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Stock Market Reaction to Good and Bad Political News

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Abstract

The purpose of this study is to analyze the consequence of political news on stock market returns and hence its volatility. For this purpose we split the political news into two categories (good and bad news). We used univariate asymmetric GARCH model, to gauge the impact of political news on returns and volatility. Our results show that good news have positive impact on the returns of the KSE100 index and also decreased the volatility. On the other hand, bad political news has negative influence on the returns (decrease the returns) and increase the volatility (positive effect). Further, our results also confirm that bad news has stronger effect (almost double) on the volatility than good news. Most of the sectors are also affected by the good and bad news in the same way as KSE100 index. We also find that the results of a few sectors (oil and gas, financial, health care) are not statistically significantly in respond to good and bad political news, indicating that this type of news does not affect the returns or volatility. Our results show that the sectors which respond more towards good news has lower beta, suggesting variance moves quickly through the time.

Keywords: Political risk, good and bad news, Asymmetry, EGARCH

1. Introduction

Over the past decades, researchers have identified numerous factors that can affect stock exchange returns such as economic and political factors. Political risk is an important factor especially in developing countries and emerging markets. Political stability index defines political risk as a probability of political events occurring that will change the prospects for profitability of a given investment. Brews (1981) explain political risk as an assortment of risks associated from doing business abroad. Clark (1997) refers it as stochastic element as well as the timing of the political events that cause losses. Clark and Tunaru (2003) explain political risk as the expected arrival rate of political events. Clark and Tunaru (2005) defines political events with significant negative economic and financial consequences that are felt everywhere as beside to political events whose economic and financial outcomes are limited to specific country or region. This means that political risk can arise from a large number of sources, which are often mutually dependent. Authors like Root (1973) and Simon (1982) consider political risk as an event that causes loss.

Research on political risk focus that political news affect financial markets. Especially stock markets respond more to new information regarding political decisions that may affect domestic and foreign policy. The reaction of the stock exchange depends on the political news, prices should increase if the news leads to upward revision of investor's expectation and similarly it can lead to downward if the investors respond to news in opposite way (Tan and Gannon 2002). Researcher use different ways to test political events and use them to test against stock market's volatility. Soultaanaeva (2008) use political news as proxy to view political risk and find that there is a week relationship between political risk and stock market volatility. Researchers such as Robock (1971) and Kobrin (1979) or freshly Feils and Sabac (2000), concentrated on political risk as it changes the investment's overall profitability in both ways. Cutler et al. (1989) and Bittlingmayer (1988) Chan and Wei (1996), Kim and Mei (2001), consider political risk with respect to stock market volatility. Other papers, such as Erb et al. (1995 and 1996), Cosset and Suret (1995), Bekaert (1995), and Bekaert and Harvey (1997) focus on losses and test political risk with respect to stock market performance.

Empirical literature on stock exchange behaviour has focused on the link between stock prices and political risk, (Beaulieu, Cosset and Essaddam 2006; Fong and Zhang Wang and Lin 2007; Chan and Wei 2009).Beaulieu, Cosset and Essaddam (2006) investigated the short run effect of the 30 October 1995 Quebec referendum on the common stock returns of Quebec firms. Their result shows that the uncertainty surrounding the referendum outcome had an impact on stock returns of Quebec firms. They also find that the effect of the referendum varied with the political risk exposure of Quebec firms, that is, the structure of assets and principally the degree of foreign involvement. Regardless of its consequence, a minor empirical research has examined the importance of political risk on stock market volatility. Fong and Koh 2009 used the data from Hong Kong stock market to investigate whether political risk has induced regime shifts in stock market's volatility. They found a strong evidence of the regime shift in conditional volatility as well as significant volatility asymmetry in high volatility periods.

Since the day of independence in 1947, Pakistan has become a ball to play between democratically-elected and authoritarian military leaders, linked with an unstable relationship with neighbouring India. From 1988 to 1999, following Zia ul Haq's death, democracy though an unstable one sovereignty, power alternated between Benazir Bhutto and Nawaz Sharif, with none of them completing their full in the Prime Minister house. Finally, in October 1999, a Chief of Army Staff, Pervez Musharraf, take over the government of Sharif and took over as President[1] and sent him to jail and later to exile in Saudi Arabia for ten years. After asserting himself the chief executive, the Supreme Court in May 2000 authorized Musharraf to hold the president office. In 2002 a parliamentary election returned civilian rule, yet the Musharraf presidency was extended for another five years. Although parliamentary elections were to take place in 2007, they were first postponed because of doubts of instability and later as a result of the assassination of Benazir Bhutto in December 2007. When the elections finally took place in February 2008, President Musharraf was crushed by the PPP and PML (N). Both parties formed a coalition government in March 2008 with a new prime minister in power, Yusuf Raza Gilani.

The purpose of this paper is to examine the impact of political uncertainty on stock exchange. This paper contributes to the existing literature in the following way. First, to our best knowledge, the current literature lacks the empirical evidence regarding the impact of political news on the return and the volatility at sector indices level, as all the previous research is done on the main indices. Second, Pakistan is an ideal laboratory to examine the impact of political events as there is a high density of political instability and involvement of army in the politics. In this paper we analysed the consequences of political news on the stock market returns and volatility. For this purpose we split the political news into two categories (good and bad news). We use the daily data from Karachi Stock Exchange to observe the affect of political news on the stock market. Furthermore, we examine the returns of different sectors to examine either they are also affected by the political news or not. Additionally this also helps us to identify which sector responds more to the political news. We used univariate asymmetric GARCH model, to gauge the impact of political news on the returns and volatility. We specifically used EGARCH as it allows good news and bad news to have different impact on volatility while standard GARCH model does not (Engle and Victor 1993).

Our results shows, that the good news has positive impact on the returns of the KSE100 index and good news also decreased the volatility. On the other hand, bad political news has negative impact on the returns (decrease the returns) and increase the volatility (positive effect). Furthermore our results also confirm that bad news has more affect (almost double) on the volatility than the good news, such results are consistent with Laakkonen and Lanne (2008). Most of the sectors are also affected by the good and bad news in the same way as KSE100 index. We also found that a few sectors (oil and gas, financial, health care) are not statistical significant for good and bad political news, means these type of news do not affect the returns or volatility. We also reported the volatility asymmetry**,** which is negative in most of the sectors including the KSE 100 which is due to the leverage effect. However the asymmetry for Auto and Parts is positive showing that there is no leverage effect in this. Furthermore, persistence parameter beta is also reported, which is very large in most of the

selected sectors including KSE 100 which indicate that variance move slowly through time. Our results divulged that the sectors which response more towards good news (volatility decrease more than other such as basic material and industries) has lower beta, means variance move quickly through the time.

The organization of this study is as follows. Section 2 presents the formulation of hypotheses and EGARCH modelling of financial returns and volatility. Section 3 describes the data. Empirical findings are discussed in Section 4. Further research areas and the conclusion are presented in Section 5.

2. Methodology

Even though GARCH performs well at describing volatility, its underlying assumption about the behavior of the squared residuals is problematic. The model expects that the same magnitude of positive and negative shocks have the same effects on variance. This is seen in the model by squaring the previous values of shocks. By doing this the sign of the shocks is lost. To solve this problem, asymmetric, non-linear models were introduced. In this study our focus lies only on EGARCH model.

2.1 The EGARCH Model

Nelson (1991) introduce the Exponential GARCH which is more useful as compared to GARCH because it allows good news and bad news to have a different impact on volatility and it also allows big news to have greater impact on volatility. This model work in two steps, firstly it considers the means and secondly the variance. One way to define the EGARCH model is:

$$\log(\sigma_t^2) = \omega + \alpha f_t(z_{t-1}) + \beta \log(\sigma_{t-1}^2) \quad (1)$$

$$f_t(z_{t-1}) = (|z_{t-1}|) - E|z_{t-1}| + \gamma z_{t-1} \quad (2)$$

Where, $z_{t-1} = \epsilon_{t-1}/\sigma_{t-1}$

$\alpha, \beta, and\ \gamma$ are parameters for conditional variance estimation. β_i, indicate the impact of the last period measures on the conditional variance. If the β_i is positive that means a positive change in stock prices is associated with further positive change and vice versa. α_j is a coefficient which measures the effect of previous period in the information set and explain the past standardized residuals influence on the current volatility. Furthermore, γ_k signify the asymmetry effect the in the variance, a negative γ_k means that bad news has higher impact on volatility than the good one with the same magnitude. Since EGARCH models the logarithmic time-varying conditional variance, the parameters are allowed to be negative. This means that the model does not require any non-negativity constraints in the parameters. The lack of non-negative restrictions makes the model more attractive than a GARCH and GJR. There is however a necessary constraint regarding the stationarity of the model that needs to be specified. The stationary restriction for an EGARCH (1, 1) model is that the beta is less than one ($\beta < 1$). In the case of symmetry, where the magnitudes of positive and negative shocks have equal impact on the variance, γ will be equal to zero. If, $\gamma < 0$ the magnitude of a negative (positive) shocks will cause the variance to increase (decrease). If, on the other hand, $\gamma > 0$ positive (negative) shocks will cause the variance to increase (decrease).

2.1 Political Risk and Security Returns with EGARCH

After having measured the univariate return and volatility linkages, we further our analysis by measuring the effect of good news and bad news announcement for the KSE 100 index and other selected sector indexes. We measure the return and volatility response to good and bad political news by adding a dummy variable in our univariate EGARCH model that take the value 1 on news[2] days, else zero. It is important to note that we measure separately the response of each news category, i.e., our model is estimated independently for each news category. More specifically, the univariate EGARCH model with a dummy variable for stock market indexes is defined as follows:

$$r_{KSE,t} = \phi_0 + \phi_1 r_{KSE,T-1} + \theta\, \varepsilon_{KSE,T-1} + \phi_2 Dummy_t + \epsilon_{KSE,t} \quad (3)$$

$$log(\sigma_t^2) = \omega + \alpha_1\, f_t\, (z_{t-1}) + \beta log\, (\sigma_{t-1}^2) + \alpha_2 Dummy_t \quad (4)$$

Equation (3) is the return equation and (4) represent the volatility equation. Where, the dummy variables are the good and bad news.

3. Data and Descriptive Statistics

The data used in this study was collected from the Karachi stock exchange and Thomson DataStream. It consists of the KSE-100 index and the eight sector indexes those are, oil and gas, financial, basic material, Utilities, food and beverages, Industry, health care and Auto and parts. The data consists of daily closing prices, stated in local currency (rupee). For KSE-100 index data ranges from January 2, 1992 to March 30, 2010 consists of 4686 observations. While, for all the sectors the data range is from July 17, 1992 to March 19, 2010 consist of 4162 observations. The software used in the study is E-views. The daily return series was generated as follow,

$$r_{KSE,t} = log(KSE_t/KSE_{t-1}) \quad (5)$$

Where, KSE_t is the return on Karachi stock exchange and KSE_t represents the closing value of KSE indexes on the day t. It is important to mention here that the series is adjusted neither for dividends nor for risk free rate. We can ignore the dividends and interest rates as it does not create any significant error when we forecast stock market volatility (Nelson 1991). Summary statistics for our returns series of KSE-100 index, and other sectors are as given in equation (5) are shown on the next page in table 1. Table 1 show that the mean value of the KSE100's return is 0.0004 and the median 0.00000. The standard deviation is about 1.62%. This is a quite high value, with respect to the mean return, indicating that the returns often deviate from the mean. The skewness in this case is nearly -0.32 which indicates a negative skewness indicating that the curve is more concentrated on the left hand side. Indices usually have a weak negative skewness since the stock prices in the long range tend to increase with time. The kurtosis is around 8.62, which is way too high means the curve has a high peak. There is, thus, excess kurtosis in the index meaning that the distributions are leptokurtic. Standard normal distribution should have a skewness of zero and a kurtosis of three. Based on these values we conclude that the data does not follow a normal distribution. One way to confirm whether the data follows a normal distribution is to look at the Jarque - Bera. In this case, with respect to table 1, the JB is 6243.621 with a p-value of 0, and hence the H_0-

hypothesis is rejected which means that the data is not normally distributed. Table 1 shows details of the descriptive statistics of the selected sectors such as financials, industry, utilities etc. All mean returns are positive except of the industries.The skewness of the series indicate that more than half of the series has a negative skewness. Moreover, we also reported the Autocorrelation coefficients for simple and squared returns at first lag in table 1. The first order return autocorrelation coefficient displays a significantly positive serial correlation for most of the return series. In addition, coefficients measuring the serial correlation in squared returns indicate a presence of volatility clustering effects for all sectors including the KSE 100 index. Thus, we can use GARCH models to capture these characteristics of asset returns. Furthere more all the series reject the H_0- hypothesis for JB- test confirming that these are not normal distributed.

3.1 News Data

Political news has great impact on the Pakistani stock market as it is clear when the Parliament passes the 18th amendment in the evening and the next day the KSE100 roses by 300 points. In this paper we use political news to test the impact of political risk on stock market volatility. We collected 186 news items in total after careful reading of more than 4000 news[3]. We gathered all the news which are related to politics and include i) agreements between political parties, ii) Conflicts between politicians and army iii) talks and statements given by the leaders of political parties about future policies, iv) Dismissal of governments before time, v) Intervention of army. After collecting the political news, we sort these news into "good" and "bad" news. We classify them according to their nature and ultimate affect on the economy and response of general public. For instance, in our sample period we have two main parties[4] which are always against each other. So any talk or an agreement between these two parties is considered as good news. However, when these parties try to make fake cases against each other then the news considered as bad one. The interference of army or take over on the democratic government always considered as bad news. We also included the news related to MQM (Muttahida Qaumi Movement) as they are the key role player in the Karachi city the biggest city of the Pakistan.

4. Empirical Results

We justify the selection of EGARCH models by utilizing the linear models on KSE 100 and other selected sectors with different lags and investigate the best fit model for the data according to Akaike information criterion (AIC) and Schwarz information criterion (SIC). We find ARMA (1, 1) model is the best fit model in most of the series in order to capture the first movement.

4.1 Impact of Good Political News

First we test the impact of good political news on the stock returns, means how returns responds to the good news. In general, we know that good news increase the returns. The empirical results from Univariate EGARCH model (3) & (4) are reported in Tab 2. As it clear the table that good political news dummy ϕ_2 is positive (0.007288***) and is significantly and statistically significant at 1 % for KSE 100 index. Moreover the results of dummy variable for sector indexes is also positive and statistically significant showing that good political news have positive effect on returns. Financial, Auto and Parts sector show more

positive returns (0.010607*** and 0.009291** respectively) as compared with other sectors make, which make clear that they react more to positive news with respect to others. This is a good sign because whenever political parties sit together to solve the matters for public interest and it influence the market in a positive way. Now, turning our concern to the volatility dynamics reveal more interesting results. Table 2, also describe the coefficient of dummy α_2 in the volatility equation (4). Results show that good news decrease volatility in most of the cases including KSE100, basic material, utilities, food and beverages, industries and health care. Good news dummy is more significant and higher in the case of basic material (- 0.255694**) industries (- 0.215425***) as compare to other sectors. However some sectors as oil and gas (0.037254), financial (0.061050) and auto and parts (- 0.059129) are not statistically significant with respect to good political news. Table 2 also reports the volatility asymmetry**,** which is negative in all of the sectors including the KSE 100 which is due to the leverage effect. However the asymmetry for Auto and Parts is positive showing that there is no leverage effect in this sector. Moreover negative asymmetry implies that the variance goes up more after negative news than after positive news. Furthermore, persistence parameter β is also reported in table 4, which very large in most of the selected sectors including KSE 100 which indicate that variance move slowly through time. From the table we also observe that the β coefficient for basic material (0.589553***) and industries (0.721994) is quite low as compare to the other sectors those have β coefficient more than 0.90. We conclude that the sectors which response more towards good news (volatility decrease more than other such as basic material and industries) has lowerβ. Our results also explains that good political news have no affect on the volatility of the oil and gas sectors, since the price of oil is linked to the international markets so the domestic good news did not change the volatility. Similar results are found with the financial sector, describe that the coefficient for good news is not statistically significant. It is because the financial sector can be more dependent on the economic news rather than the political one.

The time period required for shocks to reduce to one half of the original size defined as $\ln(0.50) / \ln(\beta)$ is approximately 8.30 days for KSE100 index and a higher one is 23.3 days for food and beverages and smallest of 1.3 days for basic material sector index. This is an indication that the shock persist is 8.30, 23.3 and 1.3 days for KSE100, food and beverage and basic material sector index respectively. A shorter lasting persistence of shocks in the conditional variance implies more volatility. The extent to which negative innovations increase volatility more than positive innovation is defined as $|-1 + \gamma| / (1 + \gamma)$, about 1.11 times for KSE100 index, 1.39 which is the maximum in all the sectors is for basic material and lowest if for 1.01 times for auto and parts sector index respectively. Asymmetry effect of 1.11 means, that the negative impact is 1.11 times more than the positive impact on the KSE100 index.

4.2 Impact of Bad Political News

In this part we test the impact of bad political news on the stock returns and volatility. Generally speaking, bad news decreases the returns and increases the volatility. The empirical results from Univariate EGARCH model (3) & (4) are reported in Table 3. As it is perceived from the table that bad political news dummy ϕ_2 is statistically significant at 1% and significantly negative effect (- 0.011564***) on the returns of the KSE 100 index. We also

reported the results of the sectors with respect to bad news. Financial and basic material is more negative results (- 0.015145*** and - 0.014795*** respectively) with respect to other sectors. However, we find no significant result (- 0.000942) of the bad news on health care sector. Concentrating on impact of news on volatility we find motivating results. Table 3 also divulges the coefficient of dummy α_2 in the volatility equation (4). Results show that bad news increase volatility all of the cases including KSE100, basic material, utilities, food and beverages. Bad news has more impact on the volatility basic material and financial sector (0.600746*** and 0.492515*** respectively) as compare to other sectors. However, we did not find significant statistic of the impact of bad political news on industries (- 0.039800) and health care (- 0.018243). Table 3 also reports the volatility asymmetry, which is negative in all of the sectors including KSE100 except auto and part, confirming leverage effect. Moreover negative asymmetry implies that the variance goes up more after negative news than after positive news. However in case of auto and parts the asymmetry is positive implies the absence of leverage effect. Furthermore, persistence parameter β is very large in most of the sectors including KSE 100 which indicate that the variance move slowly through time. On the other hand, β for the basic material and industries is lower than the other sectors. Residual autocorrelation coefficients at 10^{th} lag for both simple and squared standardized residuals are also reported in table 3. The statistic of autocorrelation in residual and squared residual shows the absence of correlation. We also find that the magnitude of the negative political news is more than the positive political news on both return and volatility. There is no affect of bad political news on health care sector which is not surprising as Pakistan is a developing country and the health care is related to basic needs of the people. So the investor think that the struggle among the political parties do not affect this sector. Furthermore bad news does not influence the volatility of the industrial sector. The reason behind this is that almost 90% of the politicians are related to the industrial sector directly or indirectly. So they actually have all the inside news about the future policies. Furthermore table 2 and 3 shows that the asymmetry for bad news is more than good news means bad news have more impact than good news. However the asymmetry for Auto and Parts is positive showing that there is no leverage effect in this sector. Moreover negative asymmetry implies that the variance goes up more after negative news than after positive news. We also observed that the beta coefficient for basic material and industries is quite low as compare to the other sectors those have beta coefficient more than 0.90. We conclude that the sectors which response more towards good news (volatility decrease more than other such as basic material and industries) has lower beta.

The time period required for shocks to reduce to one half of the original size defined as $\ln(0.50) / \ln(\beta)$ is approximately 7.96 days for KSE100 index, 22.88 days for food and beverages and lower one of 1.25 days for basic material sector index. This is an indication that the shock persist is 7.96, 22.88 and 1.25 days for KSE100, food and beverage and basic material sector index respectively. A shorter lasting persistence of shocks in the conditional variance implies more volatility. The extent to which negative innovations increase volatility more than positive innovation is defined as $|-1+\gamma| / (1+\gamma)$, about 1.10 times for KSE100 index, 1.43 which is uppermost in all the sectors is for basic material and lowest if for 0.99 times for auto and parts sector index respectively. Asymmetry effect of 1.43 means, that the negative impact is 1.43 times more than the positive impact on the basic material

sector index.

5. Conclusion

Pakistan is facing political uncertainty right from the beginning. After the death of the founder Quaid-i-Azam Muhammad Ali Jinnah, there is struggle of government between the democratic parties and the Military. Army always tried to get benefit of enjoy the government whenever there is conflict between the democratic parties. This is the reason that more than half of the years since the independence, the government is ruled by the dictators. This study examined the impact of political uncertainty on stock exchange. We studied the effect of political news on the stock market returns and volatility. For this, we split the political news into two categories (good and bad news). . Generally speaking, good news has positive effect on returns and decreases the volatility. Where as bad news decreases the returns and increases the volatility. Furthermore bad news increases volatility more than the good news. We used the daily data for eighteen years from Karachi Stock Exchange to examine the affect of political news on the stock market. Additionally this also helped us to identify which sector responds more to the political news. We used univariate asymmetric GARCH model, to gauge the impact of political news on the returns and volatility. We specifically used EGARCH proposed by Engle and Victor (1993) as it allows good news and bad news to have different impact on volatility while standard GARCH model does not.

Our results demonstrate that the good news has positive effect on the returns of the KSE100 index and good news also decreased the volatility. On the other hand, bad political news has negative effect on the returns (decrease the returns) and increase the volatility (positive effect), which in the line of Engle and Victor (1993) results specifying that bad and good news have different impact on volatility. Furthermore our results also confirm that bad news have more effect (almost double) effect on the volatility than the good news, such results are consistent with Laakkonen and Lanne (2008). Most of the sector results are also affected by the good and bad news. .Financial, Auto and Parts sector show more positive returns on good political news as compared with other sectors, which make clear that they react more to positive news with respect to others. same is the case with volatility the response towards Good news dummy is more significant and higher in the case of basic material industries with respect to other sectors. Bad political news affected more on the returns of financial and basic material. Moreover, Bad news has more impact on the volatility of basic material and financial sector as compare to other sectors.

We also find that a small number of sectors are not statistical significant for good and bad political news, means these type of news do not affect the returns or volatility. Good news has no impact on the volatility of oil and gas and financial sector. However, the influence of bad political news is also not statistically significant for the returns of health care such results are consistent with Suleman (2012). Furthermore, we did not find significant statistic of the impact of bad political news on industries and health care. We also reported the volatility asymmetry**,** which is negative in most of the sectors including the KSE 100 which is due to the leverage effect. Furthermore, persistence parameter beta is also reported, which is very large in most of the selected sectors including KSE 100 which indicate that variance move slowly through time.

This study could be extended by including more news such as, economic, military and neighboring countries. Moreover, analysis can be done on the industry level. We can also examine the impact of these news on individual stock or on portfolios. Furthermore we can use more countries in our data such as South Asian countries and test the impact of one country's political news on the other. For this we may employ multivariate EGARCH model for studying the volatility.

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Notes

Note 1. Pakistan political stability – Harvard –Belfer center for science and international affairs.

Note 2. This is for both good and bad news.

Note 3. The main sources are: The News, Nation, Dawn newspaper and BBC.

Note 4. Pakistan People's Party, Pakistan Muslim League.

Table 1. Descriptive Statistics

	KSE100	Oil & Gas	Financial	Basic Material	Utilities	Food & Beverage	Industries	Health Care	Auto & Parts
Mean	0.0004	0.0007	0.0005	0.0005	0.0001	0.0002	- 8.21E-	0.0003	0.0004
Maximum	0.1276	0.0799	0.599	0.4666	0.10	0.1418	1.6618	0.0804	0.1882
Minimum	- 0.1321	- 0.0799	-0.665	- 0.492	- 0.10	- 0.1464	- 1.6239	- 0.0804	- 0.1759
Std. Dev.	0.0162	0.0187	0.0246	0.0203	0.0233	0.0182	0.0416	0.0176	0.0277
Skewness	- 0.317	- 0.0446	-1.012	-0.4159	- 0.0373	0.0492	0.5875	- 0.3459	0.3208
Kurtosis	8.6203	6.1956	198.04	139.56	6.8598	11.388	1060.9	6.7652	8.0187
Jarque-Bera	6243.6	1963.58	73098	35834	2863.4	13521	2.15E+	2815.8	4918.3
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AC return	0.022	0.018	0.001	0.001	0.011	0.008	- 0.013	- 0.000	0.000
AC Sq. return	0.198	0.293	0.239	0.488	0.268	0.234	0.281	0.301	0.153
Observation	4686	4162	4162	4162	4162	4162	4162	4162	4162

Note. The Jarque-Bera statistics is computed from the following equation;

$$JB = \frac{n}{6}(S^2 + \frac{(K-3)^2}{4})$$

Where *n* is the number of observations, *S* the skewness and *K* the kurtosis. The hypotheses for the JB-test are:

H_0 = normal distribution

H_1 = no normal distribution

Table 2. Estimation results from ARMA - EGARCH with Good News

	Kse 100	Oil and Gas	Financial	Basic Material	Utilities	Food and Beverages	Industries	Health Care	Auto and Parts
ϕ_0	- 0.0007**	0.001***	0.0010**	0.001***	0.0008**	-0.000291*	-0.00068**	0.0005**	0.0006**
ϕ_1	1.0090***	0.921***	1.069***	0.4353**	0.895***	1.0213***	0.9780***	0.281***	-0.68***
θ	- 0.8963***	-0.86***	-0.96***	-0.380**	-0.86***	-0.9333***	-0.9801***	-0.1771	0.737***
ϕ_2	0.0072***	0.007***	0.010***	0.0063**	0.0084**	0.00599**	0.00807**	0.0038**	0.0092**
ω	- 0.903***	- 0.87***	- 1.43***	- 3.56***	- 0.86***	- 0.401***	- 2.336***	- 0.78***	- 1.21***
α_1	0.3058***	0.267***	0.301***	0.416***	0.236***	0.2372***	0.2952***	0.290***	0.265***
γ	- 0.051***	-0.03***	- 0.08***	-0.16***	- 0.024**	- 0.034***	- 0.066***	- 0.021**	0.003266
β	0.9198***	0.915***	0.847***	0.589***	0.908***	0.9706***	0.7219***	0.930***	0.856***
α_2	- 0.11474*	0.037254	0.061050	- 0.255**	- 0.1102*	- 0.0981**	- 0.215***	- 0.144**	- 0.05912
AC (10) Residual									
	0.020	0.016	0.013	0.033	0.029	- 0.004	0.020	0.057	0.046
AC (10) Squared Residual									
	0.003	0.003	0.004	- 0.001	0.022	- 0.011	- 0.001	0.004	- 0.004

Notes: This table reports the estimates from the following ARMA - EGARCH model:

$$r_{KSE,t} = \phi_0 + \phi_1 r_{KSE,t-1} + \theta \varepsilon_{KSE,t-1} + \phi_2 \text{Dummy} + \varepsilon_{KSE,t}$$

$$\log(\sigma^2_{KSE,t}) = \omega + \alpha_1 g_{KSE,t}(Z_{KSE,t-1}) + \beta \log(\sigma^2_{KSE,t-1}) + \alpha_2 \, Dummy$$

We report the estimates for ARMA - EGARCH return and volatility for KSE 100 index and other selected indexes. The coefficients measuring the effect of dummy variable used as a proxy for the Good Political News on Karachi stock markets' returns and volatilities are also reported. Significant coefficients are denoted with***, **, * on 1%, 5 %, and 10 % significance level respectively. Residual autocorrelation coefficients at 10th lag AC (10) for both simple and squared standardized residuals are also reported.

Table 3. Estimation results from ARMA - EGARCH with Good News

	Kse 100	Oil and Gas	Financial	Basic Material	Utilities	Food and Beverages	Industries	Health Care	Auto and Parts
ϕ_0	- 0.0005*	0.001***	0.001***	0.0021***	0.001312***	0.000164	- 3.98E-05	0.0006***	0.0007*
ϕ_1	1.030***	0.930***	0.969***	0.47668**	0.868454***	- 0.6183***	- 0.986***	- 0.59463*	- 0.93***
θ	-0.908***	- 0.87***	- 0.86***	- 0.422269***	- 0.8455***	0.707817***	0.9840***	0.70063**	0.994***
ϕ_2	- 0.011***	- 0.01***	- 0.01***	- 0.014795***	- 0.0120***	- 0.0091***	- 0.0067**	- 0.000942	- 0.01***
ω	- 0.942***	- 0.89***	- 1.56***	- 3.719236***	- 0.8751***	- 0.4059***	- 1.767***	- 0.800***	- 1.37***
α_1	0.3107***	0.271***	0.321***	0.432867***	0.237518***	0.233812***	0.2542***	0.2938***	0.280***
γ	- 0.054***	- 0.03***	- 0.08***	- 0.175501***	- 0.0258***	- 0.0343***	- 0.055***	- 0.0228**	0.003696
β	0.9165***	0.914***	0.833***	0.573164***	0.907792***	0.970159***	0.7924***	0.9293***	0.836***
α_2	0.2578***	0.1051**	0.492***	0.600746***	0.079643*	0.078952*	- 0.039800	- 0.018243	0.11452*
AC (10) Residual									
	0.020	0.016	0.013	0.032	0.029	0.021	0.015	0.057	0.046
AC (10) Squared Residual									
	0.005	0.003	0.006	- 0.001	0.020	- 0.009	- 0.002	0.005	- 0.004

Notes: This table reports the estimates from the following ARMA - EGARCH model:

$$r_{KSE,t} = \phi_0 + \phi_1 r_{KSE,t-1} + \theta \varepsilon_{KSE,t-1} + \phi_2 \text{Dummy} + \varepsilon_{KSE,t}$$

$$\log(\sigma^2_{KSE,t}) = \omega + \alpha_1 g_{KSE,t}(Z_{KSE,t-1}) + \beta \log(\sigma^2_{KSE,t-1}) + \alpha_2 \, Dummy$$

We report the estimates for ARMA - EGARCH return and volatility for KSE 100 index and other selected indexes. The coefficients measuring the effect of dummy variable used as a proxy for the Bad Political News on Karachi stock markets' returns and volatilities are also reported. Significant coefficients are denoted with***, **, * on 1%, 5 %, and 10 % significance level respectively. Residual autocorrelation coefficients at 10th lag AC (10) for both simple and squared standardized residuals are also reported.