A Study of Terrorism Impact on Indian Stock Markets

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Introduction:

Terrorist attacks are geopolitical events that are believed to have an adverse effect on national and international economy. These attacks have direct and indirect financial consequences. Terrorism is a political issues nowadays, the stock exchange can be directly or indirectly affected by terrorism activity (IMF 2005). The terrorist attacks that have occurred in the past few years around the world have raised international awareness of the danger of terrorism and its complex repercussions on the financial markets.
Financial institutions could be involved in financial crime as victim, as perpetrator, or as instrumentality: Financial institutions can be subject to different types of fraud or abuse; they can directly commit financial crimes; or they can be used by third parties to commit crime (IMF, 2001a). Similarly, terrorism can have multiple implications for financial markets. First, as demonstrated by the attacks of September 11, 2001 on the World Trade Center financial markets can be, directly and indirectly, the victim of terrorism. Second, financial institutions can be specially set up to support terrorism. Third, financial institutions can be used, without their knowledge, to channel terrorist funds.

Review of literature

Berrebi and Klor (2005) focused specifically on attacks on Israeli companies and find that the abnormal stock returns in the US stock market for companies cross-listed for trading in the US to be - 0.77%. For companies in non-defense businesses the reactions were much higher at -4.58%, while defense related companies recorded a positive reaction of +3.89%.

Nguyen and Enomoto (2009) study the effect of terrorism on national stock indices and volatility, but only for two countries, Pakistan and Iran. Chen and Siems (2004) study the impact of terrorist attacks on national stock indices from 30 countries. They, however, focus on only two attacks, 9/11 and the Iraq invasion of Kuwait. Moreover, their primary focus was to understand the resilience of international stock markets. Chesney, Reshetar, and Karaman (2011) focus on Swiss (SMI), US (S&P 500), and European (MSCI Europe) stock indices. They concluded that the 77 terrorist attacks in their dataset had a significant negative impact on at least one of the three indices. Like some others, their results also indicate that terrorist attacks could have an impact on international markets. Arin, Ciferri, and Spagnolo (2008) show that for six different countries the stock markets show a negative return after the attacks. They also find that the magnitude of stock index decline is higher for emerging economies.

Panagiotis Lirgovas (2010) : further conducted a study on the impact of terrorism on Greek bank's stock with the help of an event study method. The study included the three major terrorist attacks: New York USA terrorist attack (Sep 9, 2001), Madrid train bombing (March 11,2004) and London train bombing (July 7, 2005). Nevertheless result of the study indicated that the 9/11 attack, London bombing and Madrid booming shows an abnormal, negative and no effect on Greek banks stock respectively. The 9/11 attack shows a huge and abnormal effect, because of the dominancy of the US economy over the world's economy. Our study's main concern is to identify the impact of terrorism activities on the KSE 100 index

Kollias et al. (2011), using event study methodology and GARCH family models, study the impact of the Madrid and of the London bombings on equity sectors. Significant negative abnormal returns are widespread across the majority of sectors in the Spanish markets but not so in the case of London. Also the time of recovery is much faster in the latter case (the impact and volatility being in any case transitory), thus all results confirm those previously presented by Baumert (2010).

Evelita E. Celis and Leow Jia Shen (2015), found that the investors take asymmetric treatments to the election information and the government policy. In the twentieth century, intensive empirical studies of the events like terrorists attack and its impact on stock market became quite popular

Objectives of the Study

1. To know the return of Sensex for long run and compare with before and after period from blast data
2. To measure the relationship of pre and post and period of Sensex from blast date
3. To know the rebounding period from the blast date
4. To know the volatility of the benchmark and compare with pre and post period of blast date.

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Scope of the Study

The present study has been bifurcated into two paths based on the bomb blast 30 days were considered before and after period. The data of nifty has been considered from 2001 to 2006. The bomb blasts for the study from 2001 to 2016 are as follows.

	Time	Year
1	11:00	13th December, 2001
2	9: 30 am	13th December, 2004
3	1:15 pm	18th January, 2007
4	11:00 am	25th August, 2007
5		26th November, 2008
6	3:30 pm	2nd January, 2016

Source: Complied data

Data Analysis:

To know the return of Sensex for long run and compare with before and after period from blast data.

	Before	**After**	**Year**
2001	0.2042592	0.252046	2.47185
2004	0.1731645	0.230487	52.24768
2007	0.4351429	0.059261	20.46204
2007	-0.037219	0.704835	0.176636
2008	-0.351515	0.119718	86.72264
2016	0.0593261	0.154234	13.3486
	0.0805265	0.25343	29.23824

Source: Complied data

The above table of returns has been calculated for short term based on blast date before and after 30 days. The analysis result indicates that after blast period returns are observed greater than the before blast period returns. The one year returns in post blast periods has given near 30% return from 2000 to 2016 year by considering six blasts.

To measure the relationship of pre and post period of Sensex from blast date.

Year	**Correlation**
2001	0.048975
2004	0.28136
2007	-0.2303
2007	0.229127
2008	-0.05296
2016	0.229763

Source: Complied data

The above analysis of correlation result indicates that pre stock price period from the blast with post period stock price is observed positive relationship except second half period of 2007 blast and 2008 blast relationship is observed negative.

To know the rebounding period from the blast date.

Years	**Days**
2001	119
2004	1
2007	3

2007	204
2008	5
2016	4

Source: Complied data

The above analysis of rebounding period result indicated the market is taking its original place within short period except 2001 and 2007. In these two years equity markets in India are found to be in recession and the bomb blasts during recession period influence has been observed for long period.

To know the volatility of the benchmark and compare with pre and post period of blast date

SD	Before	After	SD/P	Befor vol	SD/P	After vol
2001	96.919778	60.99856	3.230659	**1.797403**	2.033285	**1.425933**
2004	128.74282	188.5449	4.291427	**2.071576**	6.28483	**2.506956**
2007	452.77412	175.8736	15.09247	**3.884903**	5.862453	**2.42125**
2007	511.6927	951.6321	17.05642	**4.129942**	31.72107	**5.632146**
2008	833.40595	432.9539	27.7802	**5.270692**	14.4318	**3.798921**
2016	443.3833	659.2415	14.77944	**3.844404**	21.97472	**4.68772**

Source: Complied data

The volatility measurement on nifty has been calculated for before and after period. The study result indicates after bomb blast period nifty volatility is observed greater than before blast period volatility.

Findings of the study

1. It has been found the equity markets performance after blast period is increasing compared with before bomb blast returns.
2. The study observed that the bomb blast impact on market is short term phenomena. The negative impact of bomb blast relevance has not been observed in Indian equity markets.
3. The rebounding period analysis indicated that the market taking its original position within one week except in 2001 and 2008 year. In these two year due to the markets recession impact of blast lived for longer period.
4. The volatility measurement result indicated that after bomb blast period fluctuation is greater than the before period blasts fluctuation.

Limitations

- The present study has considered only Sensex as the barometer to measure the influence of bomb blast. In the market apart from the index many stock returns also may effect.
- In the study economic factors influence has not been observed because the bomb blast impact is in short term observed on market. Hence there may be various other factors influence exists on the Sensex behaviour which has not been analysed by the present study.

CONCLUSION:

The present study concludes the titled "Terrorism impact on Indian equity markets" from the period of 2001 to 2016. The study observed that bomb blast impact is having very short term impact, in fact the investors have gained the greater returns in long run, the short term investors and long term investors can take the advantage in equity markets so that they can experience handsome returns. The volatility in post period had increased comparing with pre-period volatility. Hence there is a further scope to do research in this area by considering the market sensitive factors which may influence nifty with greater impact than the bomb blasts.

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