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**Daily Stock Market Movements: From
the Lens of News and Events**

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ABSTRACT

There are various factors that affect movements of the stock market. Month to month variations in stock market can be studied using several fundamentals such as interest rate, prices, exchange rate etc. However, daily movements can only be determined by different signals or news/events. This study analyzes the effect of daily movements in KSE-100 Index due to different policies announced as well as incidents/events happened in the country. Therefore daily data is collected on the movements in stock market and reason for major change in that day from the Sunday edition of the Daily Newspaper "The News". It is concluded that global news and political news can effect stock market index ferociously. Investment in Blue chips is a safe haven for the investors. It is not the determinant of KSE index, instead it is the outcome of the movements in KSE index. Moreover, panic attack is always higher than the herd behaviour as far as day to day transactions are concerned. Investors react quickly to negative news than to positive news, which makes them risk averter. ARCH/GARCH model explain KSE movements better than simple OLS method.

Keywords: Stock Market, Finance, News Model, Pakistan Stock Exchange

1. INTRODUCTION

Stock market is among the important component of free market economy in which shares are purchased and sold. Stock market gives slice of ownership in return to capital investment done by the individuals. Although financial and non-financial firms are listed in stock market, nonetheless, daily and intraday movements in stock market are difficult to determine by the economic, and financial fundamentals. Due to its nature it is, sometimes, called a confused and troublesome market.

Individuals bet in securities exchange on the grounds that it is obscure and dull gap to a few individuals and associations yet it is not a betting spot for everybody. In rare case one loses all the investment except busting of company. We can say that stock market is the group of specific peoples opposing their knowledge.

Numerous elements can be figured out if stock costs rise or fall. Such elements incorporate the media, characteristic calamities, sentiments of surely understood speculators, political and social agitation, supply and request, monetary, hazard, worldwide, foundations, and the absence of or plenitude of suitable options. The accumulation of such variables, makes a sure sort of bearish bullish feeling in purchasers and merchants upon spreading of all approved significant data. There are a low number of purchasers comparative to venders, stock costs will tend to fall. Similarly, higher number of purchasers than dealers induce stock costs.

During the last five years Pakistani stock market has increased multifold and it is among the most vibrant market of the world currently. The returns of Pakistan stock market is high, despite few episodes of high volatility has affected investors badly. Nevertheless, the market is increasing day by day and crossed the 40,000 index benchmark this year which is the maximum since its inception.

Studies in the past, have done macroeconomic and firm level microeconomic analysis using weekly or monthly or annual data, which ignores the news effect on daily returns of the stock market. This paper, on the other hand use daily data and inspect stock market movements due to available information/news in the market. The information could be political, economic, financial etc.

The main focus of this study is to analyse the effect of daily changes in KSE-100 Index due to different policies announced as well as incidents/events

happened in the country. For example, news of rangers deployed in Karachi and news of interest rate increase may dampen the stock market. Similarly, global news such as increase in international oil prices or Iran-Saudi relations may also have noteworthy impact on stock market.

In the light of aforementioned issues, the objective of the study is to analyse the effect of different signals, news and policy measures on the daily movements in the stock market. Organisation of the paper is as follows; second chapter describes the literature review which was followed the chapter on data and methodology. Chapter 4 analyses regressions results, while conclusions are drawn in Chapter 5.

2. DETERMINANTS OF STOCK MARKET

Stock market is difficult to predict. Most of the research on stock market daily movements concluded that it is a random walk [e.g., Fama (1995), Dupernex (2007)]. However, several fundamentals are used to determine the movements in stock market and stock prices [e.g., Shubiri (2010), Attari (2013)] as well as in Pakistani stock market [e.g., Nishat and Shaheen (2004), Hussain, Zaman and Baloch (2014)]. First major stock market crash in Pakistan was observed in the 2005 followed by a crash in 2006 and the most crucial crises was observed in 2008 to 2009; KSE index dropped by thousand points [Sohail and Hussain (2009)].

The major factors of these volatility of the stock market were political instability of the country, law and order situation assassination of Benazir Bhutto (Ibid). Moreover initial two stock market shocks were occurred due to instable governance of Pakistan and due to more speculation of money. Nazir (2010) concludes that expanded political competition and democratic conditions enhance the stock returns of Karachi stock exchange. Using GARCH model Hussain, Zaman and Ahmed (2015) finds that negative shocks create more panic than positive shocks.

Stock market is, in general, considered to be an indicator of economic performance. Therefore, we can find several articles in which link between macro variables and stock market has been tried to establish. Contrary to belief that stock market is an indicator of economic performance, outcomes of macroeconomic variables have sufficient impact on the stock prices [Attari (2013)]. Hussain and Mahmood (2011) also finds significant association between stock prices and different macroeconomic variables such as investment spending, consumption expenditure and GDP. However, Ibid finds one way causation, i.e., from macro variables to stock prices. This implies that Pakistani stock market is not developed to the extent that it effects overall aggregate demand.

Qayyum and Anwar (2011) find that stock market movements is sensitive to change in money supply. Moreover, Zaheer and Rashid (2014) and Hussain, Zaman

and Ahmed (2015) and Haque and Sarwar (2012) finds negative association between money supply and stock prices. Moreover (Ibid) also finds that instability and GDP has a significant positive effect on individual equity return

Nishat and Shaheen (2004) and Sohail and Hussain (2009) find that stock market is positively associated with industrial activity while negatively associated with inflation. Nazir, Nawaz and Gillani (2010), Haque and Sarwar (2012) and Zaheer and Rashid (2014) also find negative association between inflation and stock prices. While Aurangzeb (2012) finds inflation to be insignificant in south Asia in explaining the stock market movements

Besides inflation exchange rate is also considered as a significant variable in explaining the foreign inflows in stock market. Stability of foreign exchange leads to better performance of stock market while volatile exchange rate makes room for risk premium for risk taker investors. Aurangzeb (2012) finds positive association between exchange rate for Pakistan, India and Sri Lanka, while Estimating EGARCH model Nazir, Nawaz and Gillani (2010) finds negative association among the two. Zia and Rahman (2011) find no association for Pakistan and Muhammad and Rahseed (2002) find no significant association in short run for India, Pakistan, Sri Lank and Bangladesh. Farooq and Keung (2004) finds exchange rate positively linked to KSE overall index and services sector index. However, causality runs from KSE index to exchange rate while exchange rate cause services sector index. This implies that exchange rate changes can influence movements in services sector index, while overall KSE index helps in stabilising exchange rate that attracts foreign portfolio investments. Qayyum and Kemal (2006) finds that there is no long run association between exchange rate and stock returns, nonetheless, returns of stock market is affected by the volatility in exchange rate and vice versa.

Along with exchange rate, interest rates and profitability of financial institutions affect the movements of stock market. Interest rate is announced by the State Bank of Pakistan after every two months. No doubt fifteen day to one week window before and after the announcement is crucial which may be depicted by the movements in the stock market. Hussain, Zaman and Baloch (2014) found insignificant association between interest rates and movements in Pakistani stock market. While Nazir, Nawaz and Baloch (2010), Haque and Sarwar (2012), Caporal, Hunter and Ali (2014), and Zaheer and Rashid (2014) find significant negative association of interest rate on stock market.

Impact of microeconomic determinants on stock market are different than macro determinants. Javaid (2007) found that besides inflation and GDP, earning per share of a firm, dividend on stock and KIBOR are among the main determinants of stock movements. Nazir, Nawaz, Anwar and Ahmed (2010) finds that corporate dividend policy plays crucial role in determining the stock price volatility. Nisa and Nishat (2012) analyses 221 companies and finds that past conduct of stock costs, organisation size, past profit per share are the most significant components that explain movements in stock market.

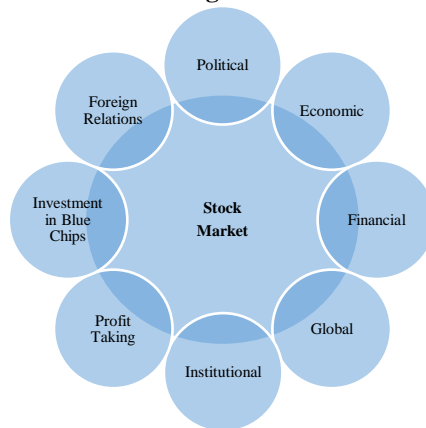
The above mentioned studies are mostly done on monthly or annual data, which fails to incorporate the daily movements in the stock market due to limitations of the data. However, these studies give a comprehensive signals to the investors that what are the microeconomic and macroeconomic determinants of stock markets which explains the returns of stock market in the short, medium and long run.

3. DATA AND METHODOLOGY

The main focus of this study is to analyse the effect of daily movements in KSE-100 Index due to different policies announced as well as incidents/events happened in the country. Therefore daily data is collected on the movements in stock market and reason for major change in that day from the Sunday edition of the Daily Newspaper “The News”¹ [The pictures from newspapers are in Appendix]. The data is collected from 5 April 2010 to 2 October 2015. This equals 1073 observations.

Several news outcomes were reported as a reason to movements in stock market in the newspaper. We grouped those factors according to their characteristics into eight categories, i.e., (i) Political; (ii) Economic; (iii) Financial; (iv) Global; (v) Institutions (vi) Profit taking (vii) Investment in blue chips; and (viii) Foreign relations. These key driver definitions allow a clear structure of our methodology and better interpretation of the results. We further split each key driver into sub-groups to get closer to the level of the individual data series. Each factor that we expect to either positively (+) or negatively (-) affect Stock Market.

Figure 1



¹The News is a daily newspaper which reports reasons for change in the stock market for the entire week in its Sunday edition. The cumbersome process is done by collecting newspapers from Internet as well as from the National Library, Islamabad, Pakistan.

Movements in stock market are presented in the Figure 2. It shows that there are several episodes of positive and negative changes during the last five years. The average is positive (20) though the standard deviation is too high (186), reported in Table 1. The maximum drop recorded is more than the maximum increase in the index. This implies that panic attack is always higher than the herd behaviour as far as day to day transactions are concerned. This result is coherent with the findings of Hussain, Zaman and Ahmed (2015).

Although political, economic and financial news/events have higher percentage (Figure 3), nonetheless, institutional change is also among the major reasons of movement in KSE index. Share of global change is 12 percent while 11 percent is profit taking in the last five years. Foreign relations and investment in blue chips has smaller part in the major reasons associated with the movements in KSE index.

Economic news on average gives positive results, while political and financial news affect KSE index, on average, adversely. However, political news affect more ferociously than economic and financial news. Institutional change on average impact KSE index positively, although maximum drop was close to 1000 points. Global news such as change in oil prices or news related to IFIs can savagely affect stock market; maximum drop was recorded due to global news/event as well as maximum hike was also recorded due to global news/event. Though on average it affects stock market negatively but overall it neutralises the effect if we remove the outliers. Profit taking, though neutralises the impact on KSE index, nonetheless, negative values implies that on average it muffles the stock market. Investment in blue chips though very few but overall it impacts stock market in a better way. Foreign relations nevertheless hasn't gone in any direction but on average stock market index moves upward due to news related to foreign relations in the last five years.

Fig. 2. KSE Movements

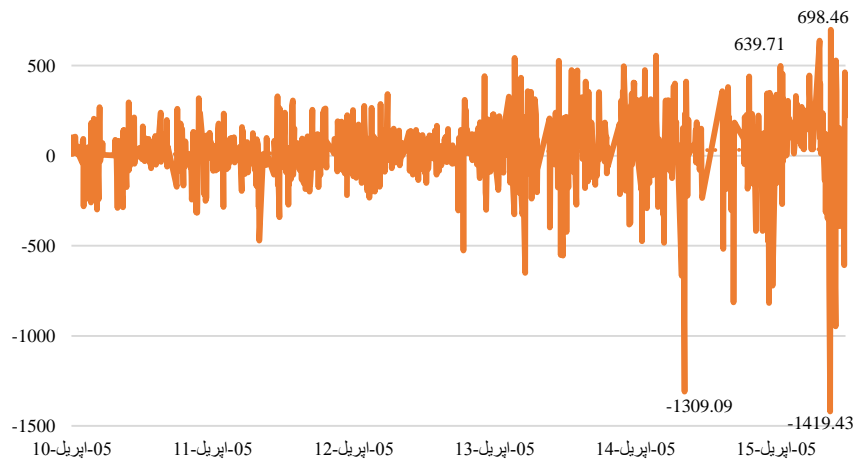


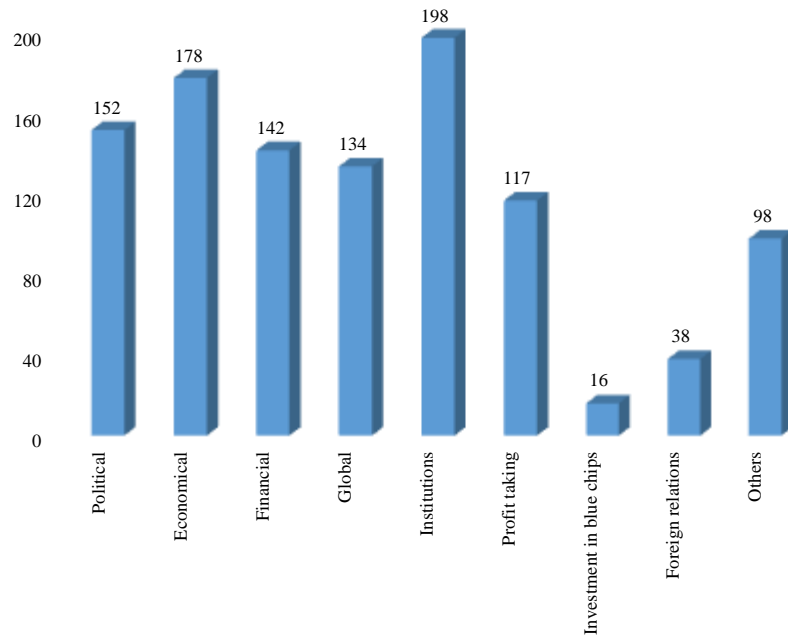
Fig. 3. Major Reasons Recorded

Table 1

Mean Table

Reasons	Mean	Std. Deviation	Minimum	Maximum
Political	-13.84	214.633	-1309	488
Economical	47.07	151.345	-325	486
Financial	-16.84	187.486	-555	640
Global	-12.34	234.175	-1419	698
Institutions	110.83	178.758	-947	543
Profit taking	-38.32	104.676	-475	268
Investment in blue chips	73.50	84.733	-105	264
Foreign relations	13.79	165.351	-342	387
Others	9.43	182.665	-817	498
Total	20.83	188.046	-1419	698

Fig. 4. Mean Graph

4. ECONOMETRIC MODEL

The main objective of the paper is to examine the effect of news/events on KSE movements, therefore, we regressed daily KSE index on first and fifth lag of dependent variable in conjunction with different news/events variables which are mentioned in the data section. Thus our model looks like;

$$\begin{aligned} \Delta KSE_t = & \alpha_0 + \alpha_1 \Delta KSE_{t-1} + \alpha_2 \Delta KSE_{t-5} + \beta_1 \text{Political} + \beta_2 \text{Economic} \\ & + \beta_3 \text{Financial} + \beta_4 \text{Global} + \beta_5 \text{Institutions} \\ & + \beta_6 \text{Profit Taking} + \beta_7 \text{Investment in Blue Chips} \\ & + \beta_8 \text{Foreign Relations} + \varepsilon_t \end{aligned}$$

Parameters are estimated using ordinary least square method (reported in Table 2 and Table 3) as well as using ARCH/GARCH model (reported in Table 4).

Table 2

Regression Results (Model 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.939946	18.30115	0.051360	0.9590
ΔKSE_{t-1}	0.131871	0.029769	4.429819	0.0000
ΔKSE_{t-5}	0.061018	0.029799	2.047626	0.0408
Political	-14.74525	23.48608	-0.627829	0.5303
Economic	40.06178	22.67880	1.766486	0.0776
Financial	-20.30952	23.74182	-0.855432	0.3925
Global	-8.034945	24.16277	-0.332534	0.7396
Institutions	104.5963	22.28830	4.692878	0.0000
Profit Taking	-51.88094	24.69919	-2.100512	0.0359
Blue Chips	58.79184	48.59709	1.209781	0.2266
Foreign Relations	9.865956	34.45590	0.286336	0.7747
R-squared	0.093667	Mean dependent var		20.69007
Adjusted R-squared	0.085092	S.D. dependent var		188.3774
S.E. of regression	180.1846	Akaike info criterion		13.23609
Sum squared resid	34317061	Schwarz criterion		13.28731
Log likelihood	-7057.070	Hannan-Quinn criter.		13.25549
F-statistic	10.92377	Durbin-Watson stat		1.996242
Prob(F-statistic)	0.000000			

Table 3

Regression Results (Model 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.601230	14.18853	0.465251	0.6418
ΔKSE_{t-1}	0.071064	0.023260	3.055233	0.0023
Political (-)	-146.3118	20.84426	-7.019285	0.0000
Political (+)	138.0394	22.12290	6.239661	0.0000
Economic (-)	-114.0175	23.11096	-4.933480	0.0000
Economic (+)	114.4947	19.15690	5.976685	0.0000
Financial (-)	-135.3979	21.24229	-6.373978	0.0000
Financial (+)	118.7873	22.86199	5.195844	0.0000
Global (-)	-192.4449	23.46079	-8.202829	0.0000
Global (+)	113.7889	21.38451	5.321089	0.0000
Institutions (-)	-194.2251	32.47831	-5.980149	0.0000
Institutions (+)	141.1895	17.68533	7.983428	0.0000
Foreign Relations (-)	-143.3433	37.79890	-3.792261	0.0002
Foreign Relations (+)	114.9408	33.07083	3.475595	0.0005
Profit Taking (-)	-96.63974	20.98776	-4.604575	0.0000
Profit Taking (+)	58.26681	27.62585	2.109141	0.0352
Investment in Blue Chips (-)	-120.5553	140.8877	-0.855684	0.3924
Investment in Blue Chips (+)	74.30277	38.86405	1.911864	0.0562
R-squared	0.453789	Mean dependent var		20.82353
Adjusted R-squared	0.444971	S.D. dependent var		188.1337
S.E. of regression	140.1602	Akaike info criterion		12.74011
Sum squared resid	20686049	Schwarz criterion		12.82375
Log likelihood	-6804.330	Hannan-Quinn criter.		12.77179
F-statistic	51.46034	Durbin-Watson stat		2.022480
Prob(F-statistic)	0.000000			

Table 4

Regression Results: GARCH Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log(GARCH)	38.24	15.16	2.52	0.0116
C	-355.69	146.92	-2.42	0.0155
Political (-)	-101.21	20.34	-4.98	0.0000
Political (+)	123.65	17.58	7.03	0.0000
Economic (-)	-91.01	17.24	-5.28	0.0000
Economic (+)	102.63	16.58	6.19	0.0000
Financial (-)	-113.39	19.64	-5.77	0.0000
Financial (+)	128.20	24.62	5.21	0.0000
Global (-)	-145.39	25.58	-5.68	0.0000
Global (+)	93.45	17.96	5.20	0.0000
Institutions (-)	-152.91	37.39	-4.09	0.0000
Institutions (+)	118.87	15.59	7.62	0.0000
Foreign Relations (-)	-134.77	23.64	-5.70	0.0000
Foreign Relations (+)	116.78	28.01	4.17	0.0000
Profit Taking (-)	-75.48	16.70	-4.52	0.0000
Profit Taking (+)	66.62	18.60	3.58	0.0003
Investment in Blue Chips (-)	-36.72	89.10	-0.41	0.6802
Investment in Blue Chips (+)	78.82	20.10	3.92	0.0001
AR(1)	0.12	0.04	3.38	0.0007
Variance Equation				
C	13897.23	2189.56	6.35	0.0000
RESID(-1)^2	0.17	0.09	1.92	0.0549
RESID(-2)^2	0.13	0.05	2.61	0.0089
RESID(-3)^2	0.13	0.04	3.25	0.0012
RESID(-4)^2	0.05	0.001	87.54	0.0000
RESID(-5)^2	0.13	0.06	2.04	0.0416
GARCH(-1)	-0.15	0.09	-1.67	0.0950
GARCH(-2)	-0.14	0.10	-1.37	0.1710
GARCH(-3)	-0.18	0.06	-3.33	0.0009
GARCH(-4)	0.05	0.08	0.55	0.5817
GARCH(-5)	0.065	0.003	18.801	0.0000
R-squared	0.43	Mean dependent var		20.82
Adjusted R-squared	0.42	S.D. dependent var		188.13
S.E. of regression	143.45	Akaike info criterion		12.51
Sum squared resid	21648228	Schwarz criterion		12.65
Log likelihood	-6670.94	Hannan-Quinn criter.		12.57
Durbin-Watson stat	2.02			

Results and Discussion

Regression results reported in Table 2 shows that apart from first and fifth lag institutions and profit taking are the two significant variables, while rest of the variables are insignificant. This could be due to offsetting positive and negative values. Therefore we have also run a regression, Model 2, presented in Table 3, in which we regress negative and positive values separately.

Similar to Model 1 we have estimated Model 2 with first and fifth lag. Nonetheless, fifth lag was insignificant therefore we dropped it. The F-statistic is 51.46 and it is significant at 5 percent level of significance, implies that model has a good fit.

The results reported in Table 3 shows coefficient of each reasons when KSE index moves upwards and downwards. Apart from investment in Blue chips all the variables are statistically significant at five percent level of significance. Investment in blue chip is considered to be the safe haven for the investors especially mutual fund investors. Insignificant coefficient of investment in blue chips may imply that individuals and mutual fund investors may try to save themselves when there is drop in share prices. Therefore it responds to KSE movements and not the other way around.

Apart from economic reasons, negative effect on KSE is over whelming due to all kind of news/events. This implies that index is in general behaves like a random walk but it harshly responds to the negative news than positive news. This also implies that investors are even cautious from investing whenever there is a positive news in the market and they look forward to the trend of market. Thus Pakistani investor is risk averter, in general.

ARCH/GARCH estimation results are reported in Table 4. Similar to Model 1 and Model 2, stationary dependent variable² is regressed on constant and all the news/events dummy variables. To capture the impact of risk premium log (variance) term is added along with other Autoregressive (AR), Moving Average (MA), Autoregressive Conditional Heteroscedasticity (ARCH) and Generalised Autoregressive Conditional Heteroscedasticity (GARCH) terms. Using correlogram, ARiMA and ARCH/GARCH terms are identified. Due to inclusion of AR term(s) lagged dependent variable is not used, which is used in the previous two models.

Coefficient of risk premium is significant, which confirms the findings of Shirazi (1999) and Ahmed and Zaman (2000) for Pakistan stock market. Besides AR(1) terms, five terms of ARCH as well as GARCH are used to capture the effect of non-linear inertia in the KSE movements. Although not all the coefficients are significant but inclusion of all the five terms improve the performance of model as compared to inclusion of less than 5 terms of both ARCH and GARCH. Presence of ARCH and GARCH confirms non-linear inertia in the model.

The results of news/events are not much different as far as significance level is concerned. Nonetheless, value of coefficients is smaller for all the news/events variables. Besides these, coefficients of investment in blue chips is significant for positive movements in KSE, while remain insignificant for negative movements of KSE index. Contrary to the Model 1 and Model 2, coefficients of political news/events, financial news/events and economic news/events is higher for positive movements. This implies that non-linear inertia or volatility in stock movements due to these three events are

²ADF statistic is -14.1 at level with constant and trend using 3 lagged differences. ADF statistic implies that variable is stationary at one percent level of significance (-3.97)

significantly captured by ARCH and GARCH coefficients, which allows the actual partial impact of political, economic and financial news/events.

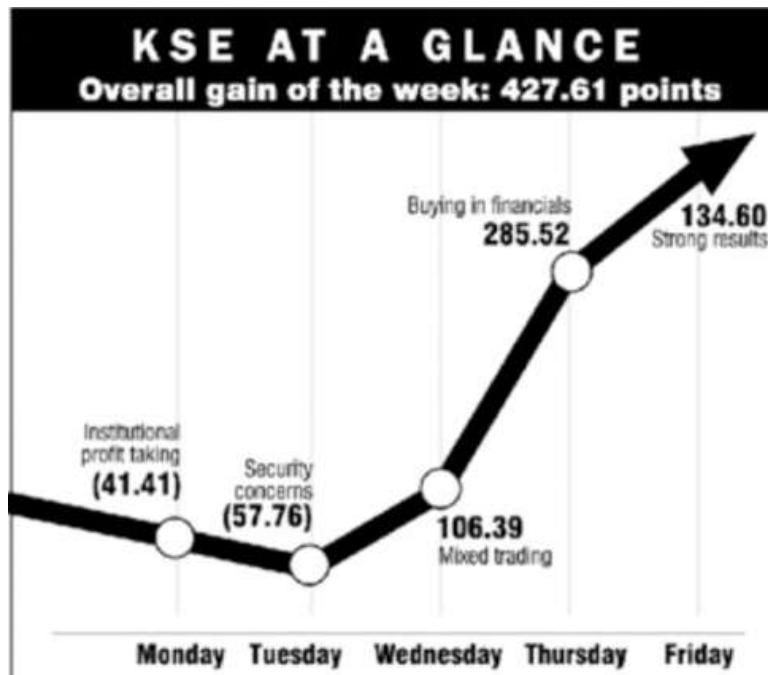
5. CONCLUSION AND RECOMMENDATION

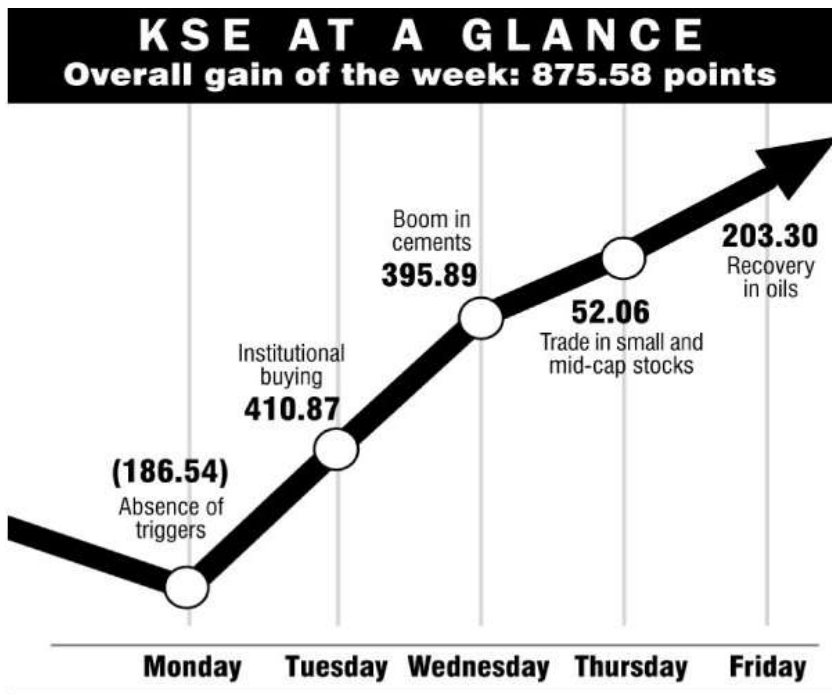
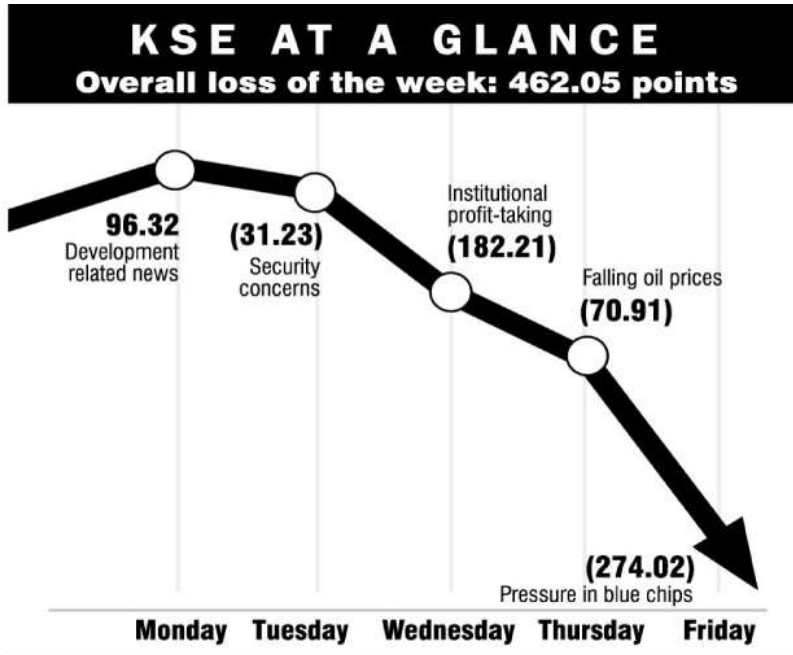
There are various factors that affect movements of the stock market. Month to month variations in stock market can be studied using several fundamentals such as interest rate, prices, exchange rate etc. However, daily movements can only be determined by different signals or news/events. This study has examined the association between stock market movements and different news/events happened during the day.

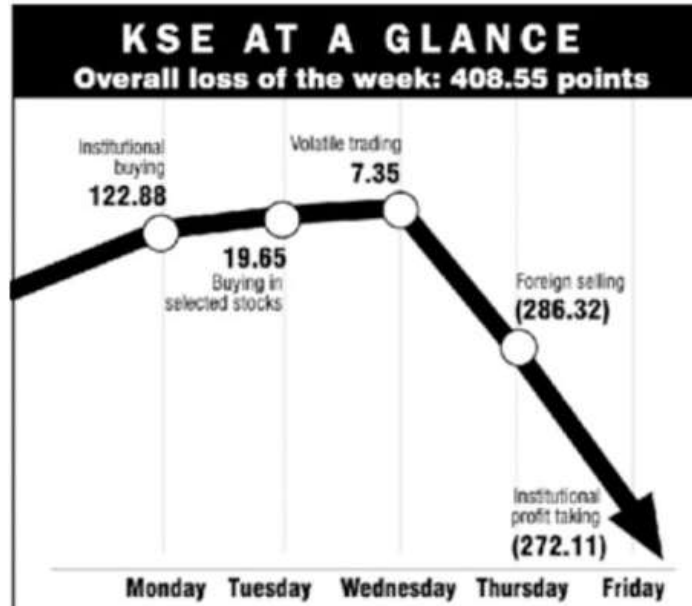
Study concludes that global news and political news can effect stock market index ferociously. Therefore, these two news/event can manipulate the market easily in any direction. Apart from these news/events political, economic and financial news are important but besides economics, political and financial news impact KSE index more negative than positive. Similar behaviour is depicted in case of other news variables. Investment in Blue chips is a safe haven for the investors. It is not the determinant of KSE index, instead it is the outcome of the movements in KSE index.

It is also concluded that investors reacted fast to negative news than to positive news, which makes them risk averter.

APPENDIX







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