J. Basic. Appl. Sci. Res., 4(7)182-191, 2014
© 2014, TextRoad Publication
ISSN 2090-4304
Journal of Basic and Applied Scientific Research
www.textroad.com

Impact of Terrorism on Karachi Stock Exchange: Pakistan

Syeda Abeeda Hassan[1], Dr. Atif Mahmood[2], Dr. Ashfaq Ahmed[3], Syed Fakhar Abbas[4]

[1,2]University of Engineering & Technology, Lahore
[3]Bahria University, Lahore
[4] Virtual University

Received: April 19, 2014
Accepted: June 2, 2014

ABSTRACT

This study was undertaken to assess the impact of terrorism on major stock exchange of Pakistan i.e. Karachi Stock Exchange.The impact of most pronounced terrorist attacks of the last decade i.e. Assassination of ex Prime Minister Benazir Bhutto, Attack on Marriott Hotel Islamabad and Attack in Darra Adam khel 2010was studied on KSE 100 index. Event study methodology was used toanalyze the data. The results of study showed that the Marriott hotel attack produced the negative impact throughout estimation windows, ex Prime Minister Benazir Bhutto assassination attack resulted in sharp decline followed by immediate recovery of KSE 100 index, while there was a little negative impact of DarraAdamkhel attack on KSE 100 index which too lasted for a day or two. The results also highlighted that the venue and the target of attack are the important contributors in signifying the impact of attack on stock market.
KEYWORD: Terrorism, Karachi Stock Exchange, Pakistan.

INTRODUCTION

Terrorism is the use of violence or threat to use violence against the noncombatants. It may take the form of suicide bombing, remote control bombing, hijacking and kidnapping [1]. Unfortunately, terrorism has increased many folds in last decade or so and attracted immense attention all over the globe. With time, terrorism has also transformed into a bigger menace and it is being used indiscriminately against general public unlike old times[2].

In the recent past, a lot of research has been undertaken on the impact of terrorist activities on economy. Particularly the impact of mega terrorist attacks of last decade i.e. attack of 9/11 on World Trade Centre, 2004 Madrid and 2005 London bomb attacks, on different variables of economy, have been examined in detail by the researchers. The researches of [3-10] have studied the impact of various terrorist attacks on major economic variables like tourism, foreign direct investment and other macroeconomic performance of countries.

Currently, the researchers are focusing on impact of terrorism on stock exchanges as stocks are one of the major and conveniently quantifiable indicators of any changes in the economic activity. The researches [11-13] have found that the terrorist attacks are important events which can cause widespread violence, disturb the daily routine of people, adversely affect the economy and ultimately cause major fluctuations on the stock market returns/ index[14-18].

This paper is an attempt to investigate the impact of three biggest terrorist attacks of last decade in Pakistan, on Karachi stock Exchange. All three attacks are different in their nature and place of incident, there by highlight the difference in impact of attack due to difference in nature of target and avenue of attack.This study also contributes to the existing body of literature on the topic, being the first attempt to find out the impact of last decade`s major terrorist attacks on Karachi stock exchange. It is also first one to investigate the difference in impact of three different types of terrorist attacks on Karachi stock Exchange and will definitely, help investors to make better estimates of stock price fluctuations after different types of terrorist attacks. It will guide for investment decisions at stock exchange and will also urge the government to take appropriate steps to overcome the side effects of terrorist attacks to protect investments at stock markets in Pakistan.

LITERATURE REVIEW

The world has witnessed several deadliest terrorist attacks over the period of past ten years. For example, the attack of 9/11 on World Trade Centre, armed attack on a refugee camp in Uganda in 2004 killing almost 250 refugees and leaving many others wounded, train bombing in Spain and India causing hundred plus causalities in each of these countries in the years 2004 and 2006 respectively, Car bombing in Iraq in 2006 killing nearly 550 and causing 1500 others injured and militants attack on a police station in Nigeria killing almost 800 Nigerians in July 2009.

Thus the researchers have focused their attention to study its impact on stock market returns [14-18]. Terrorist activities directly influence the sentiments of investors and thus lead towards downturn of stock market

***Corresponding Author:** Syedaabeeda Hassan, MS student at University of Engineering & Technology, Lahore

[19]. This is because the investors become defensive in the phase of uncertainty caused by such events and it results in huge price fluctuation at stock exchange [20].

The research in this area of study started soon after the 9/11 attack on World Trade Centre. The event of September 11 took the attention of most of the researchers to analyze its effect on various stock exchanges. Attack of September 11 and Iraq's Invasion of Kuwait put a significant negative impact on capital markets; however the market recovered soon after these two events which can be attributed to strong financial sector of the country [11]. The cross country impact of 9/11 attacks on stock markets of 25 countries was observed to have equivalent impact on U.S stock markets as well as other countries' markets [21]. The stock markets of those countries reacted closely to the US markets over the period of six months after9/11. In another study, the impact of September 11 attacks was studied on 53 stock exchanges all over the world. It concluded that September 11 attacks had a negative impact on all the stock exchanges under study, in short run [22].

The impact of Palestinian terrorist attacks was studied on capital market of Israel. The analysis was performed on a data set of 14 years, from 1990 to 2003. The results of this study indicated that the terrorist activities directly affected the market mechanisms reporting to significantly negative impact on the market. [23].

The behavior of Basque capital market after some of the ETA terrorist attacks was studied and the results confirmed the adverse negative impact of the events on stock market of the country [24]. In another study, Chesney studied the impact of 77 terrorist attacks which occurred in 25 countries over a period of 11 years starting from January 1994 to August 2005 [25]. It reported that almost 66 percent of the terrorist attacks have negative effects on stock market. The negative impact is extreme on the day a terrorist attack occurred and later on the intensity declined.

After the 9/11 attacks, there is another mega terrorist event which is Madrid and London bomb attacks. The impact of these events on stock markets of Barcelona, Madrid, Valencia and London was investigated. The findings of this paper confirmed a significant negative impact of the attacks on all these stock exchanges [26].

Though Pakistan is also struggling against war on terror since last decade; but the terrorist events are increasing in the country relentlessly. According to Global Terrorism Database, Pakistan has been ranked second in terms of most affected countries of world. The statistics show that the terrorist activities have increased even more since 2007 and are largely targeted at private citizens and property

Variables of study:

This study investigates the impact of three major terrorist attacks of last decade i.e 2001 to 2010, on Karachi Stock Exchange 100 index. The major events have been determined on the basis of number of casualties and injuries, i.e. the attack which produced the maximum number of casualties or injuries or the one which created the greatest violence in the country in the years under study.

1. Benazir Bhutto Assassination:

The first major attack is the attack on ex Priminister of Pakistan Benazir Bhutto. The former Prime Minister delivered a speech before a huge congregation at Rawalpindi in the process of her election campaign for the upcoming elections of 2008. As she was getting off after the speech, she opened the roof of her vehicle and waved her supporters, a shot was fired at her and immediately after that attack, a suicide bomb was exploded. The timing for this particular attack was 5 0 clock in evening. In this attack 31 people were killed including Benazir Bhutto and 100 others were injured. This attack was mainly targeted on Benazir Bhutto and it took the whole country to extensive violence.

2. Marriott Hotel Attack:

In the year 2008, another biggest attack took place on September 20th at a large restaurant in capital city of Pakistan. It was a huge attack. It killed 61 people and injured a large figure of 200. A truck with massive explosive material was used in this attack which was exploded with the gate of Marriott hotel around 8 o clocks at night. This attack also created a wholesome aggression in the country.

3. Darra Adam Khel Attack:

Another major attack was November 5, 2010 attack at Darra Adamkhel, Khyber Pakhtunkhwa. It was targeted at a mosque in Kohat on Friday prayer congregation around 2 P.M. It killed 97 people including 18 children and left 65 others injured. It was one of the biggest attacks and it resulted in so many casualties but its impact on society is not considered equivalent to the first two attacks mentioned above.

DATA AND METHODOLOGY

Data:

The data used in this study consists of daily stock index of KSE 100 index and record on terrorist events from January 2001 to December 2010. This information has been collected through various secondary sources of data. The local sources for information on terrorist attacks are DAWN and Jang newspapers while the

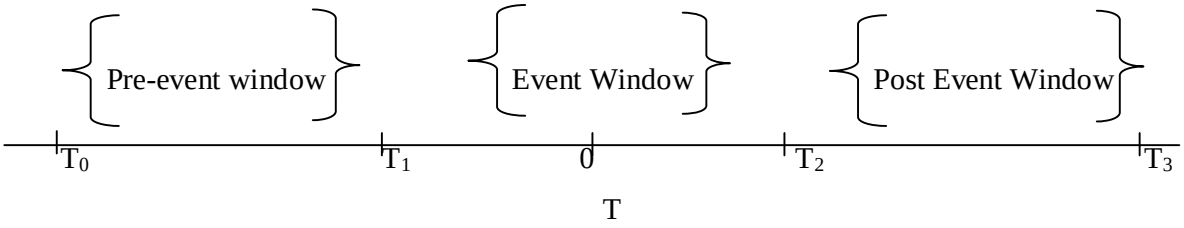
international sources are SATP (South Asian Terrorism Portal. The information on daily stock index has been obtained from the official website of Karachi stock exchange and financial database of Pakistan. However, the index on the days of public holidays has not been considered for the purpose of this study.

Methodology:

Event study methodology has been used in this study. This approach studies the reaction of stock market against a variety of events like any good or bad news announcements related to politics or firm specific events, catastrophic events, terrorist events, etc [27,28]. The main purpose of this approach is to analyze any deviation in normal daily stock returns as a result of terrorist attacks.

In this study, three types of estimation windows have been used which are pre-event window, event day window and post event window. The pre event window consists of fifteen days before the occurrence of terrorist attack, the event day window consists of the day a terrorist attack occurrs to onward fourteen working days while the post event window consists of fifteen days after the event time period of fifteen days [29]. These three windows explain the overall deviation of KSE 100 index as a result of terrorist attack. These are drawn as under:

Fig 1. Event study Windows



In order to study the impact of these terrorist attacks on volume leader sectors of stock exchange, mean-adjusted returns model and market models have been used. The mean adjusted return model has been used to calculate the excessive returns of a sector on a particular date as compared to routien activity. For this purpose, difference is taken between observed returns and expected returns of stock:

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

Here AR_t is the abnormal returns of stock i at time t. R_t is the observed returns of index i at time t, whereas $E(R_{it})$ is the expected return of stock i at time t and is calculated using market model which is:

$$E(R_{it}) = a + bE(R_{mt}) \quad (2)$$

In this model, the a is alpha and b is regression coeffficient, calculated using 250 observations of stock daily returns before occurrence of terrorist event and R_{mt} is the market portfolio.

The abnormal returns of sector I at time t has been calculated by taking average of abnormal returns of all companies of that particular sector as:

$$AR_{It} = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \quad (3)$$

Where AR_{It} is the abnormal returns of sector I and AR_{it} is the abnotmal return of company i at time t. Similarly, the cummulative abnormal returns of all sectors have been calculated for larger event windows of 3 days, 6 days and 11 days. They are calculated as under:

$$CAR_t = \sum_{t=T_1}^{T_2} AR_t \quad (4)$$

Where T_1 is the event day and T2 is the 3, 6 and 11 days after the vent day. AR_t is the abnormal returns of sector.

T stats has been used to analyze the statistical difference of abnormal returns of selected sectors as a result of all three terrorist attacks.

RESULTS

Table 1: Descriptivestatistics:

Attack	Mean	Maximum	Minimum	S.D
2007 Benazir Attack	14138.3	14814.85	13353.38	344.08
2008 Marriott Attack	9206.43	9342.19	9178.73	39.3391
2010 DarraAdamKhel Attack	11099.8	11858.17	10431.84	455.53

The table of descriptive statistics shows the mean, maximum, minimum and standard deviation of Karachi stock exchange 100 index during a 45 day time period of estimation windows. It shows that the index caused greater variation during 2010 Darra Adamkhel attack while there is minimum variation during 2008 Marriott hotel attack as the value of Standard deviation for these two events is 455.53 and 39.3391 respectively.

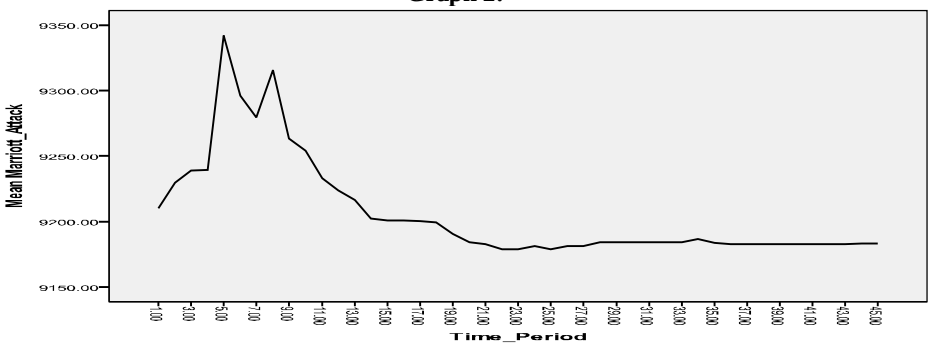
Graphical Representation:

In oredr to study the impact of terrorist event on KSE 100 index, grphical presentation of daily closing points of index for three estimation windows has been made through line graphs.

Graph 1:

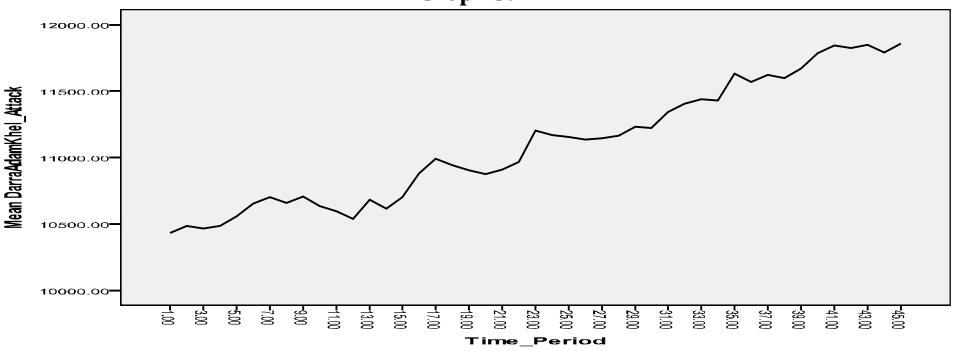
2007 Benazir Bhutto Assassination Attack

Graph 2:



2008 Marriott Hotel Attack

Graph 3:



2010 DarraAdamKhel Attack

Graph 1,2 and 3 are showing the impact of 2007 Benazir Bhutto assassination attack, 2008 Marriott hotel attack and 2010 DarraAdamKhel attack respectively on KSE 100 index. The closing points of KSE 100 index for 45 days time period of estimation windows (pre-event, event and post event) have been presented in graphs. The time period from 1 to 15 days represents pre-event window, 16 to 30 days signifies event window and from

30 to 45 days shows post event window. The KSE 100 index has been taken at Y-axis and the estimation windows for these attacks have been taken on X-axis.

The graph 1 shows that the KSE 100 index dropped sharply on the occurrence of 2007 Benazir Bhutto assassination attack. However, it recovered immediately after a week but it could not restore its pre-event condition. The graph 2 of Marriott hotel attack shows that the Karachi stock exchange 100 index was declining in pre-event time period and this attack caused the index to drop further. It could not recover even in post event window, rather became stagnant. Finally, the third graph shows that the DarraAdamkhel attack had a minor influence on stock market. There is a slight decline in event time period and then it immediately recovered.

One Way ANOVA

One way analysis of variance (ANOVA) has been run to check the change in stock exchange index as a result of three terrorist attacks.Post hoc tukey has been used to investigate where actually the difference lies.

Table 2:
One way ANOVA between Stock Exchange Index and 2007 Benazir Bhutto Assassination Attack

		Mean Difference	Significance
Event	Pre-Event	-438.70133*	.000
Event	Post Event	121.78333	.381
Overall significance between groups			.000
F Statistics			21.041

Table 2 shows the results of one way ANOVA between stock market index and 2007 Benazir Bhutto Assassination attack. The time period of this attack was also divided into three categories (Pre-event, Event and post event). There is an overall significant difference between all three categories (F value=21.041, P=.000). Post Hoc comparison with Turkey HSD test was used to check where actually the difference lies.

The mean difference column in is showing that the KSE 100 index decreased in pre event to event time period and this result is significant at a level of .05 as shown by the significance column. The index dropped further by 121 points in post event period but the results are not significant as shown by the significance column. All this means that the market dropped as a result of this attack in both event and post event periods. However, the drop in index in post event period was lesser than that of event time period which means that the market started to recover in post event period.

Table 3:
One way ANOVA between Stock Exchange Index and 2008 Marriott Hotel Attack

		Mean Difference	Significance
Event	Pre-Event	-63.57067*	.000
Event	Post Event	2.59867	.956
Overall significance between groups			.000
F Statistics			34.081

Table 3 is showing the results of one way ANOVA between stock market index and 2008 Marriott hotel attack. The terrorist attack was again divided into three different estimation windows i.e. pre event, event and post event. The table shows that there is a statistically significant difference between the groups under study (F=34.081, P<.05). The mean difference column shows that there is a drop of 63.57 points from pre-event to event time period and this result is statistically significant. However, the index remained almost stagnant in post event period as it decreased to only 2 points on an average after the occurrence of attack. But the results are not significant as the p value is .956.

Table 4:
One way ANOVA between Stock Exchange Index and 2010 DarraAdamKhel Attack

		Mean Difference	Significance
Event	Pre-Event	465.45200*	.000
Event	Post Event	-584.06467*	.000
Overall significance between groups			.000
F Statistics			208.892

Table 4 shows the results of one way ANOVA between stock market index and 2010 DarraAdamKhel attack. The time period of this attack was also divided into three different categories to better analyze the impact of attack on stock exchange. The results indicate an overall statistically significant difference in index between pre event and post event time period (F=208.892, P<.05).

The column of significance separately shows the statistically significant difference at a level of P=.05 in both estimation windows i.e. from pre event to event and from event to post event. The column of mean difference shows that the there is an average increase of 465 points in index during pre event time period while

it increased further by 584 points in post event period. It means that on an average, this attack has no impact on the index rather it moved more positively after the occurrence of attack.

Sector-wise Analysis:

In order to create deep understanding of the impact of selected terrorist attacks on KSE, the top ten volume leader sectors of Karachi Stock Exchange have been selected. The mean adjusted returns model has been used to check out the excessive returns either positive or negative of all sectors as a result of each of these terrorist attacks. The market model has been used to calculate the expected returns of all particular sectors. Standard t stats have been used to calculate the statistical significance of these results.

Table 5

Average Abnormal Returns of top ten sectors of KSE following the Assassination of Benazir Bhutto Attack 2007

Industry	Event day AR	3 day CAR	6-day CAR	11-day CAR
Banking	-0.045	-0.078	-0.133	-0.232
	(-1.865**)	(-2.226*)	(-5.436***)	(-13.069***)
Cement	0.0176	0.040	0.0261	0.016
	(-0.262)	(2.725**)	(2.711**)	(1.027)
Chemicals	0.0127	0.077	0.072	-0.078
	(-0.228)	(1.620**)	(1.93**)	(-1.901**)
Electricity	-0.008	-0.020	-0.030	-0.0282
	(-0.8099)	(-0.35)	(-0.6894)	(-0.7861)
Financial Services	-0.024	-0.084	-0.067	-0.118
	(-0.109)	(-2.257*)	(-1.497*)	(-3.182***)
Oil and Gas	-0.0079	-0.0223	0.0013	0.013
	(-0.463)	(-20.183**)	(0.154)	(1.937**)
Textile	-0.031	0.306	-0.153	-0.375
	(-0.220)	(1.811)	(-1.060)	(-1.063*)
Fixed Line Telecommunication	-0.038	-0.201	-0.184	-0.440
	(-1.566*)	(-2.13*)	(-2.337**)	(-7.352***)
Household Goods	0.019	0.064	0.115	0.179
	(-0.498)	(-1.597)	(4.513***)	(9.015***)
Automobile	0.0085	-0.0122	-0.0050	-0.0297
	(0.371)	(-0.744)	(-0.047)	(-0.185)
***** Significance at a level of 1%**				
**** significance at a level of 5%**				
*** significance at a level of 10%**				
t values in parenthesis				

Table 5 summarizes the results of abnormal returns and cumulative abnormal returns. It shows the event day AR in second column, 3 day CAR in third, 6 day CAR in fourth and 11 day CAR in fifth column. The results of this table highlight that the event day abnormal returns went negative for all sectors under study with the exception of cement, chemicals and automobile sectors. It means that almost all the sectors were affected negatively as a result of this attack. The banking and the fixed line telecommunication sectors were the most affected sectors with event day abnormal returns of -0.048 and -0.038 respectively. Also the results of only these two sectors i.e. banking and fixed line telecommunication sectors are significant at a level of 10% significance while the results of all other sectors are insignificant for event day abnormal returns.

The 3-day CAR in third column is again showing negative CAR for all sectors with the exception of cement, chemical and automobile. The largest affected sector is fixed line telecommunication with CAR of -0.2007. Most of the results of 3-day event window are statistically significant at 10%, 5% and 1% level of significance. In 6-day and 11-day event window, the results remained almost the same. The largest affected sectors were again the fixed line telecommunication and banking sectors. The CAR dropped 0.44 for telecommunication in 11 day event window. However, the oil and gas sector showed a slightly positive value of 0.0002 for 11-day CAR which means that the oil and gas sector started to recover in 11-day event window. The results of most the sectors in 6-day and 11-day event windows are highly significant.

Table 6:

Average Abnormal Returns of top ten sectors of KSE following the **2008 Marriott Hotel Attack**

Industry	Event day AR	3 day CAR	6-day CAR	11-day CAR
Banking	0.1615	0.0273	0.0865	0.118
	(0.241)	(1.036)	(2.409**)	(2.472**)
Cement	-0.1058	0.0345	0.1656	0.2599
	(-0.606)	(0.483)	(1.678**)	(2.095**)
Chemicals	0.0124	0.0251	-0.0057	-0.0287
	(0.402)	(3.949**)	(-0.431)	(1.378*)
Electricity	-0.02037	-0.6014	-0.1196	-0.0203
	(-0.575)	(-3.024**)	(-3.229**)	(-3.318***)
Financial Services	0.0013	0.0049	0.0099	0.0166

	(0.828)	(2.765*)	(0.303**)	(3.271***)
Oil and Gas	-0.169	-0.0311	-0.0716	0.0089
	(-0.554)	(3.022**)	(-3.322**)	(0.144)
Textile	0.0380	0.223	0.0155	0.2992
	(0.221)	(1.078)	(0.103)	(1.318)
Fixed Line Telecommunication	0.0049	0.0439	0.0172	0.0007
	(0.453)	(2.250*)	(1.168)	(0.0509)
Household Goods	-0.0249	-0.0471	-0.0635	-0.0918
	(-0.704)	(-3.899**)	(-3.613***)	(-2.915***)
Automobile	0.0060	0.0189	0.0477	0.2941
	(0.0989)	(1.355)	(2.4039**)	(1.980**)
***** Significance at a level of 1%**				
**** significance at a level of 5%**				
*** significance at a level of 10%**				
t values in parenthesis				

Table 6 shows the impact of 2008 Marriott hotel attack on major sectors of Karachi Stock Exchange. It summarizes the results of event day abnormal return, 3 day, 6 day 11 day cumulative abnormal returns. The statistical significance of results has been checked at a level of significance of 1%, 5% and 10%. The table shows that the cement and oil & gas sector experienced the highest negative returns on the day of event and they recovered in post event windows. The household goods sector was the only sector which remained negative in terms of abnormal returns throughout the event windows. The results of event day abnormal returns for all sectors were statistically insignificant while they were significant for some of the sectors in 3 day, 6 day and 11 day event window.

Table 7:

Average Abnormal Returns of top ten sectors of KSE following the **2010 DarraAdamKhel Attack**

Industry	**Event day AR**	**3 day CAR**	**6-day CAR**	**11-day CAR**
Banking	-0.0026	-0.0105	-0.0095	-0.0179
	(-1.260)	(-1.974*)	(-2.201**)	(-2.034**)
Cement	-0.0686	-0.1114	0.0410	0.2759
	(-0.194)	(-5.205**)	(0.358)	(2.241**)
Chemicals	0.0779	0.215	0.3877	0.6994
	(0.349)	(3.114**)	(3.04**)	(3.341***)
Electricity	-0.0306	-0.0414	0.0039	-0.0149
	(-0.555)	(-4.033**)	(0.233)	(-1.176)
Financial Services	0.0220	0.0286	0.0511	0.1182
	(0.775)	(7.384***)	(4.509***)	(3.547***)
Oil and Gas	0.0141	0.012	0.0070	0.0160
	(0.827)	(17.328***)	(1.575*)	(3.348***)
Textile	-0.1469	-0.2797	-0.5074	-0.8517
	(-0.867)	(-3.949**)	(-4.267***)	(-3.402)
Fixed Line Telecommunication	-0.135	0.2861	0.5517	0.7860
	(-4.536*)	(0.971)	(1.832*)	(2.082**)
Household Goods	-0.0252	0.0281	0.0254	0.0226
	(-12.739**)	(0.887)	(0.987)	(1.166)
Automobile	0.0308	-0.0084	-0.0174	-0.0071
	(0.318)	(-0.380)	(-1.051)	(-0.381)
***** Significance at a level of 1%**				
**** significance at a level of 5%**				
*** significance at a level of 10%**				
t values in parenthesis				

Table 7 shows the impact of 2010 DarraAdamkhel attack on volume leader sectors of KSE. The table summarizes the results of abnormal returns and cumulative abnormal returns of event day, 3 day, 6 day and 11 day event windows after the occurrence of attack. It shows that the event day abnormal returns went negative for all sectors under study with the exception of financial services, chemicals, oil and gas and automobile sectors. The textile sector showed the largest negative returns on event day with event day abnormal returns of -0.1469. However, the results of event day abnormal returns are statistically significant for only fixed line telecommunication and household goods sectors and are insignificant for all other sectors.

The 3-day, 6 day and 11 day CAR in third fourth and fifth columns are again showing that the textile sector experienced the adverse negative returns in all post event windows of CAR. The results of household goods and chemical sectors for all CAR windows are statistically insignificant.

DISCUSSION

The current study is basically undertaken to study the behaviour of market in response of three major terrorist events of last decade (from 2001 to 2010) in Pakistan. The results show that all the terrorist events under study, have statistically significant impact onKSE 100 index. The attack of 2007 of Benazir Bhutto assassination caused greater violence in country. It resulted in major property destruction and also it totally disturbed the law and order situation of the country. This attack resulted in a rapid decline followed by an immediate recovery of the market. Graph 1 is clearly presenting a sharp decline in index at once. The table 2 for one way ANOVA results of this attack is also showing a decline of 438 points in index from pre event to event period and a drop of 121 points in post event period. This decline can be totally contributed to the occurrence of this attack. The sectorwise abnomal retuns also declinedfor all indices with the exception of automobile and household goods sectors on the day of event and in longer event windows, the impact is reduced for only oil and gas sector and for the rest of the indices it was even worsened. However, the recovery as shown in graph in post event window of this huge attack can be attributed mainly to the speech of president Musharraf after the attack in which he announced that there will be no delay in up coming general elections of the country [30]. This anouncement boosted the investor's confidence especially the foreign investors. The investment activities at stock market revived again quickly as is shown in graph 1.

The 2008 Marriott hotel attack was one of the greatest attack of the last decade. It negatively affected the investments at stock exchnage. However, it can be seen in graph 2 that the market was already crashed before the occurrence of this attack. There are a number of reasons which could be attributed to this fall in index. The planned pressure from foreign sellers, on Pakistan's stock market was one of the most important reasons which resulted in fall of index. Moreover, the departure of one of the biggest political party PML-N from coalition government caused serious uncertainty in the minds of investors, thus they started withdrawing investments from equity market. Finally, the Marriott hotel attack added fuel to fire and the market dropped further. Because of all these pressures, the stock market became almost stagnant and could not recover even in post event period [31].

The 2010 Darra Adamkhel attack was one of the biggest attacks of the last decade which resulted in 97 casulaties.The results of one way ANOVA in table 4 show that there is no impact of this attack on stock exchange as the KSE 100 index, on an average, remained positive, in both pre-event to event and from event to post event time period. The graph for this attack also presents upward movement of KSE 100 index after the attack. However, there is a slight decline in line graph because of this attack and after a few days' fluctuation it again started an upward movement in post event time period. Also, the sectorwise analysis in table 7 confirms that the market reacted negatively to this attack but the negative impact remained for a very short time and then the market started to function as per normal routein. The abnormal returns for most of the sectors also turned poitive in post event windows. The possible reason which could be attributed to this behaviour of market might be that the attackoccurred in tribal area where terrorist attacks occurre more oftenly. So, it affected the market, but the magnitude of attack was not sever like first two attacks.The people of Pakistan, after fighting a continuous war on terror, for a decade, have become quite used to terrorist activities so, this attak could affect the moods of investors for not more than a day or two [32]. All these results are consistent with previous researches of [22, 24-26].

Conclusion:

The study has measured the impact of terrorism on KSE 100 Index. The results and discussion conclude that there is significant impact of terrorism on capital market of Pakistan. Greater the violence created by the event, more would be its impact on stock exchange. An attack on some political leader has more adverse impact as compared to attacks on civilians. Furthermore, an attack in capital city has more undesirable impact on market than other attacks. The attacks in tribal areas do not affect the index to a greater extent despite of huge number of casualties. Moreover, the rescue efforts and the actions of government also play their role in minimizing the impact of a terrorist attack on stock exchange.

REFERENCES

[1] Gaibulloev, K., & Sandler, T. 2008. The impact of Terrorism and conflicts on growth in Asia 1970-2004. *ADB Institute Discussion Paper No. 113* .

[2] Laqueur, W. 1999. The New Terrorism: Fanaticism and the Arms of Mass Destruction. London: Oxford University Press.

[3] Enders, W., Sandler, T., & Parise, G. 1992. An econometric analysis of the impact of terrorism on tourism. *Kyklos, 45,* 531-554.

[4] Enders, W., & Sandler, T. 1993. Terrorism and foreign direct investment in Spain and Greece. *Kyklos, 49*, 331-352.

[5] Enders, W., & Sandler, T. 1996. *The political Economy of Terrorism.* Cambridge UK: Cambridge University Press.

[6] Gupta, S., Clements, B., Bhattacharya, R., & Chakravarti, S. 2004. Fiscal consequences of armed conflict and terrorism in low and middle income countries. *European Journal of Political Economy, 21*, 403-421.

[7] Crain, N., & Crain, W. 2006. Terrorised Economies. *Public Chice, 128*, 317-349.

[8] Enders, W., Adolfo, S., & Sandler, T. 2006. The impact of Transnational Terrorism on US Foreign Direct Investment. *Political Research Quarterly, 59* (4), 517-531.

[9] Abadie, A., & Gardeazabal, J. 2008. Terrorism and the world economy. *European Economic Review, 52*, 1-27.

[10] Larocque, D., Lincourt, G., & Normandin, M. 2010. Macroeconomic Effects of terrorist shocks in Israel. *Defence and Peace Economics, 21*, 317-336.

[11] Chen, A., & Seims, T. 2004. The effect of terrorism on global capital markets. *European Journal of Political Economy, 20*, 349-366.

[12] Carter, D., & Simkins, B. 2004. The market's reaction to unexpected catastrophic events: the case of the airline stock returns and the September 1th attacks. *The Quiarterly Review of Economics and Finance, 44*, 539-558.

[13] Jong-A-Pin, R. 2009. On the measurement of political stability and its impact on economic growth. *European journal of political Economy, 25*, 15-29.

[14] Sandler, T. 2003. Collective action and Terrorism. *The World Economy, 17*, 779-802.

[15] Sandler, T., & Enders, W. 2002. An economic perspective on transnational terrorism.

[16] Bruck, T., & Wickstrom, B. 2004. The economic consequences of terror. *European Journal of Political Economy, 20*, 292-300.

[17] Bruck, T. 2005. An economic analysis of security poicies. *Defence and Peace Economics, 16*, 375-389.

[18] Brounrn, D., & Derwall, J. 2010. The impact of terrorist attacks on international stock markets. *European Financial Management, 16*, 585-598.

[19]Arin, K., Ciferri, D., & Spagnolo, D. 2008. The price of terror: The effects of terrorism on stock market returns and volatility. *Economic Letters* , 164-167.

[20] Drakos, K. 2010. Terrorism activity, investor sentiment and stock returns. *Review of Financial Economics, 19*, 128-135.

[21] Hon, M., Strauss, J., & Yong, S. 2004. Contagion Financial markets after September 11: Myth or reality? *The journal of Financial Reseach, XXVII*, 95-114.

[22] Nikkinen, J., Omran, M., Sahlstrom, P., & Aijo, J. 2006. Global stock market reactions to scheduled U.S. macroeconomic news announcements. *Global Finance Journal, 17*, 92-104.

[23] Eldor, R., & Melnick, R. 2004. Financial markets and terrorism. *European journal of Political economy, 20*, 367-386.

[24] Barros, C., & Gil-Alana, L. 2008. Stock market returns and terrorist violence: Evidence from the Basque country. *Applied Economics Letters, 16*, 1575-1579.

[25] Chesney, M., Reshetar, G., & Karaman, M. 2010. The impact of terrorism on financial markets: an empirical sudy. *Journal of Banking and Finance, 35*, 253-267.

[26] Kollias, C., Papadamou, S., & Stagiannish, A. 2011. Terrorism and capital markets: The effect of the Madrid and London bomb attacks. *International review of Economics and Finance, 20*, 532-541.

[27] Fama, E., Fisher, L., Jensen, M., & Roll, R. 1969. The adjustment of stock prices to new information. *International Economic Review, 10* (1), 1-21.

[28] Boehmer, E., Musumeci, J., & Poulsen, A. 1991. Event study methodology under conditions of event-induced variance. *Journal of Financial Economics, 30*, 253-272.

[29] Ahmad, A., Ali, M. & Humayoun, A. A. 2011 "An Investigation of influence of Local Events on Performance of Karachi Stock Exchange 100 Index". *Interdisciplinary Journal of Contemporary Research in Business*, 3(1), 823-831.

[30] "KSE 100 share index gains 643 points", Dawn News, January 2009. Accessed May 06, 2014. http://www.dawn.com/news/282993/kse-100-share-index-gains-643-points

[31] **"**KSE index suffers eight percent loss", *AAJ news*, September 1, 2008. Accessed May 06,2014. http://www.aaj.tv/2008/09/kse-index-suffers-eight-percent-loss/

[32] Alam, A. 2013. Terrorism and stock market development: causality evidence from Pakistan. *Journal of Financial Crime, 20*, 116-128.