

**IMPACT OF POLITICAL AND FINANCIAL
EVENTS ON COMMERCIAL BANKING SECTOR
OF PSX**



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DECLARATION

I Ammar Azeem (Registration No. PIDE-FMBA2015 (3.5) 09) student of (MBA) finance session 2015-2019, hereby undertake that, I have written this thesis entitle ***“IMPACT OF POLITICAL AND FINANCIAL EVENTS ON COMMERCIAL BANKING SECTOR OF PSX”*** by myself under the guidance of my supervisor Dr. Saud Ahmed Khan. I have read it carefully and take all the responsibilities of the mistakes.

Ammar Azeem

DEDICATION

This report is dedicated to My Parents.

My Father who always offered me unconditional love

And support.

My Mother, for her motherly care and support

And who is always a source of motivation and

Strength for me.

ACKNOWLEDGEMENT

In the beginning I would like to thank Allah Almighty for giving me ability and courage to complete this piece of work. I would like to pay gratitude to my supervisor Dr. Saud Ahmed Khan whose kind and consistent guidance made the task of completing this thesis easy and possible for me. He added a lot to my career, I owe him a lot. I am thankful to all of my teachers in PIDE, who opened my mind and enlightened it with their knowledge.

I am grateful to my family especially my father and my mother, whose support made me what I am today. They helped me in each and every step of this journey.

I am thankful to all of them.

ABSTRACT

This study examines the effect of political and financial events on returns and volatility of commercial banks which are listed in KSE 100 index. The major political and financial events are selected for particular time period. The daily data are used for the period of Oct, 2007 to Dec, 2018. The generalized autoregressive conditional heteroscedastic (GARCH) model employed to estimate the volatility series. The Impulse Indicator Saturation (IIS) is used to check the impact of political and financial events on returns and volatility of commercial banks. The results refer that all the financial events have significant impact on returns and volatility of commercial banks. Out of 18 political events only 2 have insignificant impact on returns and volatility of commercial banks. The central and commercial banks can be used these results to make satiable policies.

Key words: PSX, Commercial banks, Volatility, GARCH and IIS procedure.

CHAPTER 1

INTRODUCTION

The stock markets play very important role in the economy of country and stable stock markets are known as a symbol of better economic condition of country. The stock markets have a substantial part in financial markets and plays a very significant role in the industrial growth of any country through offering optimum channelization of the funds between suppliers and users of funds. The stock markets are good indicator of economic condition of country and have great contribution in development of industrial and commerce sectors. That is why the governments, industries, investors, and central banks are keenly watching the performance of stock markets. The major portion of economy usually depends on performance of corporate sector and industries.

The structure of financial sector has been considered very important in current era. Particularly, banking sector plays a rich role in accumulating funds from the savers and provide them to the investors. The banks are playing their role as mediators between the savers and investors (Opoku-agyemang, 2015). The strength of financial system, particularly banking sector, is a momentous part of infrastructure for strong monetary and macroeconomic policy performance on national level (Javaid et al., 2011). The financial sector permits larger investment and efficient allocation of capital through banking system which further lead to up rise the income growth. The banking sector has significant contribution in economic growth of economy (Claessens & Feijen, 2006).

The banking sector of Pakistan is well established sector and financial sector of Pakistan is subjugated by commercial banks. The Pakistani banking sector is the three-fourth (3/4) of financial sector of Pakistan (Fazl-E-Haider, 2018). Hamza and Khan (2014) the banking sector in Pakistan is a leading institution and it is rapidly growing since last

two decades. Pakistani banks like other developing countries banks offer an extensive range of facilities to its customers such as online billing, mobile banking, and online banking and it has significant relation with growth of economy of Pakistan.

The stable performance and development of stock market appeals foreign and domestic investors and significantly effects on economic competitiveness of country (Levine & Zervos, 1998). It is generally prevailing debate that the stock market are very sensitive to the major political or financial events which may not be directly correlated to firm's performance. These events may produce some disturbances and these disturbances affect stock market performance (Bilal & Javid, 2016). There are many other factors which effect the performance of stock markets but here we are concerned only with political and financial events.

The commercial banking sector has larger portion in total Pakistan stock exchange capitalization as compare to all other sector. The total market capitalization of commercial banks in PSX is 1476.84 PKR billion in 2018. The total share of commercial banks capitalization is 17% of total market capitalization of PSX. The total share of commercial banks capitalization is 24% of total market capitalization of KSE 100 index. There are 20 commercial banks register in PSX and only 11 banks are listed in KSE 100 index (PSX, 2019).

It shows that the commercial banking sector has great portion in Pakistan stock exchange. It means if any shock comes into PSX it also effects commercial banking sector. There are many researchers who presented their studies on the issue of influence of political events on Pakistan stock market (for example, Javed & Ahmad, 1999; Khalid et al., 2010; Sajid Nazir, 2014; Mahmood et al., 2014; Murtaza et al., 2015). There are many studied in which the researcher explored the effect of financial event

on the performance of Pakistan stock exchange. Mostly researchers analyzed the effect of financial events on Pakistan stock exchange volatility in the presence of domestic and foreign financial shocks (for example, Sohail & Javid 2014; Sajid Nazir et al., 2011 etc.)

The previous studied discussed the impact of political, financial and terrorist events on Pakistan stock exchange. There is no study which particularly analyze the impact of political and financial events on commercial banks stock prices. So, the main object of this study is to analyze the impact of some major political and financial events on commercial banks.

1.1 Objective of the Study

The main objective is to explore the impact of some major political and financial events on the stock prices of selected commercial banks. Following are the objectives of study:

1. To model the volatility of commercial banks stock prices.
2. To explore the impact of political and financial events on returns series of stock prices of commercial banks.
3. To explore the impact of political and financial events on volatility of stock prices of commercial banks.

1.2. Significance of Study

The previous studies review show that there is no particular study which did research on commercial banks topic. That is why the first contribution of this study is to explore the impact of political and financial events on selected commercial banks. Second there are lot of studies which used their particular model to find out the impact of political and financial events on KSE 100 index. Most researchers used GARCH modeling,

Event Window Analysis. But here we use another technique that is Impulse Indicator Saturation which is not used by any other researcher for this purpose before. The results of study can be used by making policy regarding the performance and efficiency of commercial banks.

We select 3 major commercial banks; Habib Bank Limited (HBL), Muslim Commercial Bank (MCB), and United Bank Limited (UBL) which are listed in KSE 100 index because of their share in the total market capitalization in PSX. We took data from Oct, 2007 to Dec, 2019 and we select all the major political and financial which falls in this time span. The information regarding these political and financial events and their impact of stock prices is collected from newspapers and social media.

CHAPTER 2

LITERATURE REVIEW

This chapter discusses about the empirical analysis of the impact of political and financial events on commercial banks stock prices and volatilities. The GARCH model has been used to model the volatility of financial series. The Impulse Indicator Saturation has been used to detect the impact of political and financial events on return and volatility of commercial banks. In this chapter we reviewed previous studies related to this topic and methodology.

2.1 Domestic Perspective

Maqbool et al. (2018) explored the impact of international and domestic political events on return and volatility of Karachi stock exchange. They concluded that the volatility of the financial indicators found to be sensitive over these political events. All the international and domestic political events have significant impact on Karachi stock exchange performance.

Murtaza et al. (2015) explored the effect of some major political events on the performance of Karachi stock exchange. These events are Benazir Bhutto murder, General Elections 2008 of Pakistan, Musharaf's Emergency rule, Abbottabad operation, Resignation of Musharaf, Restoration of the Chief Justice of Pakistan, Elections of USA in 2012, removal of Prime Minister, and Salala Attack. They further divided these events in two categories; events which did bring change in government policy, events which did not bring change in government policy. They found the Karachi stock exchange performance effected by those events which were changed the government policy.

Javed et al. (1999) explored the impact of nuclear experiments on volatility, average returns and volume of stock markets in case of Pakistan and India. They used GARCH modeling to measure the impact of this event on stock markets and found that this experiment negatively and significantly impacted the returns and volume and it increase the volatility in stock market in case of India. In case of Pakistan they found insignificant impact on returns but there volatility impacted by the nuclear experiments.

Javid (2007) examined the effect of natural disaster the earth quick of 8 Oct, 2005 earth quick on capitalization and volume of 16 firms of the Karachi Stock Exchange. To check the impact of catastrophic changes on volatility, trading volume and returns he employed GARCH model. He found a huge increment in the returns of steel, cement, food and banking stock prices. He found no effect on volatility of the 16 firms of Karachi stock market.

Irshad (2011) found the impact of Afghan war on the economy of Pakistan. The investigation is based on theoretical grounds. He studied that the Pakistan economy has suffered a lot to war on terror among the Jihadi Militant groups and USA. This study came up with conclusion that the Pakistan economy is worsening due to decrease in investment and up rise in inflation. This generates an uncertainty and panic for investors and people of Pakistan.

Ahmed and Farooq (2008) examined the impact of terrorist attack of 9/11 on the Karachi stock exchange. This study empirically investigated the effect of 9/11 on KSE 100 index. They found that the volatility trend of KSE 100 index had been changed due to 9/11 attack. The pre and post periods had different trends of volatility. They concluded that 9/11 terrorist attack impacted the Pakistan stock exchange.

Aslam (2014) investigated the impact of terrorist events on the performance of Karachi stock exchange. They selected 330 terrorist attacks and explored their effect on the return and volatility of Karachi stock exchange index KSE 100. The EGARCH model employed and measured Location Wise Impact of the Terrorism Events Analysis, Event Day Analysis, Target Type by Events Analysis, and Event Type. They found that there is a significant impact of all these terrorist attacks and KSE 100 converge toward normal point after shock.

Aslam and Kang (2015) investigated the impact of terrorist events on the performance of Karachi stock exchange. They selected 300 terrorist attacks and explored their effect on the return and volatility of Karachi stock exchange index KSE 100. The EGARCH model employed and measured Location Wise Impact of the Terrorism Events Analysis, Event Day Analysis, Target Type by Events Analysis, and Event Type. They found that there is a significant impact of all these terrorist attacks and KSE 100 converge toward normal point after shock.

Hassan et al. (2014) examined the impact of terrorist events on the performance of firms of 12 sectors of Karachi stock exchange. They selected 3 terrorist attacks; Marriot Hotel Attack, Assassination of Benazir Bhutto and Darra Adam Khel Attack and explored their impact on firms of 12 sectors of Karachi stock exchange. They found that there is a significant impact of all these terrorist attacks and KSE 100 converge toward normal point after shock.

Mahmood et al. (2014) examined the effect of different political events on of the performance KSE-100 index. They used data from the period of 1998 to 2013 and used 60 day window event analysis. They found there is significant impact of all these events

and volatility of Karachi stock exchange index KSE 100 reacted over the events. The association between the returns and events is found to be negative.

Khalid et al. (2010) explored the impact of international and domestic political events on return and volatility of three financial indicators. They used data from the period of 1999 to 2006. They concluded that the volatility of the financial indicators found to be sensitive over these political events.

Sohail and Javid (2014) investigated the link between the investor's behavior and global financial crisis in case of financial and non-financial sectors. They found the global financial sector badly impacted the financial sector between 12th and 24th week but on the other side the non-financial sector show no significance in presence of global financial crisis except first week.

Sajid Nazir et al. (2011) examined the effect of dictatorship and democratic regimes on Karachi stock exchange. The data used from the period of 1999 to 2011 and Event study and mean adjusted return models are used to check the impact of both regimes Karachi stock exchange. They found that the Karachi stock exchange react on these political events for short time and converge to normal level after short spin.

2.2 International Perspective

Nguyen et al. (2009) found the impact of terrorism activities on Pakistan and Iran stock markets. They used GARCH type modeling to found out impact of these events on stock markets. They found the Karachi stock exchange response more badly in presence of any terrorist attack; 9/11, Madrid and terrorist attack in the London as compare to Iran. They concluded that the both markets have significant impact of these events.

Blalock et al. (2005) inspected the impact of terrorist attack of 9/11 on 14 different stock markets. This study empirically investigated the effect of 9/11 had been absorbed

by the markets but in different time spans. They found that Hong Kong stock market converge towards the normal points and Johannesburg rebounds in around 162 days after said attack.

Erb et al. (1996) explored the relationship between future expected returns and different five risk measures of 117 countries. They categories the countries on the basis of stock markets. They found that these risk measures are significantly associated with the stock markets returns. The results are referred that these measures are highly associated with equity valuation methods.

Beaulieu et al. (2005) inspected that the impact of the political events of Canada on the 102 firms in Montreal and Toronto stock exchanges. They selected 102 listed firms in both stock markets and found that all the political events in Canada have significant effect on the volatility of these stock markets.

Dangol (2008) studied that the impact of the unanticipated and anticipated political events on the Nepalese stock exchange. He used the event window analysis and found that there is significant effect on the volatility of these stock markets. He also found that bad events generates bad effect and good generate positive effect. The market rebounds after 2 and 3 days when the new information comes into markets on political events.

Clark et al. (2008) explored the impact of the political events on the Karachi stock exchange. They collected primary data from different fields stack holders which are related to stock market at some extant and included all the major events from 1947 to 2001. They employed Bayesian econometric model and Monte Carlo procedure and found that risk lies between the 10.725% and 16.725% which effect Karachi stock exchange.

Dadurkevicius and Janssonaite (2017) investigated the impact of pre-scheduled different political events on the stock markets of Brexit allies' countries. They checked the effect of these events on the volatilities of Brexit countries. They found that there is very high association among the volatilities and political events. The event study was being used to see the impact and concluded that the abnormal returns are differ from industry to industry.

Mei and Guo (2004) examined the effect of political events and financial crisis on 22 emerging stock markets. They found significant impact of political and financial events on the returns and volatility of these 22 stock markets. They found high volatility in the periods of election and transitions. The interesting point is that they explored 8 out of 9 financial crisis emerged during political transition and elections periods.

CHAPTER 3

METHODOLOGY AND MODEL SPECIFICATIONS

3.1. Methodology

The most important assumption of Ordinary Least Square (OLS) model is that the variances are not time varying or must be homogenous but when they are not homogenous we cannot apply OLS model for the measurement of any relationship. When the series is having time varying variance then we commonly used ARCH model (Engle, 1982). The GARCH type modeling mostly used for volatility modeling of financial series. As we know most of the financial series are having ARCH effect and in presence of ARCH effect we used ARCH type modeling. Our series are financial series and having ARCH effect which cannot be measure through OLS model that is why we use ARCH type modeling. The GARCH model is a significant addition in financial literature and significant extension of ARCH model. We use GARCH model to estimate the volatility series of all banks. After that to check the impact some major political and financial events the Impulse Indicator Saturation (IIS) procedure is being used. Russell et al. (2010) employed Impulse Indicator Saturation (IIS) procedure for the deification of structural breaks. The Impulse Indicator Saturation (IIS) captures the shifts in the level of the series and multiple breaks (Doornik et al., 2013).

3.2. Model Specifications

The financial series are usually trendy in nature that is why it might not be possible to get good results from these series without dealing with trend (Ghouse & Khan, 2017). So for the treatment of this problem we take the log difference of the financial series. Where the difference de-trended the series and log is reducing the dispersion around the mean value of the series.

The formula of log differencing is following:

$$R_t = \log\left(\frac{p_t}{p_{t-1}}\right) \dots\dots\dots(3.1)$$

p_t = current price i.e. stock price at time t.

p_{t-1} = Lag price of the series.

3.2.1. ARCH Model

The Autoregressive Conditional Heteroscedastic (ARCH) procedure is proposed by (Engle, 1982). The ARCH model at the same time deals with two equations. First, the conditional mean equation and second the conditional variance equation. The first equation find out the data generating process of conditional mean equation and second model the conditional variance equation. The square of past value of error term predicted the conditional variance. The generalized form of equations of the ARCH model are following:

Conditional Mean

$$R_t = \pi_0 + \pi_1 G_t + \varepsilon_t \dots\dots\dots(3.2)$$

Where $\varepsilon_t = z_t \sigma_t$, $z_t \sim N(0,1)$

Conditional Variance

$$\sigma_t^2 = \delta_0 + \sum_{i=1}^q \delta_i \varepsilon_{t-i}^2 + u_t \dots\dots\dots(3.3)$$

Where $i = 1, 2, \dots\dots, q$

The R_t displays the return series and the π_1 indicates the vector of the parameters of ARMA process. The $\pi_1 G_t$ shows the generalized form of the ARMA (p, q) process. It might be ARMA (0, 0) at some scenarios. The ARCH model have some basic

restrictions like the parameter's sign of conditional variance equation must be positive. It only capture the effect when the effect is symmetric. The ε_t shows disturbance and ε_{t-1}^2 is measured as an ARCH term.

3.2.2. GARCH Model

The Generalized Autoregressive Conditional Heteroscedastic (GARCH) model is a significant addition in ARCH model family. The long length of ARCH term is a problem of ARCH model. This reduces the degree of freedom. So, for the treatment of this problem Bollerslev (1986) presented GARCH model. Ghose and Khan (2017) used GARCH modeling to model the volatility of stock prices of different markets. Sajid et al. (2014) applied GARCH modeling to measure inflation and uncertainty in inflation in Pakistan. The extension in ARCH model is that it contains the lag value of conditional variance in variance equation as independent variable

The general representation of GARCH (p, q) model is following:

Conditional mean

$$R_t = \pi_0 + \pi_1 G_t + \varepsilon_t \dots\dots\dots(3.4)$$

Where $\varepsilon_t = z_t \sigma_t$, $z_t \sim N(0,1)$

Conditional variance

$$\sigma_t^2 = \delta_0 + \sum_{i=1}^q \delta_i \varepsilon_{t-i}^2 + \sum_{j=1}^p \vartheta_j \sigma_{t-j}^2 + u_t \dots\dots\dots(3.5)$$

The R_t displays the return series and the π_1 indicates the vector of the parameters of ARMA process. The $\pi_1 G_t$ shows the generalized form of the ARMA (p, q) process. It might be ARMA (0, 0) at some scenarios. The ARCH model have some basic restrictions like the parameter's sign of conditional variance equation must be positive.

It only capture the effect when the effect is symmetric. The ε_t shows disturbance and ε_{t-1}^2 is measured as an ARCH term. The σ_{t-1}^2 is lag value of conditional variance.

3.2.3. Impulse Indicator Saturation (IIS)

The Impulse Indicator Saturation (IIS) procedure is introduced by (Hendry et al., 2008). The main purpose of this technique is to identify the intercept shift, breaks, multiple breaks, and co-breaks. In this procedure we generate a generalized unrestricted model (GUM). This technique generate dummies equal to observations means each observation has own binary dummy variable. It means this procedure check the change or break at every point of data. Simply it seems like that the IIS violate the rule of regression that the number of observation should be greater than number of parameters. But technically it works by considering this assumption by introducing specific amount of dummies in first regression and reaming dummies in other regressions. It means that this procedure spilt the dummies into many parts and run many regressions for given data set. In this way the problem of over parameterization is solved easily. In this technique we can also set the significance levels means at which level we want to see the breaks or shifts. In our analysis we want to explore the significant impact of some major political and financial events on commercial banks. We set the level of significance at 5%, if the dummies are significant at the exact date and next dates when the event was occurred it means this event has significant impact on series. We check the impact of these political and financial events on returns and volatility of commercial banks. The equations of the Impulse Indicator Saturation (IIS) procedure are following:

$$R_{it} = \delta_0 + \delta_1 R_{it-1} + \sum_{t_1=1}^{250} \gamma_{t_1} D_{it} + \varepsilon_{it} \dots\dots\dots (3.6)$$

$$\varepsilon_{it} \sim IIN(0, \sigma_t^2) \qquad t_1 = 1, 2, \dots, 250$$

$$R_{i,t} = \delta_0 + \delta_1 R_{it-1} + \sum_{t_1=251}^{500} \gamma_{t_2} D_{i,t} + \varepsilon_{i,t} \dots\dots\dots (3.7)$$

$$\varepsilon_{it} \sim IIN(0, \sigma_t^2) \qquad t_2 = 251, 252, \dots, 500$$

$$R_{it} = \delta_0 + \delta_1 R_{it-1} + \sum_{t_{12}=2501}^{2705} \gamma_{t3} D_{it} + \varepsilon_{i,t} ; \dots\dots\dots(3.8)$$

$$\varepsilon_{i,t} \sim \text{IIN}(0, \sigma_t^2) \qquad t_{12} = 2501, \dots, 2780$$

According to our observation it splits our data into 12 parts by introducing 250 dummies in each regression. We can see that t_1 shows that it varies from 1 to 250 and then t_2 varies from 251 to 500 and so on t_{12} varies from 2751 to 2780.

3.1.5 Residual Analysis

The residual analysis is also employed after the final model to check the reliability of the restudy of final model. To check the normality of residuals which is more required task we used Jarque-Bera test. The box pierce test Q stat and Q square stat are used to check the autocorrelation and heteroscedasticity in the residuals. The LM ARCH test is used to test the ARCH effect in residuals.

3.2. Structure of Methodology

The initial understanding of behavior of financial time series examine by visualizing the series. The descriptive statistics are used to estimate the features of return series of commercial banks. The GARCH model are used for estimating volatility series of commercial banks. The IIS used explore the significant effect of political and financial events on returns and volatility of commercial banks.

3.3. Description of Data and Sources

The daily data are used for the period of Oct, 2007 to Dec, 2018. The data set contains the data on stock prices of commercial banks HBL, MCB and UBL which are listed in KSE 100. These banks are selected because of their large capitalization in the PSX. The data of stock prices are collected from Business recorder. The data regarding political and financial events are collected from DAWN News, Tribune News, Geo News, KSE and Express Newspaper.

CHAPTER 4

RESULTS AND DISCUSSION

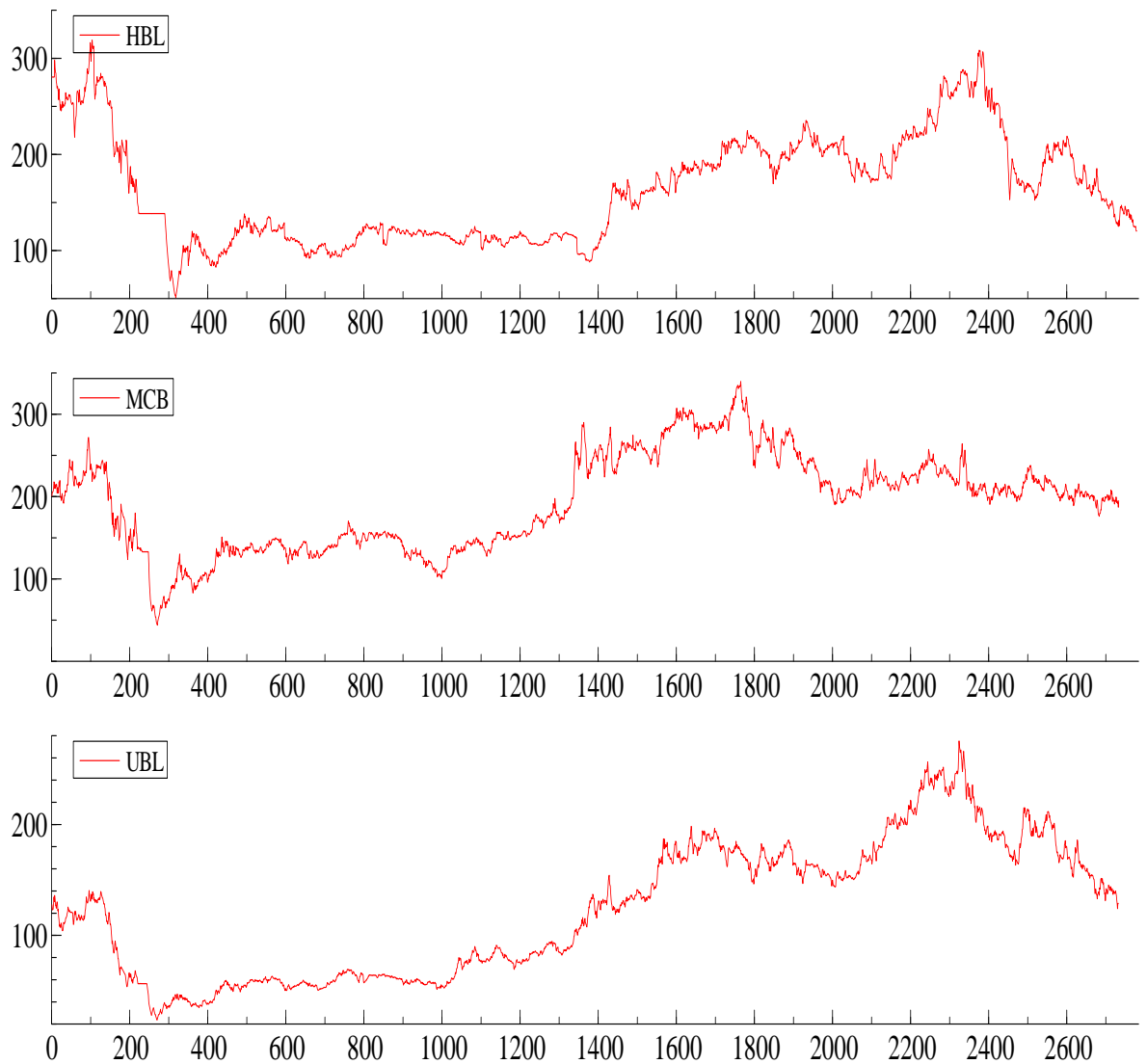
In this chapter we discuss the empirical results and their interpretation. We check the impact of political and financial events of stock prices of top three commercial bank in KSE 100 index. We explore the effect of these events on returns and volatility of returns of these banks. The series have ARCH effect that is why we employed ARCH type modeling to estimate the volatility of returns of banks. First we visualize the series to understand the behavior of series. Second we employ ARCH model to estimate volatility of these series. Third we use Impulse Indicator Saturation (IIS) to check the significant impact of these events on stock price series of these banks.

4.1. Graphical Analysis

We use data visualization to apprehend the dynamics and behavior of the raw stock price series of Habib Bank Limited, Muslim commercial Bank, and United Bank Limited.

The figure 1 indicates that stock prices series of all the banks have upward trend with huge fluctuations. The series are moving down ward in the start which is due to global financial crisis of 2008. After that the series are moving upward with some fluctuations. Again in 2018 series are showing downward trends. This can be due to political instability and worst economic conditions. This clearly shows that the series are moving down ward continuously after mid of 2018, which means that there some reasons that badly impacted the financial series.

Figure 1: The Raw series of HBL, MCB, and UBL



The figure 2 indicates that return series of all the banks with huge fluctuations. The series are showing high and low fluctuation. The arrow indicating huge shock which is due to global financial crisis of 2008. After that the series are with high and low fluctuations. These may be due to political instability and worst economic conditions.

Figure 2: The Raw series of HBL, MCB, and UBL

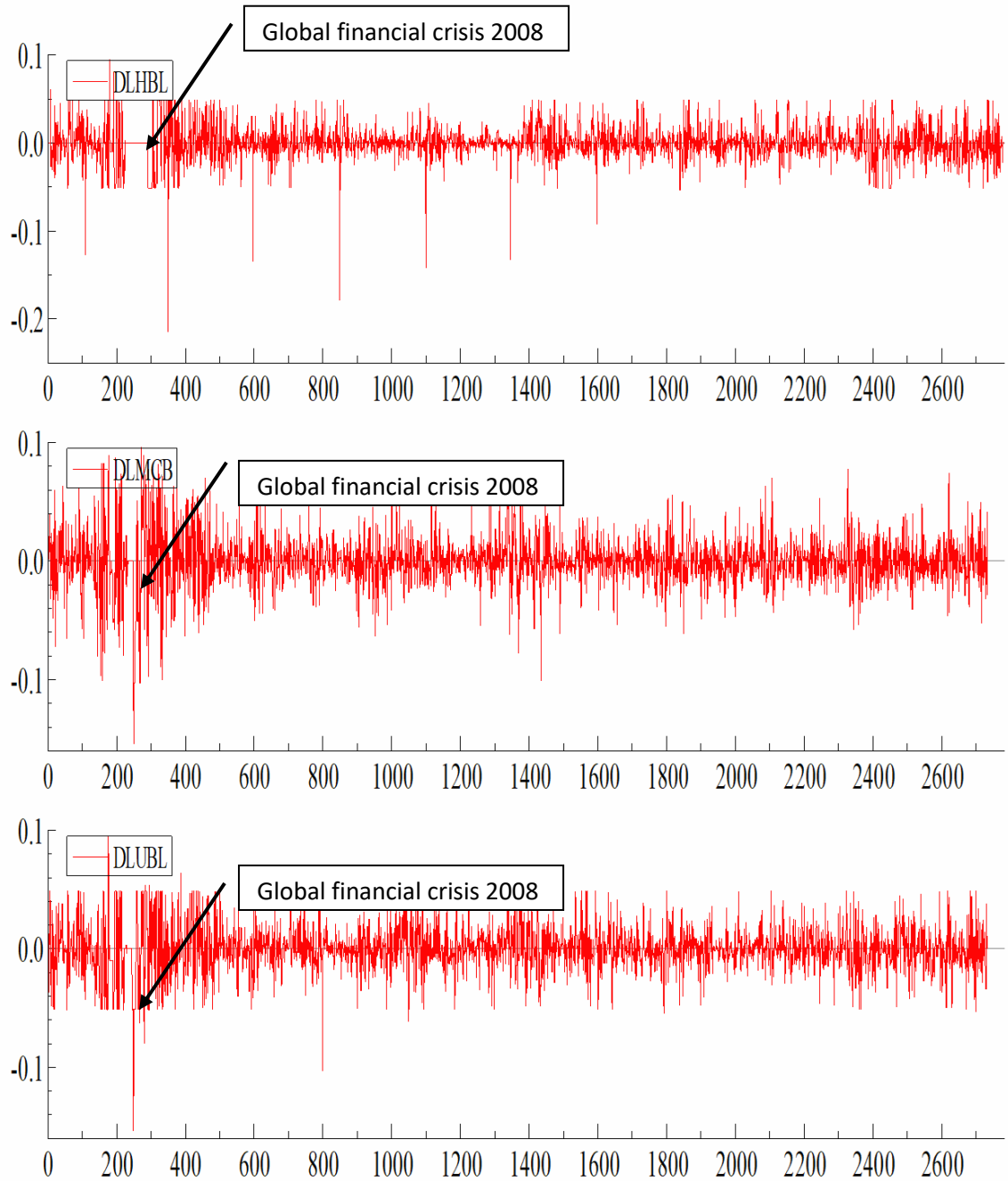
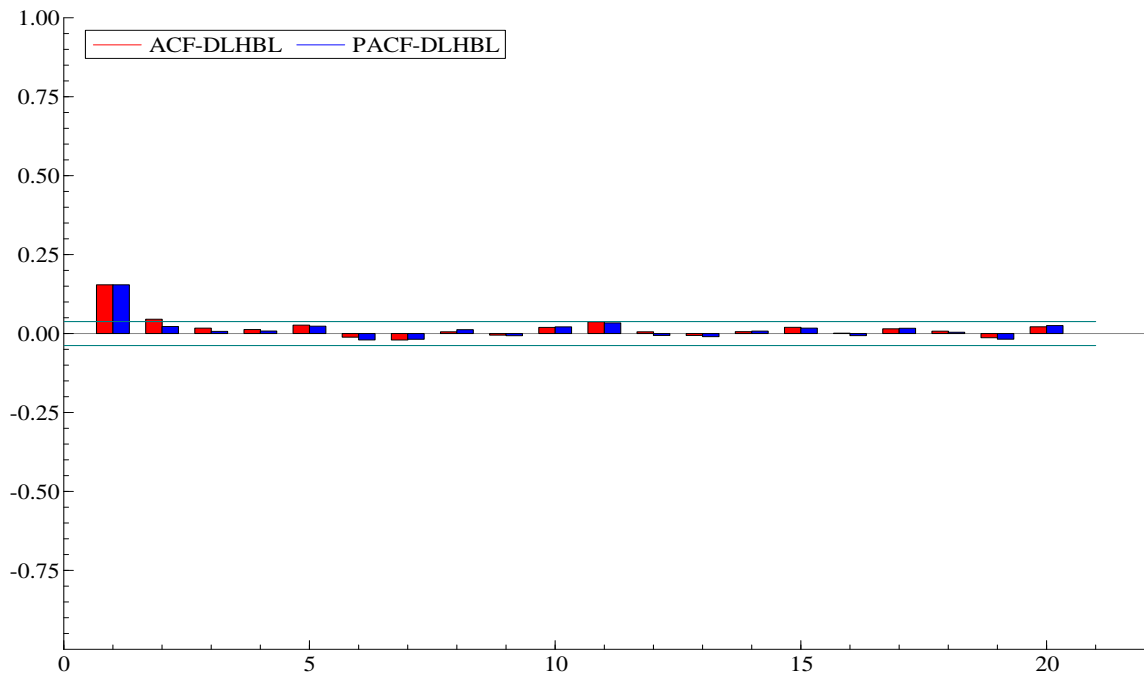


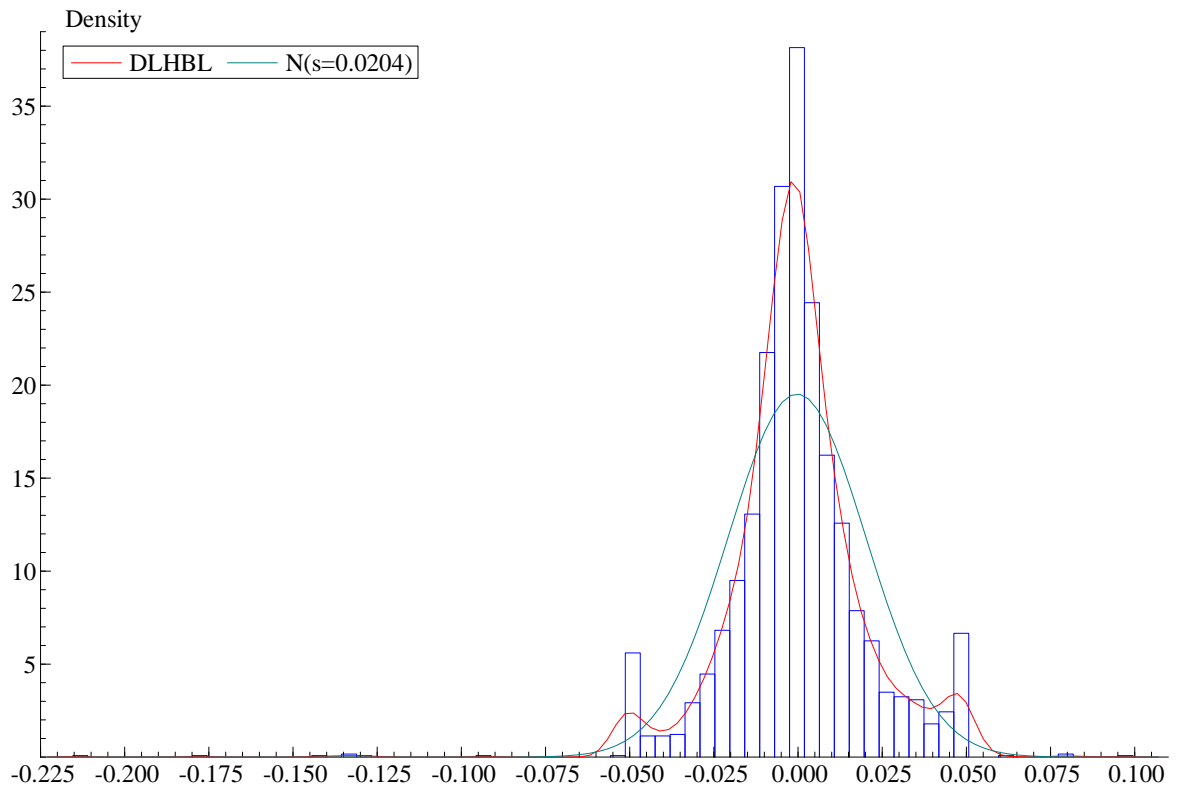
Figure 3: The ACF and PACF of HBL's Return Series



The figure 3 is showing the ACF and PACF of HBL return series and it can be made for other series also for convenience we are just discussing about HBL series here. The ACF may tell about the autoregressive lag length while the PACF shows moving average lag length. The bars outside the line are considered as significant lag values. The 1st lag autoregressive and 1st and 2nd lag of moving average are outside the band line.

The figure 4 shows the distribution of HBL return series with a reference normal distribution. The red line is showing the actual distribution of HBL and the green line displays the reference normal distribution of HBL return series. The figure shows that the peak of the distribution is higher than normal and the tails of the actual distribution of HBL are larger than the reference normal distribution, that is why we come to know that the distribution of HBL is non-normal in nature. This graphical analysis can be done for other series.

Figure 4: The Distribution of HBL's Return Series



4.2. Descriptive Statistics

The descriptive statistics offer the initial statistics of series which provide basic knowledge about the nature of series.

The table 1 describes the summary of statistics of HBL, MCB, and UBL return series. The mean of both series is negative and moving around 0 value which shows that the series has mean reversion behavior. The skewness is concerns about the symmetry of the tails of distribution and the statistics are showing that the series are negatively skewed. It means there are some extreme values on the side negative side of distribution. The Kurtosis is related to the peak of distribution and the statistics are showing that the series are leptokurtic in nature means series have higher peak as compare to normal reference distribution. The Jarque-Bera is used to check the normality and its statistics are showing that the series are normal of all series.

Table 1: The Descriptive Statistics of HBL, MCB, and UBL Return Series

Summary of Statistics									
Series	Mean	Standard deviation	Skewness	Jarque Bera	Excess Kurtosis	Q-stat (5)	Q2-stat (5)	ARCH 1-2	KPSS
HBL	-0.2149	0.0204	-0.90964 (0.0000)	11682 (0.0000)	9.9676 (0.0000)	79.3646 (0.0000)	89.7029 (0.0000)	25.503 (0.0000)	0.1988
MCB	-0.1539	0.0226	-0.1889 (0.0000)	1517.5 (0.0021)	3.6323 (0.0000)	23.5945 (0.0000)	23.1565 (0.0000)	4.8491 (0.0003)	0.0719
UBL	-0.1538	0.0200	-0.1838 (0.0000)	650.48 (0.0000)	2.3625 (0.0000)	4.33321 (0.5025)	6.7659 (0.9290)	126.86 (0.0000)	0.2453

Null Hypotheses (All Null Hypotheses are for nth order)

“KPSS H0: Return series is level stationary, Asymptotic significant values 1% (0.739), 5% (0.463), 10% (0.347). Q-stat (return series) there is no serial autocorrelation. Q2-stat (square return series) H0: there is no serial autocorrelation. Jarque-Bera H0: distribution of series is normal. LM-ARCH H0: there is no ARCH effect. Use these Asymptotic Significance values of t-stat 1% (0.01), 5% (0.05), 10% (0.1) and compare these critical values with P-values (Probability values). P-values are in the parenthesis.”

The ARCH test used to check the ARCH effect in series, the statistics of ARCH test are showing that all the series have ARCH effect. The KPSS test is used to check the unit root of series, the test statistics are showing that all the series are stationary.

4.3. Volatility Modeling

To find out the volatility series of all return series, we used GARCH model because all the series have ARCH effect.

The table 2 shows the results of GARCH model for HBL. In first panel of table 2 the results of conditional mean equation describe that the returns follow moving average behavior but not moving average. That is why the AR term is zero in this model. In second panel of table 2 the results of conditional variance equation refers that the ARCH and GARCH terms are significant in the model.

Table 2: The Results of GARCH Model for HBL Return Series

Parameters	Coefficient	Std.Error	t-value	t-prob			
Conditional Mean Equation							
Constant							
θ_0	0.0078	0.0001	0.3419	0.0732*			
AR(1)	-----	-----	-----	-----			
ϑ_1							
MA(1)							
ϕ_1	0.0767	0.0231	3.3250	0.0009***			
Conditional Variance Equation							
Constant							
γ_0	0.0056	0.0000	0.2181	0.0827*			
ARCH(1)							
γ_1	0.3079	0.0270	11.4000	0.0000***			
GARCH(1)							
δ_1	0.8051	0.0388	20.7600	0.0000***			
Student (DF)	3.0034	0.3337	9.0010	0.0000***			
			0.9655				
Persistence of shock							
Null Hypotheses(All Null Hypotheses are for nth order)							
“AR (p) H0: $\vartheta_i=0$ No AR Process, MA (q) H0: $\phi_i=0$ No MA Process, ARCH H0: $\theta_i=0$ No ARCH effect, GARCH H0: $\varphi_i=0$ No GARCH effect. The *, ** and *** are showing the significance at 10%, 5% and 1% respectively”.							
Residual Analysis							
Tests	Jarque Bera	Q-Stat (5)	Q-Stat (10)	Q ² -Stat (5)	Q ² -Stat (10)	LM – ARCH (1-2)	LM-ARCH (1-5)
Values	7.0768	1.8970	0.4549	0.9023	0.3134	0.5654	0.7843
	(0.0000)	(0.9988)	(0.8476)	(0.9780)	(0.0990)	(0.9897)	(0.9340)

Null Hypotheses(All Null Hypotheses are for nth order)

“Q-stat (return series) there is no serial autocorrelation. Q²-stat (square return series) H0: there is no serial autocorrelation. Jarque-Bera H0: distribution of series is normal. LM-ARCH H0: there is no ARCH effect. P-values are in the parenthesis”.

The student t distribution parameter is significant in the model means the distribution of HBL returns is not normal. The persistence of shock parameter is close to 1 which means that the ARCH and GARCH effects take long time to decay. The third panel of table 2 shows the result of residual analysis. The panel 3 in table 2 explains the residual analysis for the validity of the results. The Q stat test used for autocorrelation in residuals results explain that the test statistic is insignificant means there is no autocorrelation at 5th and 10th lags. The Q square stat test used for autocorrelation in residuals variances results explain that the test statistic is insignificant means there is no heteroscedasticity at 5th and 10th lags. The LM-ARCH test results are also showing that there is no ARCH effect. It means the model is good fit.

Table 3: The Results of GARCH Model for MCB Return Series

Parameters	Coefficient	Std.Error	t-value	t-prob	
Conditional Mean Equation					
Constant					
	θ_0	0.0000	0.0002	-0.0054	0.9957
AR(1)					
	ϑ_1	0.9137	0.1292	7.0700	0.0000***
MA(1)					
	ϕ_1	-0.9295	0.1305	-7.1230	0.0000***
Conditional Variance Equation					
Constant					
	γ_0	0.1923	0.0469	4.0960	0.0000***
ARCH(1)					
	γ_1	0.1843	0.0282	6.5310	0.0000***
GARCH(1)					
	δ_1	0.7974	0.0275	29.0100	0.0000***
Student (DF)		4.6308	0.4241	10.9200	0.0000***
Persistence of shock			0.9840		

Null Hypotheses(All Null Hypotheses are for nth order)

“AR (p) H0: $\vartheta_i = 0$ No AR Process, MA (q) H0: $\phi_i = 0$ No MA Process, ARCH H0: $\theta_i = 0$ No ARCH effect, GARCH H0: $\varphi_i = 0$ No GARCH effect. The *, ** and *** are showing the significance at 10%, 5% and 1% respectively”.

Residual Analysis

Tests	Jarque Bera	Q-Stat (5)	Q-Stat (10)	Q ² -Stat (5)	Q ² -Stat (10)	LM-ARCH (1-2)	LM-ARCH (1-5)
Values	6.8681 (0.0000)	2.3071 (0.9999)	0.6750 (0.1970)	0.7898 (0.9882)	0.3741 (0.9990)	0.5508 (0.4509)	0.8702 (0.5670)

Null Hypotheses(All Null Hypotheses are for nth order)

“Q-stat (return series) there is no serial autocorrelation. Q²-stat (square return series) H0: there is no serial autocorrelation. Jarque-Bera H0: distribution of series is normal. LM-ARCH H0: there is no ARCH effect. P-values are in the parenthesis”.

The table 3 displays the results of GARCH model for MCB. In 1st panel of table 3 the results of conditional mean equation define that the returns follow moving average and autoregressive behavior. That is why the AR and MA parameters are significant in this model. In 2nd panel of table 3 the results of conditional variance equation denotes that the ARCH and GARCH terms are significant in the model.

The student t distribution parameter is significant in the GARCH model. It shows that the distribution of MCB returns is not normal. The persistence of shock parameter is 0.9840 which is close to 1. It means that the ARCH and GARCH effects take long time to decay. The third panel of table 3 shows the result of residual analysis. The panel 3 in table 3 explains the residual analysis for the validity of the results. The Q stat test used for autocorrelation in residuals results explain that the test statistic is insignificant means there is no autocorrelation at 5th and 10th lags. The Q square stat test used for autocorrelation in residuals variances results explain that the test statistic is insignificant means there is no heteroscedasticity at 5th and 10th lags. The LM-ARCH test results are also showing that there is no ARCH effect. It means the model is good fit.

The table 4 expresses the results of GARCH model for UBL. In first panel of table 4 the results of conditional mean equation describe that the returns follow autoregressive behavior but not moving average. That is why the MA term is zero in this model. In second panel of table 4 the results of conditional variance equation refers that the ARCH and GARCH terms are significant in the model. The panel 3 in table 4 explains the residual analysis for the validity of the results. The Q stat test used for autocorrelation in residuals results explain that the test statistic is insignificant means there is no autocorrelation at 5th and 10th lags. The Q square stat test used for autocorrelation in residuals variances results explain that the test statistic is insignificant means there is

no heteroscedasticity at 5th and 10th lags. The LM-ARCH test results are also showing that there is no ARCH effect. It means the model is good fit.

Table 4: The Results of GARCH Model for UBL Return Series

Parameters	Coefficient	Std.Error	t-value	t-prob
Conditional Mean Equation				
Constant				
θ_0	0.0000	0.0003	0.0322	0.9743
AR(1)				
ϑ_1	0.0833	0.0209	3.9960	0.0001***
MA(1)				
ϕ_1	-----	-----	-----	-----
Conditional Variance Equation				
Constant				
γ_0	0.1575	0.0414	3.8030	0.0001***
ARCH(1)				
γ_1	0.1792	0.0292	6.1330	0.0000***
GARCH(1)				
δ_1	0.8022	0.0286	28.0400	0.0000***
Student (DF)	5.2187	0.5915	8.8230	0.0000***
			0.9814	

Persistence of shock

Null Hypotheses(All Null Hypotheses are for nth order)

“AR (p) H0: $\vartheta_i = 0$ No AR Process, MA (q) H0: $\phi_i = 0$ No MA Process, ARCH H0: $\theta_i = 0$ No ARCH effect, GARCH H0: $\varphi_i = 0$ No GARCH effect. The *, ** and *** are showing the significance at 10%, 5% and 1% respectively”.

Residual Analysis

Tests	Jarque Bera	Q-Stat (5)	Q-Stat (10)	Q ² -Stat (5)	Q ² -Stat (10)	LM – ARCH (1-2)	LM-ARCH (1-5)
Values	9.7853	1.7806	0.4356	0.4520	0.3741	0.8759	0.6930
	(0.0000)	(0.9999)	(0.7643)	(0.9881)	(0.9990)	(0.6742)	(0.3286)

Null Hypotheses(All Null Hypotheses are for nth order)

Q-stat (return series) there is no serial autocorrelation. Q²-stat (square return series) H0: there is no serial autocorrelation. Jarque-Bera H0: distribution of series is normal. LM-ARCH H0: there is no ARCH effect. P-values are in the parenthesis.

The volatilities of the return series are estimated through conditional variance equations from all the model.

Table 5: The Results of Impact of Events on Returns of Banks

Date	Category	Detail	HBL (F-stat)	MCB (F-stat)	UBL (F-stat)
14-Nov-07	Internal Affair	Ban on TV Channels to go on air	2.6140 0.2385	1.6022 0.6239	0.7562 0.8322
19-Feb-08	Elections	PPP won with a 1/3 majority	180.6927 0.0052***	16.9443 0.0016***	76.4562 0.0028***
15-May-08	Internal Affair	Strike for Justice Movement	171.8847 0.0494**	93.7940 0.0387**	63.8654 0.0376**
7-Sep-08	financial crisis	Global financial crisis	148.3129 0.0000***	18.6391 0.0000***	64.4728 0.0000***
11-Mar-09	Internal Affair	Long March/Riots	42.5975 0.0000***	36.3423 0.0000***	39.8736 0.0000***
10-Jun-10	Internal Affair	Punjab Government Opposed Rah e Nejat Operation	2.1804 0.5004	1.7682 0.6649	2.3832 0.1539
2-May-11	Foreign Affair	Osama Bin Laden Operation in Abbottabad	111.1368 0.0029***	76.5409 0.0007***	85.3276 0.0005***
28-Oct-11	Long March/ Political Gathering	PML-N	120.7582 0.0000***	98.6533 0.0000***	86.2341 0.0000***
31-Oct-11	Long March/ Political Gathering	PTI	191.0546 0.0000***	48.7638 0.0000***	81.5823 0.0000***
18-Jun-12	Internal Affair	SC dismissed Yousaf Raza Gillani	33.3967 0.0000***	45.3274 0.0000***	25.4598 0.0059***
15-Jan-13	Long March/ Political Gathering	Tahir ul Qadri Sit in Islamabad resulted from the long march	74.6131 0.0039***	65.5495 0.0014***	55.5572 0.0001***
13-May-13	Elections	PMLN won	145.1293 0.0000***	57.4749 0.0000***	74.9823 0.0000***
5-Jun-13	Internal Affair	NS the PM of Pakistan	4.3856 0.0957*	3.9976 0.0846*	3.3749 0.0627*
15-Aug-14	Long March/ Political Gathering	PAT and PTI	129.1762 0.0000***	92.9358 0.0000***	83.2348 0.0060***
19-Aug-14	Internal Affair	Civil disobedience by Imran khan	8.9095 0.0654*	9.7569 0.0721*	9.4873 0.0721*
20-Feb-18	Internal Affair	SC dismissed Nawaz Sharif	187.7669 0.0000***	86.6739 0.0000***	34.8763 0.0000***
13-Jul-18	Internal Affair	Mariam Nawaz and Nawaz Sharif arrested	19.6022 0.0000***	62.7984 0.0000***	71.8433 0.0002***
25-Jul-18	Internal Affair	2018 general election	113.8550 0.0000***	48.7652 0.0000***	41.5322 0.0000***
26-Jul-18	Internal Affair	PTI won	143.0650 0.0729*	56.1024 0.0694*	68.3847 0.0694*
9-Oct-18	Exchange rate	Increase 122.44 to 132.58	58.5303 0.0000***	86.8761 0.0000***	45.9771 0.0070***
30-Nov-18	Exchange rate	Increase 132 to 136.58	35.1936 0.0000***	16.3908 0.0000***	13.8531 0.0012***

The purpose is to check the impact of political and financial events on commercial bank which are in KSE 100 index. The Impulse Indicator Saturation provide t stat values for each point which cannot be explained easily in draft. So we employed F-stat test on the significant dummies and check their joint significance. So these results are based on F-stat values. The table 5 shows the results of political and financial events on stock prices of HBL, MCB, and UBL. We select only those events which are more prominent in data time span. The results are indicating that the out of 21 events only 2 events are insignificant. This shows all the events significantly impacted the returns of the these commercial banks except ban on TV Channels to go on air and Punjab Government opposed Rah-e-Nejat operation at 14 Nov, 2007 and 10 Jun, 2010 respectively. The results are also indicating that there are some events which weakly impacted the returns of HBL, MCB, and UBL. These events are NS the PM of Pakistan, Civil disobedience by Imran khan, and PTI won at 5 Jun, 2013, 19 Aug, 2014, and 26 Jul, 2018 respectively. All the other events are highly significant.

The table 6 shows the results of political and financial events on volatility of stock prices of HBL, MCB, and UBL. The results are indicating that the out of 21 events only 1 events are insignificant. This shows all the events significantly impacted the volatility of returns of these commercial banks except ban on TV Channels to go on air at 14 Nov, 2007. The results are also indicating that there are some events which weakly impacted the returns of HBL, MCB, and UBL. These events are NS the PM of Pakistan, Civil disobedience by Imran khan at 5 Jun, 2013 and 19 Aug, 2014 respectively. All the other events are highly significant.

Table 6: The Results of Impact of Events on Volatility of Returns of Banks

Date	Category	Detail	F-stat	P-value	F-stat
14-Nov-07	Internal Affair	Ban on TV Channels to go on air	1.8859 0.6931	0.4257 0.6532	1.4863 0.9832
19-Feb-08	Elections	PPP won with a 1/3 majority	51.7867 0.0001***	65.872 0.0078***	65.4864 0.0026***
15-May-08	Internal Affair	Strike for Justice Movement	193.4504 0.0005***	16.5332 0.0012***	87.5622 0.0018***
7-Sep-08	financial crisis	Global financial crisis	169.5011 0.0001***	67.3922 0.0040***	122.4683 0.0001***
11-Mar-09	Internal Affair	Long March/Riots	80.9039 0.0001***	56.6523 0.0078***	80.6892 0.0014***
10-Jun-10	Internal Affair	Punjab Government Opposed Rah-e-Nejat Operation	129.8707 0.0710*	65.8732 0.0853*	129.8707 0.0926*
2-May-11	Foreign Affair	Osama Bin Laden Operation in Abbottabad	84.5334 0.0029***	86.7652 0.0016***	81.8438 0.0004***
28-Oct-11	Long March/ Political Gathering	PML-N	126.0835 0.0000***	83.2386 0.0000***	75.4762 0.0000***
31-Oct-11	Long March/ Political Gathering	PTI	176.5056 0.0000***	65.8462 0.0000***	81.5685 0.0000***
18-Jun-12	Internal Affair	SC dismissed Yousaf Raza Gillani	119.1163 0.0000***	78.4234 0.0000***	112.8568 0.0000***
15-Jan-13	Long March/ Political Gathering	Tahir-ul-Qadri Sit in Islamabad resulted from the long march	91.3893 0.0006***	84.3467 0.0016***	94.8473 0.0003***
13-May-13	Elections	PMLN won	61.5344 0.0000***	65.6523 0.0000***	53.5853 0.0000***
5-Jun-13	Internal Affair	NS the PM of Pakistan	52.4591 0.0609***	43.7423 0.0785***	86.2924 0.0515***
15-Aug-14	Long March/ Political Gathering	PAT and PTI	196.2721 0.0000***	74.6523 0.0000***	74.0285 0.0000***
19-Aug-14	Internal Affair	Civil disobedience by Imran khan	146.6412 0.0074***	42.2374 0.0052***	55.1875 0.0082***
20-Feb-18	Internal Affair	SC dismissed Nawaz Sharif	81.9165 0.0000***	76.5634 0.0000***	98.6513 0.0000***
13-Jul-18	Internal Affair	Mariam Nawaz and Nawaz Sharif arrested	86.9858 0.0000***	65.8561 0.0000***	65.3264 0.0000***
25-Jul-18	Internal Affair	2018 general election	142.9057 0.0000***	78.2356 0.0000***	112.4756 0.0000***
26-Jul-18	Internal Affair	PTI won	136.4410 0.0029***	110.7236 0.0051***	37.5427 0.0005***
9-Oct-18	Exchange rate	Increase 122.44 to 132.58	73.9911 0.0000***	99.3752 0.0000***	73.9911 0.0000***
30-Nov-18	Exchange rate	Increase 132 to 136.58	167.4428 0.0000***	87.3487 0.0000***	143.3472 0.0000***

The results show that the political and financial events impacted the returns of stock prices of commercial bank which exist in KSE 100 index. There are only few events which did not impact the returns of commercial banks. On the basis of these results we

can conclude that the political and financial events badly impacted the stock prices return of commercial bank. That is why is a question of great importance to take into account these events during policy making.

CHAPTER 5

CONCLUSION AND POLICY RECOMMENDATIONS

The economy of Pakistan has been facing political instability due to many factors in which some are external and some are internal but all effects economy of Pakistan at some certain limits. The banking system is also considered as powerful pillar of economy in this modern era. All the financial dealing are done through banking system but when there any political and financial event generate shock in the economy due to internal and external disturbances it volatility the performance of banking system also. The core objective of this study is to explore the effect of some major political and financial events on returns and volatility of commercial bank which are listed in KSE 100 index. The data are taken from the period of Oct, 2007 to Dec, 2019. The GARCH modeling is employed to find out the volatility series for each bank and after that for impact of events the Impulse Indicator Saturation (IIS) is employed on both returns and volatility series.

5.1. Conclusion

The results of these events are following:

- 1.** The Returns series of the stock prices of HBL, MCB, and UBL commercial banks reacts on 19 events out of 21 events.
- 2.** The Volatility of HBL, MCB, and UBL commercial banks effected reacts over 20 events out of 21 events.
- 3.** There are two political event at which the return series of the commercial banks did not show any reaction are TV Channels to go on air and Punjab Government opposed Rah-e-Nejat operation at 14 Nov, 2007 and 10 Jun, 2010 respectively.

4. There is only one events which did not affect the volatility of commercial banks is TV Channels to go on air at 14 Nov, 2007.

5. There are three financial events; global financial crisis and exchange rate depreciation and these events significantly affected the returns and volatility of commercial banks.

6. There are 18 political events and 2 did not affect returns and 1 did not affect volatility of commercial banks.

7. There is only one political event which did not affect the returns and volatility as well.

The overall conclusion is that the commercial banks stock prices reacts on the financial and political events even they are indigenious and exogenous.

5.2. Policy Recommendations

These results may provide a guide to state bank of Pakistan when it makes policy regarding commercial banks in the presence of political and financial events effects.

The commercial banks may also consider these results for making future policy for the treatments of such political and financial events.

5.3. Limitation of Study

The limitations of the study are following:

1. This study took only three banks which are on top position in KSE 100 index but in future this type of study can be done by taking all the commercial banks which hare included in KSE 100 or out of KSE 100.

2. This study only took few political and financial events in future a research can be done by taking all the events.

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