

# Stock price reaction to earnings announcement: the case of an emerging market

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# Stock Price Reaction to Earnings Announcement: The Case of an Emerging Market

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## Abstract

In an efficient stock market stock prices instantaneously and accurately adjust to new information. This paper conducts an event study analysis on an emerging market namely the Karachi Stock Exchange (KSE) by investigating the stock price reaction to public announcement of quarterly after tax profit by listed firms. By employing 5 year data on stock prices from January 2004 to August 2008 for 114 non financial firms we found that there is no abnormal return post earnings announcement. Moreover the study provides evidence that there is a bigger element of surprise in bad news than in good news as the market reaction to bad news is stronger.

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**JEL Codes : G14**
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## 1. Introduction

Timely announcement of earnings and other cash flows is an important ingredient of efficient and transparent corporate practice. The magnitude and timing of announcement related to earnings provide useful information to investors regarding the financial soundness of firms. There are many studies which point towards information content of earnings disclosure. For example Ball and Brown (1968), Chari, Jagannathan, and Ofer (1988), Kross and Schroeder (1984), Easton and Zmijewski (1989), and Gennotte and Truemann (1996) find that stock prices respond positively to announcements of increase in earnings and negatively to announcements of decrease in earnings for the U.S. firms. Khotari and Warner (2006) and MacKinlay (1997) provide a review of many articles published on the subject.

In addition in financial economics stock prices are assumed to be the discounted value of all future cash flows and incorporate all relevant information. Event studies on earnings announcement provide an important test of semi strong form efficiency of the stock market (Fama, 1991). Efficient Market Hypothesis describes that in efficient market prices fully and instantaneously absorb all the new information.

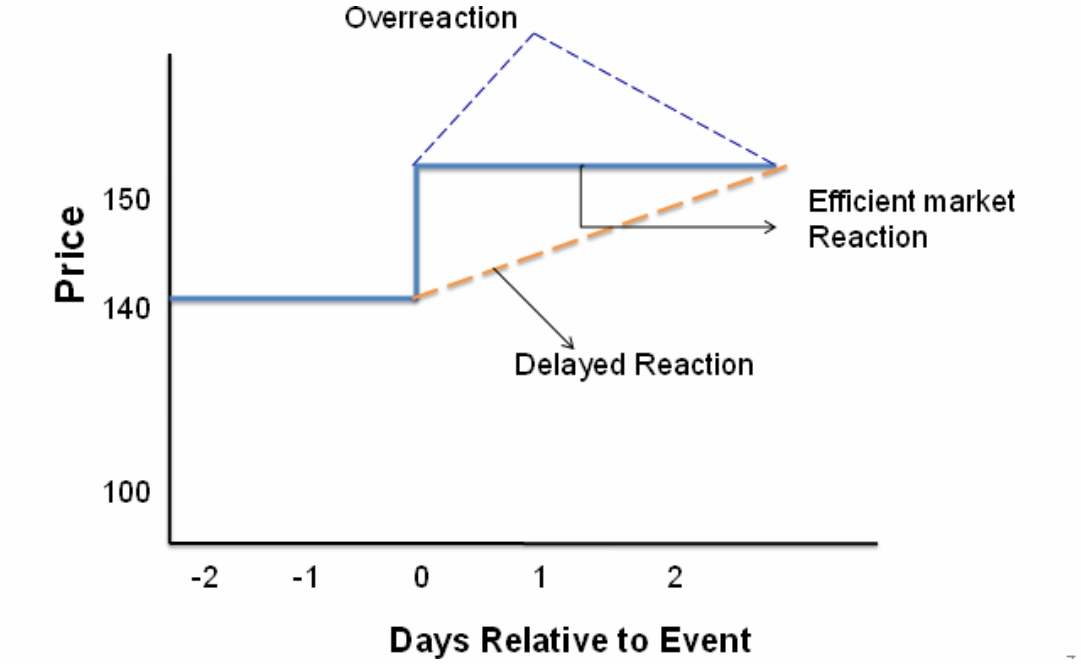


Figure1.2 Reaction of stock price to new information in efficient and inefficient markets [Adapted from Ross et al. (2005)].

Figure 1.2 shows the difference between the efficient market and inefficient market. If the market is efficient it will absorb all information at the event time and new price level is instantaneously established but in inefficient market such information is not absorbed at the event day and it takes many days to adjust to new equilibrium level.

There are very few event studies on non-US markets particularly in emerging markets. In a study on the Chinese stock market Su (2003) investigated the stock price reactions to changes in earnings per share (EPS) in the Chinese domestic A-shares and international B-share firms. The results indicate that A-shares fail to adjust new earnings information quickly, but international B-share investors can predict earnings changes better than A-shares investors. As a result, abnormal returns can be obtained by trading on the earnings information, but for A-shares only. They attribute this finding to the type of ownership of the shares. A-shares holders are usually individual investors whereas the B-shares are mostly owned by large institutions that trade on more detailed and accurate financial information not immediately available to A-share holders.

The purpose of this paper is to conduct an event study analysis of earnings announcement in an emerging market namely the Karachi Stock Exchange which is Pakistan's biggest and the most active stock exchange. For an overview of the stock market in Pakistan see Iqbal (2008). Most of the event studies are performed in the developed capital markets particularly the US and the UK markets. Conducting event studies on emerging markets is quite challenging due to their excessive prices volatility which is a consequence of the relatively instable political and macroeconomic conditions. So in emerging markets uncovering any systematic abnormal returns to a corporate action is not easy. Further, in the developed markets the firms are closely followed by financial analysts who provide the forecast of the earnings for firms they follow. Thus a database of benchmark forecasts is easily available to judge whether the actual announcement is considerably above expected, below expected or have no information content. In developing countries such database are difficult to obtain. Our contribution is to rely on the information contained in the actual earnings figures to classify the type of announcement.

The event we consider is the quarterly after tax profit announcement by firms listed on the Karachi Stock Exchange. We collected date on earnings announcement from the Karachi Stock Exchange website (www.kse.com.pk) over the period from January 2004 to August 2008. The price data for the matching firms are obtained from DataStream database. Following this introduction section 2 describes the methodology and the data for the event study, section 3 discusses the results of analysis and section 4 provides conclusion.

## 2. Methodology

### *2.1 Measuring Abnormal Returns*

The event under study is after tax quarterly profit announcement by listed companies. The date and amount of profit declared by companies are obtained from the website of the Karachi Stock Exchange. Following Makinlay (1997) we include event day plus 30 surrounding days i.e. a total of 61 days as event window. The event period is not included itself in estimation period to prevent the event from influencing the parameter estimates. The next issue is the firms to include in the event study analysis.

For this study we employ the sample of non financial firms which are listed on the Karachi Stock Exchange. Initially we considered the quarterly announcement for all the listed firms. However for many firms sufficient number of announcements was not available. We therefore restrict our sample to firms that have at least ten quarterly announcements during the period. This is important since our benchmark quarterly announcement (median earring) has to be estimated from the data. Filtering in this way we finally arrived at 114 firms to be considered for the event study.

Using daily data on continuously compounded returns and returns on the KSE-100 index as the market index we estimated the parameters of the market model which forms the basis of measuring abnormal returns.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \qquad (1)$$

With $\mathrm{E}(\varepsilon_{it}) = 0$ and $\mathrm{Var}(\varepsilon_{it}) = \sigma^2_{\varepsilon i}$

Where $R_{it}$ and $R_{mt}$ are the period *t* return on firm $\iota$ and the market portfolio respectively, and $\varepsilon_{it}$ is the zero mean disturbance term. $\alpha_i$, $\beta_i$ and $\sigma_{\varepsilon i}^2$ are the parameter of market model. It is difficult to separate the movement of stock price resulting from the announcement of an event by the firm from the general market movement. The use of market model eliminates the general market movement so that the residuals of the market model reflect the price reaction due to the event under study. Thus market model provides a way of extracting signals from the noise. Through market model we estimate the residuals. The average abnormal returns and cumulative abnormal returns are then computed.

Using 61 days as the event window we to calibrate the abnormal returns as follow:

$$\hat{\mathbf{AR}} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \tag{2}$$

The abnormal return is the residual of the market model calculated on an out of sample basis over the event window. The abnormal returns are then averaged across firms and announcement as follows.

$$\overline{AR_\tau} = \frac{1}{N}\sum_{i=1}^{N}\overline{AR_{i\tau}} \tag{3}$$

Next the average abnormal returns can be aggregated over the event window to calculate the cumulative abnormal returns (CAR) for each firm *i* as:

$$\overline{CAR(T_1,T_2)} = \sum_{\tau=T_1}^{T_2}\overline{AR_\tau} \tag{4}$$

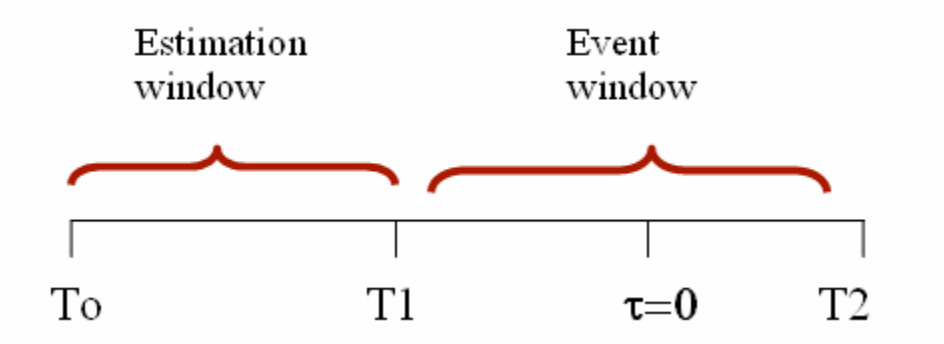


Figure 1.1 Time line for event study

Figure 1.1 shows the schematic view of event window and estimation window.

***2.2 Classification of News***

If earnings disclosures have information content, then 'higher than expected' earnings should be associated with increase in value of the equity and 'lower than expected' earnings with decline in equity value. These earnings announcements are classified in three categories i.e. good news, bad news and no news. This is due to the fact that the stock prices are expected to show upward movement only if they contain a positive surprise for investors. The US studies e.g. MacKinlay (1997) employed financial analyst database to classify declared earnings announcement as good news, bad news or no news. If the actual earnings announcement at a particular date is higher than 5% of the analyst forecast value then the news was declared as good news, if the actual earnings announcement at a particular date is within the 5% of the analyst forecasted value then the news was declared as no news and if the actual earnings announcement at a particular date is less than 5% of the analyst value then the news was declared as bad news.

In the developing capital markets such information about financial analyst forecast are not readily available so we have used statistical criteria to classify the type of earnings announcement. Specifically we employ median of announced quarterly earnings of a company as a benchmark to classify the announcement. According to this statistical strategy if the actual earning declared by the company at a particular date is within plus minus 10% of the median earning, it is classified as no news. If the actual earning is less than 10% of the median earning the news is classified as bad news. The announcement with earning greater than 10% of the median earning is classified as good news.
This classification may also be described as follows:
Good news: Actual Earning > 10% of Median Earning
No news: Actual Earning within ± 10% of Median Earning
Bad news: Actual Earnings < 10% of Median Earning

We have used median rather than mean as benchmark since if the earnings have outliers mean is not a representative measure of typical earnings magnitude. Median is less affected by the extreme observation. The earnings distribution is generally positively skewed.

Our data consist of 701 quarterly announcements in which the good news comprise 43%, bad news are 42.5% while the remaining 16.5% are no news.

### 3. Results and Discussion

Table 1 in the appendix presents the average returns (AR) and cumulative average abnormal (CAR) for all the firms at an aggregate level. Figure 3 presents the graphical display of Table 1. Appendix 3 presents graphs disaggregated into different sectors.

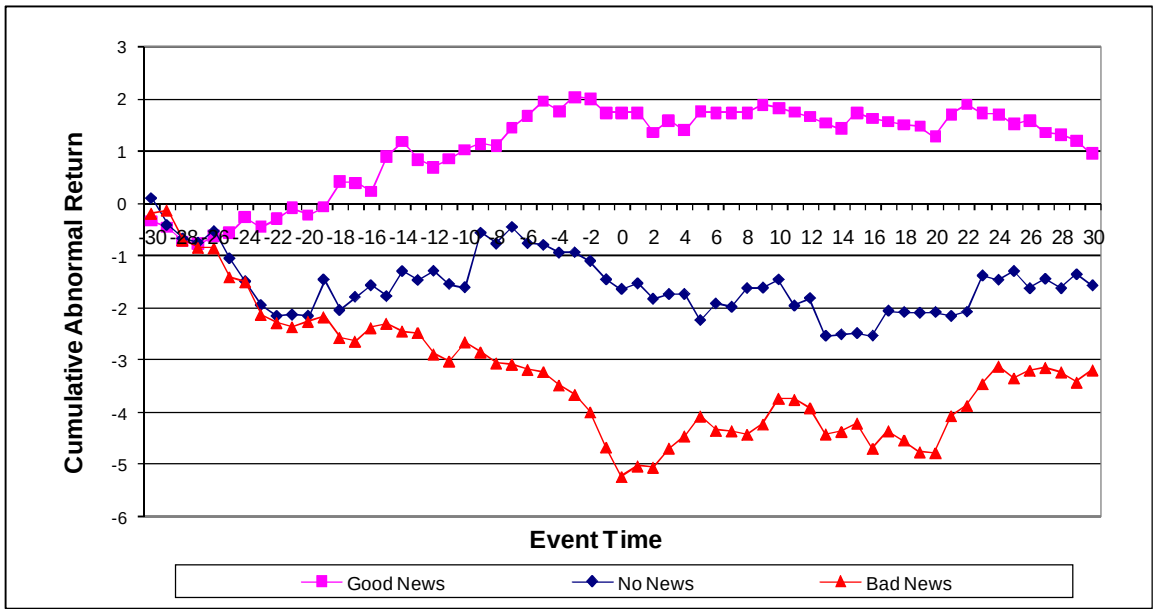


Figure 3: Average Cumulative Abnormal Returns for Earnings Announcement (all firms)

Figure 3 shows that the average CAR for good news starts moving upward prior to the event date. This is consistent with MacKinlay's argument that the market learns about the impact of forthcoming announcement. The average CAR of good news firms gradually drift up in initially. After the event date average CAR become gradually stable since after the announcement there is no more surprise for the investors. The average CAR of bad news generally decline initially but starting from the event date it shows slightly upward trend and eventually become stable near the end of event window. For no news announcement the average CAR have generally trend less pattern although during the event window the sample average CAR are negative for the no news category firms.

The graphs for the individual sectors in the appendix (panel a, c, e) show a similar pattern. Since the number of announcements in individual sectors is small the patterns we observe for average CAR are not as discerning as for the aggregate of all firms. Individual sector's CAR are subject to higher fluctuations due to small sample size.

By looking at the results of overall sectors (Figure 3) it can be observed that if an investor had invested in a company 30 day prior to the announcement of unexpected high earnings company then she would have realized approximately 2% returns on event day. This amount is about to 26.8% compounded annually. It is interesting to observe that our estimate for event day average CAR is very close to the one obtained by MaKinlay (1997) for Dow Jones 30 firms. During this period the i.e. risk free investment has rewarded much less. For example average annual yield on 6 month State Bank of Pakistan's Treasury Bill rate was nearly 6.5% during the 5 year sample period (International Financial Statistics, IMF). Thus good news firms reward nearly 20% annual risk premium. On event day good news firms on average generate about 6% return differential compared to the bad news firm. This amounts to on average about 100% compounded annually.

Post announcement there are no significant excess abnormal returns. Thus is if an investor had invested in good news firm on the event day then on average there are no cumulative abnormal returns one month later. This result points to the fact that information has been absorbed on or before the earnings announcement date. In the days after the announcement the average CAR are relatively stable. These results are consistent with semi strong form efficiency of the Karachi stock market.

Our results also corroborate the finding of earlier studies who document asymmetry of stock price reaction of good and bad news. For example Fooladi and Roberts (1988) found a stronger reaction to announcements of dividend cuts than to those of dividend increases. Similarly Conrad, Corner and Landsman (2002) find that stock prices respond more strongly to negative than positive earnings surprises. These studies provide evidence that there is a bigger element of surprise in bad news than in good news. This

can also be related to the asymmetric GARCH literature where the volatility increases following a bad news are higher than those for bad news of same magnitude.

We conduct a sequence of diagnostic and misspecification tests on the market model regression for the estimation window. In the vast majority of cases for the earnings announcement, there is no evidence of serial correlation, heteroskedasticity and model misspecification. However in most of the cases we found non-normality in residuals due to excess kurtosis. Since our analysis is based on economic significance of earning disclosure the issue of excess kurtosis is not much concerned.

## 4. Conclusion

In this paper we investigated the stock price reaction to earnings announcement by firms listed at the Karachi Stock Exchange. We selected the data for quarterly earnings announcement from Karachi Exchange website and selected the matching firm's stock prices from the DataStream database. For each firm and for each announcement we computed abnormal returns using market model regression. These abnormal returns and cumulative abnormal returns were then aggregated across firms for each of the date in event window.

We found that on average during the 30 day period prior to earnings announcement the investor can gain 2% cumulative average returns on event day. This return is much higher than the risk free rate during the period of study. We estimated that the firms with higher than expected earnings announcement can provide 20% annual risk premium. On event day good news firms on average generate about 6% differential in abnormal returns compared to the bad news firm. This amounts to on average about 100% on annual basis.

Our results indicate that information in earnings disclosure has been absorbed on or before the earnings announcement date. This implies that the Karachi stock market can be considered informational efficient since that stock prices quickly absorb the new information. In the days after the announcement the average cumulative abnormal returns are relatively stable consistent the market efficiency. We also observe that the stock price

react asymmetrically to the unexpectedly high and unexpectedly low earnings announcement. If the earnings announced is less than expected the price drop is much higher than the earnings increase announcement of the same magnitude. Our results thus support the finding of earlier studies who document asymmetry of stock price reaction of good and bad news. Our study provides evidence that there is a bigger element of surprise in bad news than in good news as the market reaction to bad news is stronger.

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Appendix 1: Table A1: Average AR and Average CAR over the event window for all firms

| Event Days | Good News | | No News | | Bad News | |
|---|---|---|---|---|---|---|
| | AR | CAR | AR | CAR | AR | CAR |
| -30 | -0.33 | -0.33 | 0.11 | 0.11 | -0.20 | -0.20 |
| -29 | -0.12 | -0.45 | -0.51 | -0.41 | 0.06 | -0.14 |
| -28 | -0.27 | -0.73 | -0.26 | -0.67 | -0.57 | -0.71 |
| -27 | -0.05 | -0.77 | -0.08 | -0.74 | -0.14 | -0.85 |
| -26 | 0.15 | -0.62 | 0.22 | -0.52 | -0.02 | -0.87 |
| -25 | 0.06 | -0.56 | -0.52 | -1.05 | -0.55 | -1.42 |
| -24 | 0.29 | -0.27 | -0.44 | -1.49 | -0.09 | -1.50 |
| -23 | -0.18 | -0.44 | -0.46 | -1.95 | -0.63 | -2.13 |
| -22 | 0.16 | -0.29 | -0.21 | -2.15 | -0.15 | -2.29 |
| -21 | 0.21 | -0.08 | 0.02 | -2.13 | -0.08 | -2.37 |
| -20 | -0.14 | -0.22 | -0.02 | -2.15 | 0.11 | -2.26 |
| -19 | 0.16 | -0.06 | 0.70 | -1.45 | 0.08 | -2.18 |
| -18 | 0.49 | 0.42 | -0.59 | -2.04 | -0.40 | -2.57 |
| -17 | -0.03 | 0.40 | 0.25 | -1.79 | -0.07 | -2.64 |
| -16 | -0.17 | 0.23 | 0.22 | -1.56 | 0.26 | -2.38 |
| -15 | 0.68 | 0.90 | -0.21 | -1.77 | 0.08 | -2.30 |
| -14 | 0.28 | 1.19 | 0.48 | -1.29 | -0.15 | -2.45 |
| -13 | -0.34 | 0.84 | -0.17 | -1.46 | -0.03 | -2.48 |
| -12 | -0.15 | 0.70 | 0.18 | -1.29 | -0.41 | -2.89 |
| -11 | 0.16 | 0.85 | -0.26 | -1.54 | -0.14 | -3.02 |
| -10 | 0.18 | 1.03 | -0.06 | -1.60 | 0.37 | -2.66 |
| -9 | 0.11 | 1.14 | 1.05 | -0.56 | -0.19 | -2.85 |
| -8 | -0.04 | 1.10 | -0.21 | -0.76 | -0.21 | -3.06 |
| -7 | 0.35 | 1.45 | 0.32 | -0.44 | -0.02 | -3.08 |
| -6 | 0.23 | 1.68 | -0.31 | -0.76 | -0.10 | -3.18 |
| -5 | 0.27 | 1.95 | -0.03 | -0.79 | -0.04 | -3.22 |
| -4 | -0.19 | 1.76 | -0.15 | -0.94 | -0.26 | -3.48 |
| -3 | 0.27 | 2.04 | 0.01 | -0.93 | -0.18 | -3.66 |
| -2 | -0.03 | 2.00 | -0.17 | -1.10 | -0.33 | -3.99 |
| -1 | -0.27 | 1.73 | -0.35 | -1.45 | -0.67 | -4.67 |
| 0 | -0.01 | 1.73 | -0.19 | -1.63 | -0.56 | -5.23 |
| 1 | 0.00 | 1.73 | 0.11 | -1.53 | 0.20 | -5.03 |
| 2 | -0.37 | 1.36 | -0.30 | -1.83 | -0.02 | -5.05 |
| 3 | 0.23 | 1.59 | 0.10 | -1.73 | 0.36 | -4.69 |
| 4 | -0.19 | 1.40 | 0.00 | -1.73 | 0.23 | -4.45 |
| 5 | 0.36 | 1.75 | -0.50 | -2.23 | 0.38 | -4.07 |
| 6 | -0.02 | 1.73 | 0.32 | -1.91 | -0.28 | -4.35 |
| 7 | 0.00 | 1.73 | -0.06 | -1.98 | 0.00 | -4.35 |
| 8 | 0.01 | 1.74 | 0.36 | -1.62 | -0.07 | -4.42 |
| 9 | 0.15 | 1.89 | 0.01 | -1.61 | 0.19 | -4.23 |
| 10 | -0.06 | 1.83 | 0.16 | -1.45 | 0.49 | -3.73 |
| 11 | -0.08 | 1.75 | -0.50 | -1.95 | -0.02 | -3.75 |
| 12 | -0.09 | 1.66 | 0.14 | -1.81 | -0.16 | -3.92 |
| 13 | -0.12 | 1.54 | -0.72 | -2.53 | -0.50 | -4.41 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | -0.11 | 1.43 | 0.03 | -2.50 | 0.05 | -4.37 |
| 15 | 0.30 | 1.73 | 0.02 | -2.48 | 0.16 | -4.20 |
| 16 | -0.10 | 1.63 | -0.05 | -2.53 | -0.49 | -4.69 |
| 17 | -0.06 | 1.57 | 0.48 | -2.05 | 0.34 | -4.35 |
| 18 | -0.06 | 1.51 | -0.03 | -2.08 | -0.18 | -4.53 |
| 19 | -0.03 | 1.48 | -0.02 | -2.09 | -0.22 | -4.76 |
| 20 | -0.20 | 1.28 | 0.02 | -2.08 | -0.02 | -4.78 |
| 21 | 0.42 | 1.70 | -0.08 | -2.15 | 0.71 | -4.07 |
| 22 | 0.20 | 1.90 | 0.08 | -2.07 | 0.20 | -3.87 |
| 23 | -0.18 | 1.72 | 0.70 | -1.37 | 0.42 | -3.45 |
| 24 | -0.02 | 1.70 | -0.08 | -1.46 | 0.34 | -3.12 |
| 25 | -0.19 | 1.52 | 0.17 | -1.29 | -0.23 | -3.34 |
| 26 | 0.07 | 1.59 | -0.33 | -1.62 | 0.14 | -3.20 |
| 27 | -0.23 | 1.36 | 0.18 | -1.44 | 0.06 | -3.15 |
| 28 | -0.05 | 1.32 | -0.18 | -1.62 | -0.09 | -3.23 |
| 29 | -0.12 | 1.20 | 0.26 | -1.35 | -0.20 | -3.43 |
| 30 | -0.24 | 0.96 | -0.21 | -1.57 | 0.23 | -3.19 |

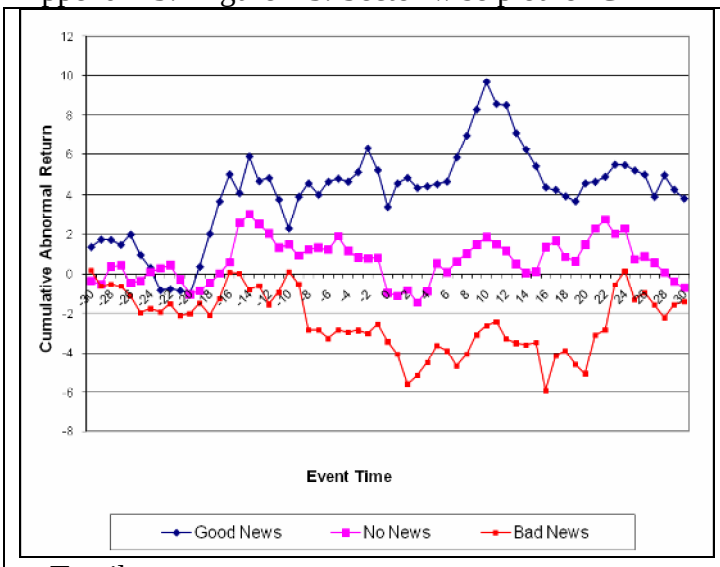
Appendix 2: Table A2: List of Companies included in the event study

| S.N. | Company | Sector |
|---|---|---|
| 1 | Artistic Denim Mills Ltd. | Textile |
| 2 | Crescent Spinning Mills Ltd. | Textile |
| 3 | Gadoon Textile Mills Ltd. | Textile |
| 4 | Ideal Spinning Mills Ltd. | Textile |
| 5 | Kohinoor Textile Mills Ltd. | Textile |
| 6 | Mohammad Farooq Textile Mills Ltd. | Textile |
| 7 | Nishat Mills Ltd. | Textile |
| 8 | Nishat (Chunian) Ltd. | Textile |
| 9 | Reliance Weaving Mills Ltd. | Textile |
| 10 | Saif Textile Mills Ltd. | Textile |
| 11 | Sargodha Spinning Mills Ltd. | Textile |
| 12 | Suraj Cotton Mills Ltd. | Textile |
| 13 | Taj Textile Mills Ltd. | Textile |
| 14 | Usman Textile Mills Ltd. | Textile |
| 15 | Yousaf Weaving Mills Ltd. | Textile |
| 16 | Dewan Salman Fibre Ltd. | Fibre/Synthetic Textile |
| 17 | Gatron (Industries) Ltd. | Fibre/Synthetic Textile |
| 18 | Ibrahim Fibres Ltd. | Fibre/Synthetic Textile |
| 19 | Indus Polyester Company Ltd. | Fibre/Synthetic Textile |
| 20 | Pakistan Synthetics Ltd. | Fibre/Synthetic Textile |
| 21 | Abbott Laboratories (Pakistan) Ltd. | Chemical |
| 22 | Berger Paints Pakistan Ltd. | Chemical |
| 23 | Clariant Pakistan Ltd. | Chemical |
| 24 | Dawood Hercules Chemicals Ltd. | Chemical |
| 25 | Dynea Pakistan Ltd. | Chemical |
| 26 | Engro Chemical Pakistan Ltd. | Chemical |
| 27 | Fauji Fertilizer Company Ltd. | Chemical |
| 28 | Fauji Fertilizer Bin Qasim Ltd. | Chemical |
| 29 | Ferozsons Laboratories Ltd. | Chemical |
| 30 | Glaxo Smithkline (Pakistan) Ltd. | Chemical |
| 31 | ICI Pakistan Ltd. | Chemical |
| 32 | Nimir Resins Ltd. | Chemical |
| 33 | Pakistan Pta Ltd. | Chemical |
| 34 | Searle Pakistan Ltd. | Chemical |
| 35 | Wah Nobel Chemicals Ltd. (Pub.) | Chemical |
| 36 | Nimir Industrial Chemicals Ltd. | Chemical |
| 37 | Ados Pakistan Ltd. | Engineering/Transport |
| 38 | Agriauto Industries Ltd. | Engineering/Transport |
| 39 | Al-Ghazi Tractors Ltd. | Engineering/Transport |
| 40 | Atlas Battery Ltd. | Engineering/Transport |
| 41 | Atlas Honda Ltd. | Engineering/Transport |
| 42 | Azgard Nine Ltd. | Engineering/Transport |
| 43 | Crescent Steel And Allied Products Ltd | Engineering/Transport |

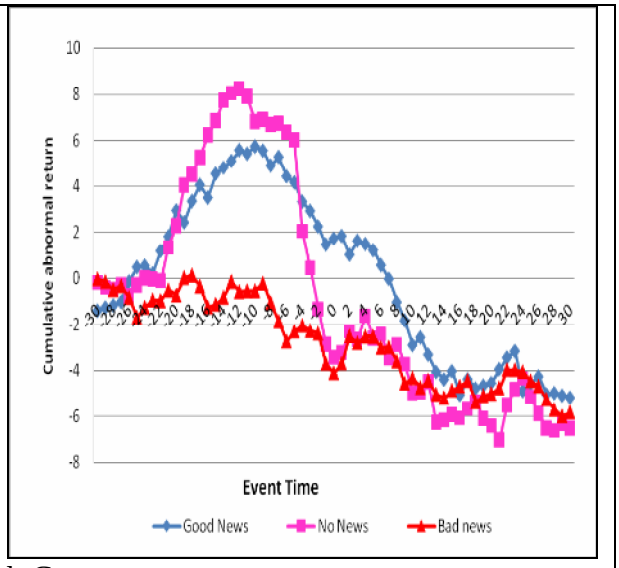
| | | |
|---|---|---|
| 44 | Dewan Farooque Motors Ltd. | Engineering/Transport |
| 45 | General Tyre & Rubber Co. Ltd. | Engineering/Transport |
| 46 | Ghandhara Nissan Ltd. | Engineering/Transport |
| 47 | Ghani Automobiles Ltd. | Engineering/Transport |
| 48 | Hinopak Motors Ltd. | Engineering/Transport |
| 49 | Honda Atlas Cars (Pakistan) Ltd. | Engineering/Transport |
| 50 | Huffaz Seamless Pipe Industries Ltd. | Engineering/Transport |
| 51 | Johnson & Philips (Pakistan) Ltd. | Engineering/Transport |
| 52 | Metropolitan Steel Corporation Ltd. | Engineering/Transport |
| 53 | Millat Tractors Ltd. | Engineering/Transport |
| 54 | Pak Elektron Ltd. | Engineering/Transport |
| 55 | Pak Suzuki Motor Company Ltd. | Engineering/Transport |
| 56 | Pakistan Cables Ltd. | Engineering/Transport |
| 57 | International Industries Ltd. | Engineering/Transport |
| 58 | Ghandhara Industries Ltd. | Engineering/Transport |
| 59 | Ados Pakistan Ltd. | Engineering/Transport |
| 60 | Al-Noor Sugar Mills Ltd. | Sugar |
| 61 | Ansari Sugar Mills Ltd | Sugar |
| 62 | Chashma Sugar Mills Ltd | Sugar |
| 63 | Dewan Sugar Mills Ltd | Sugar |
| 64 | Habib ADM Ltd | Sugar |
| 65 | Habib Sugar Mills Ltd. | Sugar |
| 66 | Haseeb Waqas Sugar Mills Ltd | Sugar |
| 67 | JDW Sugar Mills Ltd. | Sugar |
| 68 | Kohinoor Sugar Mills Ltd | Sugar |
| 69 | Mirza Suggar Mills Ltd | Sugar |
| 70 | Noon Sugar Mills Ltd. | Sugar |
| 71 | Pangrio Sugar Mills Ltd. | Sugar |
| 72 | Sakrand Sugar Mills Ltd. | Sugar |
| 73 | Shahmurad Sugar Mills Ltd | Sugar |
| 74 | Al- Abbas Cement Ltd. | Cement |
| 75 | Attock Cement Pakistan Ltd. | Cement |
| 76 | Cherat Cement Company Ltd. | Cement |
| 77 | Dadabhoy Cement Industries Ltd. | Cement |
| 78 | Dandot Cement Company Ltd. | Cement |
| 79 | Dewan Cement. Ltd. (Pakland Cem. Ltd.) | Cement |
| 80 | Fauji Cement Company Ltd. | Cement |
| 81 | Fecto Cement Ltd. | Cement |
| 82 | Gharibwal Cement Ltd. | Cement |
| 83 | Kohat Cement Ltd. | Cement |
| 84 | Lucky Cement Ltd. | Cement |
| 85 | Maple Leaf Cement Factory Ltd | Cement |
| 86 | Pioneer Cement Ltd. | Cement |
| 87 | Attock Refinery Ltd. | Fuel and Energy |
| 88 | Hub power (don't know) | Fuel and Energy |

| | | |
|---|---|---|
| 89 | Japan Power Generation Ltd. | Fuel and Energy |
| 90 | Kar. Elec. Pow. Sup. Crp. Ltd. (KESC) | Fuel and Energy |
| 91 | Kohinoor Energy Ltd. | Fuel and Energy |
| 92 | Kohinoor Power Company Ltd. | Fuel and Energy |
| 93 | Mari Gas Company Ltd. | Fuel and Energy |
| 94 | National Refinery Ltd. (Pub.) | Fuel and Energy |
| 95 | Pakistan State Oil Company Ltd. (Pub.) | Fuel and Energy |
| 96 | Pakistan Refinery Ltd. | Fuel and Energy |
| 97 | S. G. Power Ltd. | Fuel and Energy |
| 98 | Shell Pakistan Ltd. | Fuel and Energy |
| 99 | Southern Electric Power Co. Ltd. | Fuel and Energy |
| 100 | Baluchistan Glass Ltd. | Miscellaneous |
| 101 | Eco. Pak. Ltd. (Plastobag Ltd.) | Miscellaneous |
| 102 | Emco Industries Ltd | Miscellaneous |
| 103 | Frontier Ceramics Ltd. | Miscellaneous |
| 104 | Ghani Glass Ltd. | Miscellaneous |
| 105 | Gillette Pakistan Ltd. | Miscellaneous |
| 106 | Leather Up Ltd. | Miscellaneous |
| 107 | Murree Brewery Company Ltd. | Miscellaneous |
| 108 | Quice Food Industries Ltd. | Miscellaneous |
| 109 | S. S. Oil Mills Ltd. | Miscellaneous |
| 110 | Packages Ltd. | Miscellaneous |
| 111 | Lakson Tobacco Company Ltd. | Miscellaneous |
| 112 | Pakistan Tobacco Company Ltd. | Miscellaneous |
| 113 | Pak. Tele. Co. Ltd. (PTCL) (Pub.) | Miscellaneous |
| 114 | Pak Datacom Ltd. | Miscellaneous |

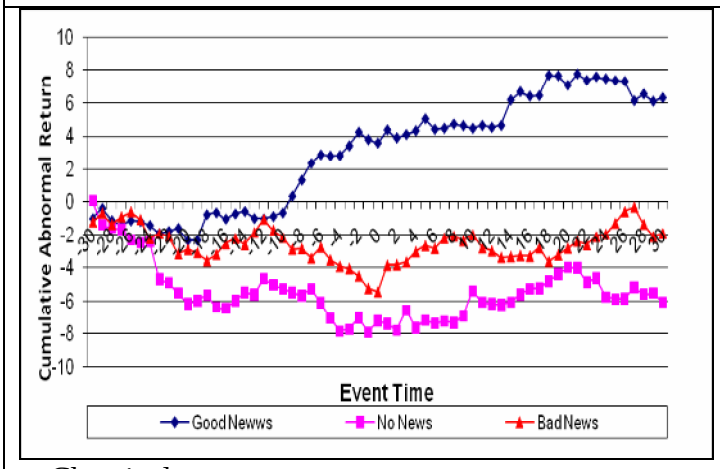
Appendix 3: Figure A3. Sector wise plot of CAR



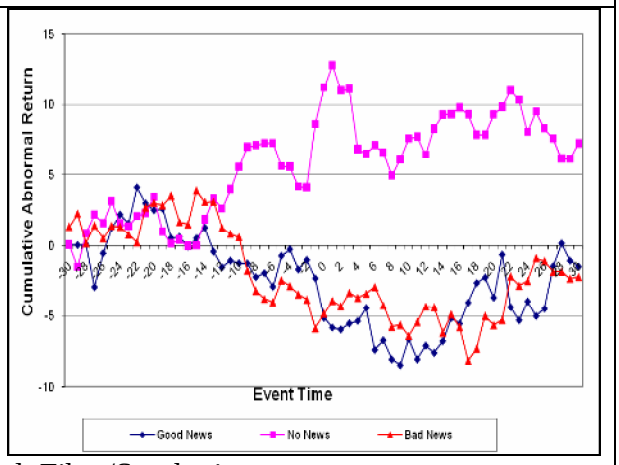

a: Textile




b:Cement

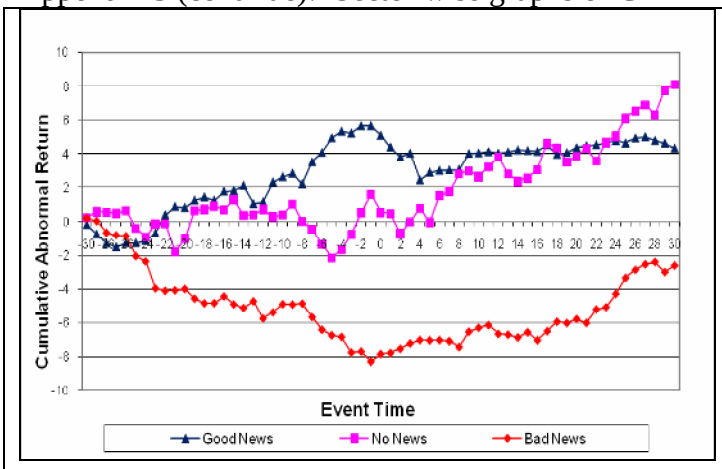



c. Chemical

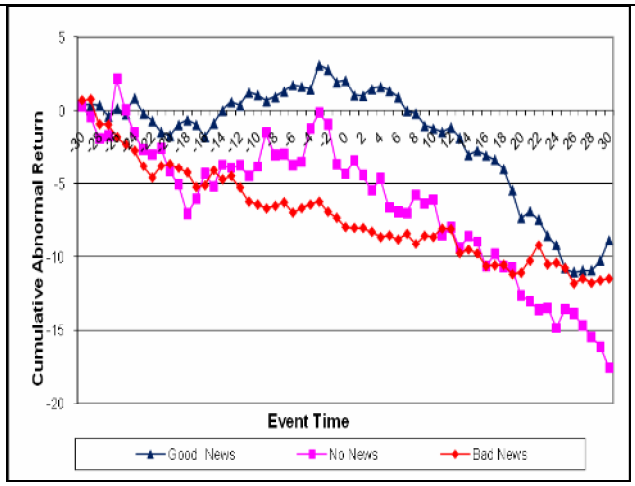



d. Fibre/Synthetic

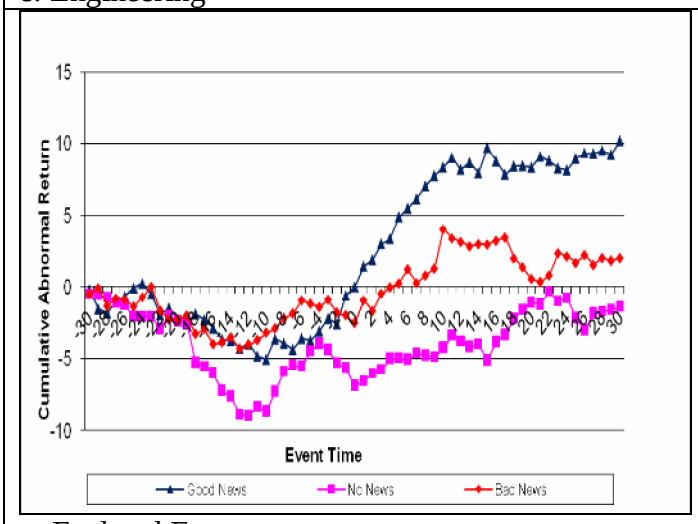
Appendix 3 (continue): Sector wise graphs of CAR



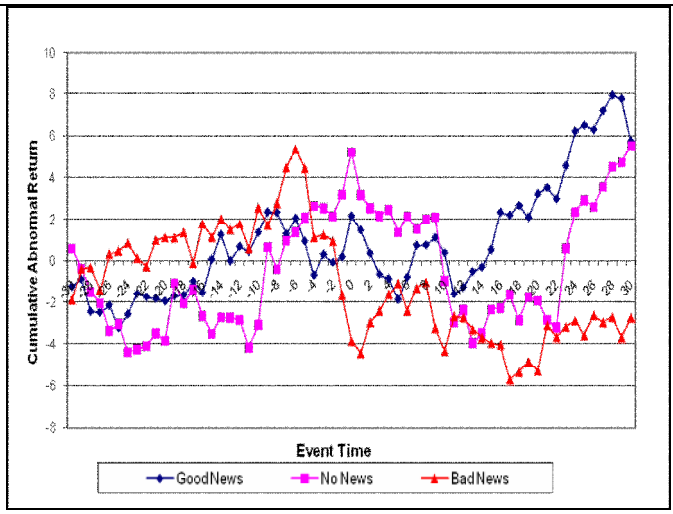

e: Engineering




f: Sugar




g: Fuel and Energy




h: Miscellaneous