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Impact of Political and Terrorist Events on Stock Market Returns: A Case Study in South Asian Context

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Abstract

Efficient Market Hypothesis (EMH) suggests that markets are rational and reflect all information. So, no investor can beat the market by generating abnormal returns. But it is found that stock markets deviate (anomalies) and contradicts the rule of EMH. To investigate this issue in this event study political and terrorist events are considered as the external information. Political and terrorist events create uncertainty and risk for the investors in the capital markets. These events have been increasing dramatically in the last decade by which investors face hesitation and fear while investing in a politically unstable and unsafe country. The stock markets in our study include Pakistan Stock Exchange (Pakistan), Bombay Stock Exchange (India), Chittagong Stock Exchange (Bangladesh) and Colombo Stock Exchange (Sri Lanka). This comparative study is the effort to find the answer of whether political and terrorist events have any impact on the Stock Market returns on the financial markets of South Asian countries. Event study methodology is used in the study. By using Market Model, we analyzed 47 terrorists and 45 political events in all four countries of our study during 2005-2016. The empirical result shows that the political and terrorist events have significant impact on stock market returns. Moreover, the results show that the stock markets of South Asian countries are inefficient on 15-day event window. While the results on 2nd day event windows are insignificant. The noisy information does not absorb by the markets shows the contradiction to the assumptions of efficient market hypothesis (EMH).

Keywords: Economic development, globalization, Long March, Great Famine, Open Door Policy, Great Leap Forward, Marxism, Chinese Imperialism, Lysenkoism, Chinese Economic System, Great Sparrow Campaign

Introduction

One of the most important theories of traditional finance is the Efficient Market Hypothesis (EMH). Fama (1970) defined efficient market as one where rational individuals predict future market values of individual securities on the basis of available past, public and private information. The market based on efficiency divided into weak form, semi strong form and strong form based on available relevant information. On the other hand, the most common challenge to the efficient market hypothesis are the anomalies. The word "anomaly" is defined by the Frankfurter and

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McGoun (2002) as deviation and irregularities from natural or common order or exceptional conditions. Tversky and Kahneman (1986) defined the anomaly as:

"An anomaly is a deviation from the presently accepted paradigms that is too widespread to be ignored, too systematic to be dismissed as random error, and too fundamental to be accommodated by relaxing the normative system."

From the last decade, the world is changing rapidly and becoming more vulnerable. Researchers investigates many factors such as economic and political factors that can affect stock exchange returns. Political and terrorism events are uncertain and disastrous for an economy which creates more risk and fear among investors especially in emerging countries which are unable to recover quickly like in developed countries. To invest in a country with unstable and unsafe economy, the investor's required rate of return for the current and future investments increases. Political and terrorist events are one of major factors that investors consider before making any investments.

Terrorism is a pre-planned act to gain the political or social objectives using threats or violence by individuals or groups (Bruce, 2013). Although the objectives of terrorism are different, but the pattern is same using different forms like bombings, suicide attacks, threats and assassinations etc. To characterize the term "Terrorism" in a definition is difficult as there are more than hundred definitions. The definition of the terrorism according to the National Consortium for the Study of Terrorism and Responses to Terrorism ("Global Terrorism Database," 2016);

"The threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation."

There are some major events which shows that the terrorism had great impact on the financial markets and their returns. Presently, the fear of terrorism becomes the part of financial markets. The terrorist attack of September 11, 2001 in New York USA affected the stock exchanges worldwide. The markets in USA remained closed till September 17, 2001. In the result, Dow Jones dropped 684 points or 7% which was the worst point lost in history as trading resumed after the attacks for the first time on September, 17 2001 (Ulick, 2001). The aftershocks of the terrorist attack of 9/11 in USA also felt by European markets as well. In addition, the terrorist attack on the 7th July 2005 in London UK leaving 52 dead and more than 700 injured shake the whole United Kingdom. It was the worst attack in the history of the United Kingdom whose affect can be seen on the stock exchanges as well which goes down by 17% (BBC News, 2005). Cost of terrorism can be direct and indirect, for example the immediate loss associated with the attack like destroyed infrastructure, causalities and injuries. While the indirect cost is much higher than the direct cost which includes the security cost, insurance premiums, cost on high risk locations, lost in FDI etc. (Stergios et al, 2009). The following figure shows the economic cost of global terrorism in US$ Billions with the increasing cost in last some years. While only 2001 is higher in previous years which includes the 9/11 attack cost and 2014 is the costly year which

have $106 billion according to the Global Terrorism Database ("Global Terrorism Database," 2016).

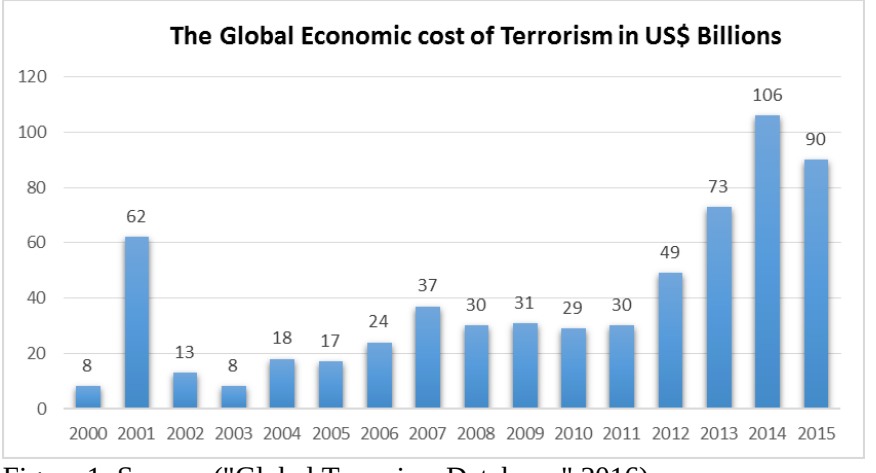

Figure 1: Source. ("Global Terrorism Database," 2016)

Along with terrorism, political situation in a country also could influence the policies of government on domestic as well as at foreign levels. Government shape the environment in which firms operates. The weaker reaction of the markets shows the changes made by governments are anticipated widely, but the stronger reaction shows the market caught by surprise of the policies of the governments (Pastor & Veronesi, 2012). Although the political events don't have any direct connection with the stock market of the country, but political events are considered one of the major factor which can affect the stock market. Political instability can be defined in different ways. Alesina and Perotti (1996) describe the political instability in two ways. The first is the executive instability which includes the government changes that can be constitutional or unconstitutional. And second approach includes the social unrest and political violence. The uncertainty of the political situation in the country inevitably plays crucial role in the financial markets. The stock markets attract investments from domestic as well as foreign investors if the economy of the country is stable (Levine & Zervos, 1998). the growth and the economy's overall performance improves if the political situation in a country is stable (Bechtel, 2009).

Literature Review

The terrorist events shake the confidence of investors and create uncertainty among them. Furthermore, it costs the country to spend on security measures to counter these attacks which also resulted in the decrease in the GDP of the country (Buesa et al. 2007; Drakos, 2004; Melnick, 2004). The increasing frequency of terrorist attacks which had great human and economic losses demand for research investigating the

consequences of terrorism on the economy. Before the attack on September 11, 2001 on world trade center in USA the effect of terrorist attack on the financial markets was little. After this horrific attack nations understands that the terrorism is now on-going danger. However, the 9/11 attack shake the USA but it also effects the other economies of the world. This attack shakes the US economically which was the about one trillion negative of stock other than the 3000 lives which killed in this attack. Dow Jones dropped 7% worst point loss in the history of US (Ulick, 2001). The 9/11 attack had such great impact on the economy that number of studies exist to check the impact of the attack on different economic factors. For example Goodrich (2002) study the impact of the September 11, 2001 on world trade center attack on USA travel and tourism industry. The shocks of the attack felt by tourism and travel industries to increase the security across USA. The USA government release $15 billion relief package for the industries for direct and in loan guarantees as airline stocks, entertainment and hospitality industry lost value. Another similar study by Bonham et al, (2006) examine the impact of 9/11 and other global terrorist attack on the tourism industry in USA. They find that the total travel spending in USA remains below till 2004 than before the attack. And due to the terrorist attacks the tourism industry also faced the stymie impact in the world. The attacks caused in the increase of unemployment in the tourism industry and had direct impact on the employment which fell by 5% as compare to the total unemployment during 2000 to 2004 in the USA.

There are some other studies which covers the terrorist events on different economic factors on the different major indices in the world. Like Abadie and Gardeazabal (2003) estimated that terrorism in the last two decade loss of 10 percent in the GDP of Basque region country. They measure the 1998-99 of ceasefire and after ceasefire in the Basque region to measure the effect of the conflict and terrorist events on Basque and non-Basque firms. During the cease fire, Basque firms outperformed the non-Basque firms. While Basque firm relative to non-Basque firms show negative performance after the end of ceasefire.

A study by Chen and Siems (2004) explained the effect of terrorism on global capital markets. They examine the effect of 14 terrorist and military invasions on the capital markets dating back 1915. They find the U.S market is more resilient and recover from terrorist attack sooner than the other global capital markets. Another similar study by Charles and Darné (2006) using outlier detection methodology and GARCH examined the impact on the international economies to the attack and its aftermath shocks. For this purpose, they studied 10 major indices. By detecting the large shocks, they found that announcements of macroeconomics news had great impact on the stocks of U.S and European countries.

In addition, Crain and Crain (2006) investigated the consequences of terrorism by analyzing the 147 countries for the period of 1968-2006 and estimated that terrorism costs $3.6 trillion US dollars of the world GDP in the year 2002. Moreover, Buesa et al. (2007) studied the measure of direct cost of Madrid terrorist event on March 11 2004 and found that the negative impact on the economy as the event caused the 291

deaths and 1600 injuries other than the economic loss of € 211.584 million. A similar study by Greenbaum et al. (2007) explained the after effects on the economy by terrorist attacks on the business. Usually the indirect cost of the attacks on the economies are overlooked. By using the data from 1985-97 in 95 provinces of Italy they found that the industry which are linked to the regions which face terrorist attacks bears direct cost of it.

Most of the literature focused developed countries while there are some studies which cover the terrorism and its impact in the developing countries in the South Asian region. For instance, Aslam and Kang (2013) by using the time series data method study the effects of 300 terrorist attacks on the Pakistan stock market from 2000 to 2012. They found the KSE has -0.32% return on the day of attack but the stock exchange is capable to recover the attack shock in one day. Mapa and Jayasinghe (2014) investigates the impact of terrorism on the stock volatility and stock returns for the period of 1985-2007 on the Colombo stock exchange and finds that the significant negative effect of the news of terrorist attack when combined all type of attack type and weak relationship when attack type is considered separately. Terrorism is a destructive not only for the economy, but it also disturbs the life style of the people. A study by Kim and Albert Kim (2017) conducting the survey after the attack of Charlie Hebdo attack in France concludes that the terrorism may not cost much on the economy of the developed countries but it effects the mental health of the residents. And the negative effect is stronger for immigrants and low-income individuals.

Along with terrorism political events are also important. Political events help the investors to predict the future economic policies, new government structure and policies and election. Political events are one of the major factors that affect the stock market. The political events affect the confidence of investors in result of the volatility of stock market increased which leads towards the uncertainty of expected cash flows (Kongprajya, 2010). Similarly, Lobo (1999) investigates the mid-term elections in US after a political scandal exposed and finds insecurity among the investors. While Brooks et al. (1997) finds stock market volatility is closely linked to the political instability after the significant political change conducting the study in South Africa. Moreover, Leon et al. (2000) finds the " calming of the market" once the political stability is achieved, conducting the study in Trinidad and Tobago during the period of politically instability. The economic changes due to the political events effects the stock prices (Vuchelen, 2003).

A comprehensive study by Vuchelen (2003) investigate the Belgian elections on the performance of the Brussels stock market. And found that parliamentary elections and coalitions among governments effect the stock prices of Belgian stock prices. Furthermore, the composition of the government also matters in the effectiveness of the stock market. Moreover, Aktas and Oncu (2006) Used Market Model to find out the impact of a major political event on the behavior of the Turkish stock market. The case of rejection of bill which deployed U.S army in Turkey during 2003 shook the political relation between Turkey and U.S. And they concluded that the event had

insignificant impact on the stock market of Turkey. And there was no sign of under-reaction or over-reactions in the market. Which are contradictions to the assumptions of EMH. And the results support the assumptions of EMH.

Additionally, Kyereboah-Coleman and Agyire-Tettey (2008) examined that how macroeconomics indicators affect the performance of stock market. The data for the study covering the period of 1995-2005 of Ghana stock exchange. By using the Co-integration and the error correction model they concluded that lending rates have an adverse effect on Ghana stock market performance. While inflation have negative effect on the performance of the stock. Another comprehensive study by (Lehkonen & Heimonen, 2015) investigate the relationship between democracy and political risk. They used the pooled OLS and Gaussian mixture model. The sample for the study is considered from 49 emerging financial markets during the period of 2000-2012. They found that the market returns are affected by the level of democracy in the country. And market returns

are higher when the political risk is decreased. Moreover, Rehman (2016) study the political unrest and the volatility of Pakistan economy during the time period of 1988-2010. By using ARCH and GARCH models he examined the political uncertainty on the economic progress. And found terrorism has significant negative effect on the GDP among the election, regime and strikes.

So far, the existing literature focused on the either political events or terrorist events in country specific with limited list of events. This study focusses on a broader sample size with the time of ten years from 2005 to 2016 comprised of Stock markets of South Asian countries. This study not only measure the impact of political and terrorist events but also identify the time taken by stock markets to come to its normal position. Moreover, this is the comparison among the South Asian countries stock markets. So, the present study is expected to fulfill this gap and to contribute significantly to the existing literature.

Research Design

Research methodology used to define the way we obtain data and apply statistical inference. As there is no any unique structure of event study methodology but Mackinly (1997) explained the event study methodology as flow of analysis. These are some of the example of events studies on the literature, like Dangol (2008) used event study methodology to find the impact of unanticipated political events on the return of financial and commercial banks listed on Nepal Stock Exchange (NPSE) and find the market is inefficient and strong linkage between stock market return and political uncertainty. Moreover, Drakos (2004) study the impact of attack on World Trade Centre event on the airline stock. And find the negative impact of the event on the stock prices of airline stocks registered on New York Stock exchanges.

Event Selection Criteria

The events for our study are political and terrorist events during 2005-2016. In which major political events are considered on the basis of intensity of an event while terrorist events are considered with more causalities. The following table shows the division of events country wise.

Table 3.1
Political and Terrorist events in South Asian countries

Country Name	Major terrorist events	Political events (2005/16)
Pakistan	27	14
India	9	11
Sri Lanka	6	10
Bangladesh	5	10
Total events	**47**	**45**

Source: All data of terrorist events are collected from ("Global Terrorism Database," 2016) While all data about political events are collected from BBC News ("Country profile of South Asia" 2016)

Event window

Event window which is too long absorbs the effect of other economic events while the event window which is too short unable to analyze the effect of an event so event window selection criteria is an empirical issue. Many authors used different event windows in their studies like Mehmood et al,. (2014) used three different event windows of 30 days before and 61 days after the event, the second window was 30 days before and after the event while the third event window was 10 days before and after the to find the impact of political events on the stock market returns in Pakistan. Whereas Aslam and Kang (2013) used 3 days window for the analysis of the effect of more than 300 terrorist attacks on the stock market. While Brounen and Derwall (2010) used event window of 10 days before and after the event for the analysis of disasters and terrorist attacks on the stock exchange. So, to find the impact of political and terrorist events on stock market returns we also used three different event windows of 2, 5 and 15 days before and after an event.

The Model

The one of the most common model used is the market model. Nazir et al., (2014) employed the market model for the domestic political study and considered efficient model for the analysis of market indexes. It relates the return of a security to the return

of the market portfolio. The linear specification of the model follows from the assumed joint normality of asset returns. The expected return on the index is a constant number $\boldsymbol{R}^*$according to the model.

$$R^* = (1/T)\sum_{t=1}^{t} R_t$$

Where t is the market index return on the window and T is the number of days in the event window. The difference between the actual return and the expected return on a given period is the abnormal return.

$$AR_t = R_t - R^*$$

Where:

AR_t *= indicated the abnormal return in day t in the event window or expectation error of the market index.*

R^* *= represents the expected return of the market index for the T period of event window.*

R_t *= shows the return of the market index on day t of the event window.*

After that we calculate the average abnormal return before and after the t day. Which is in our case 2 days, 5 days and 15 days of the event day.

$$AR^*_{before} = \frac{\sum_{t=-k}^{t=-1} AR_{before,t}}{n}$$

Where:

K = shows the number of days before the event day.

AR^*_{before} *= indicated the Average abnormal return before the event day.*

and,

$$\mathrm{AR}^*_{\mathrm{after}} = \frac{\sum_{\mathrm{t=-k}}^{\mathrm{t=-1}} \mathrm{AR}_{\mathrm{before,t}}}{\mathrm{n}}$$

Where:

K = shows the number of days after the event day.

AR^*_{after} *= indicated the Average abnormal return after the event day.*

After that we calculate the standard deviation of the average abnormal return before the event day and after the event day.

$$\sigma_{\mathrm{before}} = \sqrt{\frac{\sum_{\mathrm{t=-k}}^{\mathrm{t=-1}}(\mathrm{AR}_{\mathrm{before,t}} - AR^*{}_{\mathrm{before,t}})^2}{\mathrm{n}-1}}$$

and,

$$\sigma_{\mathrm{after}} = \sqrt{\frac{\sum_{\mathrm{t=-k}}^{\mathrm{t=-1}}(\mathrm{AR}_{\mathrm{after,t}} - AR^*{}_{\mathrm{after,t}})^2}{\mathrm{n}-1}}$$

Moreover, to test the difference between means a pooled standard error of the difference between means of the samples is calculate. The formula to calculate the combined standard error of difference between means is.

$$\sigma_{\text{pre-post}} = \sqrt{\left(\frac{(n_1 - 1)\sigma_1^2 + (n_1 - 1)\sigma_2^2}{n_1 + n_2 - 1}\right)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$$

Where:
σ_1^2 *= variance of pre-event window*
σ_2^2 *= variance of post-event window*
n_1 *= number of days in pre-event period*
n_2 *= number of days in post-event period*

To analyze the difference between the means of market abnormal returns in the pre-event and post- event period statistical t- test is used. As we are taking three windows of two, five and fifteen in our case, so it will be the difference between means of 2, 5 and 15 days' market abnormal returns before and after an event.

$$t = \frac{AR^*_{after} - AR^*_{before}}{\sigma_{pre-post}}$$

If the value of t-statistics is significant then we conclude that the market is inefficient because it does not absorb uncertain information and if the value of t-statistics is insignificant then the market is efficient, and it absorbs the noisy information. We have taken three event windows of 2, 5 and 15 days to analyze how much time a market takes to absorb uncertain information. Moreover, the results above mentioned market models would also be compared for selected South Asian countries.

Result

4.1 Terrorism and Stock market returns:

The Table 4.1 shows the average abnormal returns before and after an event while table 4.2 show the significance level of terrorist events at different windows level.

Table 4.1

Average abnormal returns before and after terrorist events

Event no.	2 days		5 days		15 days	
	pre	post	pre	post	pre	post
1	0.863	-0.634	1.769	-1.310	1.318	-1.086
2	0.320	-0.112	0.325	-0.362	0.394	-0.418
3	0.039	0.498	0.048	0.116	0.174	-0.122
4	0.247	-0.293	0.519	-0.708	0.649	-0.676
5	-1.173	0.717	-0.749	0.556	-0.662	0.585
6	0.088	-0.369	0.466	-0.706	0.399	-0.459
7	0.863	-0.355	1.827	-1.413	0.453	-0.293
8	-0.029	0.004	-0.042	0.028	0.002	-0.003
9	-0.807	-0.473	-0.494	0.150	0.039	-0.186

10	0.939	-0.945	0.426	-0.419	-0.182	0.197
11	0.883	-0.527	-0.132	0.192	-0.094	0.132
12	-0.031	-0.080	-0.440	0.640	0.073	0.374
13	-0.790	0.855	-0.326	0.307	0.103	-0.120
14	0.379	-0.402	-0.120	-0.032	-0.174	0.085
15	-0.123	0.364	-0.102	0.319	-0.078	-0.124
16	-0.389	-0.208	-0.106	-0.183	-0.093	0.000
17	0.102	0.111	0.102	-0.088	-0.005	0.003
18	0.122	0.041	0.322	-0.249	-0.074	0.079
19	-0.071	-0.019	0.042	-0.041	-0.221	-0.108
20	0.236	0.530	0.051	0.337	-0.332	0.467
21	0.002	-0.053	0.084	-0.105	0.225	-0.243
22	1.320	-1.351	0.902	-1.045	0.501	-0.518
23	-0.101	0.012	-0.268	0.216	-0.089	0.051
24	0.460	0.523	-0.131	0.631	-0.075	0.257
25	-0.355	0.387	0.019	-0.012	0.171	-0.172
26	-0.075	0.031	-0.322	0.345	-0.040	0.043
27	-0.381	0.320	-0.178	0.159	-0.034	0.024
28	-0.552	0.492	-0.169	0.111	-0.106	-0.063
29	-0.554	0.974	0.384	-0.330	0.210	-0.149
30	0.800	-0.892	0.238	-0.430	0.412	-0.452
31	-1.048	0.798	-0.583	0.667	-0.585	0.563
32	-1.092	-0.883	-0.837	0.143	-1.061	0.806
33	0.941	-0.848	0.236	-0.224	0.252	-0.251
34	1.301	-1.547	-0.143	-0.026	-0.233	0.162
35	0.973	-0.351	0.057	0.249	0.509	-0.398
36	0.326	-0.626	0.621	-0.773	0.281	-0.333
37	0.207	-0.295	-0.336	0.226	0.189	-0.243
38	0.486	-0.293	0.210	-0.188	0.009	0.029
39	0.058	-0.573	0.054	-0.230	0.211	-0.240
40	0.091	-0.075	-0.112	0.189	-0.154	0.189
41	0.091	0.277	0.041	0.101	0.056	-0.009
42	-0.109	1.046	-0.112	0.596	-0.002	0.187
43	0.207	-0.157	0.075	-0.132	0.216	-0.214
44	0.254	-0.206	-0.051	0.102	0.123	-0.100
45	0.003	0.452	-0.269	0.371	-0.275	0.299
46	0.284	-0.011	0.218	-0.107	0.085	-0.047
47	0.271	-0.015	-0.769	1.176	0.005	0.087

Table 4.2

t-values at event window of 2, 5 and 15 days

Event no.	2 days	5 days	15 days
1	-1.249	-2.568***	-6.105***
2	-0.601	-1.990**	-5.538***
3	1.258	0.196	-1.896**
4	-0.690	-3.481***	-7.487***
5	2.943***	3.013***	3.551***
6	-0.812	-1.068	-3.731***
7	-0.543	-3.272***	-2.400***
8	0.515	3.098***	-0.132
9	0.154	0.692	-0.719
10	-1.463	-2.234**	2.349***
11	-0.774	0.416	0.974
12	-0.046	2.110**	2.092**
13	1.435	1.710**	-1.846**
14	-0.956	0.221	2.866***
15	1.109	0.448	-0.297
16	0.218	-0.265	0.351
17	0.013	-0.681	0.091
18	-0.304	-3.276***	1.296
19	0.114	-0.419	1.120
20	0.426	1.120	4.802***
21	-0.133	-1.223	-5.655***
22	-2.340***	-2.353***	-6.729***
23	0.400	2.916***	1.525
24	-0.747	2.939***	4.288***
25	3.258***	-0.140	-5.144***
26	0.401	4.504***	1.105
27	5.606***	2.497***	1.106
28	1.433	0.983	0.343
29	0.687	-0.855	-1.316
30	-1.338	-1.209	-3.839***
31	0.926	1.554	4.170***
32	0.123	0.775	4.443***
33	-2.671***	-1.336	-5.145***

34	-2.541***	0.177	2.038**
35	-0.891	0.405	-6.442***
36	-3.143***	-7.474***	-4.627***
37	-1.447	1.448	-1.900**
38	-1.309	-1.465	-0.054
39	-0.437	-0.452	-2.596***
40	-0.305	1.051	3.789***
41	0.462	0.314	-0.740
42	1.077	1.524	1.778
43	-1.106	-0.503	-4.492***
44	-1.304	0.610	-2.616***
45	1.604	2.655***	3.862***
46	-0.876	-2.125**	-2.361***
47	-0.410	1.927**	0.321

*Note: ***, **, * shows significant level at 1, 5 and 10 percent respectively*

Political events and Stock market returns:

The Table 4.3 shows the average abnormal returns before and after an event while table 4.4 show the significance level of political events at different windows level.

Table 4.3

Average abnormal return before and after political event

Event	2 days		5 days		15 days	
no.	pre	post	pre	post	pre	post
1	-0.689	-1.463	-0.140	-0.506	-0.729	0.508
2	0.766	-0.905	0.006	-0.207	-0.052	-0.028
3	-0.271	1.979	-0.219	1.029	-0.085	0.381
4	2.343	-3.106	0.567	-0.552	0.399	-0.381
5	-0.350	-0.601	-0.117	-0.360	0.024	-0.211
6	0.345	-2.017	0.997	-1.869	0.035	-0.372
7	0.151	-0.097	0.232	-0.165	0.192	-0.189
8	-1.246	0.390	-0.372	-0.014	-0.080	-0.051
9	0.439	-0.221	0.190	-0.078	-0.211	0.250
10	0.352	-0.682	-0.017	0.020	-0.196	0.204
11	0.002	-0.053	0.084	-0.105	0.225	-0.243
12	0.033	-0.308	-0.017	-0.167	-0.103	0.030
13	-0.436	0.284	-0.654	0.586	-0.261	0.248
14	0.754	-0.478	0.130	-0.089	0.383	-0.375
15	0.168	-0.395	-0.027	-0.116	0.081	-0.120
16	-0.096	-0.292	-0.198	0.064	-0.081	0.025
17	0.669	-0.953	0.920	-0.994	0.399	-0.396

18	1.151	-1.056	0.850	-0.769	0.521	-0.486
19	0.066	-0.352	1.148	-1.295	0.666	-0.738
20	-0.949	2.370	-0.923	1.504	-0.436	0.647
21	-0.329	0.357	-0.302	0.404	-0.240	0.271
22	0.623	-0.737	0.076	-0.080	-0.051	0.020
23	-0.349	0.107	0.449	-0.447	-0.025	-0.011
24	-0.133	0.594	-0.360	0.462	-0.174	0.238
25	-0.013	-0.194	0.198	-0.403	0.067	-0.107
26	-0.068	-0.219	0.111	-0.178	0.088	-0.114
27	-1.940	0.703	-0.918	0.505	-0.167	0.015
28	0.751	-1.048	0.110	-0.079	0.140	-0.134
29	1.668	-1.293	0.837	-0.673	0.079	-0.036
30	0.115	-0.848	-0.524	0.291	-0.415	0.343
31	-0.285	0.144	-0.443	0.241	-0.099	-0.006
32	-0.820	0.616	0.237	-0.221	0.163	-0.144
33	0.369	-0.147	0.348	-0.187	-0.125	0.149
34	0.063	-0.054	0.027	0.002	0.267	-0.385
35	-0.166	0.235	-0.546	0.795	-0.568	0.645
36	0.028	-0.036	0.052	-0.033	-0.039	0.041
37	0.717	-0.087	0.328	-0.101	0.386	-0.311
38	4.208	-4.488	1.536	-1.327	0.730	-0.626
39	0.158	0.297	0.166	0.112	-0.108	0.206
40	-2.716	0.134	-1.256	-0.065	-0.255	-0.214
41	0.184	-0.772	-0.113	-0.192	-0.107	-0.024
42	-0.145	0.011	-0.157	0.060	0.836	0.836
43	0.307	-0.232	-0.034	0.069	-0.043	0.040
44	0.678	-0.270	0.150	-0.024	-0.081	0.122
45	0.023	-0.125	0.309	-0.448	0.264	-0.322

Table 4.4

t-values at event window of 2, 5 and 15 days

Event no.	2 days	5 days	15 days
1	-0.833	-0.266	3.147***
2	-5.097***	-0.462	0.170
3	2.081**	2.127**	2.834***
4	-16.181***	-0.974	-3.327***
5	-0.610	-1.857**	-2.553***
6	-0.839	-3.386***	-1.328
7	-0.411	-1.552	-4.579***
8	2.164**	1.037	0.297

9	-2.357***	-0.703	4.115***
10	-0.620	0.065	3.039***
11	-0.133	-1.223	-5.655***
12	-1.100	-0.565	1.198
13	0.618	3.593***	5.096***
14	-1.382	-0.641	-4.056***
15	-0.727	-0.193	-1.721**
16	-0.241	0.721	0.758
17	-1.890**	-3.357***	-3.351***
18	-1.357	-2.275**	-4.750***
19	-0.160	-2.690***	-3.667***
20	3.416***	5.624***	6.776***
21	0.548	1.781**	3.727***
22	-3.923***	-0.406	0.508
23	0.992	-2.260***	0.103
24	1.175	1.980**	3.552***
25	-0.176	-1.423	-1.386
26	-0.321	-0.295	-2.918***
27	3.574***	3.146***	1.219
28	-1.451	-0.252	-1.577
29	-4.275***	-2.701***	-0.584
30	-0.786	1.625	3.244***
31	0.853	1.216	0.331
32	5.362***	-1.079	-1.726**
33	-0.646	-1.816**	1.775**
34	-0.522	-0.047	-0.796
35	0.656	2.098**	2.408***
36	-0.240	-0.618	1.155
37	-2.039**	-2.089**	-5.815***
38	-3.387***	-2.049**	-4.013***
39	0.195	-0.211	3.230***
40	1.316	1.750	0.213
41	-3.465***	-0.376	0.363
42	0.344	0.663	0.343
43	-0.645	0.385	1.261
44	-1.104	-0.639	2.384***
45	-0.173	-2.227**	-5.523***

Note: ***, **, * shows significant level at 1, 5 and 10 percent respectively

Comparison among South Asian Markets

This part compares the significant terrorist and political events in all four countries which are examined earlier. We analyzed total 92 political and terrorist events in the South Asian countries, which includes Pakistan, India, Bangladesh and Sri Lanka includes 47 terrorist events and 45 political events during the period of 2005-2016. We found out of 47 terrorist events 30 events had a significant impact on the market on 15 days of event windows. While, 27 out of 45 political events had significant impact on 15 days event windows.

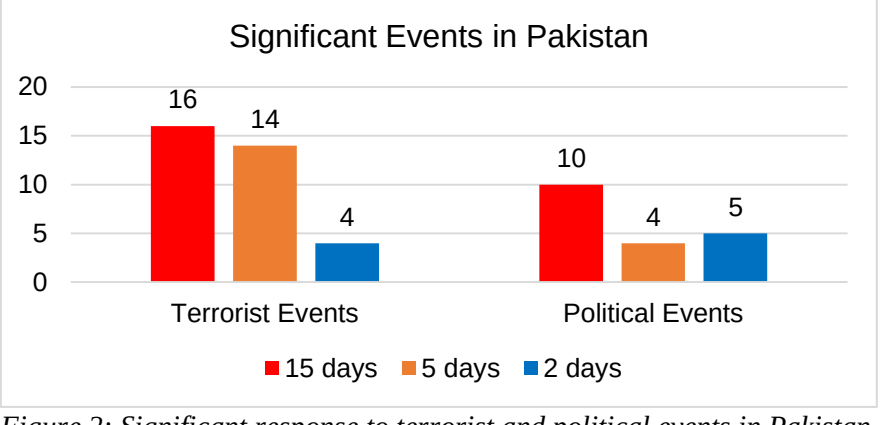

Figure 2: Significant response to terrorist and political events in Pakistan

Although terrorism hit all four countries in the South Asian region, but Pakistan faced more causalities from attacks and is the most effected country from terrorism among other countries in the South Asian region. While political situation in the Pakistan was also unstable in the last decade which witnessed more political setbacks, emergency, strikes and assassination of political leaders. While in later years the political situation also came on track as democracy becomes stable first time in the history of Pakistan. The following table shows the number of significant terrorist and political events in all three event windows on stock market of Pakistan. The above table shows the significant response by Pakistan stock exchange to the terrorist and political events. The table displays that 16 terrorist events out of 27 have shown significant difference in abnormal returns for fifteen days prior and after an event. While 14 on five days and only four terrorist events on two days shown significant difference in abnormal returns. Whereas among 14 political events 10 events shows the significant difference in abnormal returns for 15 days prior and after an event. On shorter period of four events on 5 days and five events on two days event windows shows significant difference in abnormal returns. The study concluded the Pakistan stock exchange does

not respond significantly on shorter period for both political and terrorism. The market analyzes the intensity of the event first and reacted on 15 days event windows.

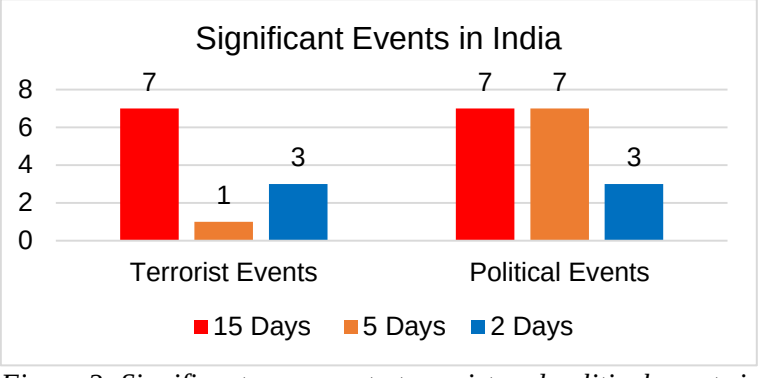

Figure 3: Significant response to terrorist and political events in India

There is discrepancy among the number of attacks and deaths in India. Most of the attacks are for political recognition than the killing the number of people. So, the causalities are low in India in majority of the attack. However political situation is quite stable in India unlike Pakistan. The above table shows the significant response by Bombay stock exchange to the terrorist and political events. The table displays that Seven out of 9 terrorist events show significant difference in abnormal returns for fifteen days prior and after an event. While three on 2 days and only one on five days event window show the significant difference in abnormal returns. Whereas among 11 political events in India seven events shows significant difference on five and fifteen days event window. Only three events show significant difference on two days prior and after an event. The Bombay stock exchange doses not respond on two days event window significantly. The Bombay stock exchange does not respond on 2 days event window. Whereas study concluded that Bombay stock exchange is inefficient on 15 days event window. While only political events shown the inefficiency on 5 days event in which seven out of 11 events shown significant results.

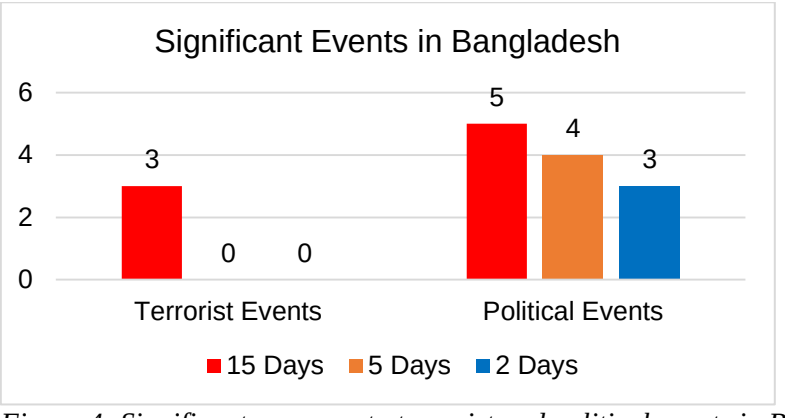

Figure 4: Significant response to terrorist and political events in Bangladesh

Bangladesh is least effected country from terrorism among other countries in the region. Most of the attack in Bangladesh are also for political reason. Only five major terrorist events are considered for study in the last decade. Whereas political situation is quite stable in the country in later years. While it also faces military intervention in the governance matters which include successful and failed coups. The above table shows the significant response by Chittagong stock exchange to the terrorist and political events. The table displays that Three out of five terrorist events have shown significant abnormal returns 15 days before and after the event. While no terrorist event shows any significant result on 2 and 5 days event window. The mix results of political events are observed on different windows. Five events on 15 days four on 5 days and only three events on 2 days event shows significant difference among. Overall Eight out of fifteen both political and terrorist events have shown the significant abnormal returns 15 days before and after an event. We can conclude that the market is relatively inefficient on 15 days event windows.

Sri Lanka faced civil war for more than 3 decades in the country. Which ends in 2009 by the death of the Tamil Tiger Chief Velupillai Parbharkan. Sri Lanka did not face any major terrorist attack in the country since 2009. The political situation was unstable in early years in the country during the civil war which becomes stable in late years.

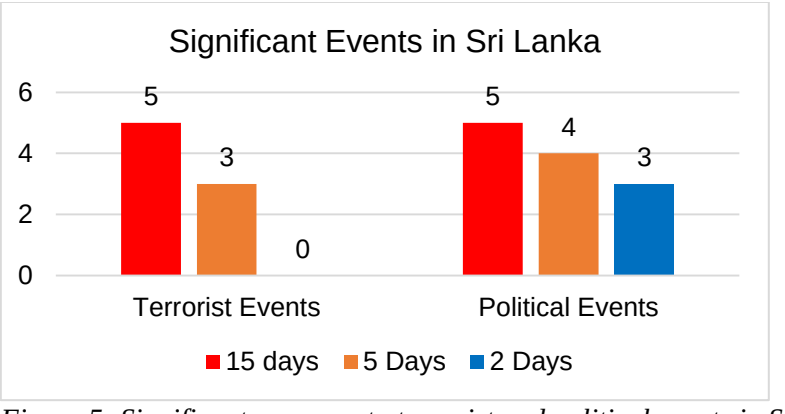

Figure 5: Significant response to terrorist and political events in Sri Lanka

The above table shows the significant response by Bombay stock exchange to the terrorist and political events. The table displays that five events on 15 days four on 5 days and only three events on 2 days event shows significant difference among. Overall ten out of 16 both political and terrorist events have shown the significant abnormal returns 15 days before and after an event. We can conclude that the Market is relatively inefficient on 15 days event windows. The above discussion and significant results shows that the terrorist and political events have significant impact on the stock market returns. Although the type of terrorism in all four countries is different but we found results on 15 days relatively significant than other two windows. The insignificant events can be assumed less important than others. Or the market already absorbed the information and did not responded on the event day or after the event.

Conclusion

The South Asian region faced terrorism and political setbacks in the last decade, so this study is the effort to find the impact of terrorist and political events on the stock market returns of major South Asian countries. For this purpose, we used event study methodology and market model to analyze the events and find the impact on the stock market returns. We used three different windows of 2, 5 and 15 days before and after an event. The stock markets in our study includes Pakistan Stock Exchange (Pakistan), Bombay Stock Exchange (India), Chittagong Stock Exchange (Bangladesh) and Colombo Stock Exchange (Sri Lanka). The event study methodology and market model are used to find the impact of Terrorist and political events on stock market returns. We analyzed 47 terrorists and 45 political events in all four countries of our study during the period of 2005-2016. The result shows that the Political and Terrorism have significant effect on stock market returns of South Asian countries. The results show that the stock market of South Asian region is inefficient on 15 days event window. While the results on 2 days event windows are not

significant. By which we can conclude that markets of South Asian countries are relatively inefficient on 15-day event windows. The noisy information does not absorb by the markets shows the contradiction to the assumptions of efficient market hypothesis (EMH).

One limitation of our study is that we consider limited time frame and events of political and terrorism while it can be enhanced by including other events such as financial news, company announcements etc. Secondly, we consider South Asian region which are developing countries and provides the comparison within the region, while a study may be conducted to get the comparison between developed and developing regions. Moreover, we considered the impact of events on Market returns, another study can be conducted by considering the impact of events on the market volatility. The future researcher can focus for terrorist and political events which are ignored in this study and more sophisticated statistical analysis may be applied which may generalize the results of event study methodology.

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