

STOCK PRICE REACTIONS TO EARNINGS ANNOUNCEMENTS: EVIDENCE FROM LISTED BANKS AND INSURANCE COMPANIES IN SRI LANKA

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Abstract

Article Information

Article history: Received: 10 December 2021 Reviewed: 01 January 2022 Accepted: 15 March 2022

JEL Classification: G21,G22,G3

Journal of Insurance and Finance Volume 2 Issue I, 2022 PP 1- 22 eISSN: 2773-7276 pISSN: 2673-1258

© Department of Insurance and Valuation, Wayamaba University of Sri Lanka This study attempted to study the stock price reactions to earnings announcements of listed banks and insurance companies in the Colombo Stock Exchange (CSE). To assess the informational value of earnings announcements and market efficiency, the standard event study method was occupied for selected 71 companies for the period of 5 years starting from 2015 to 2019. The company selection was done based on the market liquidity. The sample was limited to companies that recorded the trading days more than 180. During the sample period, there were 81 announcements clustered as good news announcements and bad news announcements. There were 65 good news announcements and 16 bad news announcements. Panel Ordinary Least Square analysis and the market models were used to estimate the abnormal returns. The results indicated that investors immediately reacted positively to good news announcements but follow a lethargic reaction behavior to the bad news. Overall, there was a substantial price change of all the securities on event day when there is a good news announcement in the market but there was no significant movement in share prices if companies announce the bad news. Further, the share prices change on the event day shows the market reacting immediately to the new information. Therefore, it is concluded that CSE follows a semi-strong form of efficient market behavior.

Keywords: *Earning Announcements, Event Study, Informational Value, Semi-strong Form Efficiency, Stock Price Reaction, Sri Lanka*

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1. INTRODUCTION

Earnings announcements are vital factors that must consider by the investors because it causes to the variation of the value of company stocks. Investors do consider the earnings ability of a company to assess the potential future perspective of a firm and the sustainability (Syed and Bajwa, 2017). The analysis of informational content of earnings announcement has long been a topic of interest in finance literature and amount of prior evidence is substantial. Hence, this study focuses to achieve two key objectives. First is to examine whether earnings announcements carry an informational value to the investors. The second objective was to investigate, does Colombo Stock Exchange follows the semi-strong form of efficient market behavior. As one of the key indicators that reflect the company performance, earnings announcements have taken significant attention in finance literature. Because scholars claim that earnings show the company's wealth and investors should pay significant attention before making the investment and decisions (Seetharam and Raj, 2011; Li et al., 2019). Syed and Bajwa (2018) mentioned that a company's financial information is the vital factor that determines the share price appraise of such a company. Adding, Beaver (1968) has shown nexus between earnings announcements and the share prices. First, current year earnings shape the behavior of future earnings. Second, today's earnings decide the future dividend payment ability. Third, current year earnings are the present values of future dividends. Therefore, the earnings of a company determine the share price and the wealth of both company and the shareholders.

Following Beaver (1968), Odabasi (1998) has stated that the mean squared excess return on the announcement day is significantly larger than the average value during the non-event period (pre and post-announcement periods). Further, Louhichi (2008) has mentioned that investors react positively (demand goes up and share price increases) when a company releases a good news announcement and negatively (supply increases and share price decline) to bad news announcements. Thus, the dividend announcements and the earnings announcements are vital market information to the investors when taking rational market decisions (Kaniel et al., 2012).

However, to obtain the fullest benefit of the information, the market should be efficient enough to capture the informational content of the market announcements and investors should react immediately upon the announcements (Lei, et al. 2020; Dissa Bandara and Perera, 2011). Based on the speed of reaction to the market information markets are divided into three categories named; weak form, semi-strong form, and the strong form efficient markets. The semi-strong efficient market shows that stock prices follow a random walk pattern and reflects all the publicly available information through the volatility of stock prices. However, weak-form efficient markets show a late response for the information. One feature of an efficient market is that there should not have abnormal lag returns before or after the announcements (Syed and Bajwa, 2018; Fama, 1970). Having an efficient market is one of the key requirements to attract investments towards a country and that leads the economy towards high economic growth and helps to expand funds and capital availability to production sectors, improve technology and progress the human capital as a result of improvement of knowledge. Therefore, having a sound and efficient capital market is a prime requirement to attract investors towards the markets and give opportunity for them to do their investments freely and confidently.

The market efficiency depends on how freely they can devote their time and resources to gather and disseminate non-financial and financial information to make rational financial decisions. Finance theories explain that in an efficient market, shares prices are fully reflecting the market information. Therefore, Chen et al., (2019) has stated that share prices can be used to measure the soundness of publicly available information and market information can be used to make an economic profit if investors can do their trading based on the market information sets.

Therefore, testing the market efficiency in Colombo Stock Exchange is vital because it directly influences the economic condition of Sri Lanka. Among scholars, there are two main arguments about the market *Department of Insurance and Valuation, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka* Page | 2

efficiency in the Colombo Stock Exchange (CSE) (Rauf, 2003, Dharmarathne, 2013). When one line of studies indicates that CSE follows weak-form efficient market features.

To begin with, Abeyratna and Power (1995), tested the market efficiency in CSE and concluded that CSE is a weak-form efficient market. Further, Dissa Bandara and Samarakoon (2002) studied the informational content of dividend announcements and market efficiency. Based on their findings, they concluded that dividends have significant informational content and it is stronger for the smaller firms. However, the market is inconsistent with an informationally efficient market hypothesis. Confirming Dissa Bandara and Samarakoon, there are many follow up studies like Rauf (2003), Samarakoon (2004), Dissa Bandara and Perera (2011), Deyshappriya (2014), Weerakoon Banda and Yeshani (2019) have been carried out and confirmed that CSE is a weak-form efficient market. There is a post-announcement drift for dividend announcements (Kaluarachchi,2019).

In contrast, other sets of studies claim that CSE is not a weak-form efficient market.Dharmarathne (2013), shreds of evidence for semi-strong form efficiency, and investors react positively to the higher dividend announcements. There are many evidences to prove that CSE does not follow the weak form efficienccy (Dharmarathne, 2013; Hua and Ramesh, 2013; Fernando and Gunasekar 2018). Furthermore, Nisar and Hanif (2012) studied the weak-form efficiency in four Asian country stock markets, India, Pakistan, Bangladesh with Sri Lanka, and confirmed that CSE (Sri Lankan market) is not weak-form efficient.

This puzzle gets more and more complicated because some studies have proven that CSE shows an immediate reaction for several types of information, for example, investors react proximately to election announcements but show a lethargic response to dividend announcements (Ramesh and Rajumesh, 2015).

Therefore, it shows that there is no uniformity among researchers on market efficiency, and the results obtained by researchers are contradicted each other based on the type of announcement.

The finance literature demands a comprehensive analysis to check and confirm the market efficiency of the Sri Lankan stock market. Further, there are few studies have been carried out to measure the market efficiency for earnings announcements (Dharmarathne 2013) Hence, this study attempts to investigate the informational content of earnings announcements and market efficiency. The study uses the standard event study methodology which was first introduced by Brown and Warner in 1980 and upgrade in 1985). In 1992, Butler and Malaikah introduced the event study method and explained that the initial calculation in the event study has not changed over time focus the Average Abnormal Returns (AAR) and the Cumulative Average Abnormal Return (CAAR).

The results of this study are important for all the stakeholders of the share market including investors, brokerage firms, companies, and the public in general because it directs the stakeholders towards making a rational financial decision.

The remainder of this paper has been structured to review the empirical pieces of literature in section 2 followed by methodology in section 3. Section 4 has been devoted to explain the analysis and the empirical findings with discussion followed by conclusion practical implications with limitations

2. LITERATURE REVIEW

Literature provides ample pieces of evidence that studies have captured and well documented on market reaction to different types of announcements including dividend announcements, the composition of companies, initial public offering, bonus earnings, issues, and right issues.

Ball and Brown (1968) observed the stock market's ability to absorb the informational content of reported annual earnings per share information. After studying the relationship between security price changes and earning changes they conclude that there is a significant positive association between the price changes and

the earnings changes. They found that positive residual earnings changes result in a positive residual price change. Followed by Ball and Brown, Ziebart (1987) showed that unexpected change in the profitability of a firm affects the price of the shares. After Ball and Brown, many scholars like Odabasi (1998), Louhichi (2008); Syed and Bajwa, (2018); Mudalige et al. (2020); Vamossy (2021) have discussed the relationship between earnings announcement and share prices.

Beaver (1968) studied the information content of earnings announcements in the US market and concluded that trade volume and prices fluctuate significantly during the earnings announcement period. Confirming the Beaver, Odabasi (1998) concludes that mean squared excess return (abnormal return) on the event day (earnings announcement day) gets significantly different from the other days in the financial year. Park and Pincus (2000) found a share price increment in good earnings news and reductions in bad earnings news. These shreds of evidence confirm that there is a significant informational validity in earnings announcements to the market. Further, Basu et al., (2013) and Johnson et al., (2018) have confirmed that stock price and the trading volume get significantly volatile in announcement periods.

Kothari et al. (2002) explained the stock market reaction to aggregate earnings news. The results of this study showed that the relation between returns and earnings is substantially different in aggregate data. Additionally, they found that returns were unrelated to past earnings. They showed that prices neither underreact nor overreact to aggregate earnings news. Vieru et al. (2005) studied how information released with earnings announcements is impounded into prices. Specifically, they tested whether market responses to subsequent earnings announcements were related using a dataset from Finland. The results showed that subsequent market responses to earnings announcements were positively related. You and Zhang (2007) compared the investor response to earnings announcements and 10 K reports. They categorized the information into three subtitles good news, bad news, or no news. The results revealed several points; 1) Investors react positively to good news and negatively to bad news. 2) Abnormal returns dissipate within a shorter period like 15 minutes. 3) Share prices come to equilibrium more quickly for good news than bad news. 4) The price reversal occurs within 30 minutes for bad news announcements. 5) Earnings releases are accompanied by a rise in volume which remains even after the equilibrium price is reached. Overall investor reaction to these information releases appears lethargic in that future stock prices continue to drift in the same direction as the immediate market response.

Cready and Gurun (2009) investigate the aggregated market reaction to earnings announcements and found a distinct immediate negative relation between earnings announcement surprises and aggregate market returns within the announcement period. Further, they revealed that negative relation persists well beyond the immediate announcement period, suggesting that market participants do not immediately fully impound these future market return implications of aggregate earnings news.

In contrast, many studies are showing that the market does not react immediately to the earnings announcements. Abarbanell and Bernard (1992) found that there is an underreaction to earnings announcements by both analysts and the market, and concluded that the market shows more under reaction than analysts. The key reason for the underreaction was the failure to fully account for the post-announcement price drift. Landsman and Maydew (2002) found that more than 80 percent of the net effect of market information has been reflected in share prices before the earnings announcement as a result of publishing the interim reports before final earnings news comes to the market. Li et al. (2019) has shown the stock market does not surprise by earnings announcements and there is a weak post-announcement drift.

Many scholars show that the quality of earnings is another crucial factor that affects the decisions of investors. Confirming this argument, Wijesinghe and Kehelwalatenna (2017) proved that the earnings quality of Sri Lankan companies has failed to win the investor trust. Therefore, it is obvious that though many studies have been devoted to explaining the behavior of the capital market over the earnings announcements, the conclusion is still a mystery.

On the other hand, the market should be efficient enough to capture the market information fully. Therefore, efficient market theories became popular among scholars and become a vital and complex topic in finance literature. Market efficiency is a crucial factor in the decision-making process (Villanueva and Feinstein, 2021). The investors need to react rationally and immediately to the announcements (Stankevičienė and Akelaitis, 2014). Fama (1991) has stated that market price is the best indicator for the firm's intrinsic value and reflects the market information. Therefore, most scholars argue that investors make rational decisions depending on the market information. However, Budanova, et al. (2021), has shown that investors make irrational decision due to the uncertainty in market information and loss of confidence in the productivity of the company, and the weaknesses in the financial reporting systems of the companies.

Therefore, the literature review warps up the empirical evidences to highlight the importance of this study and develop the background. Hence, after examining and highlighting the significancy of this study, next it is going to be understand the method of data collection and analysis followed by this study.

3. METHODOLOGY

3.1 Data Collection

The study focuses on listed companies in Bank, Finance, and Insurance sector in Colombo Stock Exchange and the sample consists of 81 earnings announcements. Out of the total sample, there were 65 good news announcements and 16 bad news announcements were selected contraining to the data availability during the study period if five-year starting from 2015 to 2019 where the market has been turn to get down after it reached to the top highest values in 2014.

3.2 Event day, Estimation Period and Event period



Figure 1: Estimation period and Event period

Announcement of earnings is considered as the 'event' and the dates of announcements of earnings and published in Stock Market Daily report (SMD) is identified as the event date which is symbolized as day 0.

The study uses 120 days before the event day as the estimation period depends on the key argument of Brown and Warner in 1980 who highlight that there must be a suffuence period to be taken as the estimation period which covers the period starting from the 16^{th} day before the event date (Day 0) and goes up to 120 trading days (day -16 today -136) before the event day. Defining the estimation period is vital because it measures the market risk and returns (α and β) that require assessing the company risk and return.

The event period consists of 31 days including the event day. The whole event period has been divided into two sections pre-event period which includes 15 days before the event date and the post-event period with

15 days after the event day (see Figure 1).

Table 1. General Ec	ugtions for Cumul	ative Average Ahnoi	rmal Return of a cor	nnanv
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Variable	Description	Formule
Daily Company Returns	Company return is calculated as the difference of the share price change between today and yesterday measured as the proportion of yesterday's price;	$R_{i} = \frac{\left[P_{i,t} - P_{i,t-1}\right]}{P_{i,t-1}}$ R _{i,t} indicates the company return while P _{i,t} shows today's share price of the company i, and P _{i,t-1} represents yesterday's share price of the company i.
Daily Market Return	The daily market return is calculated after dividing the value change of the market between yesterday and today by yesterday's market value.	$M_{t} = \frac{[A_{t} - A_{t-1}]}{A_{t-1}}$ Where; M _t shows the market return. A _t indicates today's ASPI (All Share Price Index) value while A _{t - 1} says yesterday's ASPI value
Firm Expected Return	Company expected return of event window is calculated as market model adjusted return for the period. Here company's expected return is calculated based on a single factor market model. Researchers regress the change of company returns concerning the change of the market return.	$E(R_i) = \widehat{\alpha_i} + \widehat{\beta_i}R_m$ Where; $E(R_{ii})$ is the expected return of firm i at day t in the event period. $\widehat{\alpha_i}$ indicates the intercept or the constant and β_i is the estimated systematic risk (beta) for stock i. R_m is the market return.
Firm Abnormal Return (FAR)	Firm abnormal return is the difference between the actual return of the firm and the expected return of the firm which is calculated as market model adjusted return.	$AR_{i,t} = R_{i,t} - (\widehat{\alpha_i} + \widehat{\beta_i} R_{mt})$ Where, ARi,t shows the firm abnormal return for firm i at time t in the event period. R _{i,t} denotes the actual returns of firm i on day t in the event period. $\widehat{\alpha}$ is the calculated constant value and $\widehat{\beta 0_i}$ is the estimated systematic risk of stock i. R _{mt} is the market return
Average Abnormal Returns (AARs)	The average abnormal return shows the arithmetic mean of abnormal returns of all the firms	$AAR_{i,t} = \frac{1}{N} * \left[R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \right]$ Where; AAR _{i,t} shows the average abnormal returns of the firm i during the event period. R _{i,t} indicates the rate of returns of firm i on day t, and R _{m,t} says the market return. Parameters α_i and β_i represent the intercept and the systematic risk of company stock respectively. N states the number of companies.
Cumulative Average Abnormal Return of a company	CAAR shows the continuous increasing/decreasing pattern of grand values of abnormal returns. Significant CAAR is considered as share prices are adjusting to the new information.	$CAAR_{p} = \sum_{t=1}^{p} AAR_{t}$ Where; CAAR _P is the cumulative abnormal returns of the event window and AAR _t is the average abnormal return on day t.

3.3 Model Robustness Test

The robustness of the model is tested by analyzing the significance of AAR and CAAR. AAR and CAAR are used to measure the informational content of the earnings announcement and the efficiency with which

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this information is impounded into the share price. The significant changes of AAR or CAAR in announcement day show the market responds to the new information immediately, and called market follows the semi-strong form efficiency (Brown and Warner, 1985). However, if the market takes several days to respond to the announcement, then it concludes that the market is weak-form efficient.

3.4 Significance Test for AAR

The significance of the Average Abnormal Returns (AAR) is measured with t-statistic. If AAR difference from zero indicates that there is an informational content of earnings announcements (Brown and Warner, 1985).

H₀: $\overline{AAR} = 0$ Ha: $\overline{AAR} \neq 0$ When; $AR_{i,t} \sim (0, \sigma_i^2)$ Where; σ_i^2 is the variance of AR in the event period

3.5 Significance Test for CAAR

The Significance of the Cumulative Average Abnormal Returns (CAARs) is tested with t - statistics. When CAAR is different from zero indicates that there is no pre-announcement drift (Brown and Warner, 1985).

H_{0:} $\overline{CAAR} = 0$ Ha: $\overline{CAAR} \neq 0$ Assume; CAAR_t ~ (0, σ^2_t), Where; σ_i^2 is the variance of CAAR within the event period

4. **RESULTS AND DISCUSSION**

The study examined how the share prices get changed around the earnings announcements when their good news announcement and bad news announcements using a simple expectation model. (i.e., a positive price activity for "Good News" and conversely for "Bad News"). Bank and insurance sector companies were used as samples and the analysis was carried out for company abnormal return, market abnormal return, mean market return, and the standardized average abnormal return.

4.1 Analyzing the share price reaction to a good news announcement

Tables 2, 3,4 and 5 show the change of Average Abnormal Return (AAR) and the Cumulative Average Abnormal Returns (CAAR) in respect to the company abnormal return, market abnormal return, mean market return, and the standardized average abnormal return.

Event Window	Company Abnormal Returns					
	AAR	t-statistics	CAAR	t-statistics		
-15	-0.0022	-0.6188	-0.0022	-0.3199		
-14	0.0035	0.9764	0.0013	0.1849		
-13	0.0005	0.1496	0.0018	0.2622		
-12	0.0004	0.1150	0.0022	0.3216		
-11	-0.0034	-0.9446	-0.0012	-0.1667		

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Table 2: AAR and CAAR of Company Abnormal Returns - Good News Announcements

-10	0.0057	1.5848	0.0045	0.6525
-9	-0.0065	-1.8125	-0.0020	-0.2844
-8	-0.0028	-0.7659	-0.0047	-0.6803
-7	-0.0001	-0.0200	-0.0048	-0.6906
-6	0.0037	1.0363	-0.0011	-0.1550
-5	-0.0050	-1.3821	-0.0061	-0.8694
-4	-0.0027	-0.7480	-0.0088	-1.2560
-3	-0.0021	-0.5809	-0.0108	-1.5562
-2	0.0000	0.0136	-0.0108	-1.5492
-1	-0.0066	-1.8262	-0.0174	-2.4932
0	0.0088	2.4482***	-0.0086	-1.2277
1	-0.0048	-1.3379	-0.0134	-1.9193
2	0.0010	0.2913	-0.0123	-1.7687
3	-0.0044	-1.2226	-0.0167	-2.4006
4	0.0023	0.6315	-0.0145	-2.0742
5	-0.0014	-0.3981	-0.0159	-2.2800
6	0.0006	0.1629	-0.0153	-2.1958
7	0.0037	1.0326	-0.0116	-1.6620
8	-0.0011	-0.3065	-0.0127	-1.8205
9	0.0009	0.2622	-0.0117	-1.6849
10	-0.0039	-1.0776	-0.0156	-2.2419
11	0.0011	0.2956	-0.0146	-2.0891
12	0.0000	-0.0088	-0.0146	-2.0937
13	-0.0039	-1.0698	-0.0185	-2.6467
14	-0.0011	-0.3138	-0.0196	-2.8089
15	0.0038	1.0440	-0.0158	-2.2692

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table 3: AAR and CAAR of Market Abnormal Returns - Good News Announcements

Event Window	Market Abnormal Returns				
	AAR	t-statistics	CAAR	t-statistics	
-15	-0.0021	-0.5498	-0.0021	-0.4609	
-14	0.0043	1.1371	0.0022	0.4923	
-13	0.0001	0.0171	0.0023	0.5066	
-12	0.0006	0.1727	0.0029	0.6514	
-11	-0.0031	-0.8262	-0.0002	-0.0412	
-10	0.0060	1.6035	0.0058	1.3029	
-9	-0.0063	-1.6692	-0.0004	-0.0962	
-8	-0.0034	-0.9073	-0.0038	-0.8568	

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-7	-0.0005	-0.1212	-0.0043	-0.9583
-6	0.0039	1.0434	-0.0004	-0.0837
-5	-0.0036	-0.9625	-0.0040	-0.8905
-4	-0.0039	-1.0306	-0.0079	-1.7544
-3	0.0010	0.2749	-0.0068	-1.5240
-2	0.0011	0.3026	-0.0057	-1.2703
-1	-0.0068	-1.8127	-0.0125	-2.7898
0	0.0094	2.4969***	-0.0031	-0.6968
1	-0.0041	-1.0879	-0.0072	-1.6087
2	0.0001	0.0286	-0.0071	-1.5848
3	-0.0034	-0.9103	-0.0105	-2.3478
4	0.0014	0.3658	-0.0091	-2.0412
5	0.0016	0.4241	-0.0075	-1.6857
6	0.0001	0.0384	-0.0074	-1.6535
7	0.0043	1.1586	-0.0031	-0.6823
8	-0.0011	-0.2922	-0.0041	-0.9273
9	0.0007	0.1926	-0.0034	-0.7658
10	-0.0042	-1.1141	-0.0076	-1.6997
11	0.0016	0.4187	-0.0060	-1.3487
12	0.0006	0.1618	-0.0054	-1.2131
13	-0.0044	-1.1693	-0.0098	-2.1932
14	-0.0027	-0.7195	-0.0125	-2.7963
15	0.0050	1.3199	-0.0076	-1.6899
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Table 4: AAR and CAAR of Mean	adjusted Abnormal Returns –	Good News Announcements
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Event Window	Mean Market Return Model					
	AAR	t-statistics	CAAR	t-statistics		
-15	-0.0039	-1.1117	-0.0039	-0.6716		
-14	0.0008	0.2227	-0.0031	-0.5371		
-13	-0.0008	-0.2196	-0.0039	-0.6697		
-12	0.0013	0.3676	-0.0026	-0.4476		
-11	-0.0060	-1.7328	-0.0086	-1.4944		
-10	0.0031	0.9010	-0.0055	-0.9501		
-9	-0.0050	-1.4250	-0.0104	-1.8110		
-8	0.0006	0.1621	-0.0099	-1.7131		
-7	-0.0012	-0.3589	-0.0111	-1.9299		
-6	0.0049	1.4054	-0.0062	-1.0808		
-5	-0.0043	-1.2300	-0.0105	-1.8239		
-4	-0.0010	-0.2829	-0.0115	-1.9948		

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-3	-0.0045	-1.2846	-0.0159		-2.7708
-2	0.0003	0.0892	-0.0156		-2.7170
-1	-0.0067	-1.9287	-0.0223		-3.8822
0	0.0106	3.0385***	-0.0118		-2.0465
1	-0.0018	-0.5053	-0.0135		-2.3518
2	0.0010	0.2823	-0.0126		-2.1813
3	-0.0036	-1.0266	-0.0161		-2.8015
4	0.0006	0.1849	-0.0155		-2.6897
5	0.0002	0.0608	-0.0153		-2.6530
6	0.0008	0.2237	-0.0145		-2.5179
7	-0.0011	-0.3144	-0.0156		-2.7078
8	-0.0027	-0.7750	-0.0183		-3.1760
9	0.0020	0.5623	-0.0163		-2.8363
10	-0.0042	-1.1946	-0.0205		-3.5580
11	0.0026	0.7354	-0.0179		-3.1138
12	-0.0016	-0.4676	-0.0195		-3.3963
13	-0.0015	-0.4440	-0.0211		-3.6645
14	-0.0003	-0.0969	-0.0214		-3.7231
15	0.0023	0.6649	-0.0191		-3.3214
*** Significant at 0.0)1 level ** S	ignificant at 0.05 lev	vel * Sig	nificant at 0.1 level	

Table 5: A	AAR and	CAAR of	Standardize A	Average A	Abnormal Returns -	Good News	Announcements
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Event Window	Standardize Average Abnormal Return Model				
	AAR	t-statistics	CAAR	t-statistics	
-15	-0.0562	-0.5010	-0.0059	-0.3963	
-14	0.0469	0.4183	-0.0010	-0.0672	
-13	0.0247	0.2206	0.0016	0.1055	
-12	-0.0959	-0.8554	-0.0084	-0.5607	
-11	-0.0494	-0.4407	-0.0135	-0.9018	
-10	0.1509	1.3463	0.0020	0.1348	
-9	-0.1983	-1.7696	-0.0182	-1.2208	
-8	-0.0547	-0.4877	-0.0238	-1.5925	
-7	-0.0397	-0.3541	-0.0278	-1.8610	
-6	0.1181	1.0537	-0.0159	-1.0660	
-5	-0.1252	-1.1173	-0.0284	-1.9048	
-4	-0.0190	-0.1699	-0.0303	-2.0317	

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-3	-0.1370	-1.2227	-0.0439	-2.9406
-2	0.0429	0.3825	-0.0397	-2.6576
-1	-0.2017	-1.7992	-0.0594	-3.9819
0	0.3187	2.8437***	-0.0284	-1.8991
1	-0.1381	-1.2321	-0.0418	-2.7971
2	0.0643	0.5738	-0.0355	-2.3805
3	-0.0604	-0.5389	-0.0414	-2.7699
4	-0.0087	-0.0780	-0.0422	-2.8260
5	0.0512	0.4572	-0.0373	-2.4988
6	0.0097	0.0869	-0.0364	-2.4369
7	0.0877	0.7828	-0.0281	-1.8814
8	-0.0505	-0.4503	-0.0328	-2.1995
9	0.0297	0.2650	-0.0301	-2.0132
10	-0.1052	-0.9388	-0.0399	-2.6706
11	0.0609	0.5436	-0.0342	-2.2917
12	0.0332	0.2963	-0.0311	-2.0861
13	-0.0468	-0.4173	-0.0354	-2.3746
14	-0.1337	-1.1926	-0.0477	-3.1952
15	0.1622	1.4469	-0.0329	-2.2032

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table 2, 3, 4 and 5 confirm that on the event day there is positive and significant value change in the abnormal returns. The day before event day, all the AAR were negative but changed into positive ones on the event day. However, with the end of the event day, the AAR values again get negative. This strengthing the arguments that there is informational content in the earnings announcement and the market is reacting upon it and confirm that Sri Lankan stock market follows the semi strong form efficiency which was highlighed by many scholars including Dharmarathne, 2013; Hua and Ramesh, 2013; Fernando and Gunasekar 2018.

Further, the cumulative average abnormal return shows the gradual reduction as expected before the announcement but shows a significant positive shock on event day confirming the immediate reaction to the announcements. This is a good indication to prove that the market follows a semi-strong form efficiency for earnings announcements. Figures 2,3,4 and 5 show the graphical presentation of AAR and CAAR throughout the event period.









Figure 4: AAR and CAAR for mean adjusted abnormal returns

Figure 5: AAR and CAAR for standardizing average abnormal returns

Figure 2, 3 4 and 5 prove that Average Abnormal Return (AAR) does not show a significant difference from its mean (zero) till the event day but reported a sudden positive shock (increment) on event day recording a significant move up. This confirms there is a substantial abnormal capital gain on announcement day. However, immediately after the event was occurred the line goes to its equilibrium is zero. This proves that the announcement carries an informational value and the market is immediately reacted to the announcement. Further, moving of AAR towards zero after the announcement day shows the market adjusting speed for the announcement and proves that CSE follows semi-strong form efficiency to the earnings announcements.

Adding, Cumulative Average Abnormal Return (CAAR) evidences the gradually decreasing trend until an announcement day and has made a significant positive jump (upward jump) on the event day evidencing that earnings announcement makes significant volatility in share prices. This provides clear evidence to prove that CSE is semi-strong form efficient for earnings announcements and earnings announcements carry informational content. Therefore, it confirms that the results are go in line with the previous literature. First it confirms that earnings announcements process a information content which was supported by many scholars (Park and Pincus, 2000; You and Zhang, 2007; Basu et al., 2013; Stankevičienė and Akelaitis, 2014; Johnson et al., 2018; Villanueva and Feinstein, 2021). Furthermore, it was evidence that CSE react positive to the good news announcements and confirm the findings of Dharmarathne (2013). Furthermore, it evidence that CSE is semi strong form efficient market which shows immediate reaction to good news announcements (Rauf, 2003; Hua and Ramesh, 2013; Dharmarathne, 2013; Fernando and Gunasekar 2018).

4.2 Analysis of stock price reaction to Bad News announcement

There were 16 bad news announcements during the sample period and tables 6, 7, 8 and 9 indicate the results for how the market reacts to the bad news announcements. Followed by the tables, figures 6, 7, 8 and 9 illustrate how abnormal returns behave for bad news announcements.

Event Window	Company Abnormal Return			
	AAR	t-statistics	CAAR	t-statistics
1.5	0.000	0.52.10		0.000
-15	0.0037	0.7348	0.0037	0.5054
-14	-0.0014	-0.2768	0.0023	0.3151
-13	0.008	1.582	0.0103	1.4032
-12	0.0044	0.8766	0.0148	2.0061
-11	0.0086	1.6904	0.0233	3.1688
-10	-0.0005	-0.0996	0.0228	3.1004
-9	0.0003	0.0588	0.0231	3.1408
-8	-0.0074	-1.4514	0.0158	2.1425
-7	0.0032	0.6412	0.019	2.5835
-6	-0.0046	-0.912	0.0144	1.9563
-5	-0.0062	-1.2311	0.0082	1.1095
-4	0.0078	1.5493	0.016	2.1751
-3	-0.0067	-1.3212	0.0093	1.2663
-2	0.005	0.9817	0.0143	1.9416
-1	-0.0015	-0.2949	0.0128	1.7387
0	-0.0076	-1.5077	0.0052	0.7017
1	0.0041	0.8106	0.0093	1.2593
2	-0.0034	-0.6763	0.0058	0.7941
3	-0.0022	-0.4307	0.0037	0.4978
4	-0.0012	-0.241	0.0024	0.332
5	0.0073	1.4451	0.0098	1.326
6	-0.006	-1.1845	0.0038	0.5113
7	0.002	0.4031	0.0058	0.7885
8	-0.0038	-0.7438	0.002	0.2769
9	0.0015	0.2959	0.0035	0.4805
10	0.0031	0.6181	0.0067	0.9056
11	-0.0098	-1.9438*	-0.0032	-0.4314
12	0.0007	0.1359	-0.0025	-0.3379
13	0.0014	0.2835	-0.0011	-0.143
14	0.003	0.5886	0.0019	0.2619
15	0.0042	0.8342	0.0062	0.8356
*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level				* Significant at 0.1 level

Table 6: AAR and CAAR of Company Abnormal Returns – Bad News Announcements

E	Market Abnormal Return			
Event Window	AAR	t-statistics	CAAR	t-statistics
-15	0.0015	0.2373	0.0015	0.1672
-14	-0.0066	-1.034	-0.0051	-0.5614
-13	0.0024	0.3833	-0.0026	-0.2913
-12	0.0064	1.0039	0.0038	0.416
-11	0.0052	0.8174	0.009	0.9919
-10	0.0005	0.076	0.0094	1.0454
-9	-0.0042	-0.6569	0.0053	0.5826
-8	-0.0061	-0.9544	-0.0008	-0.0899
-7	0.0005	0.0765	-0.0003	-0.036
-6	-0.0035	-0.5513	-0.0038	-0.4244
-5	0.001	0.1647	-0.0028	-0.3083
-4	0.0123	1.9251	0.0095	1.0481
-3	-0.0115	-1.813	-0.0021	-0.2293
-2	0.0065	1.0207	0.0044	0.4899
-1	0.0049	0.7745	0.0094	1.0356
0	-0.0104	-1.6306	-0.001	-0.1134
1	0.003	0.4644	0.0019	0.2139
2	-0.0021	-0.3264	-0.0001	-0.0161
3	-0.0072	-1.1272	-0.0073	-0.8104
4	-0.0007	-0.1153	-0.0081	-0.8916
5	0.0099	1.548	0.0018	0.1991
6	-0.0101	-1.5818	-0.0083	-0.9155
7	0.0021	0.3326	-0.0062	-0.6812
8	-0.0055	-0.8678	-0.0117	-1.2926
9	0.0029	0.4614	-0.0087	-0.9675
10	-0.0019	-0.2959	-0.0106	-1.1759
11	-0.0108	-1.6967*	-0.0214	-2.3715
12	0.0021	0.3298	-0.0193	-2.1391
13	-0.0059	-0.93	-0.0252	-2.7944
14	0.0088	1.3761	-0.0165	-1.8248
15	0.0055	0.8686	-0.011	-1.2127
** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level				

Table 7: AAR and CAAR of Market Abnormal Returns – Bad News Announcements

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Event Window	dow Mean Adjusted Abnormal Return			al Return
	AAR	t-statistics	CAAR	t-statistics
-15	0.0055	0.9389	0.0055	0.3653
-14	0.0101	1.7372	0.0156	1.0412
-13	0.005	0.8566	0.0206	1.3745
-12	0.009	1.547	0.0297	1.9764
-11	0.0077	1.3267	0.0374	2.4925
-10	0.0018	0.3002	0.0391	2.6093
-9	0.0002	0.0344	0.0393	2.6227
-8	-0.0023	-0.3965	0.037	2.4685
-7	0.0095	1.6311	0.0466	3.1031
-6	0.0001	0.0163	0.0467	3.1094
-5	-0.002	-0.3419	0.0447	2.9764
-4	0.0017	0.2877	0.0463	3.0884
-3	-0.005	-0.8507	0.0414	2.7574
-2	0.0012	0.2002	0.0425	2.8353
-1	-0.0096	-1.6393	0.033	2.1974
0	-0.0102	-1.7502*	0.0228	1.5165
1	0.004	0.6837	0.0267	1.7825
2	-0.0029	-0.4942	0.0239	1.5902
3	-0.0066	-1.1323	0.0172	1.1497
4	-0.0012	-0.2022	0.0161	1.071
5	0.0018	0.3112	0.0179	1.1921
6	-0.0045	-0.7691	0.0134	0.8928
7	-0.0095	-1.6275	0.0039	0.2596
8	-0.0021	-0.3542	0.0018	0.1218
9	-0.0001	-0.0222	0.0017	0.1132
10	0.0093	1.5876	0.011	0.7308
11	-0.0082	-1.4066	0.0028	0.1835
12	0.005	0.8533	0.0077	0.5156
13	0.0042	0.719	0.0119	0.7953
14	0.0027	0.4541	0.0146	0.972
15	0.004	0.6852	0.0186	1.2386

Table 8: AAR and CAAR of Mean Adjusted Abnormal Returns – Bad News Announcements

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.1 level

Event Window	Standardize Average Abnormal Return			
	AAR	t-statistics	CAAR	t-statistics
-15	-0.0319	-0.1949	-0.0034	-0.0829
-14	-0.1635	-0.9997	-0.0205	-0.5057
-13	0.3273	2.0011	0.0136	0.3362
-12	0.0916	0.56	0.0231	0.5706
-11	0.2106	1.2875	0.0448	1.1061
-10	-0.0257	-0.1571	0.0422	1.0411
-9	0.0373	0.2283	0.046	1.1351
-8	-0.2285	-1.397	0.0228	0.5629
-7	-0.0412	-0.2522	0.0186	0.4601
-6	-0.3102	-1.8965	-0.0125	-0.3089
-5	-0.0288	-0.1761	-0.0154	-0.38
-4	0.0911	0.557	-0.0063	-0.1564
-3	-0.1071	-0.6549	-0.0169	-0.418
-2	0.1439	0.8799	-0.0028	-0.0682
-1	-0.0006	-0.0035	-0.0028	-0.0696
0	-0.2724	-1.6654	-0.0294	-0.7251
1	0.1306	0.7987	-0.0167	-0.4123
2	-0.0645	-0.3944	-0.0229	-0.5662
3	0.1385	0.8466	-0.0096	-0.2374
4	-0.0669	-0.4092	-0.016	-0.3955
5	0.1007	0.6156	-0.0064	-0.1588
6	-0.2817	-1.7224	-0.0332	-0.8181
7	0.109	0.6667	-0.0229	-0.5638
8	-0.1116	-0.6824	-0.0334	-0.8228
9	-0.2113	-1.2919	-0.0531	-1.3109
10	0.0475	0.2903	-0.0487	-1.2016
11	-0.3616	-2.2110**	-0.0823	-2.0299
12	-0.1883	-1.1515	-0.0997	-2.4593
13	0.0139	0.0849	-0.0984	-2.4278
14	0.047	0.2872	-0.0941	-2.3216
15	0.0499	0.3054	-0.0895	-2.2090
** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level				

Table 9: AAR and CAAR of Company Abnormal Returns – Bad News Announcements

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Figure 6: AAR and CAAR in Company abnormal Returns - Bad News Announcements



Figure 7: AAR and CAAR in Market abnormal Returns - Bad News Announcements





Figure 8: AAR and CAAR in Mean Adjusted Abnormal Returns - Bad News Announcements

Figure 9: AAR and CAAR in Standardize Average abnormal Returns - Bad News Announcements

Results shown in table 6, 7, 8 and 9 with figure 6, 7, 8 and 9 confirm that there is no significant price movement in the market to respond to the bad news. The returns are fluctuating around zero (mean) during the event period. Therefore, it can be concluded that the market does not react immediately to bad news announcements. However, surprisingly it can be observed a significant return movement on day 11 indicating that there is a post-announcement drift in the market. Compared to the good news announcement, when bad news announcements are made, the market follows a lethargic reaction pattern. It shows a post-announcement drift (significant return on day 11) confirming that there is a lag reaction in the market for the bad news. For this lazy reaction, the following may be the key factors.

- A potentially inherent slow reaction behavior of investors for the loss they make
- Attitude to wait and see the market before making a decision.
- Investors may wait to recover the loss they made.

Therefore, this delayed response creates a great opportunity for the investors to generate abnormal returns and market manipulation that operates counter to the efficient market hypothesis.

The findings are a line with body of literature that emphasis the negative reaction for bad news announcements ((Cready and Gurun, 2009; You and Zhang, 2007). Furthermore, delaying respose confirm that market takes extra time to react and may be does not react for the announcements since it makes an uncertinity among the investors to take a decision (Abarbanell and Bernard, 1992; Landsman and Maydew, 2002; Wijesinghe and Kehelwalatenna, 2017; Li et al., 2019; Budanova, et al., 2021)

5. CONCLUSION

This study investigated the share market behavior for earnings announcements. The study focused to achieve two key objectives. The first objective was to examine whether earnings announcement carries information content and the second was to test the market efficiency. Using 81 announcements including 65 good news announcements and 16 bad news announcements, the study concludes that the market shows an immediate positive response to the good announcements confirming that earnings announcements in terms of good news carry an informational value to the investors. However, the market reaction to the bad news was in a lethargic pattern. Even though the market shows a lazy response to the bad news, surprisingly there is a post-announcement drift that could be observed after 11 days from the announcement. This may be due to the behavior of investors to recap their loss. Further, the study found that CSE follows a semi-strong form efficiency because the abnormal return after the announcements moves back to its mean (Zero) just after the announcement day.

Hence, the findings enlighten the way forward for scholars to carry out further investigation in this area and analyze how earnings announcement sense for the other market and the other sector investors. In addition, these results are significant for current and potential investors, broker firms, and other interest parties who are keen on financial and investment decisions in the future. Furthermore, results are important to both share market regulatory agencies and policymakers to direct their regulatory decisions to maintain an efficient and effective capital market. Not only to the outsiders, but this study is also vital to the listed banks and insurance companies to assess the change of investor wealth and the company value before and after the announcements.

Since this study focuses only the Bank, Finance and Insurance sector, there is a way forward to continue the study for other sectors in CSE. Further, the study period is limited only for five years starting from 2015 to 2019. Therefore, it opens a path way to study how market react to earnings announcements by increasing the sample period as well and consider the changes happen with the structural breaks in the market.

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