sdmimd
JOURNAL OF MANAGEMENT

DOI:10.18311/sdmimd/2023/32407

Market Reaction to Dividend Announcements Before and During COVID-19 - Evidence from Banking Sector

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Abstract

The present study documented the behaviour of stock of the Indian banking sector around the announcements of dividends before and during the global health crisis of 2019. The study considered all the banks in the Indian banking sector that announced the dividend from January 2015 to December 2021 and conducted the analysis using event study methodology with Multi-Index Model (MIM). The study found that during the pre-crisis period, the stock of the PSU banks was more sensitive towards the announcements when dividends were decreased compared to the announcements when it was increased. While the stock of private banks was significantly impacted by both positive and negative dividend announcements, however, the impact of negative dividend announcements was severe and more prolonged than that of positive dividend announcements. Further, during the COVID-19 Pandemic, it is witnessed that information relating to dividend announcements has positively affected the behaviour of the banking sector stock.

Keywords: COVID-19 Pandemic, Dividend Announcements, Event Study Methodology, Indian Banking Sector, Multi-Index Model

1. Introduction

Corporate actions, namely dividends, bonuses, rights and stock-split announcements, are motivated towards influencing stock prices and have a significant impact on stock returns (Pandey *et al*., 2022). However, the extent of the impact varies significantly based on the timing of announcements, types of announcements and place of announcements. Among the corporate actions, the dividend policy has gained much attention. Still, in today's finance literature, it has a prominent place and plays a significant role in the valuation of a firm as it involves a trade-off between the distribution of earnings and retention of earnings. Besides delivering value to shareholders, the dividend policy has a close relationship with other financial and investment decisions. Therefore, formulating a sound and prudent dividend payout is of utmost importance and, at the same time, is a challenging task for any firm. The dividend policy came into the limelight with the publication of the dividend irrelevance theory by Miller and Modigliani (1961). The theory inferred that the value of a firm is primarily dependent on the flow of free cash in current and future periods and investing the same for different developmental and productive purposes adds value to the firm. Therefore, formulating a dividend policy is irrelevant and does not contribute to the value of the firm. Another study by Aharony and Swary (1980) suggests that from the shareholder's viewpoint, the division of profits between retained earnings and dividends is not pertinent because, in the case of non-payment of dividends, the capital would have appreciated by an equal amount of dividend so paid. Thus, non-payment of the dividend would

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generate more value for shareholders. The value of a firm is directly influenced by the ability of its assets to generate funds and effectively utilise the same, i.e., formulating effective investment policy and thus, the stock of a firm is valued by the investors. And therefore, it is said that the dividend and the share prices have no significant relationship (Mishra & Narender, 1996).

Whereas another set of theories on the dividend announcement, suggests that the dividend announcement significantly impacts the share prices. Not only that, the return from the security is highly influenced by the rate of dividend announced; if the dividend announced is higher than the market expectation, then an upswing in the share price is expected and vice versa. It further adds that investors prefer cash over capital appreciation (James Walter, 1963; Linter, 1956). The other prominent hypothesis supporting the importance of dividends is the dividend signalling hypothesis, which hypothesizes that the dividend payment gives a signal to potential investors regarding the prospect of a firm. The dividend is assumed to be a good predictor of future earnings and therefore, the announcement of the increased dividend is considered good news, whereas decreased dividend is negative or bad news and accordingly, the stock market reacts favourably and unfavourably (Alli *et al*., 1993; Bhattacharya, 1979; John & Williams, 1985).

Apart from the above theories, there exists a plethora of empirical studies concerning the relevance of dividend announcements to the stock market. These studies documented the signalling hypothesis, i.e., an increase in dividend announcement influences the stock prices positively, while decreased dividend induces negative stock price (Petit, 1972; Charest, 1978; Aharony & Swary, 1980; Asquith & Mullins, 1983; Bajaj & Vijh, 1990; Barheim & Wantz, 1995; Lonie *et al*., 1996; McCluskey *et al*., 2006). However, the majority of the studies have been conducted in developed nations, while only minimal studies have been conducted concerning emerging nations like India. Again, it should be noted that the firms in emerging nations have different characteristics, be it in the form of size, ownership, informational efficiency, taxation policies and other important aspects, which might affect the dividend policy of a firm and thereby the stock reaction might differ from that of developed nations (Kumar & Tsetsekos, 1999; La Porta *et al*., 2000; Aivazian *et al*., 2003; Naceur *et al*., 2006).

Considering the reaction of the Indian Stock market, there exist minimal studies; among them, studies by Mallikarjunappa & Manjunatha (2009), Kumar & G (2013), Mehta *et al*., (2014) Anwar *et al*., (2017) observed the significance and positive impact of the dividend announcements on stock return, whereas Saravanakumar (2011), Anwar *et al*., (2015) found no significant impact of the announcements. On the other hand, Berezinets *et al*., (2015) and Kumar (2017) found that increased dividend has a positive impact and decreased dividend hurt stock return. Further, during the COVID crisis, studies concerning the market reaction to the dividend announcement have been conducted. In this regard, Pandey *et al*., (2022) and Prakash & L (2022) have studied the reaction of the Indian market and found varying results. Prakash & L (2022) found positive relationships between the pandemic and Abnormal returns, while Pandey *et al*., (2022) found that even positive events have a negative impact.

Thus, it can be seen that the dividend announcement is one of the major corporate announcements that impact the Indian stock market. However, being such an important event, it lacks in several studies and at the same time there exist differences at the outset of the empirical analysis. Again, if closely observed, it is seen that the majority of the studies have focused on studying the overall market reaction, while the studies on sector-specific are minimal. In sector-specific studies, the banking sector is the one that is lacking behind as compared to other sectors. Since the banking sector is considered the lifeblood of an economy, it becomes of utmost importance to understand how the securities of the banking sector behave concerning corporate events like dividend announcements. Therefore, in the present study, the behaviour of the stock of the Indian banking sector around the dividend announcement shall be examined using the event study methodology. Further, the period of the present study is divided into two phases, the pre-COVID era (January

2015 to December 2019) and the COVID era (January 2020 to December 2021) to see the behaviour of the banking sector stock during a normal period and a pandemic period.

The outset of the present study shall be useful for both investors and policymakers. For investors, it acts as a helping hand while framing investment strategies during both crisis and normal economic conditions. While for policymakers it will provide a roadmap concerning the timing as well as the rate of the announcement of the dividend.

To the best of the knowledge of the author(s), the present study is the first of its kind that has examined the reaction of the banking sector stock by segregating the dividend announcement based on the COVID-19 pandemic. Further, it has also examined the reaction of the stock to the changes in dividend rates.

2. Review of Literature

Being one of the debatable topics, dividend announcements have been widely studied to quantify their impact on stock prices. Some of the relevant and prominent studies have been reviewed here to understand the association between the two:

Pettit (1972) examined the dividend announcement by the firms listed on the New York stock exchange from January 1964 to June 1968 by considering monthly and daily stock prices. The study observed that the market participants made use of announcements of dividend changes while assessing the security prices. It is further observed that the information is reflected in the security prices at the end of the announcement period, thus concluding that the market is reasonably efficient in the case of both monthly and daily data series.

Aharony and Swary (1980) attempted to provide a concrete result as to whether quarterly dividend announcements convey more useful information than quarterly earnings numbers. The study employed daily stock prices of industrial firms listed on the New York Stock Exchange from 1963 to 1976 and observed that changes in the quarterly cash dividend provide more useful information than that provided by corresponding quarterly earning numbers. In addition, the study found that the market adjusted to the new information more efficiently, supporting the market's efficiency in a semi-strong form.

Brickley (1983) compared the stock returns around the specially designed dividend named 'extra,' 'special,' or 'year-end' with the unlabelled regular dividend increases and observed that the labelling of the dividend by the management is motivated toward conveying the firm's future potential; however, the unlabelled dividend is seen to have contained the most positive information.

Gunasekaragea & Power (2002) examined the theory of the dividend-signalling hypothesis by assessing the performance of UK companies during the post-dividend and earnings announcement on the same day. The study provided strong support for the dividend-signalling hypothesis. It further noted that the companies that announce a reduction in dividends and earnings, i.e., bad news, outperform those with good news.

McCluskey *et al.* (2006) investigated the Irish stock market reaction and observed a statistically significant market reaction around the dividend announcement. In a similar study, Mallikarjunappa & Manjunatha (2009) concludes that the Indian stock market is not efficient in processing the information released through dividend announcements. However, Saravanakumar (2011) and Jain & Gupta (2020) concluded that dividend announcements do not have any significant bearing on the Indian stock market. In another study, Kumar & G (2013) observed that the dividend announcement positively influenced the behaviour of the Indian stock market; however, it lasted only a day after the announcement. After this, the positivism of the securities becomes insignificant. Further, it is observed that the information is absorbed faster in a larger firm. Similarly, Mehta *et al*., (2014) found that the dividend announcement induces an increase in the wealth of the shareholders. Anwar *et al.,* (2015; 2017) examined the impact of the cash dividend on the stock return and provided strong evidence supporting the 'dividend signalling' and 'risk information' hypothesis.

In another study, Berezinets *et al*., (2015) and Kumar (2017) observed that the announcement of the increased dividend positively impacted the market while, a negative reaction was observed on the announcement of the decreased dividend, and no market reaction was observed on the unchanged dividend announcement. A similar result was observed by Ozo & Arun (2019) for the Nigerian stock exchange. In another study, Rane & Guntur (2017) found that the reaction of different sectors varies differently on dividend announcements. The securities of the sectors such as Banking, IT and Healthcare were significantly impacted by the announcement, while sectors such as realty did not show any significant reaction.

Berezinets *et al*., (2017) examined the information content of dividend announcements for the emerging markets of India and Russia by employing an analysts' expectations-based approach and found that the Russian market, on average, reacts negatively to both good and bad negative surprises; In contrast, in case of the Indian market, the good dividend surprises have a positive impact and negative reaction is associated with bad and no dividend surprises.

Prakash & L (2022) examined the reaction of stock to dividends announced during the pre- and post-pandemic period and found that the market reaction around the dividend announcement was positive and significant compared to an early period. In another, study, Pandey *et al.*, (2022) observed that only specific events, namely bonus announcement, ex-bonus and ex-split, led to positive and significant impact whereas, the market did not react to the announcement of the right issue and stock split. The study further observed that even positive events during a pandemic result in negative market reactions.

Robiyanto & Yunitaria (2022) compared the impact of COVID-19 with dividend announcements on the Indonesia Stock Exchange and observed insignificant abnormal returns during periods. It further added that the market was so pessimistic that even the increased dividend generated negative returns.

The literature reviewed above provides a comprehensive view of the behaviour of the securities around the announcement of dividends, be it increased or decreased in the rate of dividend so announced. Based on the literature reviewed above, it can be stated that the declaration of dividends provides a strong signal to the investors as to the prospects of the business houses; however, studies have also shown that the declaration of dividends does not always act as a source of information to the investors, i.e., the declaration of dividends does not always influence the security prices. Further, the market does not always exhibit a similar reaction concerning the increase or decrease in the dividend rate; in this regard, Gunasekaragea & Power (2002) and Berezinets *et al*., (2017) have empirically shown that even a decrease in the rate of dividend has a positive impact on the stock returns. Further, the literature also provides evidence on the behaviour of the market on dividends announced during the pandemic of 2019, which says that during the pandemic period market was pessimistic, as evidenced by the negative market reaction to increased dividends; however, Prakash & L (2022) found a market to be more optimistic in the pandemic period as compared to non-pandemic period. In the Indian context, there exist two different views as to the impact of the dividend announcement; one group of studies such as Mallikarjunappa & Manjunatha (2009), Kumar & G (2013), Mehta *et al*., (2014), Berezinets *et al.,* (2015) Kumar (2017) found a significant and positive impact of dividend announcement, while Saravanakumar (2011) Anwar, *et al*., (2015) Jain & Gupta (2020) found no significant impact of the dividend announcement.

Considering the inconsistency, contradictory views and lack of research concerning the impact of the dividend announcement on the Indian stock market, especially the Indian banking sector, the present study has been undertaken. The study shall examine the impact of the dividend announcement on the stock of the Indian banking sector for the pre-COVID-19 periods and during COVID-19. It shall further observe the behaviour of the stock by grouping the dividend based on the year-on-year dividend rate. In the present

study, any increase or consistency in the dividend rate shall be termed 'positive,' while a decrease will be termed 'negative.' The study shall provide a baseline for investors while framing their investment strategy; for policy maker, the study shall act as the mirror of the behaviour of the investor, i.e., whether the Indian investors seek regular income in the form of dividends or not and how the investors behave when the expectations are not met by firms, i.e., when there is negative dividend declaration.

3. Data and Methodology

3.1 Sample and Data

The present study considers the dividend announced by all firms in the Indian banking sector (both private and PSU banks) from January 2015 to December 2021. The announcement dates have been collected from ProwessIQ Database, whereas the stock price data has been collected from the official website of the Bombay Stock Exchange (BSE). The list of the banks under study has been given in the appendix of this article. The numbers of dividends announced by the banks are presented in Table 1.

Table 1. numbers of dividend announced by the banks

Banks	Pre-COVID 19		During-COVID 19	
	Positive Dividend	Negative Dividend	Positive Dividend	Negative Dividend
PSU Banks	13	5	1	1
Private Banks	44	17	0	2

Source: Author's calculation

3.2 Tools and Techniques

In the present study, the event study methodology is employed to empirically capture the market behaviour around the occurrence of an event and thereby, a hypothesis of a semi-strong form efficient market is tested. The hypothesis was proposed by Fama (1970), which hypothesized that in an efficient market, an investor could not gain abnormal returns based on any information, be it past, present or private. It says that the market is so efficient that the information is instantly absorbed by the market, providing no room for investors to earn an abnormal gain. The hypothesis categorized the market in three forms: weak-form efficiency, a market where past information cannot be utilized for abnormal returns, i.e., the past information is absorbed instantly. Second is semi-strong form efficiency, a market where present or public information has no significant impact on stock return, and lastly, strong form efficient market, where private information is incorporated immediately after its release. Thus, it can be said that a market which provides no opportunities for investors to earn abnormal returns is called an efficient market.

Considering the effectiveness and reliability of the event study methodology, it has been widely used in the finance literature to examine market efficiency over the past decades. Authors such as Fama *et al*., (1969) Brown and Warner (1980), Peterson (1989) and MacKinlay (1997) played a critical role in enhancing, developing and popularizing the methodology among the finance scholar.

The working of event study methodology is divided into two sets of time parameters, the first Estimation Period and the second Event Window. During the estimation period, the parameters alpha and beta are calculated, which will be further utilized in calculating expected returns for the securities during the event window. The estimation period is typically chosen before the event window and the ideal length is chosen considering the benefits of a longer period. Based on previous studies, suitability and the advantage of a longer time horizon, an estimation length of 120 days is considered in the present study. The second important time parameter is the event window, the period during which the event's impact on the security return is examined. The length of the event window in the present study is decided to be 21 days based on previous studies and the

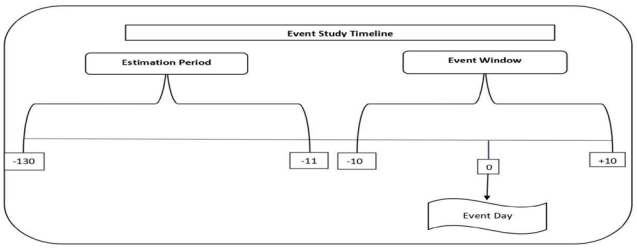


Figure 1. Event study timeline.

Significance level at **P<0.05, *P<0.1, respectively.

possible impact of the event on the security return. The estimation period and event window are graphically presented in Figure 1.

The actual analysis of the data series begins after finalizing the estimation period and event window. Initially, the daily returns from the security prices are calculated as per Equation (1). In the present study, the excel function 'ln,' i.e., a natural log, is utilized to calculate securities' returns. The return calculated exhibits no to minimal skewness and serial correlation; in other words, a natural log improves and enhances the normality of the return series.

$$RJ,t = \ln(Pjt/Pj,t-1) \quad (1)$$

Here,

$R_{j,t}$ = Natural log return of security 'j' on time 't'.

P_{ut} = Price of security 'j' on time 't.'

$P_{j,t-1}$ = Price of security 'j' on time 't-1'.

Proceeding further, the expected returns E (R) with the help of parameters calculated in the estimation period is calculated as per Equation (2). In the present study Multi-Factor Model (MIM) has been utilized for estimating the expected return and the indices used are BSE 30 index and BankEx (Park, 2004). The study employed the Stata function as suggested by Pacicco (2018) for conducting the event study.

$$E(R) = \alpha + \beta * R_{1mt} * R_{2mt} + \varepsilon \quad (2)$$

Here, E (R) is the expected return, alpha (α) and beta (β) are the parameters calculated during the estimation period and R_{1mt} *and* R_{2mt} are the returns of BSE Sensex and BankEx, respectively.

In a further step, the abnormal returns (AR) are calculated by subtracting the actual return ($R_{j,t}$) from that of E (R) as follows:

$$AR_{j,t} = AR_{j,t} - E(R) \quad (3)$$

Further, the abnormal returns are calculated for a pool of firms through the cross-sectional aggregation of the abnormal returns, calculated as follows:

$$AAR_t = \frac{1}{N}\sum_{j=1}^{N} AR_{j,t} \quad (4)$$

Here, AARs is the average abnormal returns on time 't', where N is the number of stocks under study.

To further dig insight into the behaviour, the AAR is aggregated over some time and the impact of the event is observed within those shorter windows, known as cumulative average abnormal returns (CAAR) and is calculated as follows:

$$CAAR_{(t1,t2)} = \sum_{t=t1}^{t2} AAR_t \quad (5)$$

Having completed the calculation of AAR and CAAR, the final step in the methodology is to examine the economic relevance of the AAR and CAAR, for the statistical significance of the same, is tested. In the present study, both parametric and non-parametric tests are employed for the said purpose.

3.3 Parametric T-test

$$T_{AARt} = \frac{AAR_t}{\sigma(AAR)} \quad (6)$$

Here,

$$\sigma(AAR) = \sqrt{\frac{\sum_{t=1}^{120}(\overline{ARt} - \overline{\overline{AR}})^2}{T-2}}$$

$$\overline{\overline{AR}} = \frac{1}{120}\sum_{T=1}^{120}\overline{ARt}$$

$$\overline{ARt} = \frac{1}{N}\sum_{j=1}^{N} ARj,t$$

$$T_{CAAR(t1,t2)} = \frac{CAAR_{(t1,t2)}}{\sqrt{(t1,t2)+1)} * \sigma(AARt)} \quad (7)$$

3.4 Non-Parametric Sign Test

In the present study, Cowan generalized sign test is employed to examine whether the fraction of positive cumulative abnormal returns in the estimation period is in line with the positive CAAR in the event period. It is calculated as:

$$Zgsign = \frac{(\omega - N\hat{\rho})}{\sqrt{N\hat{\rho}(1-\hat{\rho})}} \quad (8)$$

Here,

$$\hat{\rho} = \frac{1}{N}\sum_{j=1}^{N}\frac{1}{L}\sum_{t=T1}^{T}\varphi_i t$$

N: indicates the number of sample firms
L: indicates the number of days in the estimation period
T: days in the estimation period

φ_i=1, if sign is +ve, 0 otherwise

ω is the number of stocks with positive cumulative abnormal returns during the event window.

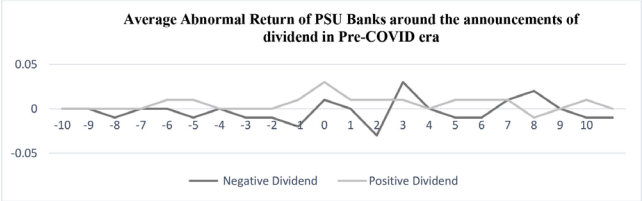
4. Result and Discussion

4.1 Impact of Dividend Announcements on PSU Banks in the Pre-COVID Era

Figure 2 displays the behaviour of PSU banks on the announcements of positive and negative dividends in the pre-COVID era. From the AAR of the negative dividend, it can be witnessed that the negative dividend announcement has created volatility around the announcement. On day 0, i.e., event day, there is a certain upraise in AAR, while a sharp decline is observed from day 1 to day 2; however, the AAR saw an upward trend from day 2 to day 3 and a similar head and shoulder trend is witnessed till day 10. In the pre-announcement period, the AAR seems to be stable till day (-1). From this, it can be interpreted that the negative dividend announcement influences the behaviour of PSU Banks' securities.

From the AAR of positive dividend, a different trend is witnessed. The AAR seems to be more stable both in the pre and post-announcement period; although an uprise is witnessed on event day and slight fluctuation in post-announcement is observed, it does not seem to be abnormal. The statistical significance of both the AARs is tested using a parametric t-test and non-parametric sign test and the same is presented in Table 2. along with the corresponding p-value.

Corresponding to p-values, the behaviour of AAR on the announcement of a negative dividend, as displayed in Table 2, shows that the AAR is significantly negative



Source: Author's calculation

Figure 2. AAR of PSU banks around the announcements of dividends in the pre-COVID era.

on the day (-2), indicating the leakage of information and the same has negatively impacted the security behaviour. In the post-announcement period, the AAR is significantly negative on day 1 and significantly positive on day 2. This fluctuation in the AAR indicates the investors' non-acceptance, unwillingness and confused mindset concerning the negative dividend announcements. However, on the event day, the AAR is positive but insignificant. This insignificant AAR on event day can be due to the leakage of information as witnessed by the behaviour of AAR in the pre-announcement period.

From the AAR of the positive dividend, it is seen that none of the AAR is significant during the event window of 21 days, leading to conclude that the positive dividend announcement did not have a significant bearing on the security prices of PSU Banks. In other words, it can say that the announcement of a positive dividend did not convey any information to the market relating to the prospect of the firm.

Table 2. Average abnormal return of PSU banks around the announcements

Negative Dividend				Positive Dividend		
Days	AARs	p-value	Wilcoxon	AARS	p-value	Wilcoxon
-10	0.00	0.86	0.00**	0.00	0.91	0.00**
-9	-0.01	0.35	0.00**	0.00	1.00	0.00**
-8	0.00	0.81	0.00**	0.00	0.93	0.00**
-7	0.00	0.88	0.00**	0.01	0.85	0.00**
-6	-0.01	0.63	0.00**	0.01	0.77	0.00**
-5	0.00	0.93	0.00**	0.00	0.91	0.00**
-4	-0.01	0.37	0.00**	0.00	0.92	0.00**
-3	-0.01	0.43	0.11	0.00	0.88	0.00**
-2	-0.02	0.05*	0.00**	0.01	0.84	0.00**
-1	0.01	0.40	0.00**	0.03	0.40	0.00**

0	0.00	0.76	0.00**	0.01	0.69	0.00**
1	-0.03	0.00**	0.00**	0.01	0.73	0.00**
2	0.03	0.02**	0.00**	0.01	0.76	0.00**
3	0.00	0.87	0.00**	0.00	0.98	0.00**
4	-0.01	0.70	0.00**	0.01	0.79	0.00**
5	-0.01	0.63	0.00**	0.01	0.78	0.00**
6	0.01	0.57	0.00**	0.01	0.85	0.00**
7	0.02	0.22	0.00**	-0.01	0.71	0.00**
8	0.00	0.95	0.00**	0.00	0.93	0.00**
9	-0.01	0.63	0.03**	0.01	0.84	0.00**
10	-0.01	0.38	0.00**	0.00	0.95	0.00**

Source: Author's calculation

From the Wilcoxon test of both negative and positive dividend announcements, it is clear that the announcement has caused significant differences in positive returns compared to that of the estimation period.

To further dig insight into the security reaction around the dividend announcement, the cumulative average abnormal returns (CAARs) are calculated during small windows. The same, along with p-values and the Wilcoxon test, is presented in Table 3. From the small windows of (-2,2), (-2,0), (0,2), (-10,10), (-1,0), (0,1) and (-1,1) for both negative and positive dividend announcements, it is witnessed that none of the CAAR is statistically significant, implying that neither negative dividend announcements nor positive dividend announcements have any impact on the security returns during the short windows.

Table 3. Cumulative average abnormal return of PSU banks around the announcement

	Negative Dividend			Positive dividend		
Windows	CAARs	p-value	Wilcoxon	CAARs	p-value	Wilcoxon
(-2,2)	-0.01	0.73	0.00**	0.06	0.35	0.00**
(-2,0)	-0.01	0.72	0.00**	0.04	0.41	0.00**
(0,2)	0.00	0.97	0.00**	0.03	0.55	0.00**
(-10,10)	-0.05	0.38	0.00**	0.11	0.45	0.00**
(-1,0)	0.01	0.52	0.00**	0.04	0.38	0.00**
(0,1)	-0.03	0.11	0.00**	0.02	0.60	0.00**
(-1,1)	-0.02	0.35	0.00**	0.05	0.36	0.00**

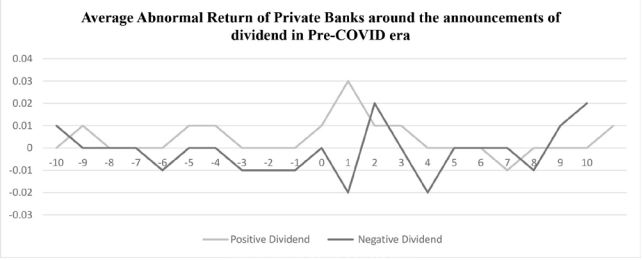
Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

Corresponding to Wilcoxon sign tests, it can be witnessed that during the entire windows for both negative and positive dividend announcements, the CAAR is statistically significant, implying a significant difference in the positive CAAR of windows as compared to that of the estimation period.

4.2 Impact of Dividend Announcements on Private Banks in the Pre-COVID Era

Figure 3 portrays the behaviour of the AAR of private banks around the announcements of negative and positive dividends. From the AAR of the positive dividend, it is witnessed that the announcement of the positive dividend did not cause much fluctuation in the AAR. Although a minor uprise in the AAR was witnessed on the event day and the day after, the market returned to normal immediately after day 2. Overall, from the behaviour of AAR, it can be inferred that the positive dividend announcement has a positive impact on the return series of private banks. Similarly, on observing the behaviour of AAR on the announcement of a negative dividend, it is witnessed that the announcement hurt the return series. From day 7 in the pre-announcement period, the AAR continues to be negative to day (-1); on event day; a slight uprise is witnessed. However, a sharp decline is immediately witnessed on day 1 of the post-announcement period. However, the market again bounced back on day 2 but could not sustain long and again, a sharp decline in witnessed from day 2 to day 4. Similar fluctuation is witnessed from day 5 to day 10 in the post-announcement period, which indicates the volatility in the market caused by the negative dividend announcements.



Source: Author's calculation

Figure 3. AAR of Private Banks around the announcements of dividends in the pre-COVID era

Further to provide the robustness to the results of Figure 3, the statistical significance of both AARs is tested using a parametric t-test and non-parametric sign test and the same is presented in Table 4. along with the corresponding p-values. Corresponding to the p-value, the AAR of the negative dividend announcement shows no significant AAR in the pre-announcement period, indicating no leakage of information. During the post-announcement period, the AAR is significant for four days, out of which two are positive and two are negative. AAR on the immediate next day, i.e., on day 1, is significantly negative, indicating the negative impact of the negative dividend announcement; however, an uprise in AAR is witnessed on day 2. However, a significant decline is visible on day 4. Observing further, a significant uprise in AAR on day 10 is witnessed, which signifies a delay in processing the information released from the negative dividend announcement. However, on event day, the AAR is positive but insignificant. Similarly, on observing the behaviour of AAR on the announcement of a positive dividend, it is seen that none of the AAR is significant either in the pre-announcement period or in the post-announcement period; however, a significant positive AAR is witnessed on day 0, implying a positive impact of the announcement of the positive dividend on the security prices of private banks.

Table 4. Average abnormal return of private banks around the announcement

	Negative Dividend			Positive Dividend		
Days	AAR	p-value	Wilcoxon	AAR	p-value	Wilcoxon
-10	0.01	0.49	0.00**	0.01	0.74	0.00**
-9	0.00	0.79	0.00**	0.00	0.93	0.00**
-8	0.00	0.60	0.00**	0.00	0.83	0.00**
-7	0.00	0.66	0.00**	0.00	0.78	0.00**
-6	-0.01	0.37	0.00**	0.01	0.68	0.00**
-5	0.00	0.66	0.00**	0.01	0.75	0.00**
-4	0.00	0.59	0.00**	0.00	0.93	0.00**
-3	-0.01	0.16	0.00**	0.00	0.88	0.00**
-2	-0.01	0.49	0.00**	0.00	0.97	0.00**
-1	-0.01	0.49	0.00**	0.01	0.71	0.00**
0	0.00	0.83	0.00**	0.03	0.10*	0.00**
1	-0.02	0.00**	0.00**	0.01	0.46	0.00**
2	0.02	0.07*	0.00**	0.01	0.43	0.00**
3	0.00	0.76	0.00**	0.00	0.91	0.00**
4	-0.02	0.05**	0.00**	0.00	0.93	0.00**
5	0.00	0.78	0.00**	0.00	0.87	0.00**
6	0.00	0.63	0.20	-0.01	0.68	0.00**
7	0.00	0.96	0.00**	0.00	0.97	0.00**
8	-0.01	0.49	0.00**	0.00	0.98	0.00**
9	0.01	0.40	0.00**	0.00	0.97	0.00**
10	0.02	0.04**	0.00**	0.01	0.71	0.00**

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

From the Wilcoxon test of both negative and positive dividend announcements, it is clear that the announcement has caused significant differences in positive returns compared to that of the estimation period.

To further dig insight into the reaction of the security around the dividend announcement, the cumulative average abnormal returns (CAARs) are calculated during small windows and the same along with p-values and the Wilcoxon test is presented in Table 5. From the CAAR of negative dividend announcement, it is witnessed that the entire CAAR values during small windows are negative; however, the CAAR of windows (0.1) and (-1,1) are significantly negative, indicating the negative impact of the announcements. Similarly, on observing the CAAR for positive dividend announcements, it is seen that the CAAR for entire windows is positive. However, the CAAR for windows of (0,2) and (0,1) are significant, implying a positive impact of the announcement. On the other hand, investors perceive positive information on the

Table 5. Cumulative average abnormal return of private banks around the announcements

	Negative Dividend			Positive dividend		
Windows	CAAR	p-value	Wilcoxon	CAAR	p-value	Wilcoxon
(-2,2)	-0.02	0.24	0.00**	0.06	0.11	0.00**
(-2,0)	-0.01	0.35	0.00**	0.04	0.23	0.00**
(0,2)	-0.01	0.48	0.00**	0.05	0.06*	0.00**
(-10,10)	-0.04	0.30	0.00**	0.08	0.32	0.00**
(-1,0)	-0.01	0.52	0.00**	0.03	0.15	0.00**
(0,1)	-0.03	0.03**	0.00**	0.04	0.09*	0.00**
(-1,1)	-0.03	0.03**	0.00**	0.05	0.11	0.00**

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

announcement of positive dividends by the private sector banks.

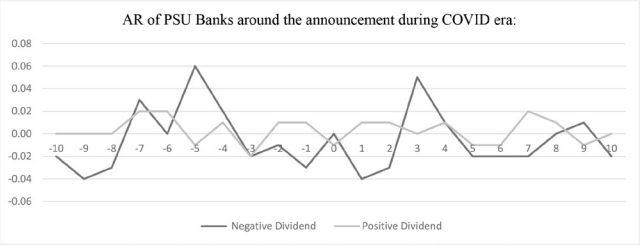
4.3 Impact of Dividend Announcements on PSU Banks during the COVID Era

Since there was only one positive and one negative dividend announcement during the COVID era for PSU banks, the author has calculated Abnormal Returns (AR) as, on a single event, AAR could not be calculated.

Figure 4 portrayed the behaviour of AR of PSU banks around the announcement of dividends during the COVID-19 pandemic. From the behaviour of AR of negative dividends, it can be seen that the announcement has caused volatility in the return series of the PSU banks; however, a different pattern is witnessed for the AR of positive dividend announcements. The AR seems more stable around the announcements, with no significant fluctuation in the return series.

Further to provide the robustness to the results of Figure 4, the statistical significance of both ARs is tested using a parametric t-test and non-parametric sign test and the same is presented in Table 6. along with the corresponding p-values. From the AR of negative dividend, it is seen that the AR is significant and positive on day 5 in the pre-announcement period, indicating the leakage of information and the same has caused a positive impact on the stock.

Observing further, it is seen that none of the AR is significant during the post-announcement period, including the AR on event day, implying no impact of the announcement on security return. In another way,



Source: Author's calculation

Figure 4. AR of PSU Banks around the announcements of dividends during the covid era.

Table 6. Abnormal Return of PSU banks during the COVID-19 pandemic around the announcement

	Negative Dividend			Positive Dividend		
Days	ARs	P-value	Wilcoxon	ARs	p-value	Wilcoxon
-10	-0.02	0.48	0.48	0.00	0.83	0.83
-9	-0.04	0.22	0.22	0.00	0.76	0.76
-8	-0.03	0.33	0.33	0.00	0.90	0.90
-7	0.03	0.41	0.41	0.02	0.26	0.26
-6	0.00	0.92	0.92	0.02	0.11	0.11
-5	0.06	0.08*	0.08*	-0.01	0.48	0.48
-4	0.02	0.62	0.62	0.01	0.52	0.52
-3	-0.02	0.65	0.65	-0.02	0.23	0.23
-2	-0.01	0.81	0.81	0.01	0.48	0.48
-1	-0.03	0.47	0.47	0.01	0.50	0.50
0	0.00	0.93	0.93	-0.01	0.72	0.72
1	-0.04	0.26	0.26	0.01	0.39	0.39
2	-0.03	0.45	0.45	0.01	0.60	0.60
3	0.05	0.18	0.18	0.00	0.90	0.90
4	0.01	0.79	0.79	0.01	0.53	0.53
5	-0.02	0.61	0.61	-0.01	0.59	0.59
6	-0.02	0.62	0.62	-0.01	0.48	0.48
7	-0.02	0.61	0.61	0.02	0.10	0.10
8	0.00	0.98	0.98	0.01	0.52	0.52
9	0.01	0.70	0.70	-0.01	0.64	0.64
10	-0.02	0.51	0.51	0.00	0.81	0.81

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

it can be interpreted that since the information was leaked, the market had absorbed the information before it was officially announced. A similar pattern of AR is observed in the announcement of a positive dividend; however, no leakage of information is witnessed in the case of a positive dividend announcement. Overall, observing AR's behaviour, it can be said that the positive dividend announcement has no impact on the security returns. In other words, it can be interpreted that the effects of the pandemic were such that even a positive dividend could not gain the confidence of the investors in the market. The devastating effect of the pandemic can be seen from the negative AR on the event day of the positive dividend announcement.

To further dig insight into the reaction of the security around the dividend announcement, the Cumulative

Abnormal Returns (CARs) are calculated during small windows of (-2,2), (-2,0), (0,2), (-10,10), (-1,0), (0,1) and (-1,1) and the same along with p-values and Wilcoxon test is presented in Table 7.

From Table 7, it is seen that the CAR for the entire windows on negative dividend announcements is negative but insignificant, implying no impact of the announcement on PSU banks. Similarly, the CAR on the announcements of positive dividends is positive for entire windows but is insignificant, implying no impact of the announcement. Overall, it can be interpreted that the dividend announcement during the pandemic has no statistical significance.

4.4 Impact of Dividend Announcements on Private Banks during the COVID Era

In the case of Privat banks, there were only two negative dividend announcements and no positive announcements during the COVID era; therefore, analysis has been carried out only for negative dividend announcements.

From Figure 5, it is seen that the AAR fluctuates between 0.03 to -0.02 around the announcement of a negative dividend during the COVID era. During the pre-announcement period, the AAR seems to be volatile; however, the range of fluctuations is between 0.03 to -0.01, which can be overall termed as normal. During the post-announcement period, the AAR seems to be more stable, implying no significant impact of the announcement on security returns.

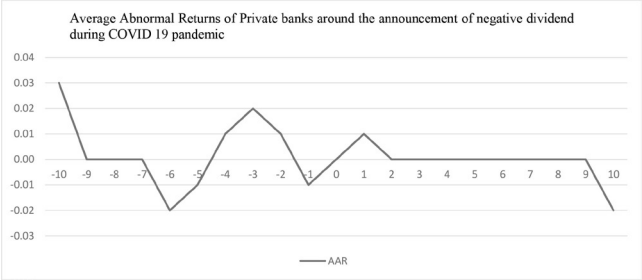
Further to provide robustness to the results of Figure 5, the statistical significance of both AARs is tested using a parametric t-test and non-parametric sign test and the same is presented in Table 8 along with the corresponding p-values. Corresponding to p-values, the AAR in the pre-announcement period is significant and positive on day 10, implying leakage of information and the same has a positive impact on security. From this, it can be interpreted that in a period of crisis, information about small gains matters to the investors and the investors act positively toward any sort of gain,

Table 7. Cumulative Abnormal Return of PSU banks during the COVID era around the announcements

Negative Dividend				Positive dividend		
Windows	CARs	P-value	Wilcoxon	CARs	p-value	Wilcoxon
(-2,2)	-0.10	0.22	0.22	0.04	0.28	0.28
(-2,0)	-0.03	0.61	0.61	0.02	0.56	0.56
(0,2)	-0.06	0.30	0.30	0.02	0.55	0.55
(-10,10)	-0.11	0.50	0.50	0.07	0.29	0.29
(-1,0)	-0.02	0.65	0.65	0.00	0.82	0.82
(0,1)	-0.04	0.46	0.46	0.01	0.72	0.72
(-1,1)	-0.06	0.31	0.31	0.02	0.50	0.50

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.



Source: Author's calculation

Figure 5. AAR of private banks around the announcements of dividends during the COVID era.

although the gain is less compared to that of the early period. During the post-announcement period, none of the AAR is significant, including the event day, which can be associated with information leakage, as evident in the pre-period.

To further dig insight into the reaction of the security around the dividend announcement, the cumulative average abnormal returns (CAARs) are calculated during small windows of (-2,2), (-2,0), (0,2), (-10,10), (-1,0), (0,1) and (-1,1) and the same along with p-values and Wilcoxon test is presented in Table 9.

From the CAAR of different windows, as presented in Table 9, it can be evident that the announcement has no significant impact on the security returns; in other words, it can be interpreted that the market instantly absorbs the information released through the negative dividend in the short windows.

Table 8. AAR of private banks around the announcement of negative dividends during the COVID era

Days	AAR	p-values	Wilcoxon
-10	0.03	0.08*	0.00**
-9	0.00	0.86	0.18
-8	0.00	0.94	0.00**
-7	0.00	0.99	0.00**
-6	-0.02	0.31	0.18
-5	-0.01	0.70	0.00**
-4	0.01	0.64	0.00**
-3	0.02	0.23	0.00**
-2	0.01	0.65	0.00**
-1	-0.01	0.42	0.18
0	0.00	0.94	0.00**
1	0.01	0.54	0.00**
2	0.00	0.82	0.00**
3	0.00	0.90	0.00**
4	0.00	0.82	0.18
5	0.00	0.94	0.00**
6	0.00	0.83	0.00**
7	0.00	0.95	0.00**
8	0.00	0.86	0.00**
9	0.00	0.96	0.00**
10	-0.02	0.17	0.18

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

Table 9. CAARs of private banks around the announcement of negative dividends during the COVID era

Windows	CAR	value	Wilcoxon
(-2,2)	0.01	0.80	0.00**
(-2,0)	0.00	0.87	0.18
(0,2)	0.01	0.60	0.00**
(-10,10)	0.02	0.75	0.00**
(-1,0)	-0.01	0.61	0.18
(0,1)	0.01	0.62	0.00
(-1,1)	0.00	0.95	0.00

Source: Author's calculation

Significance level at **P<0.05, *P<0.1, respectively.

However, the Wilcoxon test shows that the announcement does have a significant impact on the sign of the returns for CAAR windows of (-2,2), (0,2) and (-10,10).

5. Conclusion

In the present study, the behaviour of the stock of the Indian banking sector, both PSU and Private banks, is documented around the announcement of dividends from January 2015 to December 2021 using the event study methodology. The study has classified the dividend based on the rate of dividend announced on a year-on-year basis. An increase or consistency in the dividend rate on a year-on-year basis is termed as 'positive,' whereas a decrease in the dividend rate is 'negative,' and accordingly, an analysis has been conducted to observe the market reaction to the change in the dividend policy.

5.1 Dividend Announcements and the Pre-COVID Era

On observing the reaction of PSU banks to the announcement of a negative dividend, leakage of information causing a negative impact is witnessed. Further, the investors' non-acceptance, unwillingness and confused mindset are evident regarding the negative dividend. On the event day, the AAR is insignificantly positive; however, this might be due to the leakage of information before its actual announcement. From this, it can be concluded that the PSU banks anticipate and react to the negative dividend before its official announcement. The market is slow in processing the information as abnormal returns are observed in the post-announcement period. However, in the case of positive dividend announcements, the AAR is insignificant for the entire event window of 21 days, including the event day, leading to conclude that the positive announcements did not have any impact on the security prices of PSU banks.

Overall, the study concludes that the market is more sensitive toward the negative dividend announcement and the same impacts the market negatively, whereas the market does not respond to positive dividend announcements. This implies that negative information in the form of negative dividend announcements affects the market negatively, whereas positive information in the form of positive dividend announcements has no impact on the market.

The study has further calculated the CAAR for small windows and found that neither negative nor positive dividend announcements have any impact on the security returns during the short windows.

Similarly, on observing the behaviour of the AAR of Private banks on the announcement of a negative dividend, it is found that the AAR on event day is insignificant, implying no impact of the announcement, while on subsequent post-announcement days, the AARs are significant with different magnitudes. From this, it can be inferred that the information released through the announcements is processed slowly by the market, and the same has an immediate negative impact on the security returns. On the announcement of a positive dividend, the AAR on event day is significant and positive, indicating a positive impact of the announcements, while the AAR during the pre and post-announcement period is not significant, which says that there is neither leakage of the information nor any delay in incorporating the information by the market. The CAAR of the small windows also supported the results and found that the CAAR of windows (0.1) and (-1,1) are significantly negative, indicating a negative impact on the dividend announcements, whereas the CAAR of windows (0,2) and (0,1) are significantly positive implying positive impact of the positive dividend announcement. Thus, from the behaviour of AAR of private banks, it can be concluded that both positive and negative dividend announcements impact the security of Indian private banks; however, the impact of negative dividend announcements was severe and longer compared to that of positive dividend announcements.

5.2 Dividend Announcements and COVID Era

The impact of the dividend during COVID era has been examined and found that as the positive dividend announcement has no impact on the security returns of PSU Banks. In other words, it can be interpreted that the effects of the pandemic were such that even a positive dividend could not gain the confidence of the investors in the market. The devastating effect of the pandemic can be seen from the negative AR on the event day of the positive dividend announcement. However, leakage of information was witnessed during the announcement of the negative dividend of PSU banks and the same has a positive impact on security. Similar leakage of information was observed for private banks on the announcement of negative dividends. Thus, from the security behaviour of both the banks on negative dividend announcements, it is found that in a period of crisis, information of small gain does matter to the investors and the investors act positively to any gain, although the gain is less as compared to that of the early period.

6. Scope for Further Study

A further study can be undertaken by considering a longer time horizon which can show the change in market reactions, if any, over the different periods in a phased manner. Further, a comparative study can be done for different sectors to check the market reactions to dividend announcements across sectors. Researchers can also use different corporate events like mergers and acquisitions, internal reconstruction etc., to check the market reactions.

7. Declaration of Conflicting Interests

The authors declared no potential conflicts of interest concerning the research, authorship and/or publication of this article.

8. Funding

The authors received no financial support for the research, authorship and/or publication of this article.

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Appendix

Sample Banking Firms	
PSU Banks	**Private Banks**
Bank of Baroda	Axis Bank
Bank of India	South Indian Bank
Bank of Maharashtra	Yes Bank
Canara Bank	City Union Bank
Central Bank of India	DCB Bank
Punjab & Sind Bank	Federal Bank
Punjab National Bank	HDFC Bank
State Bank of India	ICICI Bank
UCO Bank	IDBI Bank
Union Bank	Indusind Bank
Indian Bank	Jammu & Kashmir Bank
	Karnataka Bank
	Karur Vysya Bank
	Kotak Mahindra Bank