Market Reaction to Dividend Announcement: Evidence from Nepalese Stock Market

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Abstract

Purpose – This paper aims to evaluate the impact of dividend announcements on stock price in the Nepalese stock market under the semi-strong form of market efficiency.

Design/methodology/approach – The market model of the event study method was followed to assess the impact of dividend announcements. This study was based on a quantitative research approach with secondary data which included the daily share price as the dependent variable and the NEPSE index as an independent variable. There were 20 commercial banks listed in NEPSE until the date of the study, and out of them only 17 banks were taken as samples because they have announced dividends regularly for 9 years from mid-July 2014 to mid-July 2023.

Findings and Conclusion – This research concluded that abnormal returns were positive in good news and negative abnormal returns in bad news about dividend announcement. These results were statistically significant on the event day. These outcomes also supported the dividend signaling hypothesis, and information content hypothesis in the semi-strong form of efficient market hypothesis (EMH). However, with no news of dividend announcement, it has negative impacts on stock returns which were statistically insignificant.

Implications – The implication of the results is that the Nepalese stock market is inefficient in the semi-strong form while considering good, bad, and no news of dividend announcements. This paper contributes to gaining more knowledge of market efficiency for Nepalese capital market investors, securities trading platform NEPSE, regulatory body SEBON, and researchers of the share market.

Keywords: Average abnormal returns, Cumulative average abnormal return, Dividend announcement, Efficient market hypothesis, Event study methodology,

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1. Introduction

The stock market depends on various sensitive information, one crucial form of information is dividend announcements, which significantly affect investors' sentiment and subsequently influence stock prices (Jiao et al., 2020). The substance of this research is the efficient market hypothesis which was introduced by Eugene Fama in 1970. This hypothesis focuses quickly and correctly the stock market that can adapt to new information. Under the Efficient Market Hypothesis (EMH), when a company discloses sensitive information, it is quickly incorporated into stock prices on the event day or during the adjustment period. Fama (1970) and Fama (1991) support the notion that financial markets are "informationally efficient". Other researchers Schwert (1981), Mitchell and Mulherin (1994) have been unable to carry out a significant relationship between market news, stock prices, and adjustment time. To analyze the relationship between dividend information on the stock price, the dividend signaling hypothesis is a popular concept which was developed by Bhattacharya (1979), John and Williams (1985), Miller and Rock (1985). Similarly, Jensen (1986) introduced the free cash flow hypothesis which addresses the conflict between managers and shareholders regarding dividend payments. This hypothesis predicts unexpected increase (or decrease) in dividend payments that will correspondingly lead to an increase (or decrease) in stock price. Easterbrook (1984) suggested that separating ownership from control incentivizes managers to utilize the company's resources in a manner that benefits shareholders. However, managers tend to pay more attention to their behavior when they receive regular dividend payouts.

Furthermore, Kothari and Watner (2006), and Bhattacharya et al. (2009) conducted a review research by taking 400 research articles, concluding that new events have a significant impact on stock prices. Neuhierl et al. (2013) found that announcements of good financial news lead to statistically significant positive price reactions; however, announcements of sensitive financial bad news trigger significant negative price reactions over the announcement period. Moreover, Conroy et al. (2000) conducted research in the Japanese stock market on dividend-related information and found insignificant results that support Modigliani and Miller's theory of dividend irrelevancy. Similarly, Hariyanto and Murhandi (2021) conducted a study on ASEAN countries in 2018, revealing that there was statistically insignificant in average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) before and after dividend announcements. However, Chou et al. (2021) concluded a study that implies that there is a strong association between dividend declaration and non-controllable risk during dividend announcement periods. Similarly, Narzary and Biswal (2021) concluded a study by taking data from 2004 to 2020 which found that both payout ratio and dividend announcements significantly influence share returns during announcement periods.

Shafiq and Qureshi (2022), and Pandey et al. (2022) applied the market model of event methodology in their research and confirmed that achieving low abnormal returns on announcement day when a company announces dividends was quite low. Additionally, dividend declarations are associated with positive and statistically significant abnormal returns on the announcement day, when market events occur, such as stock splits, rights issues, and political events. On the other hand, Qadar et al. (2023) found that firms declaring cash dividends show negative abnormal returns on the announcement day, positive abnormal returns during the adjustment period, and additional positive abnormal returns in an anticipated period. Furthermore, Yudhistira and Purbanangsa (2023) conducted the study that identified abnormal returns both before and after dividend announcements, thus establishing signaling hypothesis.

This research is conducted using event analysis methodology in real scenarios of the Nepalese stock market. Dangol (2008) concludes that the Nepalese stock market is not efficient, however, there are significant

relations between political instability and common stock returns. Similarly, Dangol (2016) applied market model to test market efficiency in the semi-strong form on the Nepal stock exchange. The study concludes the dividend signaling hypothesis is accepted. The same study not accepted semi-strong form of market efficiency. It implies that the behavior of Nepalese stock market is volatile when crucial public information is released. Hence, this research examines how good news (dividend increase), bad news (dividend decrease), and no news (no dividend change) announcements affect stock returns (abnormal return and cumulative average abnormal return) in the Nepalese stock market.

Therefore, this research raised a question: Is there any impact of dividend announcement on stock price of Nepalese commercial banks before and after the announcement? To address this question, the objective of the research is to explore the impact of change in dividend announcements on Nepalese commercial banks' stock prices.

2. Literature Review and Hypothesis Development

Linter (1956) implies that the dividend distribution rate and share market response move in same direction, and therefore stock market reacts positively to dividend increases and negatively to decreases and zero to no news. Bhattacharya (1979), Miller and Rock (1985), and John and Williams (1985) established the dividend signaling hypothesis and concluded that distributing cash, stock or both payout is a signal of a firm's future performance. Aharony and Swary (1980) found that even after controlling for simultaneous earnings announcements the market still responds positively to announcements. Asquith and Mullins (1986) explored that the stock market reacts more strongly to the day after dividend declaration. Healy and Palepu (1972), and Michaely et al. (1995) implied the same indication when omitted, the dividend reaction was much larger than dividend decrease. Docking and Koch (2005) concluded that the share market's response to dividend policy was highly dependent on the stock market's trend and volatility. Easterbrook (1984) and Jensen (1986) suggested that dividend distribution was a financial performance evaluation tool that showed its reflection on share returns, and responded favorably to dividend increases, and negatively to companies that cut their dividend payout.

Similar study conducted in European markets, in the United Kingdom, Irish, and Cyprus by Asquith et al. (1986), and McCluskry et al. (2006) and found that there was positive association between dividend announcements in good news, negative association in bad news, and effect shows in no news. This research also supported the information signaling hypothesis. Similarly, in Japan, Robert et al. (2002) found that there was positive relationship between dividend announcement and the stock market abnormal rate of returns (ARR) and cumulative average abnormal rate of return (CAAR). However, the effect of abnormal returns in Japan was less than that of the United Kingdom, Irish, and Cyprus. Robert et al. (2002) found contrasting result, identifying that there was positive market effect in Japan when following the free cash flow hypothesis. Similarly, other studies have concluded that companies' positive or negative news items can predict positive and negative abnormal returns in the market so investors consider such information as sensitive (Chan, 2003; Antweiler & Frank, 2004; Das & Chen, 2007; Tetlock, 2007). Content-similarity analysis showed investors react to previously publicized information to generate continuous returns in the future (Tetlock, 2011). Dow Jones news (DJN) archive from 1979 to 2007 showed that profits were obtained when specific good news was released in the stock market (Tetlock, 2007). Kothari and Warner (2006), Campbell et al. (1997), and McKinley (1997) imply that individual risk-bearing capacity was the source of abnormal returns. Bhattacharya et al. (1979) concluded that investor's investment behavior defines media exaggeration. However, Schwert (1981), French and Roll (1986), Roll (1988), and Cutler et al. (1989) revealed that news headlines did

not play a significant role in determining the price of stock in the market. Woolridge (1982), Benartzi et al. (1997), Bajaj and Vijh (1990), DeAngelo and DeAngelo (1990), Nissim and Ziv (2001), Brav (2005), Howatt et al. (2009) study supported that an increase (decrease) in dividend payout ratio resulted in positive (negative) abnormal returns in the stock market.

Richardson et al. (1986) and Gurgul et al. (2003) examined the low and high issued capital and stock market reaction of 192 US companies that declared a cash dividend and found a positive correlation between low capital with high abnormal return and high capital with low abnormal return. Gurgul et al. (2003) investigated the impact of changing dividends on stock prices of listed companies on the Austrian stock exchange and found that dividend news was promptly integrated into stock prices (proof efficient market hypothesis). Al-Malawi et al. (2010) investigated the ex-dividend day behavior of equities in the Muscat Securities market and found that the stock price dropped by less than the dividend pays out, indicating a large positive ex-day return. Travlos et al. (2001) used a market model to examine companies' abnormal returns. The study's findings showed positive abnormal return on event day; however, it was minor. Hasan et al. (2016) analyzed the influence of dividend declaration on share prices on New York Stock Exchange and the London Stock Exchange. It found a weak association between dividends and stock prices on the New York Stock Exchange; however, strong association was found on the London Stock Exchange. Amihud and Murgia (1997) examined the impact of adjusting dividends on shareholder value for 200 companies listed on the German Stock Exchange and found that dividend increases had statistically significant cumulative average abnormal returns on announcement day and the preceding day whereas dividend decreases had a statistically significant cumulative average abnormal return on the same period. Neuhierl et al. (2013), Dangol (2016), Anh et al. (2016) suggested that a semi-strong form of market efficiency did not exist; however, dividend signaling theory existed during dividend change announcements. Aharony and Swary (1980), Asquith and Mullins (1986), Dhillion and Johnson (1994), Amihud and Murgia (1997), Hussin et al. (2010), Pandey et al. (2022), and Qadar et al. (2023) have concluded that semi-strong form efficiency did exist.

Dangol (2016) and Anh et al. (2016) concluded that there was limited evidence supporting semi-strong form efficiency; however, it was acknowledged the relevance of dividend signaling theory within the context of the Nepalese stock market during dividend announcements. Similarly, other studies have yielded similar results, lending support to semi-strong form efficiency (Dangol, 2018; Aharony & Swary, 1980). Additionally, there was relationship between share price and dividend announcement impact on the abnormal rate of returns (Purnima & Huma, 2021; Dangol, 2018; Neuhierl et al., 2013; Hussin et al., 2010).

The succeeding hypotheses could be formulated and verified to attain the above-mentioned goal. The formulated hypotheses are alternative hypotheses that show the effect of abnormal returns of the market index as independent variables and abnormal returns of sample banks as dependent variables. To test the impact of these variables following hypotheses have been formulated;

H1: The dividend change has a significant impact on a subsequent price change reaction during the announcement period.

Hypothesis (H1) is supported by the literature (Pettit, 1972; Aharony & Swary, 1980; Fukuda, 2000; Kato et al., 2002; Dangol, 2016; Chaabouni, 2017; Dangol, 2018; Elisabete & Vieira, 2020; Panday et al., 2022; Qadar et al., 2023) and have shown that dividends were announced to increase substantial price in the market, whereas announcements of dividend decrease often resulted in significant price declines. It concluded that dividend announcements and abnormal returns followed the same direction.

H1a: Increase in dividend announcement (good

news) follows the significant positive impact on stock price during the announcement period.

H1b: Decrease in dividend announcement (bad news) follows the significant negative impact on stock price during the announcement period.

H1c: No dividend change announcement (no-news) follows the no impact on stock price during the announcement period.

3. Research Methods

The regression analysis (Ordinary Least Squares) is the fundamental technique used for fitting models of standard share returns behavior as a function of basic market performance. The stock market model is depending on the capital assets pricing model (CAPM), the most widely accepted method to forecast the stock returns (Bosch & Hershey, 1989; Mackinlay, 1997; Hovav & Arcy, 2003).

Similarly, in the context of Nepal, to compute the abnormal returns from stocks using the market model, particular assumptions are outlined by Dangol (2016). These assumptions are:

i. Mean of the error term (eit) represents zero, independent disturbance in period t.

ii. Overall market returns or NEPSE index (Rmt) and the individual stock returns or sample banks returns (Rit) have linear relations.

Based on these provided assumptions, the process for calculating abnormal returns can be derived through the subsequent steps:

$Rit = \alpha i + \beta i\ Rmt + eit$ ..... (i)

Here,

Rit = Rate of returns on stock i for day t. returns (ending price – beginning price / beginning price)

Rmt = average returns on market index on day t market returns on day t, by including the average returns of all stocks. The NEPSE is the proxy of the average returns of the estimation period (t = -200 to t = -21)

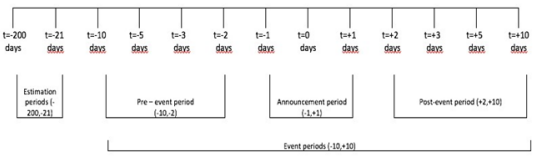
eit = error terms of stock i on day t.

αi, βi = estimated coefficient of independent variables of alpha and beta.

The market model is computed for individual banks in the chosen group by analyzing 180 days of daily returns. This analysis window period was from 200 days before the announcement date up to 21 days before the announcement date, denoted as day t = -200 to t= -21. This study also followed previous research on how capital markets react, as seen in previous studies such as Bosch and Hershey (1989), Hovey and Arcy (2003), and Dangol (2016). The parameters derived from the estimation and actual returns observed on the NEPSE index are then employed to forecast actual returns before and after the event period. The sample commercial banks' return is calculated daily and market return (NEPSE) is obtained from the estimation window. It is also assumed that at least 180 days in the year share should be traded. The parameters of equation (1) estimation periods and events periods are presented in Figure1.

Figure 1

Parameter Estimation and Event Periods



Note: Bosch and Hirchey (1989), Hovav and Archy (2003), Dasilas and Leventis (2011), Dangol (2016)

Figure 1 confined to six separate events for a -21-day period around the event announcement (i.e.-10 days to +10 days) as suggested by Cheng and Leung (2006). These six event periods are:

i. Ten trading days before the dividend announcement to two days before the date of announcement day (i.e. day t = -10 to t = -2).

ii. Five trading days before the dividend announcement to five days after the date of announcement day (i.e. day t = -5 to t = +5).

iii. Three trading days before the dividend announcement to three days after the date of announcement day (i.e. day t = -3 to t = +3).

iv. One trading day before the dividend announcement to one day after the date of announcement day (i.e. day t = -1 to t = +1).

v. Two days after the date of the announcement to ten days after the date of announcement day (i.e. day t = +2 to t = +10).

vi. Ten trading days before the dividend announcement to ten days after the date of announcement day (i.e. day t = -10 to t = +10).

vii. Event day or announcement day t = 0 is the first trading date of the dividend announcement.

Again, these six periods were also classified into three separate categories. The first category of period covered two days before dividend announcement to ten days before dividend announcement (t = -2 to t = -10) which is the pre-event period. The second category of period covered one day before the dividend announcement to one day after the dividend announcement (t = -1 to t = +1) which was the announcement period. The third category of the period covered two days after the dividend announcement to ten days after the dividend announcement (t = +2 to t = +10) which was the post-event period. When event day or announcement day was the first trading date of the dividend announcement (t = 0).

Finally, to calculate the cumulative average abnormal returns (CAAR) there were also six periods of observations (day t = -10 to t = -2), (day t = -5 to t = +5), (day t = -3 to t = +3), (day t = -1 to t = +1), (day t = +2 to t = +10), (day t = -10 to t = +10). Thus, the market model was used to calculate the abnormal returns for the stock of sample commercial banks i on event day t as under:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \quad \ldots\ldots \text{(ii)}$$

Where,

AR_{it} = abnormal returns or prediction error.

R_{it} = Returns of sample bank i on the event day t.

R_{mt} = average returns of NEPSE on estimation period (t- 200 to t- 21) which shows a 180-day estimation period.

The null hypothesis was cumulative abnormal returns and the average abnormal returns was equal to zero at any event day, to be tested. More specifically, for a bank sample of N securities, the sample mean abnormal returns on any given day t was:

$\overline{AR}$ = 1N i=1NARit

…… (iii)

To calculate the market model abnormal returns over a fixed period time interval, the same average abnormal return was summed to derive the sample average abnormal returns under

$\overline{CAAR}$ = t=T1T2ARt

…… (iv)

Where,

T_1 and T_2 indicate the previous day and current day of sample-specific event periods during the event periods 21 days (t = -10 to t = +10). The t-statistics for the significance of the average abnormal returns (AR bar) was calculated as under:

t - statistic (for AR) = —AR_t S— AR_t …… (v)

for the estimation of equation (v), following equations are used

S—AR_t = t = -200t = -21—AR_t - — — ARt2179 …… (vi)

— —ARt = 1N t = -200t = -21 —AR_t …… (vii)

Where the estimated window was 180 days that is t = -200 to t = -21 days which showed the estimation period. By following the null hypotheses of no prediction error, the cumulative average abnormal return for period t ($CAAR_t$) was supposed to be unit normal, and both serially and cross-sectional were not dependent. The time interval test statistics for every bank's sample and every sample holding period of T days in the time of holding was supposed to be about unit normal and could be written as under and follows t-statistic distribution:

$$\text{t - statistics (for CAR)} = \frac{\overline{CAR_t}}{\hat{S}(\overline{AR_t})\sqrt{T_2 - T_1 + 1}} \quad \ldots\ldots \text{(viii)}$$

Another parametric binominal test is Z- test which tests the significance of the daily average abnormal returns calculated under:

$$\text{Z – statistic} = \frac{A - E}{\sqrt{NP(1-P)}} \quad \ldots\ldots \text{(ix)}$$

Where,

A = actual number of positive abnormal returns,

N = total number of observations.

E = expected number of positive abnormal returns (i.e. Equal to N X P)

P = expected percentage of positive abnormal returns. Under the null hypothesis of no effect (P = 0.5).

4. Results and Analysis

This paper analyzed secondary data which included the daily share price of sample banks and the NEPSE index. There have been 20 commercial banks (as of mid-July 2023) listed in NEPSE, out of them only 17 banks have been taken as samples. Those sample banks have announced dividends regularly for 9 years from mid-July 2013 to mid-July 2022. The dividend announcement dates were collected from the official sites of concerned banks and stock price data was collected from the Nepal Stock Exchange (NEPSE) annual report. Total of 153 dividend announcements were identified, which were verified with various sources. Out of them, 141 dividend announcements have been considered for the analysis.

Table 1

Dividend Events and Classification based on Information

Fiscal Years	Total Actual Events	Dividend Increase (good news)	Dividend Decrease (bad news)	No Dividend Changed (no news)
2014/015	14	12	1	1
2015/016	15	4	11	0
2016/017	15	8	6	1
2017/018	15	8	6	1
2018/019	17	2	13	2
2019/020	17	13	2	2
2020/021	17	4	13	0
2021/022	16	6	8	2
2022/023	15	5	8	2
Total	141	62	68	11
Percentage (%)	100	43.97	48.22	7.81

Note: annual report of concerned banks (2014/015 to2022/023)

Table 1 implied the data on the frequency of dividend events categorized by changes in the dividend percentage of stock compared to the previous year. It stated that there were 62 events where dividends were announced to be higher than that of the previous year, making up 43.97 percent of the valid observation. Similarly, there were 68 events of dividend announcements lower than that of the previous year, which represented 48.22 percent of valid observation. Additionally, there were 11 events where dividends remained unchanged compared to the previous year, which represent 7.81 percent of total events. Here, these data revealed that dividend decreases compared to the previous year occupied around 50 percent of total data. By considering the above data, it was evident that over the past 9 years, there had been a higher occurrence of dividend decrease events compared to events of increase or no-change in dividends.

The above dividend announcements were classified into three parts: (i) dividend increase (good-news): Refers to existing dividends higher over the last years, and was treated as good news. (ii) dividend decrease (bad-news): existing dividend lower over the last years, and was treated as bad news. (iii) dividend not changed (no-news): existing dividend equal over the last years, and was treated as no news.

4.1 Abnormal Return: Dividend Increase (Good News)

The good news indicated that when a company announced an increase in dividends, it conveyed positive information to the market and boosted the perceived value of the company, resulting in a potential rise in the share price in the future. This study's event period was divided into three periods: the pre-event period (days -10 to -2) consisting of 9 days, the announcement period (days -1 to +1) with 3 days, and the post-event period (days +2 to +10) with 9 days. Table 1 exhibited the daily average abnormal returns (AAR) for dividend increases, which were regarded as "good news." It was expected that the adjusted average abnormal returns on the stock on the event date would be positive. For the decision perspective, the statistical significance of the average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) results had undergone testing at different levels of significance: 1 percent (with corresponding t-value of 2.576), 5 percent (with t-value of 1.96), and 10 percent (with t-value of 1.645). Similarly, binomial statistical z-test has been executed to assess the significance of the percentage of positive abnormal returns on the event date, with significance levels set at 1 percent (z-value of 2.575), 5 percent (z-value of 1.96), and 10 percent (z-value of 1.645).

In Table 2, the sub-sample of good news announcements; on the event day (t = 0) had positive average adjusted returns with statistical significance (t-statistic = 1.0778, significant at 5 percent level); however, binary z-statistic result was 35.48 percent of the sample banks' observations that had insignificant positive abnormal returns (z-statistic = - 1.2860). The following day of the event announcement (t = +1), the average abnormal return was the highest positive 9.30 percent (t-statistic = 13.1828, significance at the 1 percent level) during the event window and 20.97 percent of the sample banks observations had positive abnormal returns (z-statistic = -4.5720 significant at the 1 percent level). The nine days before the event day (t = -9), the average abnormal return was negative 1.24 percent (t-statistic = 1.7627, significance at the 10 percent level); however, z- statistic has an insignificant result with 56.45 percent average abnormal return. Similarly, eight days before the event day (t = -8), the average abnormal return was negative 1.23 percent (t-statistic = 1.7447, significance at the 10 percent level); however, z-statistic had an insignificant result with 40.32 percent positive return.

Moreover, prior to the dividend announcement dates, specifically at times t = -1, and t =

-2, there were negative average abnormal returns. This implied that the market didn't allow for information leaks, and information gets efficiently incorporated into stock prices on the event date. As a result, adjustments happened on subsequent day after day two (t = 2) of the event day, price adjusted up to day nine (t = +9).

Table 2

Average Abnormal Daily Returns of Increased Dividend (Good News)

Days	AAR	t-test for AAR	%+ve AR	z-stat
-10	-0.02%	-0.02	43.55%	-1.01
-9	-1.24%	-1.76*	56.45%	1.01
-8	-1.23%	-1.74*	40.32%	-1.52
-7	-0.17%	-0.23	45.16%	-0.76
-6	0.19%	0.26	50.00%	0.00
-5	0.19%	0.26	56.45%	1.01
-4	0.29%	0.40	48.39%	-0.25
-3	0.11%	0.15	50.00%	0.00
-2	-0.04%	-0.04	53.23%	0.50
-1	-0.01%	-0.00	38.71%	-1.57
0	0.7 6%	2.07**	35.48%	-1.28
1	9.30%	13.18***	20.97%	-4.57***
2	-0.68%	-0.96	33.87%	-2.54**
3	-0.20%	-0.27	40.32%	-1.52
4	-0.15%	-0.20	43.55%	-1.01
5	-0.17%	-0.23	45.16%	-0.76
6	-0.13%	-0.18	50.00%	0.00
7	-0.09%	-0.12	46.77%	-0.50
8	-0.13%	-0.17	46.77%	-0.50
9	-0.18%	-0.25	46.77%	-0.50
10	0.07%	0.10	50.00%	0.00

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

In addition, Table 2 implied that prior to the event date, specifically at times t = -3, t = -4, t = -5, and t = -6, there were positive abnormal returns of 0.11%, 0.29%, 19%, and 19% respectively. This indicated a possibility of either anticipation of dividend announcement or potential insider information among a limited group of shareholders, leading to the observed positive abnormal returns. However, examining after second day (t = +2) abnormal returns remained consistently negative from t = 2 to t = 9. This suggested that the market might have required an extended period to readjust prices back to their original levels.

Therefore, it was evident that there was a significant positive abnormal return on the day when the announcement of a dividend increase was made, and this result held statistical significance. This indicated that the market efficiency hypothesis was confirmed in the context of the Nepalese stock market when it came to dividend increases, which were considered "good news." Conversely, negative abnormal returns were only observed on the announcement day of dividend decreases, not in the case of dividend increases. Finally, the following day of dividend announcement, dividend increase had significant positive impact on stock return with ARR which is 9.3 percent and that is the highest return within the event period and after post event day two (t= +2) adjustment period starts. Furthermore, the cumulative average abnormal return (CAAR) of dividend increase had been examined across six distinct time intervals that provided some information.

Table3 implied that positive cumulative average abnormal return for the overall sample was 0.70 percent within the overlapping dividend announcement period (t = -1 to t = +1) which was statistically significant (t-statistic = 2.64, significant at the 5 percent level). Similarly, 0.44 percent of the sample banks' observations have positive abnormal returns (z-statistic = - 3.46 significant at the 1 percent level). Both statistical t-test and z-test were statistically significant. The outcome has shown evidence that the dividend announcements as strongly positive to the market and shareholders earning positive abnormal returns within the announcement period. However, the other overlapping and non-overlapping periods have negative cumulative average abnormal returns.

Table 3

Cumulative Average Abnormal Return of Dividend Increase (Good News)

Period	CAAR in percent	t-value		%+ve value	z-value	
(+2, +10)	-0.16	-3.17	***	0.09	-19.21	***
(-5, +5)	-0.08	-1.53		0.38	-1.89	
(-3, +3)	-0.08	-1.85	*	0.40	-3.84	***
(-1, +1)	0.70	2.64	**	0.44	-3.46	***
(-10, -2)	-0.01	-0.27		0.47	3.41	***
(-10, +10)	-0.08	-1.13		0.34	-1.14	

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

During the overlapping period of (t= -3 to t= +3), the negative cumulative average abnormal return is 0.08 percent which is statistically significant (t-statistic = -1.85, significant at the 10 percent level) and 0.40 percent of the sample banks' observations have positive abnormal returns (z-statistic = - 3.46 significant at the 1 percent level). Similarly, during the non-overlapping post-event period of (t = -2 to t = -10), the positive cumulative average abnormal return is 0.47 percent of the sample banks' observations which have positive abnormal returns (z-statistic = 3.41 significant at the 1 percent level). Other remaining periods of (t= -5 to t = +5) and (t=-10 to t = +10) have insignificant results with negative CAAR. Finally, the outputs imply the higher positive cumulative average abnormal returns in the shorter length of the event period. These results have given strong evidence (statistically significant) that there are high positive abnormal returns within the dividend announcement period.

4.2 Abnormal Return: Dividend Decrease (Bad News)

Dividend decrease refers to when a bank declares dividend that is lower than expected or lower than what was paid out in the previous year. Such a decrease is generally seen as unfavorable news, signaling drop in the company's profits or lack of promising future prospects. As a result, the bank's overall value decreases, leading to a reduction in the market price of its shares (Qian & Kosedag, 2009). Consequently, it was anticipated that the announcement of a dividend decrease would have a negative impact on the stock's share price.

Over the period of 21 days within the event window, there were three distinct periods: a pre-event phase spanning 9 days (-10 to -2), an announcement period comprising 3 days (-1 to +1), and a post-event phase extending for 9 days (+2 to +10). The subsequent Table 3 showed the daily average abnormal returns (AAR) for dividend decreases, which were regarded as "bad news." In the case of bad news, it was anticipated that the adjusted average abnormal return on the stock on the event date would be negative. For decision-making purposes, the statistical significance of the average abnormal return (AAR) and cumulative average abnormal return (CAAR) results has been subjected to testing at various significance levels: 1 percent (with a corresponding t-value of 2.576), 5 percent (with a t-value of 1.96), and 10 percent (with a t-value of 1.645). Similarly, a binomial statistical z-test has been employed to evaluate the significance of the percentage of positive abnormal returns on the event date, with significance levels set at 1 percent (z-value of 2.575), 5 percent (z-value of 1.96), and 10 percent (z-value of 1.645).

Table 4 shows the sub-sample of bad news announcements; the event announcement date (t = 0), the average abnormal return is negative 1.25 percent (t-statistic = -2.7393, significance at the 1 percent level).This result is also followed the following day of the event announcement day (t = +1), with a strong average abnormal return is negative 5.94 percent (t-statistic = -12.9969, significance at the 1 percent level) and 17.65 percent of the sample banks' observations have positive abnormal returns (z-statistic = -5.3358 significant at the 1 percent level).

Moreover, on the dividend announcement dates, specifically at times t = 0, and t = -1, there were negative average abnormal returns. This implies that the market doesn't allow for information leaks, and information gets efficiently incorporated into stock prices on

the event date. As a result, adjustments don't happen on a subsequent day four (t = + 4) after the event day, leading to negative average abnormal return. The adjustment period only began from post-event day five when positive abnormal return was 0.05 percent.

In addition, prior to the event date, specifically at times t = -1, t = -2, t = -4, t = -5, and t = -6, there were positive abnormal returns of 0.23%, 0.07%, 0.13%, 0.16%, and 0.07% respectively. This indicates no possibility of either anticipation of dividend announcement or potential insider information among a limited group of shareholders, leading to the observed positive abnormal returns. Hence, it can observe a statistically significant negative abnormal return on the day when the dividend decrease announcement was made. This finding confirms the validity of the market efficiency hypothesis in the Nepalese stock market, specifically showing that the negative abnormal return occurs on the announcement day of dividend decrease, which is considered "bad news."

Table 4

Average Abnormal Daily Returns of Decreased Dividend (Bad News)

Periods	Average AR	t value AAR	% +ve AR	z-value
-10	0.23%	0.50	54.41%	0.72
-9	0.00%	0.00	52.94%	0.48
-8	0.10%	0.20	45.59%	-0.72
-7	-0.01%	-0.01	48.53%	-0.24
-6	-0.11%	-0.24	50.00%	0.00
-5	0.05%	0.11	54.41%	0.72
-4	0.16%	0.35	58.82%	1.45
-3	0.13%	0.29	50.00%	0.00
-2	0.07%	0.15	58.82%	1.45
-1	0.23%	0.50	51.47%	0.24
0	-1.25%	-2.73 ***	45.59%	-0.72
1	-5.94%	-12.99***	17.65%	-5.33***
2	-0.66%	-1.44	32.35%	-2.91 ***
3	-0.45%	-0.97	41.18%	-1.45
4	-0.08%	-0.18	36.76%	-2.18 **
5	0.05%	0.11	41.18%	-1.45
6	0.11%	0.23	50.00%	0.00
7	-0.37%	-0.81	39.71%	-1.69
8	-0.51%	-1.11	47.06%	-0.48
9	-0.04%	-0.08	35.29%	-1.42
10	-0.25%	-0.54	51.47%	0.24

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

Furthermore, the cumulative average abnormal return (CAAR) of dividend decrease has been examined across six distinct time intervals which provides the following information:

Table 5 shows all the event periods except (t = -2 to t = -10) which are negative. The cumulative average abnormal return for the event period is negative 0.0245 percent within the overlapping dividend announcement period (t = -1 to t = +1) which is statistically significant (t-statistic = -2.8762, significant at the 1 percent level) and 0.4314 percent of the sample banks' observations have positive abnormal returns (z-statistic = - 1.9604 significant at the 5 percent level). Both statistical t-test at 1 percent and z-test at 5 percent are statistically significant. The outcome has shown evidence about the dividend announcements as negative to the market and shareholders bearing negative abnormal returns within the announcement period.

During the post-event of the non-overlapping period of (t= +2 to t= +10), the negative cumulative average abnormal return is 0.08 percent which is statistically significant (t-statistic = -3.5825, significant at the 1 percent level) and 0.18 percent of the sample banks' observations have positive abnormal returns (z-statistic = - 15.44 significant at the 1 percent level). The post-event period has implied evidence the dividend announcements as strongly negative to the market and shareholders bear negative abnormal returns after the post-event period.

Table 5

Cumulative Average Abnormal Return of Dividend Decrease (Bad News)

Periods	Percentage CAAR	t-value	% positive CAAR	z- value
(+2, +10)	-0.08	-3.58***	0.18	-15.44***
(-5, +5)	-0.03	-1.34	0.40	-1.33
(-3, +3)	-0.03	-1.54	0.41	-3.66***
(-1, +1)	-0.02	-2.87***	0.43	-1.96**
(-2, -10)	0.02	0.12	0.56	3.40***
(-10, +10)	-0.03	-1.07	0.38	-8.62***

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

Similarly, during the non-overlapping pre-event period of (t=-2 to t = -10), the positive cumulative average abnormal return is 0.5686 percent of the sample banks' observations which have positive abnormal returns (z-statistic = 3.41 significant at the 1 percent level), and abnormal return slightly positive 0.028 percent. However, other periods have negative cumulative average abnormal return in case of dividend decrease announcement. This emphasizes a significant aspect where there is no information leakage during this specific event period. Additionally, presence of insider information is not relevant during this period when it comes to announcing decrease in dividends. In addition, the negative CAAR is followed by event period (-10 to +10) which is 0.037%, (t =-3 to t = +3) with 0.038 %, and (t = -5 to t = +5) with 0.0336 % of cumulative average abnormal return. This decline is seen in the announcement period and the cumulative average abnormal return declined over the period as the event period gets more.

4.3 Abnormal Return: Dividend No-Change (No News)

When there is no distribution of dividends, it means that the percentage of dividends remains the same as in the previous year. This indicates that shareholders perceive the share's value as stable since there's no change in the banks' prospects. In essence, this situation is described as "no news," and during the event window, there should not be any change in the share's return (Qian & Kosedag, 2009). Consequently, it is anticipated that a dividend announcement will have no impact on the share price of the sample banks.

Over the period of the 21-day event window, it can be divided into three distinct phases: a pre-event period spanning 9 days (-10 to -2), an announcement period consisting of 3 days (-1 to +1), and post-event period extending for 9 days (+2 to +10). The subsequent Table 6 presents the daily average abnormal returns (AAR) for situations where there is no change in dividends, which is characterized as "no news." In case of no news, it is expected that the adjusted average abnormal return on the stock on the event date will be zero. For decision-making purposes, the statistical significance of the average abnormal return (AAR) and cumulative average abnormal return (CAAR) results has been subjected to testing at various significance levels: 1 percent (with a t-value of 2.576), 5 percent (with a t-value of 1.96), and 10 percent (with a t-value of 1.645). Similarly, binomial statistical z-test has been employed to evaluate the significance of the percentage of no abnormal returns on the event date, with significance levels set at 1 percent (z-value of 2.575), 5 percent (z-value of 1.96), and 10 percent (z-value of 1.645).

Table 6, in the sub-sample of no news announcements; the event announcement date (t = 0), the average abnormal return is negative 0.96 percent with 45.6 percent which suggests that the dividend announcement of no change in dividend is perceived as "good news" and has a positive effect on stock return. Interestingly, the following day of the event announcement date (t = +1), with a strong average abnormal return is negative 12.96 percent (t-statistic = - 13.27, significance at the 1 percent level) and 9.1 percent of the sample banks' observations have positive abnormal returns (z-statistic = - 2.71 significant at the 1 percent level) has been reported, which is contradictory with the prior expectation as a zero average abnormal return immediately after the no news announcement. Moreover, the maximum average abnormal return is observed on t=+1 of 12.98 percent while the minimum average abnormal return is observed on t=+10 and t=-9 which is -0.50%.

Table 6 states that both the dividend signaling hypothesis and information content hypothesis do not exist for abnormal returns during the event window. Nevertheless, the semi-strong form of the efficient market hypothesis is not supported, as the market does not effectively conform and adjust to information that impacts stock prices arising from changes in dividend announcements period.

Therefore, it concludes that the efficiency of the Nepalese market is not efficient when it comes to situations where there is "no news" or no changes in dividend announcements. This could potentially be chance for the leakage of information, resulting in abnormal returns, both negative and positive. The ARR occurs pre-event, during the announcement, and post-announcement period. Importantly, the statistical tests conducted don't establish any significant results. As a consequence, when there is a lack of new information or unchanged dividend announcements, the Nepalese stock market demonstrates inefficiency in both adjusting and absorbing price-related information for stocks.

Table 6

Average Abnormal Daily Returns of Constant Dividend (No News)

Periods	Average AR	t-value	% +ve AR	z-stat
-10	0.49%	0.50	64.1%	0.90
-9	-0.50%	-0.51	27.3%	-1.51
-8	-0.06%	-0.06	45.2%	-0.30
-7	-0.17%	-0.17	45.3%	-0.30
-6	0.24%	0.25	55.3%	0.30
-5	0.00%	0.00	36.4%	-0.90
-4	0.37%	0.38	73.2%	1.51
-3	0.85%	0.87	65.8%	0.90
-2	0.85%	0.86	82.5%	2.11 **
-1	-0.32%	-0.33	55.9%	0.30
0	-0.96%	-0.98	45.6%	-0.30
1	-12.98%	-13.27***	9.1%	-2.71***
2	-0.49%	-0.50	55.6%	0.30
3	-0.38%	-0.39	36.2%	-0.90
4	0.25%	0.26	55.4%	0.30
5	-0.27%	-0.28	55.6%	0.30
6	0.55%	0.56	82.9%	2.11**
7	-0.37%	-0.38	36.8%	-0.90
8	-0.63%	-0.64	18.6%	-2.11**
9	-0.01%	-0.01	55.2%	0.30
10	-0.50%	-0.51	45.6%	-0.30

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

Furthermore, the cumulative average abnormal return (CAAR) of dividend no change has been examined across six distinct time intervals with t-test and z-test, which provides information:

Table 7

Cumulative Average Abnormal Return of No Dividend (No News)

Period	CAAR	t-value	% +ve CAAR	z-value
(+2, +10)	-0.114	-3.58***	17.2	-6.53***
(-5, +5)	-0.048	-1.38	43.1	-1.54
(-3, +3)	-0.043	-1.54	44.2	-1.02
(-1, +1)	-0.031	-1.71	48.5	-0.17
(-10, -2)	0.002	0.05	58.9	1.18
(-10, +10)	-0.05	-1.09	52.1	-13.62***

*** Significant at the 1% level (two-tail test)

** Significant at the 5% level (two-tail test)

* Significant at the 10% level (two-tail test)

Table 7 shows that the negative cumulative average abnormal return (CAAR) is 0.114 percent within the non-overlapping dividend announcement period (t = +2 to t = +10) which is statistically significant (t-statistic = 3.585, significant at the 1 percent level). Similarly, 17.2 percent of the sample bank's observations have positive abnormal returns (z-statistic = -6.533 significant at the 1 percent level). Both statistical t-test and z-test are statistically significant. The outcome has shown evidence that no dividend announcements as negative to the market and shareholders earning also negative abnormal returns within the pre-event period which shows significant results. During the overlapping periods (t =-5 to +5), (t =-3, to +3), and (t =-1, to +1) have produced negative average abnormal returns by 0.0489, 0.436 and 0.0316 percent which is statistically insignificant in both t-statistic and z-statistic. Hence, the negative valuation effect has been shown to dividend on changes (no news) announcement to share market in the overlapping period. Similarly, the during event period (-10, +10) has negative cumulative average abnormal return by 0.0534 and rejects the null hypothesis in t-statistic.

Thus, the study concludes insider information is leakage before the dividend announcement date when the pre-event period negative abnormal return is greater than the negative event period and post-event period. It implies

that selling pressure in the market before the no-dividend change announcement is due to information leakage. It also implies that NEPSE is inefficient in absorbing and adjusting the information when banks announce no dividend change.

4.4 Visual Presentation

4.4.1 Daily Changes in AAR Due to the Announcement of Dividend Increase

In Figure 1, there is a graphical representation illustrating the market's daily average abnormal return (AAR) concerning announcements of increased dividends. The horizontal X-axis denotes the days of the events, while the vertical Y-axis denotes the daily average abnormal returns (AAR) across these event days.

Figure 2

Daily Change in ARR Due to the Announcement of Dividend Increase

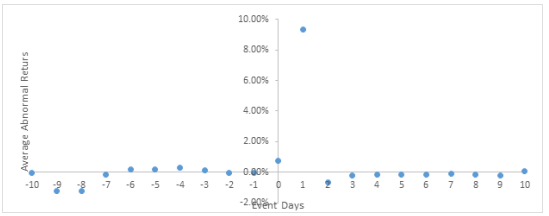


Figure 2 shows a positive average abnormal return (AAR) on the event day (t = 0), and this outcome holds statistical significance, confirming earlier findings. The highest AAR is observed on the first day (t=1) and remaining days, majority of the AAR values are positioned below the reference point, indicating negative AAR. This implies the validation of the semi-strong form of the Efficient Market Hypothesis (EMH) when it comes to announcing dividend increases. It also supports the concepts of dividend signaling and information content hypotheses. Additionally, the market appears to adjust the information quickly and correctly in a short period.

4.4.2 Daily Changes in (AAR) Due to the Announcement of Dividend Decrease

In Figure 3, there is a graphical representation illustrating the market's daily average abnormal return (ARR) concerning announcements of decreased dividends. The horizontal X-axis denotes the days of the events, while the vertical Y-axis denotes the daily average abnormal returns (AAR) across these event period.

Figure 3

Daily Change in AAR Due to the Announcement of Dividend Decrease

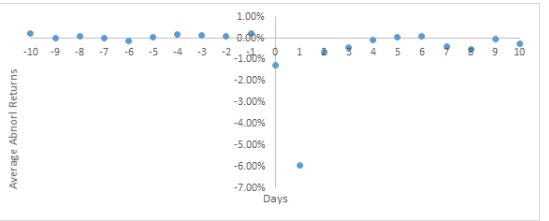


Figure 3 shows a negative average abnormal return (AAR) on the event day (t = 0), and this outcome holds statistical significance, confirming earlier findings. The highest negative AAR is observed on the first day (t = 1), with a majority of the AAR values positioned equal to zero and positive on the reference point of AAR. This implies the validation of the semi-strong form of the Efficient Market Hypothesis (EMH) when it comes to announcing dividend decreases. It also supports the concepts of dividend signaling and information content hypotheses. Additionally, the market appears to adjust the information quickly and correctly in a short period in the case of the Nepalese stock market.

4.4.3 Daily Changes in (AAR) Due to the Announcement of Dividend No Change

In Figure 4, there is a graphical representation illustrating the market's daily average abnormal return (AAR) with announcements of dividends with no change. The horizontal X-axis denotes the days of the events, while the vertical Y-axis denotes the daily average abnormal returns (AAR) across these event periods.

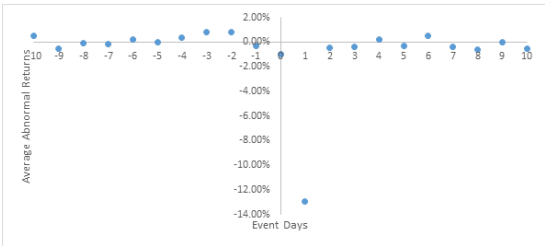


Figure 4 implies that the market has the negative abnormal rate of return on the event day (t = 0) which is statistically insignificant and on day one (t = -1) there is the highly negative abnormal return which is statistically significant. Nevertheless, the general trend in the data indicates that most of the days exhibit a negative distribution of returns within the event window. This suggests that the market displays relatively abnormal behavior with an increase or decrease in average abnormal returns (AAR) during the event period. This behavior shows outside the actual range of AAR fluctuations observed during the window period, except for the first day. This observation shows that stock returns vary significantly and do not support the expectations of the dividend signaling hypothesis, information content hypothesis, or the semi-strong form of the Efficient Market Hypothesis (EMH) in the Nepalese market.

5. Discussion

The study confirms both the dividend signaling hypothesis and the information content hypothesis. These theories propose that when dividend changes are announced, there is a significant and consistent change in stock prices in the same direction. Therefore, it is logical to conclude that dividend announcements contain sufficient information that influences the stock price movement within the specified event window.

To test the hypotheses, the study employed the market model, using the constant return method to compute the Cumulative Average Abnormal Return (CAAR) based on a total of 141 announcements. The results implied that for dividend increase announcements, the CAAR in declaration period (-1, +1) was 0.07%, conforming to Efficient Market Hypothesis (EMH). Conversely, for dividend decrease announcements, the CAAR declaration period (-1, +1) was -0.02%, also consistent with EMH. However, in the case of dividend no-change announcements, the CAAR in declaration period (-1, +1) was 0.03%, contrary to the efficiency principle of EMH. This suggests that the Nepalese stock market isn't entirely efficient but demonstrates a degree of relative efficiency. The semi-strong form of EMH is supported for dividend increases and decreases, while it is not supported for dividend no-change announcements.

6. Conclusion

This paper contributes to gaining more knowledge of market efficiency in the Nepalese stock market. It provides valuable insights for Nepalese investors, policymakers, companies and researchers. This study implies that Nepalese stock market is inefficient so investors could get an opportunity for abnormal returns by considering public information like dividend announcements, right offerings, mergers and acquisitions, monetary policy, physical policy, and government change. Furthermore, this research could be explored to expand insights into market dynamics, patterns and projections of superior market performance. Along with this, other researchers could prove or criticize the existing theories of the capital market.

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