

## IMPACT OF POLITICAL AND CATASTROPHIC EVENTS ON STOCK RETURNS

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**ABSTRACT:** *This study intends to find the impact of political and catastrophic events on stock returns of Karachi Stock Exchange (KSE-100 Index). A total of forty three political and four catastrophic events have been considered from May 1998 to September 2013. Political events are further divided into two groups i.e., favorable political events and unfavorable political events. The impact is checked for political, catastrophic, favorable political and unfavorable political events for 1 day, 5 days, 10 days and 15 days event windows. The results suggest that mean returns before and after political events were different on 5 days window. Thus, political events do have an impact on stock returns, however, it does not last longer and returns are normalized afterwards. Similarly, favorable political events also have impact on stock returns only on 5 days window. Unfavorable political events show abrupt (one day) impact and 5 days impact. Catastrophic events show no impact on stock returns using 1 day, 5 days and 10 days event windows. However, the impact was observed on 15 days event window. These results indicate that Karachi Stock Exchange is inefficient in semi strong form.*

**Key Words:** Political Events, Catastrophic Events, Stock Returns

**1 Introduction** The stock market movements have been keenly studied by many researchers (e.g., Schwert, 1989; Cutler, Poterba & Summers, 1989; Fair, 2002; Kim, 2003). The purpose is to find out factors that have an impact on stock returns. This strand of research is thought to be connected with the Efficient Market Hypothesis<sup>1</sup>. The factors identified by researchers are economic factors (announcements about interest rates, foreign exchange rate, dividend policy etc.), political events and catastrophic events along with many others (Suleman, 2012).

Studies on catastrophic and political news suggest that these events affect stock markets. It is considered that news about political decisions, which could potentially influence domestic and foreign policy are responded by stock markets. According to Tan and Gannon (2002), news that increases investors' expectations should increase the prices and vice versa.

Over the years, Pakistan has experienced active political issues and involvements and has witnessed many catastrophes (Chari, 2010). The control of government has oscillated between democratic parties and military dictatorship and the real concept of democracy still remains a paradox. It is the urge for power that drives military to be actively participating in politics (Taha, 2012).

In sixty six years there have been three constitutions and the latter one of 1973 yet facing amendments. However, in the last fifteen years i.e., 1998-2013, the country has gone through some major political and

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<sup>1</sup> This hypothesis assumes all news and announcements are fully accommodated in stock prices and that excessive earnings and abnormal returns are not possible.

catastrophic events (e.g., Musharraf government's demise, earth quake and floods). After the nuclear tests in May 1998, Pakistan has faced excessive international pressure in the form of economic sanctions (Taha, 2012). The democratic government was dismissed and the military government of Musharraf took over on October 12, 1999. Even though in 2002, civilian government was restored yet Musharraf remained president for next five years. Further, he suspended the Chief Justice and announced emergency. However, after his resignation democratic government was formed, which for the first time in history completed its tenure. Unfortunately, Pakistan is also facing the menace of terrorism that creates anarchy (Kronstadt, 2008).

Pakistan was also badly hit by natural catastrophes including earthquakes in 2005 and floods in 2007 and 2010 (NDMA, 2010). The role of stability is of immense importance to economic development and growth (Memon, Memon, Shaikh, & Memon, 2011).

It is important to understand how the political and catastrophic events have affected the returns of Karachi Stock Exchange (KSE), which is the largest stock exchange of the country). The study contributes to the literature as it uses a more expanded time frame considering all the major political and catastrophic events. It observes the impact using four different event windows to get better results. It even observes the impact of favorable and unfavorable events separately.

We observe that political events do have an impact on stock returns in the short run, i.e., 5 days window and are normalized afterwards. The impact of catastrophic events is observed only on 15 days window. Thus, we conclude that KSE is inefficient in semi strong form.

The remaining paper is organized as follows. Section 2 discusses the literature review and hypothesis development. Section 3 describes the methodology. Section 4 contains data analysis and interpretation while section 5 concludes the paper.

## **2 Literature Review and Hypotheses**

**2.1 Literature Review** Efficient Market Hypothesis states that stock prices contain the effect of all available information which restricts investors from earning extra than normal returns (Fama, 1970). Further Fama (1970) introduced the distribution of Efficient Market Hypothesis into three sub divisions, i.e. Weak form, Semi Strong form and strong form.

The view that historical information about stock prices and returns are entirely reflected in current prices is Weak form of Market Efficiency. It includes information about company announcements, dividend announcements, interest rates etc. (Fama, 1991). Semi strong form of efficiency is considered to exist when stock prices wholly adjust all publically available information and do not allow investors to earn over than normal returns. While when stock prices fully accommodate insider's information the market is said to be efficient in strong form.

Many studies suggest that markets may not be efficient allowing investors to earn abnormally. Researchers worked on market anomaly which is that exceptional condition of stock returns when they deviate from their normal or regular pattern (George & Elton 2001). Silver (2011) further elaborated financial market anomalies as the condition in which stock price behavior violates the concept of efficient market hypothesis. Many studies confirm the existence of market anomalies by comparing stock returns before and after an event (see also Ariel, 1987; Jaffe & Westerfield, 1989; Boudreaux, 1995). However some studies have reported non-occurrence of this abnormal behavior as well (Cadsby & Ratner, 1992).

Publically available information includes political, economic and catastrophic news along with other news which may end up violating semi strong form of market efficiency (Fama, 1970). Stock prices reaction to economic, catastrophic and political news has been tested for different stock markets (Cutler, Poterba & Summers, 1989; Shelor, Anderson, & Cross, 1990; Bittlingmayer, 1998).

Studies have been done to check the impact of economic variables on stock prices which came up with mixed results. Some studies reported exchange rate to have no or weak impact on stock prices (Frank &

Young, 1972; Patra & Poshakwala, 2006). However, stock prices were affected by exchange rates in some cases (Kim, 2003; Ahmad, Rehman & Raoof, 2010).

Stock prices are also stated to be effected by interest rate (Kim, 2003; Rehman & Raoof , 2010). Similarly other macro-economic variables including inflation and money supply have an impact on stock prices (Patra & Poshakwale, 2006).

The impact of political events on stock returns has been checked for both developed and emerging markets. Niederhoffer (1971) studied the impact of political events happening from 1950 to 1966 on stock prices. He concluded that political events changes stock prices. Liblang and Mukherjee (2005) checked stock market response to Presidential elections and partisan politics in U.S and UK. They included all the presidential elections between 1930-2000. They ended up with the conclusion that stock prices are historically been affected by presidential elections and partisan political policies in the US and UK.

However, Fair (2002) came up with different results for the US stock market. After identifying big price changes he tried to find if they were because of any political and economic news. He used data from 1982 to 1999 which included future prices for 4417 trading days. He could only identify 220 days with any big price change and only 69 could be related with any political or economic news. So he concluded that events or news (political or economic) may not be the cause of big stock price movements.

Beaulieu, Cosset and Essaddam (2005) used a set of 70 news about Quebec separation to find if those political news have any impact on the stock returns and its volatility. Their results show that political news about Quebec separation has a significant impact on stock prices and its volatility.

Bittlingmayer (1998) used political events occurring from 1880 to 1940 to check similar impact for Germany. He reported that political events have an impact on stock prices' volatility in Germany. However, Dopke and Pierdzioch (2004) while using all the presidential elections from 1960 to 2002 as proxies for political events find no strong evidence to conclude that political process and events causes stock market movements. Furthermore, average returns before and after the elections were reported to be not significantly different.

Fuss and Bechtel (2008) further advanced the case and tried to check this impact for small, mid and large cap firms. They concluded that only small firms are affected by political events while mid and large cap firms remain unaffected. However Government changeover results in new policies which affect stock returns and their volatility. Similarly using 49 events from 1941 to 1987 (Cutler et al., 1989) found a very small impact of political events on stock prices.

Onder and Mugan (2006) studied the impact of political events from Jan 1995 to Dec 1997 on stock returns and volatility for two emerging markets Turkey and Argentina. They concluded that political events have an impact but not much significant. Chen, Bin, and Chen (2005) investigated the impact of 9 political events happening from 1996 to 2002 on Taiwan's stock market. They concluded that political events have a significant impact on stock prices. Further, stated that good news causes positive abnormal returns while negative news causes negative abnormal returns.

Kim and Mei (2001) included political events from 1989 to 1993 to check its impact on Hong Kong's Hang Seng Index. They found a significant impact of these events on the returns and volatility of Hang Seng Index. Angelovska (2011) checked the impact of three events related to Macedonian name issue on Macedonian Stock exchange. He concluded that these events have significant impact on stock returns, however, the abnormal returns before and after the events stayed the same.

Zach (2003) considered events from 1993 to 1997 to find its impact on the Israeli Stock Exchange "The Mishtanim Index". He found significantly extreme and volatile stock returns on the days when a political event happened than non-event days. Kutun and Perez (2002) used Columbia as their playground to find this relationship. They considered 951 political events and 106 kidnapping events happening during 1996-2000. Their study showed that stock returns significantly changes due to political uncertainty, elections and violence like kidnapping.

Aggarwal, Inclan and Leal (1999) identified large shifts in stock returns from 1985 to 1987 in emerging markets and tried to relate them with political events as their cause. Their sample consisted of 10 emerging markets and 6 major markets. They concluded that all those identified stock returns' shifts were caused by local political events in emerging markets. While the only global event to cause any domestic stock returns' volatility in emerging markets was the 1987 Crash.

Ma, Sun and Tang (2003) conducted a similar study in an attempt to find the impact of Tiananmen Accident in China on US firms having joint ventures in China. They concluded that this event has a significant impact but small in magnitude on US firms having joint ventures in China. However, it was a short term rather than long term impact.

Very few studies have been performed in Pakistan in this area. Malik, Hussain and Ahmad (2009) used Musharraf resignation as a political event to check its impact on stock returns. They compare 6 months before and after data to find this relationship. They come up with the conclusion that stock returns in KSE have been significantly affected by Musharraf's resignation, confirming that political events do have an impact on stock returns.

The impact of natural disasters/catastrophes on stock returns has also been investigated by researchers. Shelor et al. (1990) studied the impact of 1989's Californian Earthquake on the stock returns of U.S real estate firms. Their results varied by regions; as stock returns of firms operating in San Francisco were affected while others were not. Overall, there was no significant impact of Californian Earthquake on stock returns.

Stock returns reaction to 42 catastrophic events happening in Australian has been tested by Andrew, Valadkhani and Worthington (2004). They use forty two events between 1982 and 2002. They conclude that stock returns before and after catastrophes are significantly different. However, it varies from sector to sector.

Wan (2011) used eighty two natural disasters happening in Japan between 1982 and 2011 to check whether these events have an impact on Nikkei 225. These events included Earthquakes, Tsunamis and volcano eruptions. He finds no direct impact of these events on Nikkei 225 returns.

Javid (2007) studied the impact of October 2007 Earthquake on stock returns for Pakistan. Using a sample of sixty firms listed on KSE, he found no significant impact of this Earthquake on the stock returns and volatility of the overall sample. However, stock returns of firms operating in cement, food, steel and banking sectors increased.

Stability of the stock market plays a vital role in the economic growth of a country (Levine & Zervos, 1998). Pakistani stock market (KSE) has got so much fluctuation in the recent years. It is important to know what could be the potential cause of this abnormal and instable behavior. According to Ball and Brown (1968) accounting numbers i.e., company specific information leads to stock market movements. However, the above discussed studies state other factors such as political and catastrophic events to be one of the causes as well. Therefore, this study intends to find whether political and catastrophic events have an impact on stock returns. It will also give an idea that how much time a market takes to absorb news about events.

From the above discussed literature it is obvious that this impact has been investigated using very limited dataset considering few events. As mentioned by Ahmed et al. (2009), time horizon should be extended and new events should be added to get a full insight of this relationship. Also studies investigating the impact of catastrophes are very a few in number in Pakistan. Many catastrophes have struck Pakistan in the recent past and their impact needs to be observed. Considering several events in one study will bring more valuable insights regarding the stock returns' response to these political and catastrophic events (Andrew, Valadkhani & Worthington, 2004).

**2.2 Hypotheses:** Based on the discussion so far, we form the following hypotheses.

H1: Mean Index returns before and after the occurrence of political events are different.

- H2: Mean Index returns before and after the occurrence of catastrophic events are different.  
H3: Mean Index returns before and after the occurrence of favorable events are different.  
H4: Mean Index returns before and after the occurrence of unfavorable events are different.

**3 Methodology:** Two different variables are involved in this study. Political and catastrophic events as independent and stock returns as dependent variable. Political and catastrophic events are measured by dummy variables. Days before these events take value “0” and after the event days take value “1”. This study used stock returns as the dependent variable as it tries to check whether stock returns are affected by political and catastrophic events or not. KSE-100 stock returns before and after the occurrences of political and catastrophic events were collected and investigated. This study used logarithmic returns to solve the problem of unit root making data stationary.

$$R_t = \ln (P_t/P_{t-1})$$

Where;

$R_t$  is the logarithmic return

$P_t$  is the Current Day return

$P_{t-1}$  is the Previous Day return

Political and catastrophic events happening from May 1998 to September 2013 are considered in this study. The motive behind selecting this time frame is Pakistan’s volatile political structure and catastrophic disturbances during these years. We observed much foreign political involvement in Pakistan during this era. Similarly, many high impact disastrous natural calamities and catastrophes struck Pakistan during this time frame. It accounts for the most current political and catastrophic events that have not been considered in the previous studies along with some earlier events that were missed previously.

**4 Data Collection and Analysis:** To test the hypotheses secondary data has been used. It required two kinds of data, one about stock prices while the other dataset about political and catastrophic events. Data about KSE stock returns has been obtained from Yahoo Finance. It consists of a total of 3790 observations from May 5, 1998 to September 30, 2013.

Data about Political and Catastrophic events has been obtained from Pakistan’s leading newspapers and some international sources. Pakistani newspapers accessed were Dawn, Daily Times, The Nation and The Statesman. International sources included BBC and CNN.

Table 1 and 2 respectively, presents political and catastrophic events used in the study along with their days of occurrence and division as either favorable or unfavorable events. This study includes all those events that make a story in majority of the above mentioned sources of information. Events which were timely communicated across the country and appeared in international news and investors being aware of those were included.

The rationale behind this was to include all the authentic and publically known events. It increases the possibility that all investors have the knowledge of these events before making their investment decisions. Thus all these events could possibly have significance. A total of 43 political and 4 catastrophic events have qualified to be considered in the study (see in Table 1). Also the political events are sub-divided into 26 favorable and 17 unfavorable events.

**Table 1: Date wise Political Events**

No.	Event	Date of Occurrence	Nature
1	Mamnoon Hussain elected as President	09/09/2013	Favorable
2	Nawaz Sharif elected as Prime Minister	05/06/2013	Favorable
3	General Elections	11/05/2013	Favorable

4	Tahir Ul Qadri set in	16/01/2013	Unfavorable
5	Yusaf Raza Gillani disqualified as Prime Minister	19/06/2012	Unfavorable
6	Memo case Scandal	17/11/2011	Unfavorable
7	NATO attack on Salala Check Post	26/11/2011	Unfavorable
8	Osama Bin Laden killed	02/05/2011	Favorable
9	Salman Taseer Assassination	04/01/2011	Unfavorable
10	18 <sup>th</sup> Amendment	08/04/2010	Favorable
11	NRO abandoned	16/12/2009	Favorable
12	Swat Military Operation	12/05/2009	Unfavorable
13	Chief Justice restoration	16/03/2009	Favorable
14	Attack on Sri Lankan Cricket team	09/03/2009	Unfavorable
15	Asif Ali Zardari elected as President	09/09/2008	Favorable
16	PML(N) quit coalition with PPP	25/08/2008	Unfavorable
17	Musharraf Resignation	18/08/2008	Favorable
18	Yusaf Raza Gillani elected as Prime Minister	24/03/2008	Favorable
19	General Elections	18/02/2008	Favorable
20	Benazir Bhutto's Assassination	27/12/2007	Unfavorable
21	Emergency lifted	16/12/2007	Favorable
22	Elected Govt. tenure Completed	16/11/2007	Favorable
23	Benazir Bhutto back to Pakistan	18/10/2007	Favorable
24	Pervez Musharraf stepped down as Army Chief	18/09/2007	Favorable
25	Nawaz Shareef back to Pakistan	10/09/2007	Favorable
26	Military Operation on Lal Masjid	3/07/2007	Unfavorable
27	Chief Justice suspended	09/03/2007	Unfavorable
28	Sardar Bugti killed	26/08/2006	Unfavorable
29	Shaukat Aziz elected as Prime Minister	28/08/2004	Favorable
30	Mir Zafar Ullah Jamali steps down to Ch. Shujaat Hussain as PM	26/06/2004	Unfavorable
31	Pakistan's readmission to Commonwealth	22/05/2004	Favorable
32	Musharraf won vote of confidence	01/01/2004	Favorable
33	Lahore-Delhi Bus service resumed	11/07/2003	Favorable
34	Senate elections	24/02/2003	Favorable
35	Mir Zafar Ullah Jamali elected as Prime Minister	23/11/2002	Favorable
36	General Elections	10/10/2002	Favorable
37	Musharraf wins Referendum	30/04/2002	Favorable
38	Daniel Pearl killed (WSJ reporter)	1/02/2002	Unfavorable
39	WTC and Pentagon attack (9/11)	11/09/2001	Unfavorable
40	Agra Summit (Musharraf Vajpaaye talk )	15/07/2001	Favorable
41	Musharraf dismissed President	20/06/2001	Unfavorable
42	Musharraf dismissed Nawaz Sharif	12/10/1999	Unfavorable
43	Nuclear tests	28/05/1998	Favorable

**Table 2: Date wise Catastrophic Events**

No.	Event	Date of Occurrence
1	Earthquake	24/9/2013
2	Floods	26/07/2010
3	Floods	27/6/2007
4	Earthquake	8/10/2005

Fama (1991) titled studies which investigate the impact of publically available information on stock returns as an Event Study. This method compares the mean stock returns before and after the happening of an

event or any publically available information. For this purpose Independent t-test has been used because it consists of two independent data groups i.e. before events data and after events data.

As discussed in the existing literature section that many studies have checked this impact however this research checked the impact considering four (4) different event windows. Cheng and Leung (2006) included six (6) different event windows in their study. They further suggested using different windows to get a better insight of events. It also helps in finding out when does stock prices reflect the information in case there is an impact.

Both of the data groups (i.e. political and catastrophic) have been separately analyzed for each of the four event windows. Also the same method was adopted for finding the impact considering favorable and unfavorable political events.

The four event windows used were (a)  $t = -1, t = +1$  (b)  $t = -5, t = +5$ , (c)  $t = -10, t = +10$  and (d)  $t = -15, t = +15$ . So the first window compares the mean returns for 1 day before and 1 day after the events. The second window compares mean returns for 5 day before and 5 days after the occurrence of the events. The third window considers comparing 10 days before and 10 days after the event mean returns. And finally event window four assumes finding 15 days before and after effect. Days before the occurrence of the events in each window takes value “0” while days after the event takes value “1”.

Table 3 provides the descriptive statistics of the data being used.

**Table 3: Descriptive statistics**

Observations	Mean	St. Deviation	Minimum	Maximum	Skewness	Kurtosis
3790	0.0006	0.0161	-0.1321	0.1276	-.322	3.709

The data consisted of 3790 observations from April 2, 1998 to Sep 30, 2013. The mean value for logarithmic returns was 0.0006 with a minimum value of -.1321 and maximum of .1276. The disparity in the minimum and maximum values for the data shows the wide range in stock returns on different days. The standard deviation is 1.61% which means that the data has some deviations from the average value. Also Kurtosis of 3.709 suggested the data to be slightly leptokurtic. The data has a skewness of -.322, which is close to 0 suggesting the data to be normal.

#### 4.1 Impact of Political Events

Table 4 provides the empirical results for the tests observing the impact of political events.

**Table 4: Empirical results for political events**

Test	1-day Window	5-days Window	10-days Window	15-days Window
Levene's test value	.045	0.025	0.105	0.155
P-value	0.2407	0.048	0.758	0.374

Levene's test was conducted to find whether the data would consider t-value for equal variances assumed or equal variances not assumed. The data is homoscedastic when there are equal variances and heteroscedastic when equal variances are not there. A value less than 5% means that there are no equal variances in the data i.e., heteroscedastic. In this case P-value stated in front of “Equal variances not assumed will be interpreted. While Levene's value greater than 5% means that the data is homoscedastic

that is having equal variances. In this case P-value mentioned in front of “Equal variances assumed” would be interpreted.

Levene’s value was less than 0.05 i.e. 0.045 and 0.025 for 1-day and 5-days event windows respectively. Thus in these two event windows P-values for equal variances not assumed were considered. Levene’s value was greater than 5% i.e. 0.155 and 0.105 for 10-days and 15-days event windows respectively. In those cases P-values for equal variances assumed were interpreted.

**4.1.1 Impact of Political Events using 1-day Event Window:** Referring to Table 4 the P-value using 1-day event window is 0.2407. This value is greater than 5% which means that the stock returns before and after political events were not different. So there is no impact of political events on stock returns using 1-day window.

**4.1.2 Impact of Political Events using 5-days Event Window:** The P-value for the study using a 5-days Event window is 0.048 which is smaller than 5%. The results suggest that stock returns after happening of political events changed significantly. Thus on 5-days window the study show the impact of political events on stock returns.

**4.1.3 Impact of Political Events using 10-days Event Window:** The result for 10-days event window is also in alignment with those for 1 and 5-days windows. The P-value 0.758>5% so even on 10-days window the study could not find any impact political events could have on stock returns.

**4.1.4 Impact of Political Events using 15-days Event Window:** Stock returns before and after the occurrence of political events are not different in case of 15-days window as the P-value 0.374>5%.

So using 5-days window the study confirmed the impact of political events on stock returns. That is the mean returns were reported to be different after political events. It showed the short term affect as the other windows fails to reject the null hypothesis.

## 4.2 Impact of Catastrophic Events

Table 5 summarizes the impact of catastrophic events on stock returns.

**Table 5: Empirical results for catastrophic events**

Test statistics	1-day Window	5-days Window	10-days Window	15-days Window
Levene’s value	0.22	0.829	0.204	0.052
P-value	0.422	0.411	0.059	0.001

Table 5 presents the results about the impact of catastrophic events on the mean returns in KSE 100 index. Levene’s values for all the four event windows were insignificant i.e. greater than 5%. This means that the data considered is homoscedastic. Thus P-values for “equal variances assumed” would be interpreted below.

**4.2.1 Impact of Catastrophic Events using 1-day Event Window:** Alike political events, the impact of catastrophic event has also been checked using four event windows. The P-value using 1-day window is 0.422 which is greater than 5%. This led to the conclusion that in case of 1-day window catastrophic events did not impact stock returns and thus not rejecting the null hypothesis.

**4.2.2 Impact of Catastrophic Events using 5-days Event Window:** The P-value for 5-days event window to determine the impact was 0.411. This value is again greater than 5% which led to the acceptance of the



null hypothesis. Thus the mean returns before and after the occurrences of catastrophes were not different at 5-day windows.

**4.2.3 Impact of Catastrophic Events using 10-days Event Window:** The study could not find the impact of catastrophes on the mean returns as the P-value is 0.509 that is greater than 5%.

**4.2.4 Impact of Catastrophic Events using 15-days Event Window:** Using 15-days event window to check the impact of catastrophic events on mean returns the study showed different result than on the other event windows. The P-value is 0.001 which is highly significant indicating that the mean returns before and after the catastrophic events were significantly different. The mean returns before the events were 0.00343021 while it dropped significantly to -0.00410272 after the catastrophic events.

So catastrophic events did not impact the mean returns for 1, 5 and 10 days windows. The mean returns before and after the catastrophic events were not different. However, checking the impact using an event window of 15 days brought completely different results. In this case the mean returns were different before and after the events. The possible reason could be that for the first 10 days the investors were hoping the market to observe the pressure catastrophic events exerted. However the market could not adjust to the catastrophes and started showing abnormal returns as shown by the 15-days window results.

### **4.3 Impact of Favorable Political Events:**

Table 6 summarizes the impact of favorable political events on stock returns.

**Table 6: Empirical Results for Favorable Political Events**

Test	1-day Window	5-days Window	10-days Window	15-days Window
Levene's test value	0.033	0.108	0.249	0.333
P-value	0.195	0.031	0.953	0.381

Table 6 shows results for the favorable events separately. Here also first we checked which P-value has to be interpreted. Levene's test indicated that except value for the 1-day window all values are insignificant. So the data in 1-day window is heteroscedastic and thus we will interpret the P-value for "equal variances not assumed". For the rest of the three event windows P-value for "equal variances assumed" will be interpreted.

**4.3.1 Impact of Favorable Political Events using 1-day Event Window:** Here one day before and one day after data has been used to study favorable events' impact on the mean stock returns. As shown in the table above the P-value is 0.195, which is greater than 5%. This lead us to conclude that mean stock returns before and after favorable political events are not different.

**4.3.2 Impact of Favorable Political Events using 5-days Event Window:** The P-value for the impact of favorable political events using 5-days event window is 0.031. This value is smaller than 5%. So, on the basis of this value it is concluded that the null hypothesis should be rejected. Thus, before and after mean returns are different and show an impact.

**4.3.3 Impact of Favorable Political Events using 10-days Event Window:** Moving on to find the impact using 10 days event window the study failed to find if favorable political events could have an impact on the mean stock returns. The P-value of 0.953>5%, thus, we could not reject the null hypothesis.

**4.3.4 Impact of Favorable Political Events using 15-days Event Window:** Even using 15-days before and after affect the study could not find any impact favorable political events could have on the mean returns. We accept the null hypothesis as the P-value 0.381>5%.

From the above stated results and discussions about the impact of favorable political events the study concluded that the mean returns before and after these events were not different using 1, 10 and 15 days windows. However, a significant impact was observed for 5 days window. Thus favorable political event only impact stock returns in shorter period. However this impact could not be confirmed in the longer period.

#### 4.4 Impact of Unfavorable Political Events

Table 6 summarizes the impact of unfavorable political events on stock returns.

**Table 6: Empirical Results for Unfavorable Political Events**

Test	1-day Window	5-days Window	10-days Window	15-days Window
Levene's test value	0.697	0.082	0.187	0.247
P-value	0.023	0.037	0.681	0.759

Levene's values for all the four event windows used are greater than 5%. Thus, data was homoscedastic and P-values for equal variance assumed were referred to for interpretations.

**4.4.1 Impact of Unfavorable Political Events using 1-day Event Window:** Overall political events were divided into favorable and unfavorable events. Here the impact of unfavorable political events will be discussed. The P-value while using a 1-day event window is significant as this value  $0.023 < 5\%$ . Thus, we would accept the hypothesis i.e., the mean returns before and after unfavorable political events are different.

**4.4.2 Impact of Unfavorable Political Events using 5-days Event Window:** While using 5 days event window, the P-value is 0.037. This lead to the conclusion that even the impact of unfavorable political events is observed in the next five days after the events happens.

**4.4.3 Impact of Unfavorable Political Events using 10-days Event Window:** The P-value calculated suggests we cannot reject the null hypothesis even using 10 days event window. The P-value of 0.681, which is greater than 5% lead us to this conclusion.

**4.4.4 Impact of Unfavorable Political Events using 15-days Event Window:** The P-value 0.759 suggests that the mean returns before and after unfavorable political events are not different.

Based on the P-values calculated, the study concludes that unfavorable political events had abrupt impact on the mean returns for shorter periods of one and five days. However, by increasing the days of analysis the impact disappears.

**5 Conclusion** The idea that stock prices absorb the effect of news and not allowing investors to make abnormal profit is termed as Efficient Market Hypothesis. This behavior of the market when observed during publically available information is considered to be the semi strong form of Market Efficiency. Political and catastrophic events also come in this category of publically available information.

During the last fifteen years many political and catastrophic events happened in Pakistan. Pakistan experienced both dictatorship and democracy in this era. Many important political and public figures got assassinated. Pakistan also experienced instability due to war on terror. Similarly there have been drastic catastrophes and natural calamities like earthquakes and floods. Because of these uncertain situations investors are pessimistic about the market. But there is a possibility that investors over weighted the impact of these events.

This research aimed to investigate the impact of political and catastrophic events happening in the last fifteen years in Pakistan on the KSE-100 Index returns. It considered forty three political and four

catastrophic events from May 1998 to September 2009. The impact was checked using four different event windows to show when did stock prices started reacting to the news. Political events were reported to have a short time impact on stock returns. However, there was neither abrupt (one day) nor long lasting impact observed.

Political events included both favorable and unfavorable events collectively. Stock returns' response to both favorable and unfavorable events also were checked separately. There were twenty six favorable events and seventeen unfavorable events in the study. Favorable political events were reported to have an impact lasting for five days while unfavorable political events' impact was observed even on the first day after the events and lasting for five days. Therefore the impact of political events, favorable events could be observed for five days and not significant on 10 and 15 days window. While market responds to unfavorable events right on the next day till at least 5 days.

The results for catastrophic events were quite different. Stock prices did not respond to catastrophic events for the 1, 5 and 10-days event windows. However stock returns were reported to have been significantly affected by catastrophic events considering 15-days window. The possible reason could be the calculation of exact losses later on. This means that investors might have optimistic opinion about the catastrophic events that they would stop and won't cause much loss. However later on demand for stocks decreased which might be due to the uncertain and affected economic conditions resulting in negative stock returns.

In a nutshell, political events have an impact on stock returns for shorter period after which returns start adjusting. It makes KSE an inefficient market in semi strong form. While catastrophic events' impact on stock returns depend on the time when information about the exact severity and losses caused by catastrophic events were completely available to the investors. It means that stock returns do change because of political or catastrophic events. Investors should do cost and benefit analysis while investing in KSE for their fear regarding political and catastrophic uncertainty. They should invest only in sectors which prove to have no significant response to political and catastrophic events. They must also consider other factors (economic) that have a direct impact on stock returns.

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