Hotel and Travel Sector in Sri Lanka and Easter Attack 2019: An Event Study

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Abstract

This paper examines the impact of the Easter Attack, which took place in Sri Lanka, after the thirty-years of brutal civil war, on the Hotel and Travel Sector. As the hub of the Tourism Industry, the stock performance of the Hotel and Travel Sector is observed and investigated with the major objective of finding the impact of the Easter Attack and testing the Semi – Strong Form Efficiency of the Hotel and Travel Sector since three out of eight bombings has taken place in Hotels. The Event Study Methodology has been used to analyze the data and investigate the Efficient Market Hypothesis (EMH). With the Market Model implication, the Abnormal Returns is calculated by using daily stock prices on thirty-three (33) companies belong to Hotel and Travel Sector, and for the Market Return data, the daily All Share Price Index (ASPI) is taken into account. For 41 days Event Window, which includes 100 days Event Timeline, Graphical presentation of Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) and t - Statistics analysis is guided for analyzing the event. The findings of this study have shown a quick drop in both AAR and CAAR has been shown. It provides evidence for Semi – Strong Form efficiency on the event day in the Hotel and Travel Sector Stock prices since the market efficiently and negatively responded regarding the event of Easter Sunday Attack since the quick drop on the event day and the significant t-statistic at 5%. Nevertheless, a few days after the event were also showing significant results but declining continuously due to maybe investors' over-reaction situation. However, Semi – Strong Form Efficiency could not be proved because it takes considerable time to adjust stock prices. In practice, investors will be able to trade stocks in a market except for the possibility of beating the market in the future.

Keywords: Easter Sunday attack 2019, efficient market hypothesis, event study methodology, hotel and travel sector, Sri Lanka

INTRODUCTION

Background of the Study

In the truest sense of the word, terrorism is a destructive phenomenon in any country, which was accompanied by negativity to society and the economy. Some countries are still plagued by terrorism in the past because those countries failed to address the reasons. At the general

interpretation, terrorism means that persons or property rights are violated by coercing locally or internationally, the government or citizens under the government to fulfil any political or social objectives. [*Halibozek, Edward and Jones, et al. (2008)]*

For nearly 30 years, Sri Lanka has been embroiled in a devastating civil war that has claimed thousands of lives. LTTE leader Velupillai Prabhakaran led hundreds of bomb explosions across Sri Lanka as well as attempted to seize the control of Sri Lanka by the LTTE at the expense of civilian lives and infrastructure damages. On May 18, 2008, the Sri Lankan government was capable of putting an end to the ongoing civil war by defeating LTTE leader Velupillai Prabhakaran. [*Ministry of Defence(2009)]* The War-torn economy and the declining living standards of the people of Sri Lanka, which had been devastated by the war, were a challenge to the new government elected in 2010. Civilians who were overjoyed after the end of the war have a strong belief in national security as they try to carry on their daily lives freely. Ten years after the end of the war, Sri Lanka had no threat to its national security, but in 2019, Sri Lankans again, unfortunately, had to pay compensation for a narrow terrorist objective. The Easter Sunday Attack left an indelible mark on the hearts of civilians as well as Sri Lanka was blamed for human rights abuses in Sri Lanka. Sri Lankan economy had to slow down again due to the unforeseen series of bomb blasts that took place around the country.

On 21st April 2019, Easter Sunday was undoubtedly a very special day for the people of the world as well as for all Christians in Sri Lanka. Eventually, due to the eight (8) bombings committed in three (3) major hotels and three (3) major catholic churches, around 250 civilians had to sacrifice their lives [Appendix 1]. Even though the civil war has caused a huge economic cost directly, the economic cost of the Easter Sunday attack was caused indirectly than directly. A well-known fact that, the tourism industry in Sri Lanka was severely and directly damaged by losing the trust that the international community had placed in Sri Lanka. Mainly, although the foreigners considered Sri Lanka a beautiful, safe country where one can spend a free holiday, many tourists decided to leave Sri Lanka because the Easter Attack has claimed Sri Lankans and foreign tourists' lives. BBC news has recorded that at least 35 foreigners were among the dead as a result of this deadliest violence. Therefore, this study quantifies the impact of the Easter Attack on the Sri Lankan Tourism industry.[Mettler, Tierney and Tan (2019)]

The focus of this study is on how the Easter attack affects the share prices of the hotel and travel sector in Sri Lanka. Accordingly, the problem of the study is, analyzing how does a terrorism-related event affect the value of the listed companies belonging to the Hotel and Travel Sector in accordance with the Efficient Market Hypothesis (EMH). It implies that the listed companies in

the Hotel and Travel Sector as the most affected or most sensitive industry within CSE, respond to the Easter Sunday Attack by taking into account the daily stock prices and the All Share Price Index (ASPI) in order to identify whether there is an informational efficiency through an Event Study Analysis. Extensively, when the EMH theory, the problem of the study is to test whether the Hotel and Travel Sector provides evidence for Semi Strong form efficiency or not in reflecting the new information arisen from civil disturbance events.

There are several objectives that are hoped to accomplish through this main research problem, and those objectives provide several curtail rationales that underlie the study. In order to find a solution to the research problem, the first objective is stated to test whether Abnormal Returns were yielded by companies as a result of the war-related news/information. The second objective is to find whether the Share prices of HNT provide evidence for Semi – Strong Form Efficiency. Accordingly, the first research question is stated to test whether the stock prices of the listed companies belong to the HNT in Colombo Stock Exchange have been affected by the selected terrorist event. The second research question involves finding how did the selected terrorist event affect the stock prices of the listed companies belong to the HNT Sector in the Colombo Stock Exchange on Event Day.

This study concerns the HNT sector among 20 other business sectors under CSE because the HNT is considered as the main contributing sector to the Sri Lankan Tourism Industry, which plays a major role in the Sri Lankan economy by providing a greater contribution to the Gross National Product as well as generating the major income source. And also, The Sri Lankan Tourism Industry had to face huge losses as a result of the Easter Sunday Attack on 21st April 2019 since three bomb explosions out of Eight Bombings were taken place in famous hotels. In the selection of the event date, the recent trading day after the day on which the Easter Attack happened has been considered.

LITERATURE REVIEW

Fama (1970) has introduced the original concept of the Efficient Market Hypothesis by the well-known research study, “Efficient Capital Markets: A Review of Theory and Empirical Work.” It concludes that the price changes of security are not serially correlated with each other, and it is called the “Random Walk Model.” In order to investigate the behaviour of stock prices of companies listed in the Colombo Stock Exchange (CSE), Abeysekara (2001), Samarakoon (2004) have done empirical studies based on Efficient Market Hypothesis (EMH) and concluded that CSE is not Weak Form Efficient. Whereas Balputhiran, Ramesh and, and Nimalathasan (2014) have concluded that CSE is not a Semi – Strong Form Efficient market because investors do not adjust rapidly to the new information. In addition to that, Tahir (2020) has also observed the impact of

terrorist attacks in Pakistan on the Pakistan Stock Exchange. By using the Event Study Methodology, and the BMP test has been used for testing the significance of CAAR.

Enders and Sandler (1991) have shown the industry-specific reactions despite the whole effect of terrorism. By the study of Causality between Transnational Terrorism and Tourism with respect to Spain, the unidirectional causality was tested. As the secondary purpose of the research, they have applied the technique to identify the relationship between terrorism and tourism for Spain by using the monthly data from 1970 to 1988. Similarly, Goodrich (2002) has also presented the impacts on the Travel and Tourism Industry thoroughly with respect to the U.S. The new security precautions for travellers, the Air Line industry, the support services such as airline food services, cleaning and aircraft mechanics, the Hotel Industry, Casinos, Sports tourism, State tourism, Travel to countries outside the USA, US stock markets and selected sales have been discussed in this study with the effects of terrorism. The findings resulted that the Travel and Tourism sector was mostly affected negatively. As a well-known terrorist attack, the 9/11 attack has been investigated by David and Simkins (2002), Bruck and Wickstrom (2004), Drakos (2004), and Enz, Kosova, and Lomanno (2011) in order to analyze the economic impact of terrorist attack mainly on Tourism Industry.

Mackinlay (1997) has introduced the practical aspect of the Event Study methodology in order to measure the impact of an economic event on the value of the firms. By using financial market data such as closing stock prices, the event study measures the impact of a particular event. He found that the usefulness of an event study depends on how efficiently the security price reflects the impact of the particular event. Earlier, Brown and Warner (1980) have tested how do firm-specific events such as stock splits, earnings reports impact the prices of the affected firm's stocks or security and concluded that Event Study is a direct study of Market Efficiency. Further, Dyckman, Philbrick, and Stephan (1984) have studied the Event Study Methodology through a comparison between different methods of calculating the normal return of security using Daily Stock returns. It revealed that the Market Model is one of the best models in capturing abnormal behaviour of security. In practice, Coleman (2012), Essaddam and Karagianis (2014), Chesney (2011) have examined the impact of terrorism on Financial markets by using Event Study Methodology as a major technique of testing the Semi Strong Form Efficiency. Locally, Jayakody (2017) has observed the Impact of the Sri Lankan Civil War on the Stock Market performance by using the Event Study Methodology and concluded that the Bank, Finance and Insurance Industry (BFI), the Power and Energy Industry (PNE), and Hotel and Travel Industry (HNT) were the most affected industries.

METHODOLOGY

Data Collection

In this study, the total effect of 8 bomb blasts that happened within a single day is considered as the Event in order to analyze the impact of terrorism. Although the actual event day is 21st April 2019, for the analysis, 23rd April 2019 is considered since the actual event day was not a trading day as well as the government has imposed a curfew on 22nd April. The Event study is carried out to verify whether a Terrorism related news is reflected by the Stock prices of the 41 companies which have been listed under the HNT Sector by the event day. Daily Closing stock prices are used to calculate the daily stock returns of a particular company (Ri) the while the All Share Price Index (ASPI) is taken from the CSE Data library to obtain the Market return (Rm).

Event Study Methodology

The Event Study Methodology is the main approach of this study, which leads to obtaining the greatest idea on the impact of terrorism events and to test the Semi Strong Form Efficiency. Basically, the event study methodology involves finding the impact of a specified event by analyzing abnormal returns around the event date. As the first step, the event timeline should be specified as Figure 1, which is comprising of 80 days Estimation Window before the event day and 41 days Event Window, 20 days before and 20 days after the event day.

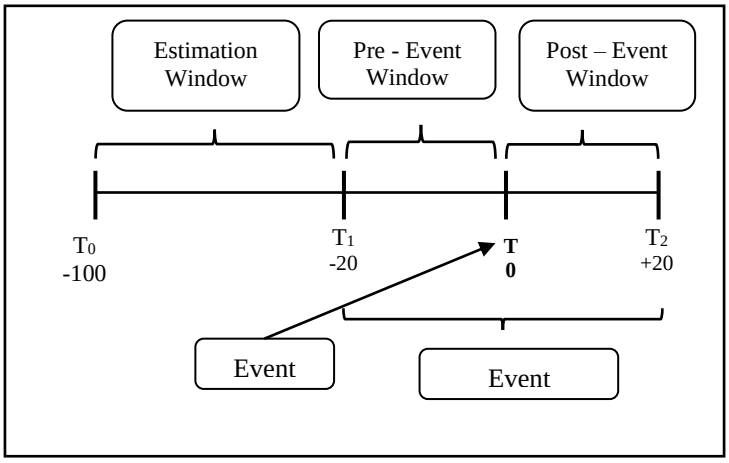

Figure 4: Event Timeline

Under Event Study Methodology, it is required to get the Abnormal Return (AR) of each selected stock as Equation 1. The Actual Return (R_i) is taken from closing stock prices of each company as Equation 2, while the Normal Return/ Expected Return can be calculated mainly by using either Market Model or the Mean Adjusted Return Model. However, this study follows the Market model, which does not depend on economic arguments but follows statistical assumptions regarding the behaviour of asset returns. Equation 3 shows the Market Model of this study. The calculated daily

AR s for each company are averaged across the companies to get the Average Abnormal Return (AAR) for each day as Equation 4. Ultimately, AARs are aggregated across time to get the Cumulative Average Abnormal Return (CAAR) shown as Equation 5. For testing the significance of $CAAR_{it}$ s during the event period, Schimmer and Muller (2015) have introduced a formula for t-statistic as Equation 6. This study considers 5% of the significant level for the significance test. According to the significance test, if significant abnormal returns could be found either before or after the event, HNT cannot be considered as the market, which provides evidence for the semi-strong form efficiency.

$$AR_{i_T} = R_{i_T} - \widehat{R_{i_T}} \quad (1)$$

Where,
$\widehat{R_{i_T}}$= Normal Daily Stock Return on T
R_{i_T}= Actual Daily Stock Return on T
AR_{i_T} = Abnormal Return on T

$$R_{i_T} = \frac{P_{i_{T+1}} - P_{i_T}}{P_{i_T}} \quad (2)$$

Where,
R_{i_T} = Actual Share Return on T
$P_{i_{T+1}}$ = Closing Share price on T+1
P_{i_T} = Closing Share price on T

$$\widehat{R_{i_T}} = \alpha_i + \beta_i R_{m_T} + \varepsilon_{i_T} \quad (3)$$

Where,
$\widehat{R_{i_T}}$ = Normal Return of Security i for period t
R_{m_T}= Return of Market Portfolio for the period of t
ε_{i_T} = Zero Mean Disturbance Term

$$AAR_{i_T} = \frac{1}{N}\sum_{i=1}^{N} AR_{i_T} \quad (4)$$

Where,
AAR_{i_T} = Average Abnormal Return on T
N = Number of Shares / Companies
AR_{i_T} = Abnormal Return on T

$$CAAR_{i_T} = \sum_{T=T_0}^{T_2} AAR_{i_T} \quad (5)$$

Where,
AAR_{i_T} = Average Abnormal Return on T
$CAAR_{i_T}$ = Cumulative Average Abnormal Return on T

$$t - \text{statistic (t)} = \frac{CAAR_{i_T}}{\sigma_{AAR_T}/\sqrt{T}} \quad (6)$$

RESULTS AND FINDINGS

Accordingly, the collected data is presented and analyzed through a graphical analysis and t-Test Analysis. The behaviour of AAR and CAAR within the whole Event Timeline has been shown in Figure 2, while Figure 3 shows the behavioural pattern of AAR and CAAR within Event Window while t-Test Analysis is carried out only for the Event Window.

Graphical Analysis

According to figure 2, the highest positive AAR could be identified on -94 day as 0.026178, and after that, most AAR has shown positives than negatives. Therefore, CAAR has shown an increasing trend from -81 to -58 significantly. With the negative AARs, CAAR has started to decline again up to day -35, and it has moved steadily until the event window starts. Within the window of -29, -45 AAR has shown its maximum negative values. Figure 3 shows that AAR has moved with high deviation within the event window, but most were negative. On the event day, a quick drop has been identified, stating that the HNT has affected by the event adversely. However,

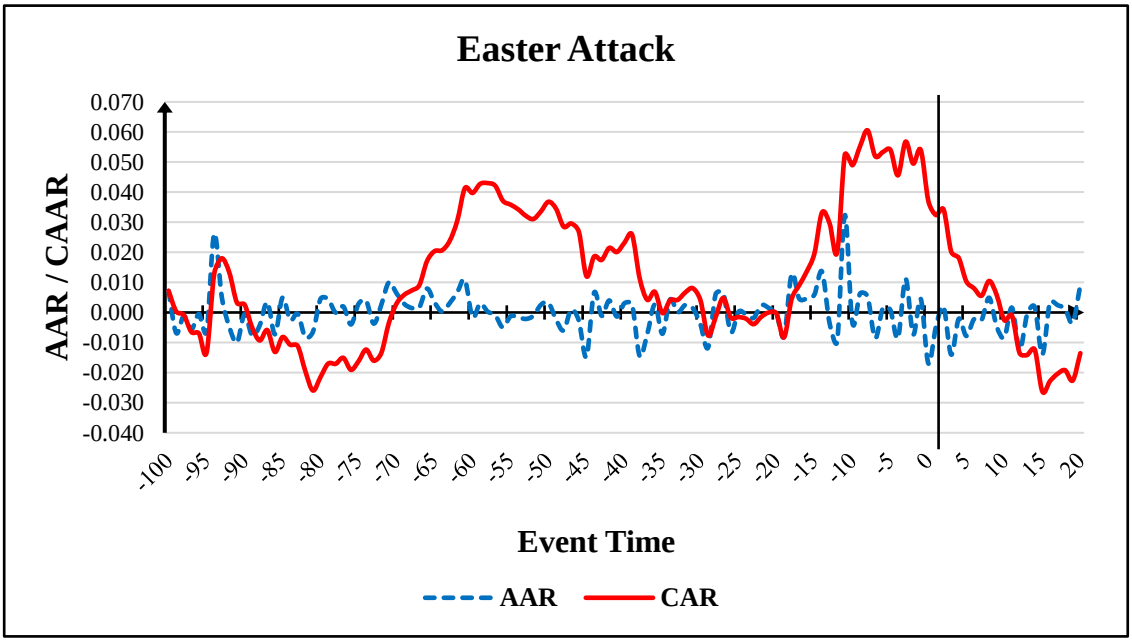

Figure 2: 80 days Estimation Window (-100, -20) and 41 days Event Window (-20, +20)

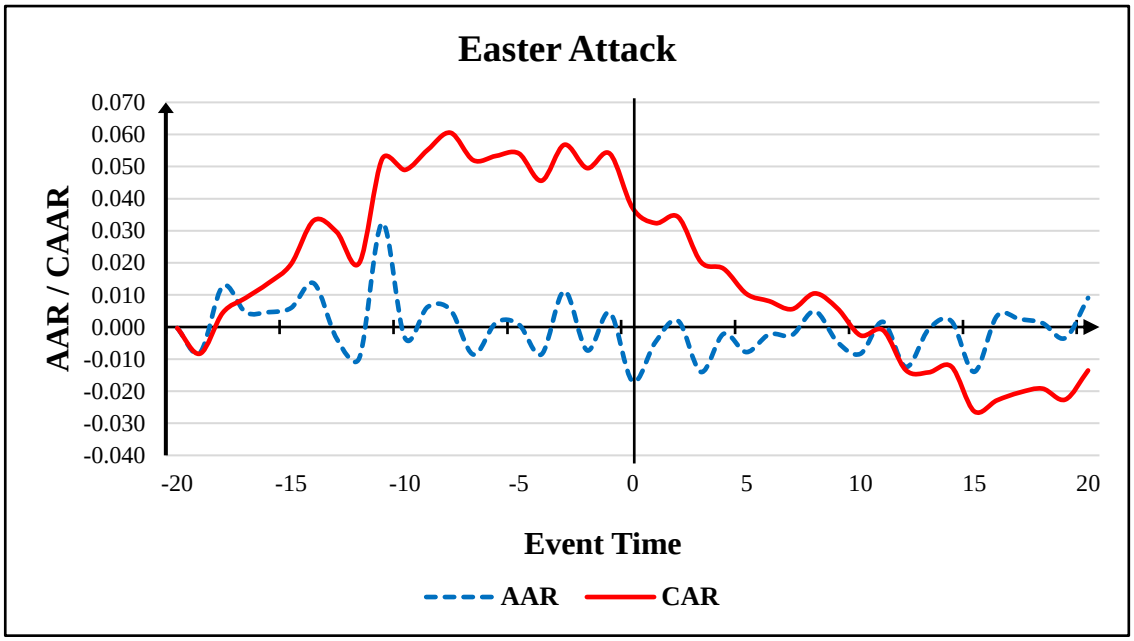

Figure 3: 41 days Event Window (-20, +20)

the declining trend in CAAR starts before the event (day -8), and it has continued even after the event. However, this event seems a very influential event since CAAR has not moved with a unique pattern, and it has shown different patterns from window to window. If the event window took into account, in the 1st stage of the pre-event window, CAAR has got a quick rise day by day with an increasing rate in -19, -8 window and after that, a very slight drop has started from the day -8 until the day +15. However, from day -1, the rate of decrement has increased by the event date, implying that the Easter Attack has had a negative impact on HNT. The continuous decrement in CAAR until the day +15 confirms that the share price adjustments in HNT have not been limited only to the event date by taking more time to respond to the event.

t-Test

Table 1 shows that CAAR was not statistically significant from the -20 to -16 period, and that means stocks of the Hotel and Travel Sector have not been affected by the event or no possibility of releasing information to the market regarding that event. Since this event was an unexpected and unplanned one, stock prices in the pre-event window could not be affected by the event information. Nevertheless, the -1, -15 window, which falls under the pre-event window, has shown significant t statistics. On the event day, CAAR was statistically significant, stating that the abnormal returns of HNT have significantly different from zero, but it has continued up to day +5. Although the share price adjustments lasted until +15 day, those did not show significance. However, showing significant CAAR results before and after the event does not provide evidence for Semi-Strong Form Efficiency.

Table 26: t - test results for -20, +20 window

Event Time	CAAR	t-test	Significant/Not Significant at 5%	Event Time	CAAR	t-test	Significant/Not Significant at 5%
-20	-0.0003	-0.0800	Not Significant	**1**	0.0324	4.9888*	Significant
-19	-0.0083	-1.9703	Significant	**2**	0.0343	4.3483*	Significant
-18	0.0044	0.7435	Not Significant	**3**	0.0203	3.6249*	Significant
-17	0.0090	0.9681	Not Significant	**4**	0.0181	2.4748*	Significant
-16	0.0137	1.7143	Not Significant	**5**	0.0103	2.3975*	Significant
-15	0.0196	3.9821	Significant	**6**	0.0081	1.1379*	Not Significant
-14	0.0332	4.4406	Significant	**7**	0.0056	1.6679*	Not Significant
-13	0.0296	4.7664	Significant	**8**	0.0105	1.3831*	Not Significant
-12	0.0200	3.3823	Significant	**9**	0.0057	1.1539*	Not Significant
-11	0.0524	4.7661	Significant	**10**	-0.0026	-0.3379	Not Significant
-10	0.0490	11.4065*	Significant	**11**	-0.001	-0.3614	Not Significant
-9	0.0552	9.1473*	Significant	**12**	-0.0135	-1.5815	Not Significant
-8	0.0605	30.5689*	Significant	**13**	-0.0141	-3.6292*	Significant
-7	0.0520	5.8462*	Significant	**14**	-0.0123	-1.5792	Not Significant
-6	0.0533	34.3492*	Significant	**15**	-0.0263	-4.2903*	Significant
-5	0.0541	13.7743*	Significant	**16**	-0.0228	-4.6793*	Significant
-4	0.0456	7.5905*	Significant	**17**	-0.0204	-3.3599*	Significant
-3	0.0568	8.8450*	Significant	**18**	-0.0192	-9.8638*	Significant
-2	0.0495	15.9546*	Significant	**19**	-0.0226	-2.8960*	Significant
-1	0.0540	7.5474*	Significant	**20**	-0.0135	-1.8976	Not Significant
0	0.0371	3.4702*	Significant				
Statistical Significance: Significant at 5% *							

The main finding of this study is when a piece of terrorist-related information is released to the market, the relevant stock prices respond in a negative manner. Similarly, a negative impact has been made in stock prices of Hotel and Travel Sector companies by the Easter Sunday Bomb Attack. Figure 3 shows a continuous declining behaviour in CAAR just after the event happened. Numerically, CAAR has dropped by 89% (0.0540 - 0.0057) within the -1, +9 window. The second finding is, Abnormal Returns of companies have dropped at an increasing rate from day -1, and the significance of CAARs was higher before the event date than the post-event date CAARs. The market has reacted adversely to the event, and continuously it has been dropping without a reversion. When the significance of these behaviours has been taken into account, CAARs from event day to day +5 is significant at 5%. According to the Efficient Market Hypothesis, the Easter Attack information does not provide evidence for Semi Strong Form Efficiency because even a

few days after and before the event day are significant. Results show that a considerable number of days are taken for adjusting stock prices for new information.

CONCLUSION

By this study, Easter Attack 2019 committed in Sri Lanka has been observed with a quantitative perspective measuring its impact on the security prices of Hotel and Travel Sector companies which have been quoted in CSE. The event study methodology provides an outline for measuring the financial effect of the terrorist event rather than the qualitative aspect. The Ultimate objective of this study is to conclude whether the terrorist-related information is providing evidence for the Efficient Market Hypothesis (EMH) through the Event Study Methodology, which is a better analytical method of testing the Semi Strong Form Efficiency of a Capital Market. Regarding the Easter Attack, the behavioural pattern of CAAR can be observed in three phases. In the -20, 0 window CAAR has got positive status but with declining movement. As the second phase, in 0, +2 window, it is continuously declining, but much quicker than exist in -8, -1 window. In the whole post-event period (0, +20), it is further declining with negative status. However, the research questions and objectives are fulfilled with the results and findings of this study. Simply, this study proves that the Easter Attack has committed an unfavourable impact on the Hotel and Travel Sector as per graphical as well as numerical results.

As the core objective behind the study, testing for the Market Efficiency has been fulfilled through this Event Study Analysis. Although a quick and significant drop has happened in CAAR on the event day, it is an inadequate fact for proving Semi-Strong Form Efficiency because the significance of CAARs up to day +5 has remained not limited to the event day.

The findings of this study aid in making decisions with regard to the Capital Market of Sri Lanka. As a developing country, Sri Lanka is experiencing a growing economy that was beaten continuously by the Civil War. Most emerging countries do not much consider the Terrorism risk in determining the company value. Although Sri Lanka has not experienced war for 10 years since the ending of the Civil War, Easter Attack has happened, threatening national security. For countries with a high or moderate probability of occurring terrorist events, this study will provide proper guidance for regulatory authorities of stock markets in making decisions. Further, the Hotel and Travel Sector is considered the major hub of the Tourism Industry in Sri Lanka. In order to succeed as well as maintain sustainability in the economy, security, and investment, a fruitful business climate becomes a necessary requirement. As a contradictive phenomenon, terrorism impacts the political environment, foreign exchange flow, Gross Domestic Product (GDP), which

are considered as the major determinants of economic growth. And also, some international journals have suggested that the tourism sector is challenged by terrorist activities. Therefore, for observation in the macroeconomic environment from a country perspective or business perspective, this study provides a platform in decision making via Event Study Analysis since the Easter Attack has negatively affected on Hotel and Travel Sector.

Finally, a limitation of this study is, the results and findings of this study may not be applicable to other country either it is an emerging country or developed country, because these results and findings are country-specific, and conflicts or terror attacks may be inherent from country to country. Future research can extend this study by a cross-country analysis of terrorist attacks on stock market performance, allowing the results that could be generalized to similar conflicts.

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APPENDIX 1

Table 27: Civil Causalities of Easter Attack

S/N	Location	Time	Deaths
1	Catholic Shrine of St. Anthony - *Kotahena*	8.45 am	93
2	Catholic Church of St. Sebastian - *Negambo*	8.47 am	104
3	Kingsbury Hotel – *Colombo*	8.47 am	82
4	Shangri – La Hotel - *Colombo*	8.54 am	
5	Cinnamon Grand Hotel - *Colombo*	9.00 am	
6	Zion Church - *Batticaloa*	9.05 am	30
7	Tropical Inn Guesthouse - *Dehiwala*	1.20 pm	2
8	Housing Complex - *Dematagoda*	2.25 pm	7