Shock Effects on Stocks in Pakistan

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ABSTRACT

This research examines the shock or extraordinary effects on stocks in Pakistan of the given time period. The shocks could be positive or negative depending upon the variety of reasons ranging from company news to general economic conditions. In Pakistan, very few studies have been conducted on this issue. This study identifies the major shocks within specific period according to a specified criterion by using descriptive analysis mainly includes means, maximum & minimum of the data and standard deviations.

The data consists of 2 years daily closing stock prices from the relevant resources. They are arranged and analyzed in Microsoft Excel and also with the help of SPSS software.

It is concluded from the analysis that there were a number of major positive and negative shocks in the Pakistani stock market within the last 2 years especially in the year 2005.

ACKNOWLEDGEMENTS

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DEDICATION

I dedicate my thesis to my loving Parents and all family members without the support of whom I would have not been able to complete the research successfully.

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INTRODUCTION

Stock market is very important in the operation of the country's economic system. It is an organized way for people to buy and sell stocks and corporations to raise money or funds (Ajayi, Richard & Mougoue, 1996).

Stock prices change everyday by market forces. This means that share prices change because of supply and demand. If more people want to buy a stock (demand) than sell it (supply), the price then moves up. Conversely, if more people wanted to sell a stock than buy it, there would be greater supply than demand, and the price would fall.

This relationship between supply and demand is tied into the type of news or reports that are issued or any event occurred at any particular moment. Negative news or event would normally cause investors to sell stocks. Bad earning reports, poor corporate governance, economic and political uncertainty, and unexpected, unfortunate occurrences would translate to selling pressure and a decrease in stock price. Positive news and event would normally cause investors to buy stocks. Good earning reports, increased corporate governance, new products as well as positive overall economic and political indicators, translate into buying pressure and an increase in stock price (Suhre, West & Hoymany, 1994).

This research particularly deals with the extraordinary or Shock effects on the stock Prices in Pakistan. The shocks could be positive or negative depending upon the variety of

reasons ranging from company news to general economic conditions. One very famous example of shocks in the stock prices is the stock market crash of October 19, 1987, which already has been studied under a variety of microscopes. Schwert (1987) focused on the effect of the 20 percent drop in stock prices on the volatility of stock market returns. In particular, he analyzed whether the behavior of daily returns before and after the 1987 crash was unusual or not. 1987 crash was the largest percentage changes in prices in over 29,000 observations. Two comparisons support this conclusion. First, the prediction model for stock volatility includes significant negative differences for the days from October 20 to October 30, 1987. Second, compared with the next 20 most negative daily stock returns, volatility rose faster at the time of the October 19 crash and it fell faster afterwards.

In Pakistan, very few studies have been conducted on this issue. This research examines the shock effects on stocks in Pakistani stock market of the limited time period. Especially in 2005, the major price changes and shocks have been seen in the stock index of Pakistan. This study identifies the major shocks within specific period by using descriptive analysis in MS Excel and also some useful calculations with the help of SPSS.

Rational of the study

The stock prices are unpredictable in most of the cases at stock market especially in countries like Pakistan. There could be a very abnormal or shock change in the stock prices because of the extraordinary variations in the demand and supply of the stocks.

Several studies have been done on this issue in various different countries such as: Fair (2001) found 69 factors between 1982 and 1999 that led to a one to five minute price change (both positive and negative) greater than 0.75 percent return which was double of mean. In this paper 152 events have been found that led to such a change in the stock prices, also the study explained the events related to the bonds and deutsche mark (Euro exchange rate), yen (Japanese exchange rate), and of British pound. Also discussed the procedure used to find the events.

Lasfer, Melnik & Thomas (2001) also found positive and negative abnormal price performance on short-term basis following positive and negative price shocks. The analysis also highlighted some important differences across markets classified as either developed or emerging. While the price shock occurrences were evenly distributed between the two groups of markets, it is showed that the shock performances were significantly larger for the sample of emerging markets. The research also found that the incidence of price shocks in both developed and emerging markets were not year or month dependent.

Very few works have been done before related to stock market and shock effects on stocks in Pakistan. Karachi stock exchange has also shown immense growth in the recent years and also faced immense shocks (both positive and negative) in these years especially in the last year (2005). KSE-100 index moved around 4000 to 10000 points in past two years. It has now reached close to the psychological figure of 10000 as on December 31, 2005 and still expected to grow further. This study investigates not only the shock effects on the stocks in Pakistan and their reasons but also opens up the doors for further research on Pakistan's stock prices.

Problem statement

To investigate the daily major shock effects in the Stock prices of Pakistan of the given time period and the year wise daily analysis of these rapid changes in Stocks. The Returns, Means and Percentages of Positive & Negative shocks are calculated in MS Excel where as the Standard Deviations and Maximum & Minimum are calculated with the help of SPSS. The research also determined the reasons or events related to these daily major shocks.

Objectives of the Study

The research basically examines the shock or extraordinary effects on stock prices in Pakistani stock exchange. The paper based on some objectives on which all research has been conducted, these objectives are according to the past evidences and literature and given as follows:

- To examine the positive and negative returns of stock prices of the given period
- To calculate the mean of these positive and negative returns and calculate the major shocks
- To calculate the maximum and minimum and the standard deviation of the returns
- To study the year wise analysis of the given period with brief comparison

- To investigate the reasons or events related to the major shocks of the given period

Limitation of the study

The time period of the data is limited, which is of 2 years daily closing of the stock prices because of the limited information available related to the news and events. The means are also calculated according to that limited time period and major shocks are determined on the basis of that means.

The study comprises upon the data gathered from the Karachi stock exchange (KSE). Due to the lack of information on Karachi stock exchange, comprehensive literature review on Karachi stock exchange was not done.

Definition of the terms

Bearish trend: The downward trend of the stock market.

Bid-ask spread: The difference between the bid and ask price for a security, the "bid" is the highest price that buyers are willing to pay, and the "ask" is the lowest price that sellers are willing to accept.

Bullish trend: The upward trend of the stock market.

Market capitalization: The value of a corporation as determined by the market price of its issued and outstanding common stocks and calculated by multiplying the number of outstanding shares by the current market price of a share.

MS Excel: A popular computer program that allows the user to create and edit spreadsheets with another main feature of using certain formulae, it stores information in columns and rows that can then be organized and processed.

Return: It is the gain or loss calculated between the current and the previous price.

Shock: In terms of stock prices, shock is any extra ordinary change either positive or negative in share prices.

SPSS (Statistical Package for the Social Sciences): A software system for data management and analysis of a set of data.

Standard Deviation: The square root of the average of the squares of deviations about the mean of a set of data and measures the deviation or variability.

Stock: A stock is a certificate of ownership in a corporation and is the same as a share. It is also an investment that represents an ownership interest in the issuing company. Stockholders are entitled to vote for the company's board of directors and share in the profits of the company.

Stock Index: An indicator used to measure and report value changes in a selected group of stocks. How a particular stock index tracks the market depends on its composition; the sampling of stocks, the weighing of individual stocks, and the method of averaging used to establish an index.

Stock market: it is place where stocks and shares are bought and sold.

Volatility: It is a statistical measure of the tendency of market or security to rise or fall sharply within a period of time.

LITERATURE REVIEW

Several past researches have been conducted related to the shock and rapid effects on stock prices. Niederhoffer (1971) examined the effects of world events on daily stock prices. Wood, McInish and Ord (1985) examined the behavior of a minute by minute market return index. French and Roll (1986) examined the volatility of individual stock prices during trading and non trading hours.

Another study examined the effects of the amount of news per unit of time on stock prices and trading volume. The study examined the abnormal and extraordinary changes in stock prices and the events and announcements related that shocks (Mitchell, Mark & Mulherin, 1994).

Jones (1989) related the overreaction results to the January effects while Zarowin (1989, 1990) extended the study of large price changes to differences in firm size. Bremer and Sweeney (1991) based their results on the stocks that recorded a daily price decrease of increase of at least 10 percent.

The investors tend to overreact to extreme price changes due to the human tendency to overweigh current information and underweight prior data. If stock prices tend to "overshoot" their target levels after a large shock, the price reversal (following large price change "events") will reflect a movement back to equilibrium. Following large unexpected changes would thus be the expected result of bringing prices back to their normal values. This finding,

which challenges the market efficiency and is referred to in the literature as stock market overreaction, has generated a number of studies focusing on share price returns following large price changes (DeBondt & Thaler, 1985).

Park (1995) examined short term price movements following large price changes. Park found that apparent price changes on the first day following a price shock disappear when mid-prices are used instead of closing prices which are affected by the bid-ask spread. Moreover, while the short-run pattern of abnormal returns following large price changes does suggest overreaction, the magnitude of the returns is not sufficient to exploit economically.

Fair (2001) found 69 factors between 1982 and 1999 that led to a one to five minute price change (both positive and negative) greater than 0.75 percent return which was double of mean. In this paper 152 events have been found that led to such a change in the stock prices, also the study explained the events related to the bonds and deutsche mark (Euro exchange rate), yen (Japanese exchange rate), and of British pound. Also discussed the procedure used to find the events.

An increasing rate of stock market participation over time was studied by Poterba and Vissing (1997). Participation rates among the wealthy, who own the majority of stock, however, have increased only slightly. Foreign participation changes may also influence required returns. Using data from the U.S. Treasury, the researcher found that net purchases of stocks by foreigners have been

relatively high in recent years, but small in comparison to total trading volume.

The aggregate stock volatility increased during the Great Depression, as did the volatility of money growth and industrial production. The researcher also showed that stock volatility was at similar levels before and after the depression. It is difficult to credit the creation of the Securities and Exchange Commission (SEC) in 1934 with the reduction in stock volatility that did not occur until after 1939 (Officer, 1973).

Schwert (1989) analyzed the relation of stock volatility to real and nominal macroeconomic volatility, stock trading activity and firm profitability using monthly data from 1857-1987. The research also showed that monthly stock volatility was higher during recessions and following the major banking crises from 1834-1986. Moreover, he showed that the Federal Reserve Board has raised margin requirements following decreases in stock volatility during the period from 1934-1986. Schwert (1987) also showed that stock volatility is highly persistent that on average, unexpected increases in volatility were associated with negative stock returns. He analyzed whether the behavior of daily returns before and after the 1987 crash was unusual relative to the experience of over 100 years of daily data. 1987 crash was the largest percentage changes in prices in over 29,000 observations. Two comparisons support this conclusion. First, the prediction model for stock volatility includes significant negative differences for the days from October 20 through October 30, 1987. Second, compared with the next 20 most negative daily stock

returns, volatility rose faster at the time of the October 19 crash and it fell faster afterwards. Moreover Amlhud and Mendelson (1987) showed that volatility is greater at market openings than at other times of the day.

Lasfer, Melnik & Thomas (2001) examined positive and negative abnormal price performance on short-term basis following positive and negative price shocks. The analysis also highlighted some important differences across markets classified as either developed or emerging. While the price shock occurrences were evenly distributed between the two groups of markets, it is showed that the shock performances were significantly larger for the sample of emerging markets. The research also found that the incidence of price shocks in both developed and emerging markets were not year or month dependent.

Cochrane (1994) studied the importance of shocks on the dynamics of stock prices in United States. By focusing on a Simple trend and Standard deviations that includes stock prices, he defined the permanent component of stock prices as the trend component resulting from permanent shocks to dividends.

A number of explanations have been offered for the abnormal and extraordinary rise and fall in stock prices during the 1990s. These include increased and decreased expected future economic growth brought about by the revolution in information technology, demographic changes, a reduction in the equity premium as a result of lower transaction costs and increased diversification (Shiller, 2000).

Schwert (1981) found that the daily response of stock prices to news about inflation from 1953 to 1978 is weak and slow. Pearce and Roley (1985) used survey data to measure expectations and found that daily stock prices respond to economic information between September 1977 and October 1982 and concluded that stock prices respond primarily to economic news.

Hasbrouck (1987) examined the effect of the bid-ask spread on the short-run behavior of prices. They showed that return volatility is much larger when the market is open than when it is closed.

McInish and Wood (1989) showed that bid-ask spreads are larger at the beginning of the day than later in the day. Blume, Ma&inlay, and Terker (1989) showed that order imbalances on October 19 and 20 resulted in temporary price changes.

Shiller (2000) evaluated the abnormal movements in stock prices. The abnormal moments he evaluated were the standard deviations of prices and dividends; the ratio of these standard deviations and the correlation between prices and dividends. White (1980) evaluated the stock price movements by using and calculating standard errors and Standard deviations to take possible deviation of the given data.

In nut shell the above evidences show that the stock prices are very much volatile in many countries and produce a shock or extraordinary change. All these major changes are due to some news or events which are discussed in above literature of some past shocks of stock prices in different

countries. The shock effects on stocks are a great concern for the researchers now due to its great importance in fall and rise of stock market.

METHOD

Data

To fulfill the requirement of the research, 2 years daily stock prices of KSE 100 index is collected, starting from January 01, 2004 to December 31, 2005 with total 499 observations. Also the reasons related to the major shocks evaluated after analysis was also gathered on daily basis.

KSE-100 index is the market index used in Pakistan. Karachi Stock Exchange (KSE) is the biggest and most liquid exchange incorporated in 1947, followed by the Lahore Stock Exchange (LSE) started in 1970 and the Islamabad Stock Exchange (ISE), which commenced its operation in 1992. More than 700 companies are listed in the Pakistani stock exchange.

Sources of data

The research is conducted on the basis of secondary data and data is gathered from the past history of KSE 100 index. The daily closing values of KSE 100 index from January 2004 to December 2005 is taken from www.finance.yahoo.com. On the other hand, the data related to the events and reasons of the shocks are gathered form the famous news paper site www.dawn.com, also the sites www.jang.com.pk and www.brecorder.com were used for getting the reasons of major shocks in the particular day. Some other information regarding stock prices is also collected from the Stock Exchange.

Procedures

The data of daily stock Indices is collected from Karachi Stock Exchange and from Internet of past 2 years. After collection of the daily closing data, it is then arranged periodically from January 01, 2004 to December 31, 2005. Total 499 daily observations are included in the data.

After arranging the data, first of all; the daily returns of all the observations of Stock Prices are calculated in MS Excel by using the following formula:

$$\text{Ln} \left(P_t \; / \; P_{t-1} \right)$$

Where:

P_t = Current closing stock price

P_{t-1} = Previous closing stock price

Ln = Natural Log

Descriptive Analysis

After calculating the returns from the above formula, the data is then analyzed through a graphical representation of the given data of 2 years. A line graph is drawn in MS Excel to show the complete trend of 2 years stock returns.

For descriptive analysis the maximum & minimum return and the Standard deviation (evident from the past research) is calculated of the given 2 years with the help of SPSS. Also the maximum & minimum and standard deviations are calculated of both positive and negative returns

separately. The more the deviation, the higher would be the changes in stock prices. The basic formula for calculating the standard deviation is:

$$\sqrt{\sum(X - \text{Mean of } X)^2 / n}$$

Where:

X = Value of the Return

Mean of X = Mean of the Return

n = Size of the sample (Total return)

Major Shocks Analysis

After descriptive analysis of the given data, the means of both positive and negative returns of the given time period is calculated with the help of MS Excel. The basic formula for calculating mean is given as follows:

$$\sum X / n$$

Where:

X = Value of the return

n = Size of the sample (Total return)

To determine the shock effect on prices, more than double of the calculated mean is considered to be the major shock indicator according to Fair (2001) based on the given time period of 2 years. In this way, the top major positive and negative shocks which lied in this criterion are calculated. The research also determined that either total positive returns of stock prices is higher or total

negative returns with the help of MS Excel by adding all the positive and negative returns. Also the percentages of both positive and negative shocks are also calculated in MS Excel by using simple percentage formula that which shock has higher weightage. The formulae for calculating the percentage of both positive and negative major shocks are:

$$Y_{pos} / X_{pos} * 100$$

$$Y_{neg} / X_{neg} * 100$$

Where:

X_{pos} = Total positive return

Y_{pos} = Total positive shock

X_{neg} = Total negative return

Y_{neg} = Total negative shock

Year wise Analysis

After daily basis analysis of the given 2 years, the year wise analysis is conducted to evaluate and compare both years separately. The line graph is drawn for each year on the basis of the returns and for descriptive analysis the maximum & minimum and standard deviations of each year in SPSS with the help of the same formula mentioned above. Also the maximum & minimum and standard deviations are calculated for both positive and negative returns separately for each year.

The brief comparison of the two years is also done by adding positive and negative returns of both years

separately to get which year has greater positive and negative returns and then the percentages of these major shocks that which year has greater shocks and percentage in both positive and negative shocks based on the same mean of the given time period.

Reasons or Events related to the major Shocks

In the end, the dates of the both positive and negative major shocks are identified in MS Excel and the reasons or events occurred related to these shocks are gathered from the famous news sites. The top 3 positive and negative major shocks are also identified in the research with more explained reasons.

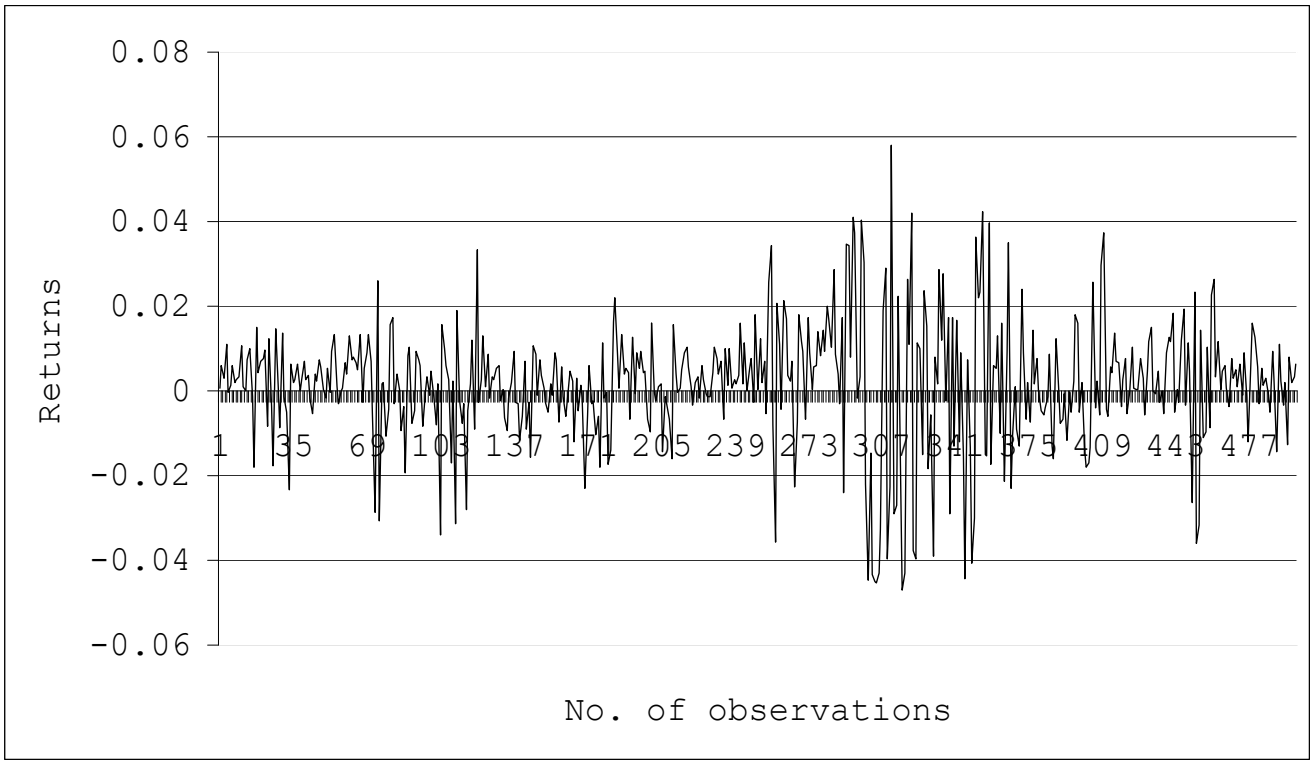
RESULTS AND DISCUSSION

By using Microsoft Excel sheet for calculating returns, means and major shocks, also SPSS software for calculating maximum & minimum and Standard deviations of Stock returns; following results are drawn:

Descriptive Analysis

After calculating the returns from the given formula, the data is then analyzed through a graphical representation of the given data of 2 years. The trend of stock prices returns with respect to the total observations which are 499 of 2004 and 2005 is given as follows:

Figure 4.1: Trend of total S.P. returns (2004 + 2005)



From the above graph we can see the complete trend of the 2 years' returns. Both positive and negative returns are clearly shown in the graph. The graph does not show a straight trend, it is varying from time to time. That is why some observations show greater changes in their returns but others show comparatively less changes. These changes and shocks are discussed later in the study.

To get the Maximum, Minimum & S.D. of the total stock prices returns and of positive and negative stock prices returns separately of both 2004 and 2005 combined; the SPSS software is used. The results are given as follows:

Table 4.1: Maximum, Minimum & S.D. of the total S.P. returns (2004 + 2005)

	n	Minimum	Maximum	Std. Deviation
S.P. Ret	499	-0.047025	0.057967	0.01467

S.P. Ret = Stock prices returns

The Maximum and Minimum stock prices returns of the total given data including all positive and negative returns are clearly shown in the above results which are 0.057967 and -0.047025 respectively. Also the standard deviation of the total 499 observations is 0.01467 showing both years deviation in returns from the mean.

Table 4.2: Maximum, Minimum & S.D. of total Positive & Negative S.P. returns (2004 + 2005)

	n	Minimum	Maximum	Std. Deviation
S.P. Pos	301	0	0.057967	0.009352
S.P. Neg	198	-0.047025	-0.000009	0.01186

S.P. Pos = Positive stock price return

S.P. Neg = Negative stock price return

In the above table, the Maximum and Minimum stock prices returns of both positive and negative separately are shown which are 0.057967 and 0 for positive returns and -0.000009 and -0.047025 for negative returns respectively. The standard deviation of the positive returns which is 0.009352 is less than the S.D. of negative returns which is calculated as 0.01186, it indicates that there are more deviations in the negative returns or negative changes than in the positive changes and higher ratio of stock price changes in the negative returns with respect to the given data.

Major Shocks Analysis

After descriptive analysis, the means of both positive and negative returns of the given time period of 2 years is calculated with the help of MS Excel by applying the formula already discussed. The mean for the positive returns is calculated as 0.0098954 and mean for the negative returns is -0.011207. To determine the major shocks, more than double of the calculated mean is considered to be the major shock indicator according to

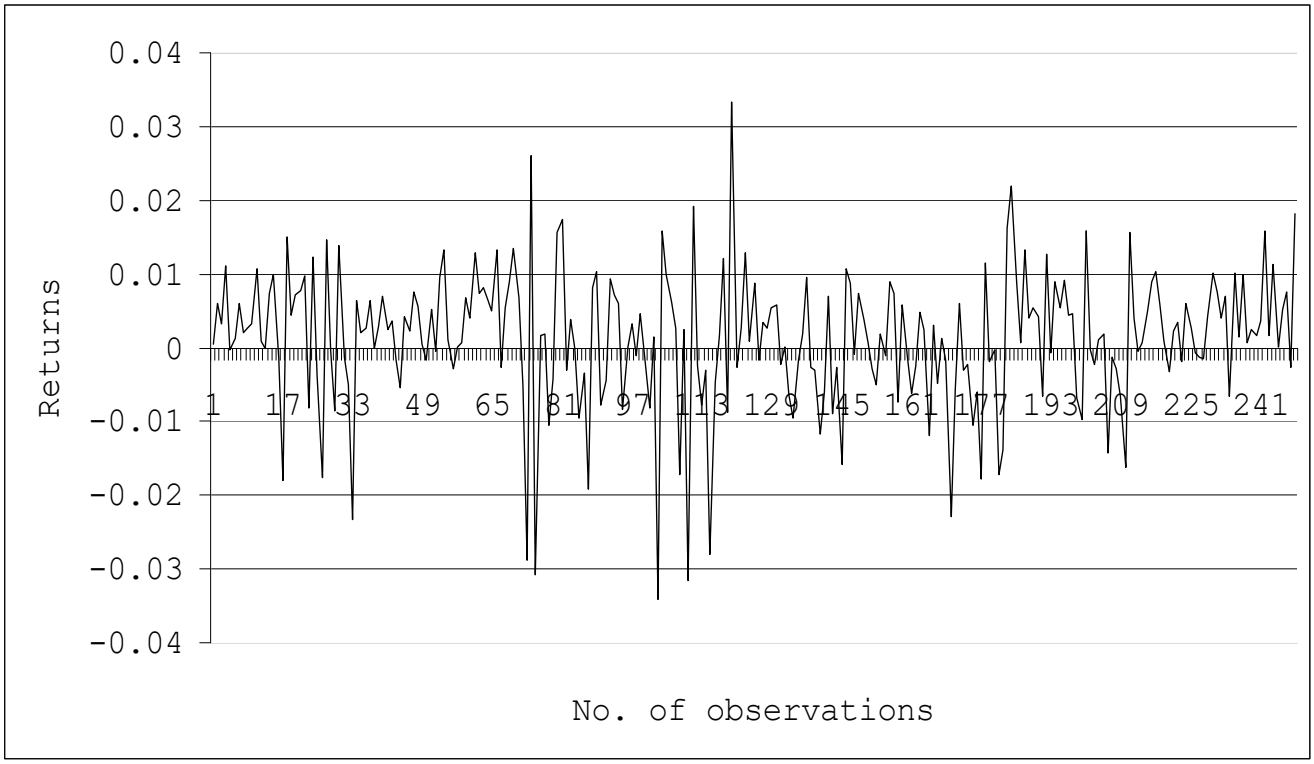
Fair (2001) based on the given time period of 2 years. So, for positive returns the major shock indicator is more than 0.019790 (0.0098954 * 2) and for negative returns the major shock indicator is more than -0.022414386 (-0.011207 * 2). By following this criterion the research has calculated 70 major positive and negative shocks on different dates during the years 2004 and 2005 are evaluated to find reasons. Out of these 70 shocks 36 are positive and remaining 34 are negative. These positive and negative shocks are shown in the Appendix.

There are total 499 observations in the research and out of these 301 are positive returns and remaining 198 are negative returns. So, the number of positive returns is more than that of negative returns. The positive and negative shocks are calculated from these figures based on the specified criterion. The positive shocks (36) are also more than the negative shocks (34) but in the less proportionate as compared to the total returns. The percentage of positive shocks are calculated as 11.960133 percent (36 / 301 * 100) is less than the percentage of negative shocks which is 17.171717 percent (34 / 198 * 100) indicates more deviations in the negative returns, it is also proved by the standard deviations which is more for the negative returns as compared to the positive returns as shown in the table 4.2. However, there are more positive returns than negative returns that is why the market has increased overall in average but still the percentage or deviation in negative returns are more than the positive returns. The deviations can also be seen in the graph 4.1.

Year wise Analysis

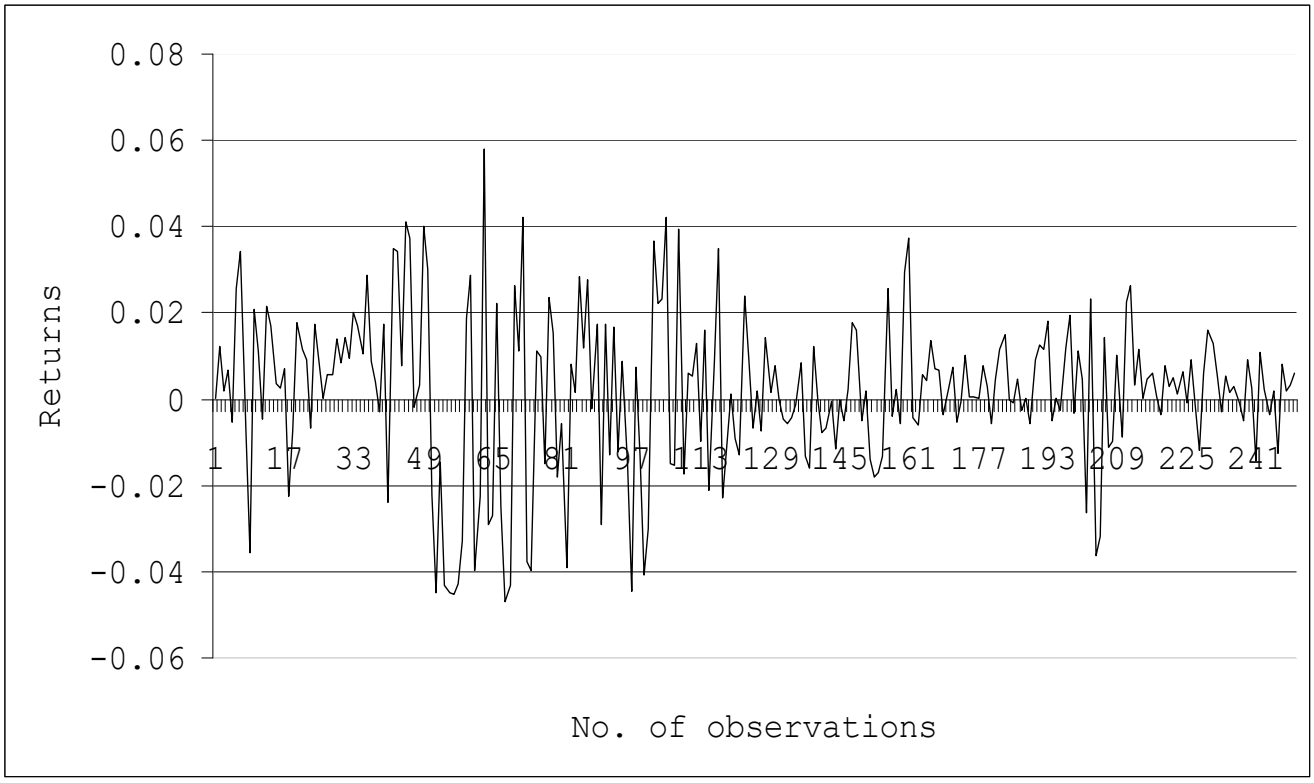
After the above daily basis analysis of the given 2 years, the year wise daily analysis is conducted to split and compare both years separately with the same criterion. The trend of stock prices returns in 2004 with respect to the total observations which are 249 is given as follows:

Figure 4.2: Trend of total S.P. returns (2004)



From the above graph we can see the complete trend of the year 2004 returns. Both positive and negative returns are clearly shown in the graph. Now it is clearer than combined graph of 2 years data that the graph does not show a straight trend, it is varying from time to time in 2004. For 2005 the trend of total stock prices returns is:

Figure 4.3: Trend of total S.P. returns (2005)



Like in 2004, the year 2005 has also some observations with greater changes in their returns but others have comparatively less changes as shown in the above graph. To calculate the Maximum, Minimum & S.D. of the stock prices returns separately for 2004 and 2005; again the SPSS software is used. The results are given as follows:

Table 4.3: Maximum, Minimum & S.D. of total stock prices returns (2004 & 2005 separately)

	n	Minimum	Maximum	Std. Deviation
S.P. 2004	249	-0.034032	0.033387	0.009335
S.P. 2005	250	-0.047025	0.057967	0.01853

The maximum and minimum return in 2004 and 2005 are mentioned in the above table with the total number of observations of 249 for 2004 and 250 for the year 2005. The above results show that the year 2005 has more standard deviation (0.01853) than the year 2004 (0.009335) indicates greater deviations in stock prices returns during the year 2005.

Table 4.4: Maximum, Minimum & S.D. of Positive & Negative S.P. returns (2004 & 2005 separately)

	n	Minimum	Maximum	Std. Deviation
SP POS 04	152	0	0.033387	0.00541
SP NEG 04	97	-0.034032	-0.000134	0.007757
SP POS 05	149	0.000128	0.057967	0.01126
SP NEG 05	101	-0.047025	-0.000009	0.01372

In the above table, the Maximum and Minimum stock prices returns of both positive and negative separately for each year one by one are shown. The standard deviation for the year 2004 of the positive returns is 0.00541 is less than the S.D. of negative returns which is calculated as 0.007757, also the standard deviation for the year 2005 is again less for the positive returns (0.01126) than the negative returns (0.01372). This indicates that for both years separately there are again more deviations in the negative returns or negative changes than in the positive changes. Similarly, like it is evident from the table 4.3 that there are more deviations in the year 2005, here again 2005 have more deviations than 2004 in both positive and negative returns separately as shown in the table 4.4.

By following the same criterion of calculating mean based on the given data of 2 years, the research has calculated only 10 major shocks in the year 2004 out of 70 total major shocks in both years. 3 are positive shocks and remaining 7 are negative. In 2005, there were 60 major shocks with 33 are positive and remaining 27 are negative shocks.

There are total 249 observations in the year 2004 and out of these 152 are positive returns and remaining 97 are negative returns. Similarly in the year 2005, there are total 250 observations with 149 positive and 101 negative returns. So, the number of positive returns is more than that of negative returns in each year. For the years 2004 and 2005 separately, the positive and negative major shocks are calculated from these figures based on the specified criterion. In the year 2005, the positive shocks are more than the negative shocks but again in the less proportionate as compared to the total returns in that year but in the year 2004, the negative shocks are more than the positive shocks despite of more positive returns. The percentage of positive shocks are calculated as 1.973684 percent in 2004 and 22.147651 percent in 2005 is less than the percentage of negative shocks which is 7.216495 percent in 2004 and 26.732673 in 2005. That indicates more deviations in the negative returns for each year; it is also proved by the standard deviations which is more for the negative returns as compared to the positive returns as shown in the table 4.4. However, there are more positive returns than negative returns in each year that is why the market has increased overall in average for both the years but still the percentage or deviation in negative returns are more than the positive returns. Also in 2005, the

percentage of positive shocks have increased in proportion than negative shocks but still the percentage for the negative shocks are more. The deviations can also been seen in the graph 4.2 and 4.3 for 2004 and 2005 respectively.

Reasons or Events related to the major Shocks

Total 70 major positive and negative shocks are calculated in the given time period of 2 years. The top 3 positive shocks out of 36 are on 4-Apr-05, 2-Jun-05 and on 15-Apr-05 with returns of 0.057967, 0.042229 and 0.042146 respectively. On the other hand, the top 3 negative shocks out of 34 are on 11-Apr-05, 24-Mar-05 and on 22-Mar-05 with returns of -0.047025, -0.045241 and -0.044851 respectively. The reasons or events related to the total major shocks with more details of the above top major shocks are given date wise as follows:

23-Feb-04: Negative shock because of massive selling due to the reports of analysts' bad predictions about the share values of some of the leading companies in the energy sector.

21-Apr-04: Negative shock because of panic selling in Hub-Power due to technical fault in some of its generators and partial suspension of operations.

22-Apr-04: Positive shock because of a massive buying activity of 115m shares in OGDCL.

23-Apr-04: Negative shock because of massive selling, reflecting the weakness of OGDCL, PTCL and Hub-Power, being the massively-capitalized shares.

3-Jun-04: Negative shock because of panic selling due to MMA strike call, political instability and issues of tax on capital gains in the new budget.

14-Jun-04: Negative shock because of panic selling due to the imposition of 0.1 percent Capital Value Tax (CVT) on the purchase of shares by investors in the next year's budget.

21-Jun-04: Negative shock because of massive selling due to the political changes at the top and the additional costs on share businesses.

28-Jun-04: Positive shock because of a massive positive reaction to the nomination of Shaukat Aziz as the future prime minister.

6-Sep-04: Negative shock because of massive selling due to the news of changing trading methods in the market.

24-Sep-04: Positive shock because of gain due to the predictions of higher dividend by some of the mega issues by the PTCL.

10-Jan-05: Positive shock because of the tight grip of a selective force of investors on the market.

11-Jan-05: Positive shock because of the strong presence of foreign buyers including Pakistanis and also the handsome corporate results and the news of privatization plan of some main companies.

13-Jan-05: Negative shock because of panic selling due to the gas supply interruptions in Balochistan.

14-Jan-05: Positive shock because of fresh developments on the reports of partial sell-off of PSO by the Privatization Commission.

19-Jan-05: Positive shock because of heavy selective buying followed by official statement that the situation in Sui area (Gas pipe lines) is returning to normal.

28-Jan-05: Negative shock because of panic selling by weak holders as they viewed the abnormal rise in the index and the evolving political situation in Balochistan.

18-Feb-05: Positive shock because of strong buying of some leading companies including PSO and PPL and some others knowing their strength.

23-Feb-05: Positive shock because of oil and gas shares' purchases by investors knowing their strength.

2-Mar-05: Negative shock because of massive selling of shares related to the companies in the energy sector.

3-Mar-05: Positive shock because of massive buying in PTCL, OGDCL, PSO and Pakistan Oilfields due to low priced share expectations.

4-Mar-05: Positive shock because of massive foreign buying in PTCL due to positive developments on its early privatization.

8-Mar-05: Positive shock because of massive buying in big companies due to low price share and less risk expectation.

9-Mar-05: Positive shock because of massive buying in the shares of OGDCL, PTCL and PSO by investors knowing their strength.

14-Mar-05: Positive shock because of the stunning day of trading with oil, cement and fertilizer sector due to their increased strength in the market.

15-Mar-05: Positive shock because of massive buying due to the strength of shares under OGDCL.

17-Mar-05: Negative shock because of panic selling of the main shares due to the reports of market fall in future after touching the figure of 10,000.

21-Mar-05: Negative shock because of continuous panic selling due to reports of tense situation in Balochistan.

22-Mar-05: The third highest Negative shock occurred on that day in two years. The KSE 100-share index declined by another 403 points or 4.485 percent as investors continued

to take profits at the inflated levels to no avail. The index finally ended around 8,694.61; the market capital also suffered a fresh sharp decline of Rs113.163bn. This was because of no immediate positive impact of the central bank quarterly report and the turnover figure shrank further to 137m shares. No one could deny the fact that there were panics in KSE in that day. Minus signs dominated list under lead of Arif Habib Securities, Javed Omer, Bhanero Textiles, National Refinery Shell Pakistan, and PSO, which suffered fall ranging from Rs16.90 to Rs22.25. They were followed by Millat Tractors, Ferozsons Lab, Aventis, Grays of Cambridge, PPL, Pakistan Oilfields, Artistic Denim, Grays of Cambridge and Wyeth Pakistan, off Rs10 to Rs50. Some of the insurance shares led the resistance to further declines and rose by Rs4, Rs2.80, Rs4 and Rs6 for Muslim, Habib Insurance, EFU General and IGI respectively. WorldCall, Shafiq Textiles, Colony Textiles and Pakistan Gum Chemical also posted gains ranging from R1.50 to Rs4.75.

24-Mar-05: The second highest Negative shock occurred on that day in two years. The KSE 100-share index shed by 380.10 points or 4.524 percent at 8,314.10 as panic selling was done on all the counters of the shares of the energy sector. There was a terrible confusion and panic in the KSE, the index came down to 8,314.10 as all the leading base shares ended below their circuit breakers. Market capital also suffered a fresh decline of Rs101.325bn. Almost the entire main sector suffered decline in their share prices, only 55 shares rose, while 292 fell. PTCL led the actives, off Rs3.75 at Rs72 on 22m shares followed by Pak PTA, lower 70 paisa at Rs12.50 on 19m shares, DG Khan

Cement, off Rs3.05 at Rs60.50 on 8m shares, Fauji Fertilizer Bin Qasim, lower Rs1.55 also on 8m shares, Hub-Power, five paisa at Rs29 on 6m shares and PSO, sharply lower by Rs20.80 at Rs401.85 on 6m shares. The other actives were led by Fauji Cement, off one rupee on 6m shares, TRG Pakistan, lower Rs1.10 also on 6m shares, Bank of Punjab, off Rs4.30 on 5m shares and Dewan Salamn, lower Rs1.30 on 4m shares.

25-Mar-05: Negative shock because of the key to the lower locks in most shares that prevented investors to exit the market, could not be found.

28-Mar-05: Negative shock because of the report that the US has approved the sale of F-16s to Pakistan that failed to motivate investors.

30-Mar-05: Positive shock because of steady but massive buying of the shares of PTCL and National Bank due to their positive intervention to that current bad situation.

31-Mar-05: Negative shock because of massive selling by leading market players despite settlement of problems occurred in last few weeks.

1-Apr-05: Negative shock because of losses on the strength of PSO and also other main shares further lowered in the absence of any strong support.

4-Apr-05: The highest Positive shock occurred on that day in past two years. The KSE 100-share index climbed to 8,050.25 as compared to 7,596.87 and rose up 453.38 points

or 5.797 percent. The market capital also recovered by Rs116.394bn at Rs2,217.023bn. This was mainly because of OGDC, PTCL, PSO and National Bank as they were active players and played a vital role in putting the market back to the winning streak. The biggest rise of Rs31.65 was noted in PSO followed by PTCL, OGDC and National Bank, which posted gains ranging from Rs4 to Rs8.55. Also smart gains dominated the list under the lead of Arif Habib Securities, Javed Omer, Dawood Hercules, PPL, Grays of Cambridge, PSO and Wyeth Pakistan, which recovered Rs12.00 to Rs74 from the previous losses. They were followed by Attock Refinery, Atlas Honda, Fauji Fertilizer, Engro Chemical, OGDC, and Pakistan Oilfields, up by Rs7.95 to Rs18.30. The market showed a modest rise at 309m shares as compared to 221 but gainers forced a strong lead over the losers at 268 to 74. OGDC showed massive increase, up Rs7.95 at Rs113.95 on 56m shares also by PTCL, higher by Rs4 at Rs71.75 on 48m shares. Pak PTA, firm Rs1.35 at Rs14.10 on 19m shares, Fauji Fertilizer Bin Qasim, up Rs2.20 at Rs31.80 on 18m shares and National Bank, higher by Rs8.55 at Rs123.15 on 10m shares. Other actives included DG Khan Cement, higher Rs5.65 on 16m shares, Fauji Cement, up Rs1.50 on 12m shares, Pakistan Petroleum, higher by Rs16 on 11m shares and MCB, higher by Rs5 on 10m shares.

5-Apr-05: Negative shock because of reports of some fresh changes in the risk management rules to protect small investors' interest.

6-Apr-05: Negative shock because of the leading investors and financial institutions indulged in profit-selling at

the inflated levels under the lead of energy sector and also the news of tax imposed on broker's commission.

7-Apr-05: Positive shock because of massive buying in the shares under the lead of energy sector due to their increased strength.

8-Apr-05: Negative shock because of the financial traders is inclined to hold long positions and gets out of the market on small margin of profits.

11-Apr-05: The highest Negative shock occurred on that day in past two years. There was a massive fall of 348 points or 4.7025 percent in the KSE-100 index, which closed at 7,244-point level. The market expected a positive change and the index started on a positive note. But it was in the middle of the day that the announcement regarding increase in discount rate from 7.5 percent to 9 percent, by the State Bank of Pakistan, completely changed the market. The raise had come after two and a half years. Some analysts thought that the increase by the central bank had been made in order to control inflationary pressures. Share prices decreased with almost every stock included PTCL, DGKC, POL, FFBL, PSO, PPL, OGDC etc. First the energy sector, followed by banking and cement. The intensity of bearishness was such that out of the total actives only 34 stocks managed to end up on the higher side, while 331 finished in the negative zone; another 24 remained unchanged. Trading volumes remained depressed and registered a fall of 22 per cent to 175 million shares. All the leading shares suffered fall under the lead of PSO; Pakistan Petroleum; Pakistan Oilfields; D.G.Khan Cement; PTCL, their fall ranging from

Re 1 to Rs21. Unilever Pak decreased by Rs27 at Rs1,475; PPL lost Rs14.55 to Rs276.75 on 14.8 million shares. PSO dropped by Rs20.75 to Rs394 on 7.1 million shares and PPL down by Rs10.50 to Rs199.50 on 3.8 million shares.

12-Apr-05: Negative shock because of massive selling pressure in OGDC, PTCL, PPL, POL and SNGP due to the continued bearish trend in the market.

13-Apr-05: Positive shock because of recovery on main shares due to the massive selling by some of the low leveled investors.

15-Apr-05: The third highest Negative shock occurred on that day in the past two years. The KSE 100-share index posted a sharp gain of 310.07 points or 4.2147 percent at 7,512.91 as compared to 7,202.84 a day earlier. This is mainly because of heavy selling in the shares of PTCL followed by energy shares, especially PSO, Pakistan Petroleum, and some others. Losers were led by Pakistan Oilfields, Gatron Industries, United Sugar, and IGI, which fell by Rs4.85 to Rs12, while others marked down modestly. Trading volume rose to 344m shares from the previous 279m shares despite the fact that a sizable number of brokers remained busy in watching the Pakistan-India one day cricket match, gainers outpaced losers by 188 to 63. PTCL topped the list of most actives, sharply higher by Rs3.40 at Rs63.40 on 109m shares followed by Fauji Fertilizer, lowered at Rs32.35 on 49m shares, Bank of Punjab, up by Rs3.85 at Rs85.75 on 18m shares, D.G.Khan Cement, steady by 80 paisa at Rs66.60 on 17m shares, and Sui Northern Gas, higher by Rs4.05 at Rs58.55 on 17m shares. Gainers were

mainly led by Pakistan Oilfields, of Rs7.40 on 16m shares and Pakistan Petroleum, higher by Rs10.95 on 13m shares.

18-Apr-05: Negative shock because of panic- selling due to the bad news of changing trading patterns in the market.

19-Apr-05: Negative shock because of panic- selling again due to the bad news of changing trading patterns in the market.

26-Apr-05: Positive shock because of the announcement of dividend by the OGDCL of 17.5 percent dramatically pushed the market up.

2-May-05: Negative shock because of panic selling by all main investors due to the news that the SECP has not accepted the latest KSE proposals on some main issues.

5-May-05: Positive shock because of active buying in the low-priced oil shares aided by positive developments on some unsettled issues.

9-May-05: Positive shock because of massive buying under the lead of oil shares aided by positive news about the sell-off of PTCL to one of the eight short-listed bidders.

12-May-05: Negative shock because of heavy selling in the oil giants due to reports of 3 percent fall in world oil prices.

23-May-05: Negative shock because of nervous selling due to the news that the SECP has rejected the KSE proposal to some main issues related trading.

26-May-05: Negatives shock because of massive increase in after tax profit of PTCL and PPL with lower dividend.

27-May-05: Negative shock because of panic selling due to reports of a bomb blast in a shrine in Islamabad.

30-May-05: Positive shock because massive buying by the investors in the energy shares due to the expectation of rise in their prices in future.

31-May-05: Positive shock because of massive buying in the shares of Banks and financial institution due to their purchase of leading oil shares.

1-Jun-05: Positive shock because of strong buying in the leading base shares aided by the news of the sell-off of National Refinery's shares.

2-Jun-05: The second highest positive shock occurred on that day in the past two years. The KSE 100-share index recovered 302.78 points or 4.222 percent at 7,322.38 as compared to 7,019.60 a day earlier as all the leading base shares maintained their upward drive under the lead of PTCL, OGDC, PSO and Pakistan Oilfields. The market capital also increased by Rs81 billion to Rs2,044 billion as heavily-capitalized shares. Energy shares again led the market followed by fertilizer, cement, gas and leading textile shares. Among the prominent gainers, Unilever

Pakistan and Wyeth Pakistan were leading, up Rs35 and Rs40 respectively. Other good gainers included Arif Habib Securities, Javed Omer, Shell Pakistan, PPL, Dawood Hercules, Parke-Davis, Pakistan Oilfields and PSO, which posted gains ranging from Rs7.75 to Rs18.30. They were followed by National Bank, United Sugar, OGDC, International Industries, Engro Chemical, Fauji Fertilizer, PNSC, Attock Petroleum, and Millat Tractors, up Rs4.70 to Rs6.70. Trading volume showed a modest rise at 369m shares as compared to 357 a day earlier but gainers maintained a strong lead over the losers at 289 to 37. PTCL topped the list of actives, up Rs3.35 at Rs70.85 on 139m shares followed by OGDC, higher by Rs4.80 at Rs101.40 on 77m shares.

7-Jun-05: Positive shock because of the federal budget which maintained the tax rate on the Capital Value Tax (CVT) issue and gave a number of taxes relieves.

20-Jun-05: Positive shock because of the news of sell-off of the shares of PTCL to a UAE company at $1.96 per share.

21-Jun-05: Negative shock because of massive selling under the lead of oil shares. Pakistan Oilfields and PSO took the index along with them in the minus column.

28-Jun-05: Positive shock because of massive buying in leading oil shares and PTCL due to the news of changing trading systems in a favorable way.

12-Aug-05: Positive shock because of buying pressure of leading companies' shares due to the expectations of increase in their future prices.

19-Aug-05: Positive shock because of heavy buying in the leading base shares due to the reports that a scheduled meeting between the KSE and the SECP chairmen for favorable trading for the investors.

22-Aug-05: Positive shock because of the prime minister's intervention to push the share trading in the coming weeks.

18-Oct-05: Negative shock because of massive selling under the lead of energy, bank and cement shares due to bad expectations.

19-Oct-05: Positive shock because of massive buying in leading base shares including OGDC, Pakistan Petroleum, PSO, Pakistan Oilfields, PTCL and also some leading bank shares due to good expectations in future of their shares.

20-Oct-05: Negative shock because of panic selling on bank and oil shares due to the expectations of further decline in their share values.

21-Oct-05: Negative shock because of panic-selling and there was no willing buyer to purchase the shares of even leading companies of future expectations of decline in these share values.

2-Nov-05: Positive shock because of the reports that the PTCL deal is back on rails after meeting in Dubai on the

unresolved issues between the Pakistani team and Etisalat management.

7-Nov-05: Positive shock because of strong hopes that the PTCL deal may be honored by Etisalat after the post-Eid second round of talks.

CONCLUSION

The study examined the daily major shock effects in the Stock prices of Pakistan of past 2 years of daily closing data. On the basis of analysis, it is evident that there were a number of major positive and negative shocks in the Pakistani stock market within the last 2 years. The results show that there were more positive changes as compared to negative changes that is why the market has increased overall in average. The positive shocks are also more than the negative shocks but in the less proportionate as compared to the total returns. According to the analysis, the percentage of negative shocks is more than the percentage of positive shocks as compared to the total negative returns and total positive returns respectively despite the fact that there are more positive returns and also the highest change is in positive return. That means the market has crashed in more proportionate that is why the standard deviations are more for the negative returns, same is in the case for the year wise analysis. The year 2004 had a very less proportion of major shocks than the year 2005 but still more deviations in negative returns of each year.

In brief it is concluded that all major positive and negative shocks were in the year 2005 especially in the months (March, April, May and June). There was rather a bearish trend in the year 2004 but in the start of year 2005, the bullish trend became dominant with major positive shocks till the market reached 10,000 figure. After that, again the market showed a very devastating bearish trend

with a lot of negative shocks and finally ended the year again with a bullish trend with an index of 9556.61 on December 31, 2005.

This study has a limited time frame but opens a door for the future researches to analyze the problem by taking broader time period, if relevant information is available and also by doing more in-depth analysis.

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APPENDIX

S. NO.	*Date*	*Stock Prices*	*Returns (+ev & -ev)*	*Major +ev Shocks*	*Major -ev Shocks*
	31-Dec-03	4471.6			
1	2-Jan-04	4473.93	0.000520931		
2	5-Jan-04	4500.62	0.005947948		
3	6-Jan-04	4514.83	0.003152369		
4	7-Jan-04	4565.22	0.011099172		
5	8-Jan-04	4564.02	-0.000262892		
6	9-Jan-04	4570.14	0.001340025		
7	12-Jan-04	4597.89	0.006053664		
8	13-Jan-04	4607.5	0.002087908		
9	14-Jan-04	4619.77	0.00265951		
10	15-Jan-04	4634.54	0.003192029		
11	16-Jan-04	4684.12	0.010641115		
12	19-Jan-04	4688.37	0.00090691		
13	20-Jan-04	4687.72	-0.000138651		
14	21-Jan-04	4722.06	0.007298822		
15	22-Jan-04	4769.31	0.009956495		
16	23-Jan-04	4762.37	-0.001456197		
17	26-Jan-04	4677.16	-0.018054355		
18	27-Jan-04	4748.41	0.015118737		
19	28-Jan-04	4769.68	0.004469392		
20	29-Jan-04	4803.85	0.007138463		
21	30-Jan-04	4841.33	0.007771797		
22	6-Feb-04	4888.45	0.009685803		
23	9-Feb-04	4848.31	-0.008245089		
24	10-Feb-04	4907.93	0.012222074		
25	11-Feb-04	4889.91	-0.003678366		
26	12-Feb-04	4804.58	-0.017604269		
27	13-Feb-04	4875.16	0.014583295		
28	16-Feb-04	4874.12	-0.000213349		
29	17-Feb-04	4832.39	-0.008598406		
30	18-Feb-04	4899.58	0.013808318		
31	19-Feb-04	4893.64	-0.001213084		
32	20-Feb-04	4868.81	-0.005086849		
33	23-Feb-04	4756.58	-0.023320631		Major -ev shock
34	24-Feb-04	4786.85	0.006343652		
35	25-Feb-04	4796.99	0.002116063		
36	26-Feb-04	4809.52	0.002608649		
37	27-Feb-04	4840.37	0.006393877		
38	1-Mar-04	4840.37	0		
39	3-Mar-04	4853.83	0.00277692		
40	4-Mar-04	4888.1	0.007035596		
41	5-Mar-04	4900.43	0.002519276		
42	8-Mar-04	4917.87	0.003552554		
43	9-Mar-04	4909.99	-0.001603605		
44	10-Mar-04	4883.62	-0.005385157		
45	11-Mar-04	4903.85	0.004133863		
46	12-Mar-04	4915.14	0.002299627		
47	15-Mar-04	4952.04	0.007479375		
48	16-Mar-04	4979.85	0.005600157		
49	17-Mar-04	4982.29	0.000489855		
50	18-Mar-04	4974.22	-0.00162105		
51	19-Mar-04	5000.14	0.005197338		
52	22-Mar-04	4997.91	-0.000446087		
53	24-Mar-04	5045.49	0.00947495		
54	25-Mar-04	5112.58	0.013209394		
55	26-Mar-04	5117.87	0.001034168		

56	29-Mar-04	5103.06	-0.002897977		
57	30-Mar-04	5103.18	2.3515E-05		
58	31-Mar-04	5106.66	0.000681695		
59	1-Apr-04	5141.08	0.006717604		
60	2-Apr-04	5161.6	0.003983435		
61	5-Apr-04	5228.3	0.012839568		
62	6-Apr-04	5266.88	0.007351979		
63	7-Apr-04	5310.04	0.008161211		
64	8-Apr-04	5345.01	0.006564047		
65	9-Apr-04	5371.63	0.004967985		
66	12-Apr-04	5443.83	0.013351457		
67	13-Apr-04	5429.12	-0.002705799		
68	14-Apr-04	5458.42	0.005382312		
69	15-Apr-04	5507.6	0.008969586		
70	16-Apr-04	5582.28	0.013468339		
71	19-Apr-04	5620.66	0.0068518		
72	20-Apr-04	5591.66	-0.005172893		
73	21-Apr-04	5432.94	-0.028795778		Major -ev shock
74	22-Apr-04	5575.81	0.025957174	Major +ev shock	
75	23-Apr-04	5406.98	-0.030746887		Major -ev shock
76	26-Apr-04	5415.93	0.001653899		
77	27-Apr-04	5426.57	0.001962648		
78	28-Apr-04	5369.43	-0.010585501		
79	29-Apr-04	5346.58	-0.004264653		
80	30-Apr-04	5430.43	0.015561216		
81	4-May-04	5525.69	0.017389806		
82	5-May-04	5508.48	-0.003119403		
83	6-May-04	5529.93	0.003886434		
84	7-May-04	5529.19	-0.000133826		
85	10-May-04	5477.01	-0.009481999		
86	11-May-04	5457.86	-0.00350256		
87	12-May-04	5354.15	-0.01918481		
88	13-May-04	5398.5	0.008249176		
89	14-May-04	5454.69	0.010354652		
90	17-May-04	5412.47	-0.007770238		
91	18-May-04	5388.15	-0.004503453		
92	19-May-04	5438.68	0.009334287		
93	20-May-04	5477.84	0.007174478		
94	21-May-04	5511	0.006035232		
95	24-May-04	5465.16	-0.008352696		
96	25-May-04	5465.17	1.82977E-06		
97	26-May-04	5482.91	0.003240754		
98	27-May-04	5476.83	-0.001109515		
99	28-May-04	5502.72	0.004716049		
100	31-May-04	5497.79	-0.000896322		
101	1-Jun-04	5453.57	-0.008075753		
102	2-Jun-04	5461.84	0.001515289		
103	3-Jun-04	5279.09	-0.034031995		Major -ev shock
104	4-Jun-04	5362.86	0.01574368		
105	7-Jun-04	5416.73	0.009994897		
106	8-Jun-04	5450.05	0.006132471		
107	9-Jun-04	5464.14	0.002581961		
108	10-Jun-04	5371.2	-0.017155397		
109	11-Jun-04	5384.48	0.002469394		
110	14-Jun-04	5217.57	-0.031488965		Major -ev shock
111	15-Jun-04	5318.36	0.019133209		
112	16-Jun-04	5305.42	-0.002436046		
113	17-Jun-04	5264.89	-0.007668687		

114	18-Jun-04	5248.67	-0.003085542		
115	21-Jun-04	5103.67	-0.028014822		Major -ev shock
116	22-Jun-04	5080.24	-0.004601384		
117	23-Jun-04	5088.86	0.001695332		
118	24-Jun-04	5151.02	0.012140916		
119	25-Jun-04	5105.69	-0.008839149		
120	28-Jun-04	5279.03	0.033386765	Major +ev shock	
121	29-Jun-04	5264.95	-0.00267072		
122	30-Jun-04	5279.18	0.002699134		
123	1-Jul-04	5347.72	0.012899519		
124	2-Jul-04	5352.97	0.000981245		
125	5-Jul-04	5399.72	0.008695553		
126	6-Jul-04	5390.65	-0.001681129		
127	7-Jul-04	5409.32	0.00345742		
128	8-Jul-04	5423.74	0.002662223		
129	9-Jul-04	5453.55	0.005481158		
130	12-Jul-04	5485.74	0.005885225		
131	13-Jul-04	5473.22	-0.002284889		
132	14-Jul-04	5474.23	0.000184518		
133	15-Jul-04	5438.94	-0.006467438		
134	16-Jul-04	5387.84	-0.009439626		
135	19-Jul-04	5378.93	-0.001655093		
136	20-Jul-04	5389.14	0.001896348		
137	21-Jul-04	5440.49	0.009483313		
138	22-Jul-04	5426.11	-0.002646644		
139	23-Jul-04	5409.37	-0.003089852		
140	26-Jul-04	5346.15	-0.011755959		
141	27-Jul-04	5314.4	-0.005956558		
142	28-Jul-04	5351.33	0.006925011		
143	29-Jul-04	5303.56	-0.008966835		
144	30-Jul-04	5289.92	-0.00257517		
145	2-Aug-04	5206.83	-0.015831898		
146	3-Aug-04	5262.52	0.010638774		
147	4-Aug-04	5309.05	0.008802912		
148	5-Aug-04	5303.84	-0.000981825		
149	6-Aug-04	5343.52	0.007453525		
150	9-Aug-04	5363.96	0.003817896		
151	10-Aug-04	5367.95	0.000743577		
152	11-Aug-04	5352.95	-0.002798274		
153	12-Aug-04	5326.16	-0.005017283		
154	13-Aug-04	5335.82	0.001812047		
155	16-Aug-04	5329.67	-0.001153252		
156	17-Aug-04	5377.75	0.008980749		
157	18-Aug-04	5417.86	0.007430832		
158	19-Aug-04	5377.71	-0.007438271		
159	20-Aug-04	5409.05	0.005810844		
160	23-Aug-04	5401.38	-0.001419		
161	24-Aug-04	5368.23	-0.006156231		
162	25-Aug-04	5355.22	-0.002426459		
163	26-Aug-04	5381.09	0.00481917		
164	27-Aug-04	5393.99	0.002394415		
165	30-Aug-04	5329.86	-0.011960399		
166	31-Aug-04	5346.15	0.003051704		
167	1-Sep-04	5320.38	-0.004831946		
168	2-Sep-04	5327.53	0.001342987		
169	3-Sep-04	5318.73	-0.001653163		
170	6-Sep-04	5198.07	-0.02294715		Major -ev shock
171	7-Sep-04	5168.77	-0.005652654		
172	8-Sep-04	5199.49	0.005925795		
173	9-Sep-04	5184.12	-0.002960437		

174	10-Sep-04	5172.21	-0.002300044	
175	13-Sep-04	5118.39	-0.010460127	
176	14-Sep-04	5087.37	-0.006078939	
177	15-Sep-04	4997.35	-0.017853226	
178	16-Sep-04	5055.03	0.011476015	
179	17-Sep-04	5045.91	-0.001805773	
180	20-Sep-04	5044.77	-0.000225951	
181	21-Sep-04	4958.41	-0.017266938	
182	22-Sep-04	4890.22	-0.013847833	
183	23-Sep-04	4970.57	0.016297229	
184	24-Sep-04	5080.67	0.021908621	Major +ev shock
185	27-Sep-04	5125.04	0.008695187	
186	28-Sep-04	5128.13	0.00060274	
187	29-Sep-04	5196.28	0.013201915	
188	30-Sep-04	5217.65	0.004104124	
189	1-Oct-04	5245.82	0.00538446	
190	4-Oct-04	5267.92	0.004204029	
191	5-Oct-04	5233.28	-0.006597365	
192	6-Oct-04	5299.53	0.012579905	
193	7-Oct-04	5295.76	-0.000711637	
194	8-Oct-04	5342.94	0.008869563	
195	11-Oct-04	5371.52	0.005334859	
196	12-Oct-04	5421.07	0.00918229	
197	13-Oct-04	5445.5	0.004496367	
198	14-Oct-04	5470.23	0.004531084	
199	15-Oct-04	5433.48	-0.00674085	
200	18-Oct-04	5380.72	-0.009757618	
201	19-Oct-04	5467.06	0.015918801	
202	20-Oct-04	5465.36	-0.000311002	
203	21-Oct-04	5452.87	-0.002287918	
204	22-Oct-04	5458.32	0.000998975	
205	25-Oct-04	5468.12	0.001793814	
206	26-Oct-04	5390.35	-0.014324547	
207	27-Oct-04	5383.42	-0.001286458	
208	28-Oct-04	5367.68	-0.002928075	
209	29-Oct-04	5332.24	-0.006624373	
210	1-Nov-04	5246.91	-0.016132081	
211	2-Nov-04	5329.88	0.015689392	
212	3-Nov-04	5351.51	0.00405004	
213	4-Nov-04	5349.04	-0.000461659	
214	5-Nov-04	5352.3	0.00060927	
215	8-Nov-04	5378.85	0.004948222	
216	10-Nov-04	5427.45	0.008994814	
217	12-Nov-04	5483.88	0.010343469	
218	18-Nov-04	5515.43	0.005736739	
219	19-Nov-04	5520.17	0.000859038	
220	22-Nov-04	5502.56	-0.003195218	
221	23-Nov-04	5514.49	0.002165735	
222	24-Nov-04	5533.22	0.003390751	
223	25-Nov-04	5523.27	-0.001799848	
224	26-Nov-04	5556.87	0.006064924	
225	29-Nov-04	5571.88	0.002697519	
226	30-Nov-04	5567.79	-0.000734313	
227	1-Dec-04	5560.5	-0.001310175	
228	2-Dec-04	5552.5	-0.001439755	
229	3-Dec-04	5575.96	0.004216223	
230	6-Dec-04	5633.13	0.010200738	
231	7-Dec-04	5675.79	0.007544523	
232	8-Dec-04	5698.64	0.004017789	
233	9-Dec-04	5738.49	0.00696856	
234	10-Dec-04	5700.82	-0.006586085	
235	13-Dec-04	5758.28	0.010028795	

236	14-Dec-04	5766.62	0.001447301		
237	15-Dec-04	5824.25	0.009944115		
238	16-Dec-04	5827.84	0.000616198		
239	17-Dec-04	5842.59	0.002527757		
240	20-Dec-04	5852.87	0.001757948		
241	21-Dec-04	5874.19	0.003636039		
242	22-Dec-04	5967.97	0.015838658		
243	23-Dec-04	5977.92	0.001665845		
244	24-Dec-04	6045.8	0.011291135		
245	27-Dec-04	6046.16	5.95437E-05		
246	28-Dec-04	6077.83	0.005224365		
247	29-Dec-04	6123.67	0.007513866		
248	30-Dec-04	6106.93	-0.002737398		
249	31-Dec-04	6218.4	0.018088447		
250	3-Jan-05	6220.28	0.000302283		
251	4-Jan-05	6297.7	0.012369566		
252	5-Jan-05	6309.72	0.001906814		
253	6-Jan-05	6353.27	0.006878339		
254	7-Jan-05	6318.9	-0.005424499		
255	10-Jan-05	6484.14	0.025814053	Major +ev shock	
256	11-Jan-05	6710.03	0.034244227	Major +ev shock	
257	12-Jan-05	6657.4	-0.007874404		
258	13-Jan-05	6424.8	-0.035563516		Major -ev shock
259	14-Jan-05	6559.83	0.020799186	Major +ev shock	
260	17-Jan-05	6633.01	0.01109401		
261	18-Jan-05	6603.55	-0.004451315		
262	19-Jan-05	6746.4	0.021401646	Major +ev shock	
263	24-Jan-05	6861.97	0.016985543		
264	25-Jan-05	6887.58	0.003725217		
265	26-Jan-05	6904.56	0.002462273		
266	27-Jan-05	6952.82	0.00696527		
267	28-Jan-05	6798.01	-0.02251741		Major -ev shock
268	31-Jan-05	6747.39	-0.007474159		
269	1-Feb-05	6869.28	0.017903534		
270	2-Feb-05	6949.88	0.011665096		
271	3-Feb-05	7014.71	0.009284979		
272	4-Feb-05	6968.46	-0.006615119		
273	7-Feb-05	7091.14	0.017451864		
274	8-Feb-05	7154.83	0.008941536		
275	9-Feb-05	7156.55	0.000240368		
276	10-Feb-05	7196.63	0.00558484		
277	11-Feb-05	7238.76	0.00583706		
278	14-Feb-05	7341.69	0.01411914		
279	15-Feb-05	7402.8	0.008289246		
280	16-Feb-05	7508.8	0.014217359		
281	17-Feb-05	7579.98	0.009434895		
282	18-Feb-05	7734.03	0.020119511	Major +ev shock	
283	21-Feb-05	7865.94	0.016911974		
284	22-Feb-05	7948.84	0.01048396		
285	23-Feb-05	8180.97	0.028784719	Major +ev shock	
286	24-Feb-05	8253.12	0.008780585		
287	25-Feb-05	8285.4	0.003903619		
288	28-Feb-05	8260.06	-0.003063078		
289	1-Mar-05	8404.52	0.017337805		

290	2-Mar-05	8206.14	-0.023887002		Major -ev shock
291	3-Mar-05	8496.73	0.034798729	Major +ev shock	
292	4-Mar-05	8793.69	0.034353035	Major +ev shock	
293	7-Mar-05	8863.48	0.007905045		
294	8-Mar-05	9235.59	0.041125035	Major +ev shock	
295	9-Mar-05	9588.46	0.037495793	Major +ev shock	
296	10-Mar-05	9571.92	-0.00172648		
297	11-Mar-05	9603.73	0.003317752		
298	14-Mar-05	9998.05	0.040238509	Major +ev shock	
299	15-Mar-05	10304.72	0.030211969	Major +ev shock	
300	16-Mar-05	10079.2	-0.022128148		
301	17-Mar-05	9638.17	-0.044742638		Major -ev shock
302	18-Mar-05	9499.42	-0.014500512		
303	21-Mar-05	9097.92	-0.043184928		Major -ev shock
304	**22-Mar-05**	8698.88	-0.044851534		Major -ev shock
305	**24-Mar-05**	8314.1	-0.045241413		Major -ev shock
306	25-Mar-05	7964.95	-0.042902203		Major -ev shock
307	28-Mar-05	7708.29	-0.032754293		Major -ev shock
308	29-Mar-05	7855.14	0.018871721		
309	30-Mar-05	8085.56	0.02891166	Major +ev shock	
310	31-Mar-05	7770.33	-0.03976712		Major -ev shock
311	1-Apr-05	7596.87	-0.022576314		Major -ev shock
312	**4-Apr-05**	8050.25	0.057966826	Major +ev shock	
313	5-Apr-05	7820.81	-0.028915017		Major -ev shock
314	6-Apr-05	7613.63	-0.026848068		Major -ev shock
315	7-Apr-05	7784.34	0.022173961	Major +ev shock	
316	8-Apr-05	7593.3	-0.024847744		Major -ev shock
317	**11-Apr-05**	7244.49	-0.0470251		Major -ev shock
318	12-Apr-05	6939.03	-0.043079185		Major -ev shock
319	13-Apr-05	7123.62	0.026254028	Major +ev shock	
320	14-Apr-05	7202.84	0.01105937		
321	**15-Apr-05**	7512.91	0.042147481	Major +ev shock	
322	18-Apr-05	7234.21	-0.037801711		Major -ev shock
323	19-Apr-05	6952.72	-0.039688213		Major -ev shock
324	20-Apr-05	7030.83	0.011171814		
325	21-Apr-05	7101.38	0.009984367		

326	25-Apr-05	6996.82	-0.014833371		
327	26-Apr-05	7164.73	0.023714617	Major +ev shock	
328	27-Apr-05	7275.74	0.015375149		
329	28-Apr-05	7144.48	-0.018205496		
330	29-Apr-05	7104.65	-0.005590531		
331	2-May-05	6832.74	-0.039023735		Major -ev shock
332	3-May-05	6887.93	0.00804484		
333	4-May-05	6898.72	0.001565283		
334	5-May-05	7098.22	0.028508161	Major +ev shock	
335	6-May-05	7183.25	0.011907878		
336	9-May-05	7384.98	0.027696281	Major +ev shock	
337	10-May-05	7367.69	-0.002343984		
338	11-May-05	7497.62	0.017481413		
339	12-May-05	7284.05	-0.028898611		Major -ev shock
340	13-May-05	7411.33	0.017322884		
341	16-May-05	7315.5	-0.013014526		
342	17-May-05	7437.95	0.016599888		
343	18-May-05	7348.06	-0.01215894		
344	19-May-05	7413.7	0.008893307		
345	20-May-05	7300.09	-0.015442963		
346	23-May-05	6983.3	-0.044365092		Major -ev shock
347	24-May-05	7034.84	0.007353362		
348	25-May-05	6942.42	-0.01322453		
349	26-May-05	6664.86	-0.040801469		Major -ev shock
350	27-May-05	6467.15	-0.030113431		Major -ev shock
351	30-May-05	6707.56	0.036499732	Major +ev shock	
352	31-May-05	6857.67	0.022132485	Major +ev shock	
353	1-Jun-05	7019.6	0.023338502	Major +ev shock	
354	**2-Jun-05**	7322.38	0.042229175	Major +ev shock	
355	3-Jun-05	7213.17	-0.01502689		
356	6-Jun-05	7104.4	-0.015194211		
357	7-Jun-05	7391.18	0.039573087	Major +ev shock	
358	8-Jun-05	7263.56	-0.017417331		
359	9-Jun-05	7307.02	0.005965463		
360	10-Jun-05	7345.29	0.005223762		
361	13-Jun-05	7441.77	0.013049432		
362	14-Jun-05	7368.95	-0.009833497		
363	15-Jun-05	7488.73	0.016123997		
364	16-Jun-05	7330.91	-0.021299568		
365	17-Jun-05	7398.73	0.009208708		
366	20-Jun-05	7663.04	0.035100408	Major +ev shock	
367	21-Jun-05	7489.71	-0.022878693		Major -ev shock
368	22-Jun-05	7409.07	-0.010825153		
369	23-Jun-05	7417.7	0.001164111		
370	24-Jun-05	7350.46	-0.00910614		
371	27-Jun-05	7255.44	-0.013011364		
372	28-Jun-05	7431.8	0.024016558	Major +ev shock	

373	29-Jun-05	7500.12	0.00915093	
374	30-Jun-05	7450.12	-0.006688881	
375	1-Jul-05	7464.6	0.001941707	
376	4-Jul-05	7409.6	-0.007395389	
377	5-Jul-05	7517.52	0.01445984	
378	6-Jul-05	7530.34	0.001703897	
379	7-Jul-05	7589.07	0.007768861	
380	8-Jul-05	7588.94	-1.713E-05	
381	11-Jul-05	7554.28	-0.004577634	
382	12-Jul-05	7511.94	-0.005620535	
383	13-Jul-05	7481.17	-0.004104558	
384	14-Jul-05	7471.64	-0.001274677	
385	15-Jul-05	7535.81	0.008551805	
386	18-Jul-05	7437.55	-0.013124831	
387	19-Jul-05	7319.77	-0.015962587	
388	20-Jul-05	7410.98	0.012383778	
389	21-Jul-05	7410.91	-9.44549E-06	
390	22-Jul-05	7353.85	-0.007729253	
391	25-Jul-05	7305.3	-0.006623873	
392	26-Jul-05	7301.57	-0.000510719	
393	27-Jul-05	7217.6	-0.011566906	
394	28-Jul-05	7215.44	-0.000299313	
395	29-Jul-05	7178.93	-0.005072828	
396	1-Aug-05	7195.32	0.002280468	
397	2-Aug-05	7324.8	0.017835036	
398	3-Aug-05	7442.04	0.015879154	
399	4-Aug-05	7404.95	-0.004996309	
400	5-Aug-05	7418.61	0.001843013	
401	8-Aug-05	7315.47	-0.014000424	
402	9-Aug-05	7184.48	-0.01806814	
403	10-Aug-05	7064.29	-0.016870628	
404	11-Aug-05	6970.59	-0.013352646	
405	12-Aug-05	7150.65	0.025503392	Major +ev shock
406	15-Aug-05	7122.98	-0.003877084	
407	16-Aug-05	7139.09	0.00225914	
408	17-Aug-05	7099.22	-0.005600398	
409	19-Aug-05	7311.92	0.029520974	Major +ev shock
410	22-Aug-05	7590.1	0.037338873	Major +ev shock
411	23-Aug-05	7557.87	-0.004255362	
412	24-Aug-05	7512.34	-0.006042403	
413	25-Aug-05	7554.01	0.005531546	
414	26-Aug-05	7585.7	0.004186348	
415	29-Aug-05	7690.6	0.013733908	
416	30-Aug-05	7744.19	0.006944081	
417	31-Aug-05	7796.86	0.006778204	
418	1-Sep-05	7769.21	-0.003552602	
419	2-Sep-05	7789.76	0.002641565	
420	5-Sep-05	7849.06	0.007583729	
421	6-Sep-05	7807.04	-0.005367889	
422	7-Sep-05	7804.41	-0.000336932	
423	8-Sep-05	7884.21	0.010173067	
424	9-Sep-05	7889.25	0.000639048	
425	12-Sep-05	7892.52	0.000414402	
426	13-Sep-05	7894.68	0.000273639	
427	14-Sep-05	7956.5	0.00780009	
428	15-Sep-05	7979.48	0.002884042	
429	16-Sep-05	7934.54	-0.005647865	
430	19-Sep-05	7972.97	0.00483169	
431	20-Sep-05	8066.17	0.011621702	
432	21-Sep-05	8187.1	0.014880972	

433	22-Sep-05	8186	-0.000134367		
434	23-Sep-05	8179.9	-0.000745452		
435	26-Sep-05	8217.47	0.00458245		
436	27-Sep-05	8195.28	-0.002703997		
437	28-Sep-05	8196.33	0.000128114		
438	29-Sep-05	8151.51	-0.005483307		
439	30-Sep-05	8225.66	0.00905535		
440	3-Oct-05	8329.7	0.012568905		
441	4-Oct-05	8426.77	0.011586102		
442	5-Oct-05	8581.68	0.018216155		
443	6-Oct-05	8540.24	-0.004840588		
444	7-Oct-05	8542.38	0.000250547		
445	10-Oct-05	8520.82	-0.002527077		
446	11-Oct-05	8622.93	0.011912354		
447	12-Oct-05	8792.07	0.019425245		
448	13-Oct-05	8762.14	-0.003410012		
449	14-Oct-05	8860.9	0.011208172		
450	17-Oct-05	8900.9	0.004504056		
451	18-Oct-05	8669.39	-0.026353964		Major -ev shock
452	19-Oct-05	8872.96	0.023210019	Major +ev shock	
453	20-Oct-05	8557.95	-0.036147774		Major -ev shock
454	21-Oct-05	8290.32	-0.031772106		Major -ev shock
455	24-Oct-05	8408.62	0.014168801		
456	25-Oct-05	8316.21	-0.011050748		
457	26-Oct-05	8235.12	-0.009798687		
458	27-Oct-05	8319.29	0.010168979		
459	31-Oct-05	8247.37	-0.008682553		
460	2-Nov-05	8436.62	0.022687393	Major +ev shock	
461	7-Nov-05	8661.46	0.026301545	Major +ev shock	
462	8-Nov-05	8690.97	0.003401256		
463	10-Nov-05	8792.22	0.011582684		
464	11-Nov-05	8793.93	0.000194471		
465	14-Nov-05	8835.26	0.004688823		
466	15-Nov-05	8889.75	0.006148394		
467	16-Nov-05	8895.68	0.000666838		
468	17-Nov-05	8864.04	-0.003563123		
469	18-Nov-05	8933.51	0.007806732		
470	21-Nov-05	8960.8	0.003050134		
471	22-Nov-05	9006.4	0.005075927		
472	23-Nov-05	9016.34	0.001103051		
473	24-Nov-05	9073.14	0.006279914		
474	25-Nov-05	9064.39	-0.00096485		
475	28-Nov-05	9147.02	0.009074593		
476	29-Nov-05	9134.55	-0.001364216		
477	30-Nov-05	9026.59	-0.011889262		
478	1-Dec-05	9081.03	0.006012956		
479	2-Dec-05	9226.41	0.015882401		
480	5-Dec-05	9344.84	0.012754296		
481	6-Dec-05	9396.5	0.00551296		
482	7-Dec-05	9369.34	-0.002894623		
483	8-Dec-05	9418.35	0.005217258		
484	9-Dec-05	9431.81	0.001428105		
485	12-Dec-05	9459.72	0.002954765		
486	13-Dec-05	9451.32	-0.00088837		
487	14-Dec-05	9403.54	-0.0050682		
488	15-Dec-05	9490.61	0.009216675		
489	16-Dec-05	9514.83	0.002548745		

490	19-Dec-05	9379.7	-0.014303854
491	20-Dec-05	9482.08	0.010855922
492	21-Dec-05	9504.43	0.002354304
493	22-Dec-05	9471.7	-0.0034496
494	23-Dec-05	9491.47	0.002085095
495	26-Dec-05	9372.57	-0.012606162
496	27-Dec-05	9447.42	0.00795435
497	28-Dec-05	9466.94	0.002064041
498	29-Dec-05	9497.55	0.003228141
499	30-Dec-05	9556.61	0.006199191

301 +ev and **198** –ev returns	Total ***36*** major +ev shocks	Total ***34*** major –ev shocks