, the effect of bonus issue ex-dates on stock returns and liquidity on the Borsa Istanbul stock exchange from 1997 to 2018 advocates the positive abnormal returns and increased trading volume around the ex-day of the bonus issue.

The cumulative average excess return over the market return increased primarily in the ten days leading up to the ex-day, peaked on the ex-day, and then decreased afterwards as the abnormal returns around the ex-day are significantly related to the bonus ratio, asset size, and market value (Kadioglu & Kirbas, 2021). Also, the response of large and mid-cap firms on the NSE to bonus share announcements between 2006 and 2022 reveals that stock values exhibited significant changes around the time of these announcements, with bonus shares generally leading to a rise in share prices. While the average abnormal return for Midcap companies was higher than for Nifty 100 companies, the difference was insignificant. Additionally, the cumulative average abnormal return for Nifty Midcap 100 companies (6.472) exceeded that of Nifty 100 companies (4.483) during the event period (Mahato, 2022).

However, the impact of corporate announcements on share prices in the Indian stock market suggests varying impacts across different types of announcements. Bonus share announcements resulted in significant positive abnormal returns on the event date, whereas rights issues and stock-split announcements had no notable impact on stock returns. The companies should consider delaying such announcements until the market stabilises, as even events that have a positive impact may lead to adverse market reactions during periods of pandemic-induced stress (Pandey et al., 2022).

Similarly, the bonus issue announcement days in Turkey reveal that bonus issues funded from internal resources yield higher returns compared to those distributed from the previous year's net income and that investors in Turkey respond more positively to larger-sized bonus issues, with cumulative returns from initial offerings significantly differing from those of subsequent issues (Isiker & Tas, 2021). In recent times, the analysis of stock return patterns surrounding bonus issue announcements across eight emerging markets from 2010 to 2019 indicates that abnormal returns were observed up to ten days prior to the announcement in certain countries, suggesting potential information leakage and was persistent post-announcement in only two countries.

The size of the bonus issue is found to have a substantial impact in most markets, while the relationship between abnormal returns and other factors is weak, which turns down the signalling hypothesis regarding long-term profitability improvement, though there is partial evidence supporting liquidity enhancement. (Isiker & Tas, 2022)

A comprehensive review of global studies on the effects of bonus issue announcements in capital markets reveals consistent evidence of abnormal returns surrounding these announcements and supports the signalling hypothesis. Several studies found that post-bonus issue operating performance improved, with a positive relation between stock return and size of bonus issue. Although bonus issues are often considered a cosmetic event with no direct value creation for shareholders, empirical evidence from the literature challenges this view, supporting the contrary. While reassessing the information signalling hypotheses in the Indian stock market concerning bonus share issue announcements from 2004 to 2016, a significant impact of positive abnormal returns on the announcement and ex-bonus dates has been observed, besides suggesting a sharp adverse price reaction after the ex-bonus date resulting in bonus stripping during the study period, thereby, supporting the information signalling hypotheses (Basra & Singla, 2019 & 2020).

Furthermore, Hu et al. (2021) study the behaviour of small investors with a strong gambling inclination, who buy the stocks after bonus announcements, while professional investors tend to sell their holdings. It also finds that positive market reactions to bonus share announcements are linked to increased gambling-driven investors. The study substantiates a valuation effect, indicating that companies in China generally see a value boost upon announcing bonus shares, even when considering fundamental and risk concerns. This study contributes to the catering theory in corporate finance, suggesting that managers often consider investor preferences when making corporate decisions.

In addition, the evaluation of Expected Return Models (ERM) in event studies on BSE 500 stocks from 2000 to 2019 by Marisetty & Babu (2020) revealed that abnormal returns for bonus issue events were consistent across all models on the event day. However, the impact of bonus issues on stocks varied across different classifications. Similarly, abnormal returns on the event day were uniform across models for stock splits, but the effect differed based on classification. Therefore, the bonus and split events results were consistent across the three ERM models but varied depending on the sample classifications.

2.2 Negative Reactions of Bonus Issues

In line with negative reactions to the issue, Chhatwal & Lamba (2017) examined the determinants of abnormal returns following bonus announcements for CNX 500 companies from 2006 to 2014 and highlighted that larger firms tend to experience a notable decline in abnormal returns, while a significant negative correlation exists between promoters' holdings and abnormal returns and the pre-cumulative average abnormal returns are a vital factor in enhancing abnormal returns. Further, Kumari and Pushpender (2019) analysed the impact of bonus share issue announcements on the Indian stock market from 2014 to 2018 and suggested that the Indian stock market showed no significant reaction to these announcements. However, Huang et al. (2022) investigated the value of shareholder perks in Japan and found a significant drop in the share price of stocks offering these perks around ex-days, suggesting that shareholders place considerable value on such benefits, and the findings align with the behavioural concept of mental accounting empirically.

Similarly, analysing company performance three years post-announcement indicates that market reactions were biased for events like mergers and acquisitions (M&A) and bonus share issues but accurate for cash dividend payments and share buybacks. The market exhibited a strong and prolonged response to share buybacks while showing the weakest reaction to bonus share payments. Cash dividend payments triggered a short-lived market reaction, while acquisition announcements led to adverse reactions for the acquiring company's stock and positive responses for the target company's stock (Quang, 2024).

Studies in the Indian context have been limited in assessing the impact of bonus share issues on company and index performance. The present study is unique as it has studied the impact of bonus share issue on the index (BSE 500 in this case), of which the scrip is part. Although bonus shares have no impact on a firm's cash flows or fundamentals, the frequent occurrence of these stock adjustments has led researchers to address two primary questions: Why do so many companies engage in these practices, and how and why these types of corporate actions have impacted the share price of the companies and on the overall market response to these announcements.

This study bridges these gaps by analysing 5 years of bonus announcements of BSE 500 companies, focusing on stock-specific and index-wide impacts. The study evaluates the impact of bonus share issue announcements on company stock prices and the corresponding index return. It tests the validity of the information signalling hypothesis. This will also help to understand how the bonus announcements of Indian companies affect individual stock prices so that small retail investors can decide whether they should sell or hold the shares.

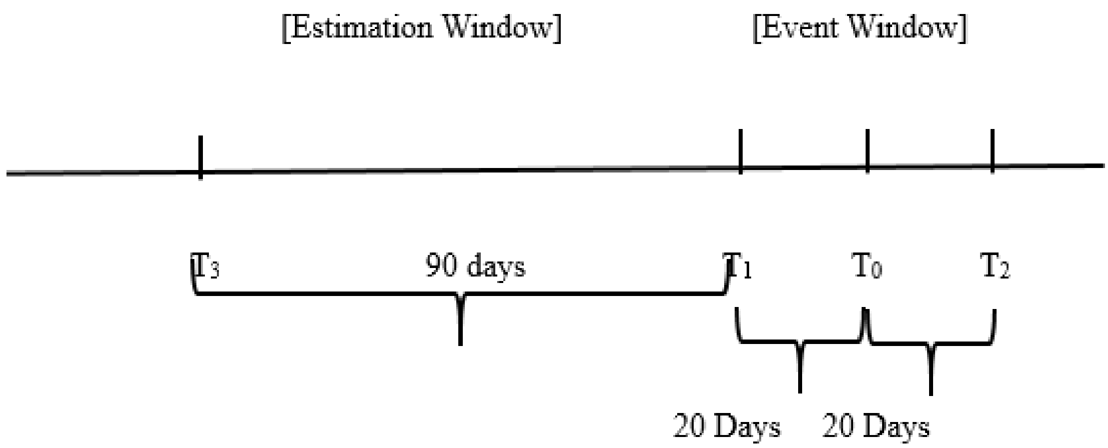
3. MATERIALS AND METHODS

Using event study methodology, the study explores abnormal returns within a defined event window, offering insights into how these companies influence broader market dynamics. The event research methodology is a widely utilised and esteemed technique for evaluating the economic effects of particular events by examining security price fluctuations surrounding the event date. The finance literature uses the event study methodology around corporate events like amalgamations, bonus issues, share repurchases and stock splits (Chatterjee & Mukherjee, 2015). The study relies on secondary data collected from Moneycontrol.com, Investing.com, and the official website of BSE.

To evaluate the effect, we examined share prices 20 days before and after bonus share announcements for individual companies and the influence on the BSE 500 index. Established on August 9, 1999, the BSE 500 index comprises the leading 500 companies listed on BSE Ltd., representing key sectors of the Indian economy. The analysis employed abnormal returns, cumulative abnormal returns, and OLS regression to investigate the impact of bonus share announcements on individual share prices and the index. The announcement date is T0, with T_0 minus 20 days and T_0 plus 20 days considered event windows, denoted as T_1 and T_2, respectively.

In line with the literature, the market-adjusted model estimates expected and actual returns surrounding the event to calculate abnormal and cumulative abnormal returns for the event window. The 90-day estimation period starting from T1 is deliberately free from any bonus share announcements or prior announcement effects to maintain the integrity of the analysis.

The below diagram depicts the timeline for the event study:



The market model, also known as the single index model, is mathematically specified as follows:

$$E\ (R_i) = \lambda_i + \theta_i\ R_m + \epsilon_i$$

Where,

$E(R_i)$= Expected return on scrip 'i'

R_m = return on a market index (BSE 500)

λ_i and θ_i are constants calculated by regressing the dependent variable, i.e., stock and market return over the calculation window. The ϵ_i is the error term, assumed to have zero χ_i and constant σ_i in the selected period.

Therefore, the abnormal returns and cumulative abnormal returns are estimated as follows:

$$(AR_i) = R_i - E(R_i)$$

And

$$CAR_{it} = \sum(AR_i)$$

This provides an understanding of the cumulative abnormal returns over a specific period, reflecting the true impact of the event on market prices. Abnormal returns are calculated daily during the event window and aggregated over the entire period to determine the cumulative abnormal returns (CAR). The hypothesis formulated is as follows:

H_0: *The bonus announcement by a company does not significantly impact the company's market share price and the BSE 500 index.*

H_1: *The bonus announcement by a company significantly impacts the company's market share price and the BSE 500 index.*

In line with the hypothesis, 56 companies were selected from the BSE 500 index that issued bonuses in the last five years based on a quarterly analysis from 01.01.2018 to 31.12.2023. To broaden the lens, the immediate reactions, short-run and long-run effects, variability among companies, and overall trends have been considered. MS Excel is used to carry out the analysis and report the results. Lastly, to determine whether the CAR of selected companies around a bonus issue has significantly impacted the scrip's price, the t-statistic was utilised. There is no consensus across the literature on the duration of the event window. It depends on the objective of the study undertaken.

Generally, it begins when the market price is observed to factor in the event under consideration and closes when the market fully absorbs it. This study examines the bonus issue announcements for which the companies need to send prior intimation to respective exchanges about their next annual general meeting; the market naturally initiates to factor in the information closer to the meeting date. Besides, it takes time for the market to reflect the announcements and lay down the trading strategies accordingly. The event study approach measures abnormal returns (AR) and cumulative abnormal returns (CAR) during the event window for various bonus issue announcements.

4. RESULTS AND DISCUSSIONS

The bonus share announcement influences the company's share price and balance sheet and the shareholder's wealth. Therefore, as business owners, the shareholders want to know how the event bonus announcement impacts their returns. The cumulative stock return of the selected company for pre- bonus announcement date and post-bonus announcement date have been included in ***Table I.*** The results show that 36 out of 56 companies have positive returns pre-announcement, indicating a general positive sentiment leading up to the bonus announcement. However, 33 out of 56 companies have positive returns post-announcement, indicating a positive market reaction for the companies after announcing the bonus issue. The insights suggest that many companies that have strong positive returns before the bonus announcement witness a decline or modest increase after the announcement, indicating that initial positive sentiments might only sometimes be sustained in the long term while the companies with weaker pre-announcement returns witnessed a mixed response post-announcement, indicating that the impact of bonus announcement has diversified effects depending on the prior market performance. As far as extreme cases are concerned, companies like Hatsun Agro witnessed significant gains after the announcement, suggesting a strong market reaction to the bonus announcement. Conversely, Aarti Drugs and Infibeam Avenue have experienced a notable drop in stock returns post-announcement, indicating potential overreaction or disappointment relative to expectations. Therefore, many companies have experienced positive returns post-announcement of the bonus issue, although there was considerable variability in the magnitude of these returns, highlighting the need to consider both pre-announcement performance and overall market reactions when evaluating the effect of bonus announcements on stock prices.

Table I: Impact of Bonus Announcement on Company's Share Price

Sl. No.	Company	T-20	T+20
1	Sonata	3.32%	23.08%
2	Kama Holdings	19.21%	2.21%
3	Berger Paints	3.30%	-5.29%
4	Power Finance	17.69%	15.82%
5	Power Grid Corp	1.49%	-5.43%
6	Kansai Nerolac	1.51%	6.18%
7	India Mart Inter	5.51%	3.69%
8	Blue Star	4.98%	0.62%
9	Microtech Dev	6.34%	6.12%
10	Astral Ltd	1.91%	-6.58%
11	360 ONE WAM	5.17%	-6.49%
12	Sheela Foam	6.36%	-9.98%
13	BLS Internation	18.15%	7.92%
14	Easy Trip	3.02%	-3.20%
15	Motherson SWI	9.37%	-5.50%
16	FSN E-Co Nykaa	-6.69%	-10.22%
17	MOTHERSON	3.51%	0.00%
18	eClerx Services	12.72%	-3.55%
19	Bharat Elec	18.53%	14.03%
20	Bajaj Finserv	18.50%	9.79%
21	GAIL	5.30%	-8.34%
22	REC	1.16%	4.91%
23	GMM Pfaudler	0.00%	-12.91%
24	Torrent Pharma	-4.82%	7.91%
25	UNO Minda	-6.82%	6.03%
26	Ratnamani Metal	7.88%	1.64%
27	IOC	-4.29%	-11.70%
28	Ajanta Pharma	-1.21%	4.27%
29	AU Small Finance	9.89%	-8.81%
30	Varun Beverages	10.62%	3.49%
31	Infibeam Avenue	15.68%	-11.42%
32	IEX	31.99%	2.54%
33	SRF	11.79%	10.39%
34	APL Apollo	7.60%	-2.39%
35	Mahindra Life	23.24%	-0.90%
36	Mahindra Holida	24.29%	-2.90%
37	Redington	13.64%	2.73%
38	Aarti Ind	25.22%	4.78%
39	Britannia	1.89%	-10.87%
40	Ircon Internati	-7.74%	-1.47%
41	KNR Construct	12.58%	9.30%
42	Hatsun Agro	0.00%	32.95%
43	Aarti Drugs	53.28%	5.11%
44	Suven Pharma	17.26%	4.99%
45	Elgi Equipments	33.17%	-8.60%
46	HCL Tech	1.66%	1.88%

47	Brigade Ent	6.80%	0.27%
48	RITES	11.36%	5.17%
49	UPL	0.87%	5.78%
50	Relaxo Footwear	3.60%	-1.23%
51	Biocon	0.53%	-11.35%
52	Syngene Intl	4.03%	4.17%
53	TTK Prestige	10.48%	-6.43%
54	NTPC	-6.68%	0.48%
55	Wipro	-0.82%	8.24%
56	Container Corp	-1.16%	3.07%

Source: Authors' calculation

The summary of changes in stock returns of the selected scrips from the date of announcement of the bonus issue is included in ***Table II.*** The return distribution analysis observes a noticeable increase in the number of scrips experiencing returns of less than -10% in the days following the date of the bonus issue announcement. Specifically, this category grows from 0 companies on the announcement day to 12 companies by the 20th day after the announcement, suggesting that negative returns become more pronounced as time progresses post-announcement. However, the stock returns in the range of -10% to 0% took most of the scrips under its gamut throughout the event window.

A total of 28 companies on the Plus 10th Day indicates that many stocks experience negative returns of less than -10% at that point, keeping this range significant, especially post-announcement. Further, the number of scrips with returns between 0% and +10% peaks on the announcement day (0th day) with 33 companies, indicating a positive trend surrounding the announcement. However, the number declines in the subsequent days, suggesting a reduction in positive returns over the period. Moreover, there is a notable increase in scrips with returns greater than 10% on the Plus 1st day, which decreases by the Plus 10th day but rises again by the Plus 20th Day. This pattern indicates that high positive returns are less common but can occur immediately after the announcement and thereafter with a time gap. While the announcement typically brings a surge in positive returns, particularly on announcement day, this effect diminishes over time, and the negative returns, especially those less than -10%, tend to increase after announcing the bonus issue.

Table II: Stock Returns (%) at Various Intervals from Announcement of Bonus Issue

Return in %age	Minus 20th day	Minus 10th day	Minus 1st day	0th Day	Plus 1st day	Plus 10th day	Plus 20th day
Less than minus 10	1	1	0	0	0	6	12
minus 10 to Zero	15	16	24	21	21	28	23
0 to 10	28	31	31	33	24	20	14
Greater than 10	12	8	1	2	10	2	7
Total	56	56	56	56	56	56	56

Source: Authors' calculation

In line with the average abnormal returns and cumulative average returns on stocks against the BSE 500, as shown in Table III, there is a variation in companies' performance relative to their bonus issues. The companies show strong positive performance in average and cumulative abnormal returns, indicating they performed significantly better than the BSE 500 index over the period of analysis. The top performers include:

- Hatsun Agro: Highest AAR of 1.09% and highest CAR of 21.84%.
- Sonata: AAR of 0.89% and CAR of 17.89%.

- Torrent Pharma: AAR of 0.63% and CAR of 12.56%.
- Bharat Elec: AAR of 0.62% and CAR of 12.30%.
- Bajaj Finserv: AAR of 0.56% and CAR of 11.18%.

Similarly, the companies experienced significant negative returns compared to the BSE 500 index, with their cumulative returns showing substantial underperformance over the event window are considered bottom performers, which include:

- APL Apollo: Lowest AAR of -0.89% and CAR of -17.89%.
- Aarti Drugs: AAR of -0.82% and CAR of -16.46%.
- Sun Pharma: AAR of -0.61% and CAR of -12.17%.
- FSN E-Co Nykaa: AAR of -0.54% and CAR of -10.75%.
- GMM Pfaudler: AAR of -0.54% and CAR of -10.86%.

Additionally, some companies witnessed modest positive returns with relatively lower cumulative gains, and their performance improved over the period but was less pronounced than that of the top performers.

These are considered as mixed performers and include:

- HCL Tech: AAR of 0.08% and CAR of 1.67%.
- Brigade Ent: AAR of 0.22% and CAR of 4.47%.
- RITES: AAR of 0.59% and CAR of 11.82%.
- Syngene Intl: AAR of 0.23% and CAR of 4.61%.
- Wipro: AAR of 0.22% and CAR of 4.32%.

Furthermore, the companies that witnessed minimal deviation from the BSE 500 index, with relatively small negative or positive cumulative returns, are considered minimal loss-makers and include:

- NTPC: AAR of 0.03% and CAR of 0.62%.
- REC: AAR of -0.02% and CAR of -0.37%.
- Varun Beverages: AAR of 0.34% and CAR of 6.87%.

Therefore, the analysis highlights a clear split between companies that significantly outperformed the index and those that underperformed, with a few falling in the middle range, showing minimal deviation in terms of minimising their losses and experiencing mixed market sentiments for their respective bonus issue, although the market reactions are subject to various other determinants as well including company's market capitalisation, insider trading intimations, regulatory concerns, previous issues among others. To understand the Average Returns and Cumulative Average Returns, the example of SONATA Software is used:

"Sonata Software is a global provider of IT consulting and software services. Sonata's services range from IT Consulting to Product Engineering Services, Application Development, Application Management, Managed Testing, Business Intelligence, Infrastructure Management, Packaged Applications and Travel solutions."

On October 25 2023, Sonata Software announced a bonus share in the 1:1 ratio. This date is taken as T0. Accordingly, the event window is chosen as -20 and +20 trading days. Hence, T1

= 25th September 2020 and T2 = 22nd November 2023. The estimation window (T 3) thus becomes 90 days from T1, i.e., from September 25 2023, i.e., from May 17 2023 to September 22 2023.

Intercept: It has been calculated using stock and market returns for the estimation window, i.e., T3.

Slope: It has been calculated using stock and market returns for the estimation window, i.e., T3.

R2: It has been calculated using stock and market returns for the estimation window, i.e., T3.

Standard Error: It has been calculated using stock and market returns for the estimation window, i.e., T3.

Standard Deviation: It has been calculated using stock and market returns for the estimation window, i.e., T3.

Furthermore, the impact of bonus announcements on the BSE 500 index for the selected companies is estimated in Table IV. The results show that most selected companies have stronger t-statistics, suggesting the considerable impact of the announcement of bonus issue on the BSE Index.

Table III: Average Abnormal Return (%) and CAR (%) against BSE 500

Sl. No.	Company	Average Abnormal Return (%)	Cumulative Abnormal Return (%)
1	Sonata	0.89%	17.89%
2	Kama Holdings	0.18%	3.65%
3	Berger Paints	-0.36%	-7.30%
4	Power Finance	0.15%	3.07%
5	Power Grid Corp	-0.42%	-8.34%
6	Kansai Nerolac	0.38%	7.58%
7	India Mart Intermesh	-0.26%	-5.20%
8	Blue Star	-0.20%	-3.93%
9	Microtech Developers	0.19%	3.72%
10	Astral Ltd	-0.35%	-6.97%
11	360 ONE WAM	-0.37%	-7.36%
12	Sheela Foam	-0.42%	-8.37%
13	BLS International	-0.14%	-2.78%
14	Easy Trip	-0.30%	-6.03%
15	Motherson SWI	-0.63%	-12.59%
16	FSN E-Co Nykaa	-0.54%	-10.75%
17	MOTHERSON	-0.09%	-1.76%
18	eClerx Services	-0.27%	-5.36%
19	Bharat Elec	0.62%	12.30%
20	Bajaj Finserv	0.56%	11.18%
21	GAIL	-0.66%	-13.21%
22	REC	-0.02%	-0.37%
23	GMM Pfaudler	-0.54%	-10.86%
24	Torrent Pharma	0.63%	12.56%
25	UNO Minda	0.55%	10.98%
26	Ratnamani Metal	-0.11%	-2.25%
27	IOC	-0.46%	-9.27%
28	Ajanta Pharma	0.41%	8.15%
29	AU Small Finance	0.02%	0.32%
30	Varun Beverages	0.34%	6.87%
31	Infibeam Avenue	-0.17%	-3.48%

32	IEX	0.19%	3.71%
33	SRF	-0.08%	-1.63%
34	APL Apollo	-0.89%	-17.89%
35	Mahindra Life	-0.36%	-7.20%
36	Mahindra Holida	-0.37%	-7.42%
37	Redington	-0.73%	-14.62%
38	Aarti Ind	-0.04%	-0.86%
39	Britannia	-0.67%	-13.40%
40	Ircon Internati	-0.76%	-15.27%
41	KNR Construct	-0.44%	-8.89%
42	Hatsun Agro	1.09%	21.84%
43	Aarti Drugs	-0.82%	-16.46%
44	Suven Pharma	-0.61%	-12.17%
45	Elgi Equipments	-0.26%	-5.27%
46	HCL Tech	0.08%	1.67%
47	Brigade Ent	0.22%	4.47%
48	RITES	0.59%	11.82%
49	UPL	-0.08%	-1.66%
50	Relaxo Footwear	-0.22%	-4.33%
51	Biocon	-0.58%	-11.56%
52	Syngene Intl	0.23%	4.61%
53	TTK Prestige	-0.56%	-11.16%
54	NTPC	0.03%	0.62%
55	Wipro	0.22%	4.32%
56	Container Corp	0.14%	2.71%

Source: Authors' calculation

Table IV: Impact of Bonus Announcement on BSE 500 Index: Company-Wise Analysis

Sl. no.	Company	*t-value*
1	Sonata	0.351
2	Kama Holdings	0.089
3	Berger Paints	-0.181
4	Power Finance	0.057
5	Power Grid Corp	-0.192
6	Kansai Nerolac	0.171
7	India Mart Inter	-0.105
8	Blue Star	-0.083
9	Microtech Dev	0.052
10	Astral Ltd	-0.119
11	360 ONE WAM	-0.135
12	Sheela Foam	-0.153
13	BLS Internation	-0.038
14	Easy Trip	-0.091
15	Motherson SWI	-0.211
16	FSN E-Co Nykaa	-0.174
17	MOTHERSON	-0.028
18	eClerx Services	-0.090
19	Bharat Elec	0.209
20	Bajaj Finserv	0.188
21	GAIL	-0.210
22	REC	-0.007
23	GMM Pfaudler	-0.187
24	Torrent Pharma	0.208
25	UNO Minda	0.158
26	Ratnamani Metal	-0.037

27	IOC	-0.166
28	Ajanta Pharma	0.144
29	AU Small Finance	0.005
30	Varun Beverages	0.114
31	Infibeam Avenue	-0.051
32	IEX	0.060
33	SRF	-0.029
34	APL Apollo	-0.262
35	Mahindra Life	-0.119
36	Mahindra Holidays	-0.115
37	Redington	-0.174
38	Aarti Ind	-0.016
39	Britannia	-0.258
40	Ircon Internati	-0.116
41	KNR Construct	-0.068
42	Hatsun Agro	0.353
43	Aarti Drugs	-0.198
44	Suven Pharma	-0.133
45	Elgi Equipments	-0.064
46	HCL Tech	0.035
47	Brigade Ent	0.080
48	RITES	0.213
49	UPL	-0.034
50	Relaxo Footwear	-0.091
51	Biocon	-0.243
52	Syngene Intl	0.097
53	TTK Prestige	-0.223
54	NTPC	0.013
55	Wipro	0.086
56	Container Corp	0.048

Source: Authors' calculation

In addition, the company-wide change in the stock prices is reported in Table V before and after 20 days of the bonus issue. A total of 39 of 56 companies, the stock showed positive abnormal returns in the 20 days following the announcement. Similarly, 39 out of 56 companies experienced positive abnormal returns ten and five days before the announcement, while 32 companies showed positive abnormal returns one day before the announcement, and 31 of 56 companies had positive abnormal returns on the announcement day. However, 25 companies experienced positive abnormal returns the day after the announcement, and 22 had positive abnormal returns within 5 to 10 days. At the same time, 21 companies showed positive abnormal returns up to 20 days post-announcement. For 10 companies, the abnormal returns in the 20 days after the announcement were higher than those observed in the 20 days before. The overall market trends suggest that there is significant positive Average Abnormal Returns (AAR) were recorded within the event window from the announcement day (T0) to the following Day (T+1), occurring in 25 out of 56 cases, or 45% of the sample while some companies witnessed a hike in abnormal returns on and immediately after the announcement, the stock prices of 35 companies returned to their previous levels within 20 days after the announcement. The results revealed a mixed impact of bonus announcements on the stock prices of the selected companies. While many companies exhibit positive abnormal returns leading up to and following the announcement, the returns often revert to normal levels within a few weeks. This suggests that while the signalling hypothesis applies to some companies, it does not hold universally.

Table V: Company-wise Changes in Stock Prices up to 20 Days of Bonus Announcement (Figures in Percentage)

Sl. No.	Company	Minus 20th day	Minus 10th day	Minus 5th day	Minus 1st day	0th Day	Plus 1st day	Plus 5th day	Plus 10th day	Plus 20th day
1	Sonata	6.69%	5.42%	2.90%	-0.81%	-2.32%	10.27%	10.33%	18.58%	17.89%
2	Kama Holdings	21.18%	20.32%	19.35%	0.61%	0.60%	6.63%	7.03%	2.91%	3.65%
3	Berger Paints	-0.48%	-0.88%	-2.10%	0.40%	0	0.22%	-0.57%	2.38%	-7.30%
4	Power Finance	10.05%	3.07%	-0.12%	-0.69%	-0.39%	0.17%	1.29%	0.68%	3.07%
5	Power Grid Corp	-2.96%	5.31%	4.76%	2.77%	2.62%	-5.50%	-7.46%	-9.30%	-8.34%
6	Kansai Nerolac	2.50%	3.84%	4.01%	0.41%	2.06%	-1.42%	2.37%	2.22%	7.58%
7	Indiamart Inter	-5.73%	-4.92%	-5.90%	-1.45%	0.87%	4.05%	8.43%	5.89%	-5.20%
8	Blue Star	-0.96%	-4.25%	-4.54%	-2.15%	-0.54%	0.02%	-1.53%	-2.21%	-3.93%
9	Microtech Dev	4.33%	0.68%	-0.22%	-3.61%	0 %	-0.49%	0.89%	-0.03%	3.72%
10	Astral Ltd	4.52%	8.41%	5.46%	2.17%	-0.59%	-2.97%	-8.65%	-6.54%	-6.97%
11	360 ONE WAM	3.59%	4.00%	5.17%	0.92%	3.90%	-1.11%	-3.10%	-1.90%	-7.36%
12	Sheela Foam	6.73%	6.63%	4.07%	0.29%	0%	-1.41%	-5.47%	-7.66%	-8.37%
13	BLS Internation	5.44%	-6.46%	0.96%	-1.81%	-0.18%	6.59%	1.53%	4.98%	-2.78%
14	Easy Trip	7.18%	2.36%	4.96%	0.32%	1.78%	-0.90%	-1.57%	-3.27%	-6.03%
15	Motherson SWI	10.89%	0.66%	2.22%	2.64%	-1.15%	1.32%	-2.11%	-0.40%	-12.59%
16	FSN E-Co Nykaa	0.55%	-1.41%	0.11%	-2.01%	3.92%	-1.75%	-2.75%	-13.20%	-10.75%
17	MOTHERSON	-9.39%	-10.13%	-7.65%	-1.28%	3.57%	1.88%	-1.37%	-4.14%	-1.76%
18	eClerx Services	7.63%	2.26%	5.30%	0.90%	0%	-7.11%	-4.62%	-2.40%	-5.36%
19	Bharat Elec	12.71%	5.18%	-1.55%	-1.86%	2.61%	-2.91%	1.32%	1.41%	12.30%
20	Bajaj Finserv	16.83%	10.77%	7.64%	-0.84%	8.57%	1.43%	1.63%	4.76%	11.18%
21	GAIL	1.16%	1.57%	2.05%	-1.60%	1.46%	-1.49%	-7.03%	-16.96%	-13.21%
22	REC	6.56%	5.83%	1.97%	0.19%	3.41%	1.63%	2.90%	-3.11%	-0.37%
23	GMM Pfaudler	4.42%	7.15%	10.16%	-0.16%	-2.37%	-4.32%	-11.25%	-14.13%	-10.86%
24	Torrent Pharma	1.26%	2.21%	0.41%	-0.40%	2.43%	9.60%	5.58%	7.44%	12.56%
25	UNO Minda	1.78%	5.20%	5.40%	0.07%	-3.36%	8.03%	7.79%	3.03%	10.98%
26	Ratnamani Metal	4.83%	7.29%	14.93%	2.08%	-3.05%	1.80%	0.30%	2.19%	-2.25%
27	IOC	3.93%	3.64%	0.97%	-0.03%	-0.35%	-5.09%	-3.78%	-8.37%	-9.27%
28	Ajanta Pharma	8.39%	3.21%	4.34%	0.59%	-2.98%	2.18%	3.78%	5.18%	8.15%
29	AU Small Finance	6.79%	3.47%	0.21%	1.35%	1.50%	-2.66%	-2.46%	-1.32%	0.32%

30	Varun Beverages	8.06%	10.69%	-3.02%	-2.46%	1.22%	2.96%	5.07%	10.58%	6.87%
31	Infibeam Avenue	18.93%	24.06%	12.49%	1.23%	-6.82%	-4.82%	-0.01%	-1.03%	-3.48%
32	IEX	21.13%	18.44%	-1.77%	-4.65%	-3.49%	1.65%	-3.68%	-2.89%	3.71%
33	SRF	-1.32%	3.05%	3.53%	1.62%	3.23%	-2.53%	-3.20%	3.53%	-1.63%
34	APL Apollo	-4.14%	-1.35%	-9.48%	-1.56%	2.21%	-0.17%	-11.46%	-16.52%	-17.89%
35	Mahindra Life	19.58%	10.26%	8.31%	2.54%	3.64%	-2.22%	-2.40%	-7.06%	-7.20%
36	Mahindra Holida	22.37%	-3.12%	3.54%	1.95%	-0.36%	-2.97%	-5.94%	-9.18%	-7.42%
37	Redington	-2.33%	5.35%	11.16%	-0.58%	2.32%	-1.02%	2.85%	-4.79%	-14.62%
38	Aarti Ind	21.14%	6.33%	1.80%	0.76%	-0.85%	-4.56%	-6.26%	-4.58%	-0.86%
39	Britannia	-0.12%	-0.64%	2.58%	-0.25%	0.15%	-2.13%	-4.03%	-3.28%	-13.40%
40	Ircon Internati	-20.86%	-0.77%	2.70%	0.28%	-0.57%	0.93%	-4.60%	-7.85%	-15.27%
41	KNR Construct	-8.82%	-5.58%	0.47%	-0.15%	1.80%	-0.12%	-2.00%	-7.87%	-8.89%
42	Hatsun Agro	-8.76%	3.06%	0.92%	2.03%	0.36%	-3.86%	-10.13%	-8.89%	21.84%
43	Aarti Drugs	30.34%	14.62%	9.58%	0.58%	17.14%	8.57%	-1.74%	-6.16%	-16.46%
44	Suven Pharma	-0.79%	-0.41%	-1.33%	2.28%	-0.83%	-8.15%	-4.13%	-17.23%	-12.17%
45	Elgi Equipments	34.32%	30.70%	24.42%	12.20%	15.95%	-2.87%	-8.90%	-8.30%	-5.27%
46	HCL Tech	0.13%	-2.00%	-2.64%	-2.77%	2.92%	2.17%	5.54%	4.16%	1.67%
47	Brigade Ent	6.52%	4.19%	0.75%	0.12%	-0.97%	1.91%	4.52%	5.02%	4.47%
48	RITES	12.99%	3.82%	-2.02%	2.02%	-1.84%	-2.15%	3.72%	7.70%	11.82%
49	UPL	1.02%	1.45%	0.52%	-1.30%	1.22%	0.09%	-0.18%	0.74%	-1.66%
50	Relaxo Footwear	2.28%	-3.11%	-2.51%	0.80%	-0.07%	-2.96%	-8.99%	-7.66%	-4.33%
51	Biocon	-0.54%	1.37%	-0.86%	-0.88%	1.62%	-0.43%	-11.47%	-11.26%	-11.56%
52	Syngene Intl	4.28%	3.66%	4.26%	0.30%	0.34%	1.51%	0.31%	1.45%	4.61%
53	TTK Prestige	1.75%	-8.38%	7.85%	1.33%	1.05%	-2.82%	-2.79%	-5.58%	-11.16%
54	NTPC	-4.16%	-3.07%	-1.32%	0.14%	0.18%	0.01%	-2.85%	-5.48%	0.62%
55	Wipro	-5.69%	0.42%	1.79%	-0.59%	2.74%	-2.81%	1.35%	4.84%	4.32%
56	Container Corp	-5.84%	-4.03%	-0.50%	0.26%	-0.13%	0.14%	1.25%	3.19%	2.71%

Source: Authors' calculation

Moreover, the hypothesis formulated for the study was validated as follows:

- The signalling hypothesis is supported for 21 companies, indicating a positive impact of the announcement on their abnormal returns.
- For 35 companies, the signalling hypothesis does not hold, as their abnormal returns did not remain elevated post-announcement.

As the signalling hypothesis is found not to hold universally and across the sample in this case, the analysis of the changes in the market price of the scrips around bonus announcements reveals the following observations:

- Stock prices tend to rise in anticipation of the bonus announcement.
- They have mixed immediate reactions on the announcement day, with some companies experiencing significant gains and others seeing minimal or negative changes.
- There are varied short-term and long-term effects since some companies benefit from sustained positive trends while others experience declines after the initial announcement.

This variability suggests that investor reactions to bonus announcements can differ widely based on company-specific factors, market conditions, and investor perceptions.

5. CONCLUSION

Post-COVID-19, the Indian capital market saw a significant increase in the number of retail investors who are new to the capital market. The study will help investors make appropriate decisions when dealing with stocks during bonus issue announcements. This study examines the impact of share bonus announcements, how the share prices of a company moved during the pre- and post-bonus announcement date, and how the return of the particular index is impacted when its component companies came out with bonus announcements. The study analyses the performance of 56 companies that are part of the BSE 500 index from January 2018 to December 2023 using event study methodology to compute the AAR and CAAR. To analyse the data on company-wise changes in stock prices around bonus announcements, the following key aspects are looked at:

1) Overall Trends: Observing the general trends in stock prices leading up to and following the bonus announcement.
2) Immediate Reactions: Examining how stock prices behave on the announcement day and the days immediately surrounding it.
3) Short-Term and Long-Term Effects: Analysing the short-term impacts (5 and 10 days) and the long-term effects (20 days) of bonus announcements on stock performance.
4) Variability Among Companies: Comparing the variations in stock price responses among different companies.

The results indicate a mixed impact of bonus share announcements for the companies in the sample on their return and the BSE 500 index, suggesting that the Indian market is sometimes efficient, with the bonus announcement being rapidly incorporated into stock prices. However, the impact of bonus announcements has witnessed mixed market reactions across countries and companies previously as well. The study on Chinese firms from 2003 to 2011 reveals several key findings. In the absence of cash dividends, bonus shares positively affect firm value and provide signals of future cash dividends and earnings. However, when cash dividends are issued, they primarily serve as indicators of future dividend payments (Dedman et al., 2017).

Similarly, a study examining changes in firm behaviour following a regulatory change in China, which requires enhanced disclosure of bonus shares and splits, found that investor reactions to such announcements became less positive in this new disclosure environment. The findings suggest that companies adopted more cautious announcement strategies, and investors responded more rationally, reducing false signalling effects. (Wang et al., 2021). Theoretically, bonus issues are expected to enhance stock price performance, but empirical findings suggest this is not always true. Several studies based on the US, the UK, and European countries found that bonus announcements are positive information for the market; hence, a significant positive reaction is observed when announcements are made. However, there is also a possibility of negative results, in line with the existing literature. Furthermore, the scope of this work can be extended to examine the effect of bonus announcements across different categories of companies based on market capitalisation, including small-cap, mid-cap, and large-cap firms. Similarly, the impact of the bonus announcements based on the prevailing market mood, whether bearish or bullish, can also be analysed to understand how overall market sentiment affects stock reactions.

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