

## **Accounting Information and Abnormal Returns: An Empirical Evidence of Pakistani Stock Market**

**Ch. Mazhar Hussain<sup>a\*</sup>, Dr. Arshad Hasan<sup>b</sup>**

<sup>a</sup>Assistant Professor, International Islamic University, Faculty of Management Sciences, Islamabad, Pakistan

[mazhar\\_asghar@yahoo.com](mailto:mazhar_asghar@yahoo.com)

<sup>b</sup>Dean, Muhammad Ali Jinnah University, Islamabad, Pakistan

[arshad.hasan@gmail.com](mailto:arshad.hasan@gmail.com)

### **Abstract**

*The notion of this study is to empirically investigate the accounting information (financial statement data) which is announced in Annual General Meeting (AGM) enter the decisions of investors by analyzing whether current changes in the signals are informative about subsequent changes in stock prices of Karachi stock Exchange (KSE) 30 listed companies from January to December 2010. The study has estimated the abnormal returns by using the market model suggested by Brown and Warner (1985). Study has found strong evidence of announcement of financial results effect on stock prices.*

**Key Words:** Accounting Information, Abnormal Returns, Event Window, Annual General Meeting

### **1. Introduction**

The financial statement data (fundamental signals) effect the decisions of market players who are analyzing the current changes in the signals and also the subsequent changes in them. The fundamental signals, that reflect relations in current accounting data that are supposed to anticipate future earnings changes. The collection of signals, which especially includes information regarding changes in financial statements represent traditional rule of fundamental analysis employed by professional financial analysts to anticipate future company performance.

In an efficient capital market, prices fully and immediately reflect all available relevant information. This means that when financial assets are traded, prices are accurate signals for capital allocation. Hence, in the efficient capital market no investor can earn abnormal returns. Fama (1970, 1976) has explored the idea of capital market efficiency. He segregated the capital market efficiency in three categories. The first one is weak form of efficiency which is defined as if current security prices completely incorporate the information contained in past prices. The second form is semi-strong form efficiency; in this form the current prices incorporate all publically available information. The third form which is strong form efficiency explained that if current prices reflected all public and private information.

The mere relevance between accounting information and existing prices, however, is not sufficient to announce the market efficient with respect to this information. The question arises whether the Annual General Meeting (AGM) date announcement fails to immediately reflect in the share price or not because that is the event in which financial results are announced. Therefore, the analysis of current and past financial statement data to identify when underlying company value differs from prevailing market prices is also a matter of investigation.

The aim of this paper is to empirically investigate the accounting information(financial statement data) which is announced in AGM enter the decisions of investors by analyzing whether current changes in the signals are informative about subsequent changes in stock prices of Karachi stock Exchange (KSE) 30 listed companies from January to December 2010.

This study contributes to the body of work that attempt to describe how current and past information of financial statements translate into company value. This work ascertain specific rules of fundamental analysis supported by straight forward economic reasoning that are not completely reflected in market price. Hence, this study provides knowledge of relations between accounting numbers and company value. Moreover, the paper provides empirical evidence, how efficiently professional financial analyst and prospect investors use the fundamental signals while making their investment decisions.

This paper is organized as follows. In the first section introduction has been discussed. The next section explores the literature review. Section 3 explains the data and methodology. Moreover, section 4 discusses the results. The article concludes with the concluding remarks.

## **2. Literature Review**

This study attempts to explore how current and past outputs of financial reporting systems translate into value of Pakistani listed companies. This sort of work has already done by Ohlson (1995) and Feltham and Ohlson (1995) who follow an analytical approach, and Ou and Penman (1989a, 1989b), Penman (1992), Lev and Thiagarajan (LT) (1993), and Abarbanell and Bushee (AB) (1997) who employ empirical

methodologies. The relations between fundamental signals and contemporaneous price changes reported in prior empirical studies suggest that detailed information captured by accounting provides value relevant information.

The base of this paper is to empirically test the possibility that abnormal stock returns can be earned using fundamental scrutiny. One condition for earning abnormal returns is that the information generated by a fundamental scrutiny anticipated future economic variables that will eventually be incorporated in share price by the market. Prior work by LT introduces a collection of "fundamental signals" that reflect relations in current accounting data that are purported to forecast future earnings changes. They demonstrate the value relevance of these signals by showing they are significantly associated, in the directions predicted, with stock returns calculated contemporaneously with the disclosure of the signals. AB find direct evidence that both future earnings and, to a lesser extent, analysts' forecast revisions of future earnings are significantly associated with several of the signals over the sample period they examine. This direct evidence of a relation between individual signals and future earnings suggests that the observed association between contemporaneous returns and the fundamental signals reflects, in part, the signals' ability to predict value-relevant information.

In 1998, Jeffery S., Abarbanell (JA) and Brain J. Bushee (BB), identify temporary mispricing using fundamanel analysis emphasizes the prediction of future earnings, which is similar to the work done by Ou and Penman (1989). However, JA and BB approach differs from Ou and Penman in two ways. The first one is, Ou and Penman do not identify a priori conceptual arguments for studying any of their explanatory variables or to test competing hypotheses for how they might be related to future earnings. They start with an exhaustive list of accounting ratios that have been used to describe firms' leverage, activity and profitability, and rely on univariate associations between these variables and future earnings changes to limit the number of predictors on which to focus. Nevertheless, their approach retains a fairly large number of explanatory variables, some of which fail to inspire any obvious logic as to why they would be good predictors of future earnings. Moreover, the set of predictors changes from one short estimation period to the next without any follow-up analysis to explain why, making it both difficult to pinpoint the economic forces reflected in these variables and to exploit a consistent strategy across time. In contrast, JA and BB focus on strategy on a small number of variables specifically motivated by arguments for why these signals would be expected, a priori, to be related to future earnings changes. In cases where a hypothesized relation was opposite to that expected, they rely on the results of supplemental contextual analyses performed by AB to justify their attempts to exploit that observed relation in a subsequent period.

Second difference is that Ou and Penman (1989) combine their predictors into a single summary measure, obscuring the individual signals' contribution to earning abnormal returns and limiting the extent of knowledge gained about fundamental analysis. Nevertheless, JA and BB maintained a focus on individual signals throughout their analysis, they evaluated the robustness of each signals' predictive power and explore contextual factors that influence their informativeness. JA and BB believed that such a systematic program of hypothesis development and directed empirical testing is a more effective approach to discriminating among alternative explanations for observed relations.

Ball (1992) and Stober (1992) criticized the strategies that purport to exploit pricing anomalies is that they actually identify changes in expected returns brought on by shifts in unexplained risk factors. Though identification of shifts in firm risk through the practice of fundamental analysis is interesting and deserving of future research attention, if observed "abnormal" returns are solely attributable to a strategy's ability to reflect changes in risk, the traditional arguments for advocating such analyses would not be justified. Therefore, JA and BB explored in their study to assess the extent to which the fundamental signals' association with abnormal returns coincides with their ability to convey information about future earnings rather than shifts in risk.

Lakonishok et al. (1994) and Sloan (1996) argued that the stock prices fail to immediately reflect publicly available information raises a question about the independence of JA and BB evidence from that previously reported pricing anomalies. Many of the fundamental signals studied by JA and BB are comprised of working capital items, suggesting the possibility that returns to the fundamental strategy may be related to the market's failure to recognize that the accrual component of earnings is of lower persistence than the cash flows component, a phenomenon documented by Sloan (1996). JA and BB also conducted robustness tests to confirm that controls for Sloan's accrual anomaly, as well as the book-to-market and size effects, do not impact their results.

### **3. Data and Methodology**

Paper has picked the sample companies from the Karachi Stock Exchange (KSE) for the period from January to December 2010 and KSE 100 index which is used as proxy of the market. The data of daily market prices of each company and daily KSE 100 index has been collected from Karachi Stock Exchange web site. Furthermore, the announcements dates of Annual General Meeting (AGM) have been identified from KSE web site. The event window is set as 5 working days before and 5 days after the

announcement of AGM date of each company. The research is conducted over 1 January 2010 to 31 December 2010 and includes 30 listed companies from different sectors of KSE such as Textile, Auto and Allied, Cables and Electric goods, Cement, Glass and Garemics, Miscellaneous, and Oil and Gas.

### 3.1 Methodology:

The daily compounded returns have been calculated for the scrutiny by using the below mentioned formula:

$$R_{i,t} = \ln (P_t / P_{t-1})$$

Where  $R_{i,t}$  = daily return of the shares on day t and  $\ln$ = natural logarithm.

The return of KSE 100 Index which is used as proxy of the market is calculated by using the following formula:

$$R_{m,t} = \ln (P_t / P_{t-1})$$

Where  $R_{m,t}$  = daily return of the KSE 100 index on day t and  $\ln$ = natural logarithm.

The dates of daily returns of the share of each company have been matched with the dates of daily returns of the KSE 100 Index. The event window is created on the bases of announcement date of AGM of each company which is the event day of announcement of financial results of the company. Following is the Table-1 of announcement date of AGM of each company:

Serial No.	Company Name	AGM date	Serial No.	Company Name	AGM date
1	Al-Qadir Textile	29-10-2010	16	Arpak International Investments	29-10-2010
2	Ali Asghar Textile	27-10-2010	17	Diamond Industries Ltd.	29-10-2010
3	Allah Wasaya Textile	26-10-2010	18	Dream World Ltd.	29-10-2010
4	Agri-autos Industries Ltd.	28-10-2010	19	AKD Capital Ltd.	29-10-2010
5	Climax Engineering Co. Ltd.	29-10-2010	20	Clover Pakistan Ltd.	18-10-2010
6	Johnson & Philips Pakistan	29-10-2010	21	Good Luck Industry Ltd.	28-10-2010
7	Pakistan Cables Ltd.	30-09-2010	22	Attock Refinery Ltd.	29-10-2010
8	DG Khan Cement Ltd.	29-10-2010	23	Mari Gass Company Ltd.	26-10-2010
9	Fauji Cement Ltd.	25-10-2010	24	National Refinery Ltd.	27-10-2010
10	Fecto Cement Ltd.	26-10-2010	25	Pakistan Oil Fields Ltd.	29-10-2010

11	Kohat Cement Ltd.	29-10-2010	26	Shell Pakistan Ltd.	20-04-2010
12	Maple Leaf Cement Ltd.	29-10-2010	27	Sui Southern Gas Ltd.	29-10-2010
13	Ghani Glass Ltd.	29-10-2010	28	Ashfaq Textile Mills Ltd.	29-10-2010
14	Karam Ceramics Ltd.	27-10-2010	29	Prosperity Weaving Mills Ltd.	26-10-2010
15	Al-Khair Gadoon Ltd.	29-10-2010	30	Samin Textile Mills Ltd.	29-10-2010

We have made the estimation window and event window to measuring the share's behavior. In fact, the estimation window is used to predict a model of the share's returns under normal circumstances. For this purpose, we have used market model which was introduced by Brown and Warner (1985). Under this model, we have regressed the share's returns and the returns of the KSE 100 Index. The market model for a share  $i$  can be expressed as follows:

$$E(R_{it}) = \alpha_i + \beta_i * R_{mt}$$

Where  $R_{it}$  and  $R_{mt}$  represent the share and the KSE 100 Index return on day  $t$ , the coefficients  $\alpha_i$  and  $\beta_i$  are estimated by running an ordinary least-square regression over the estimation window.

After calculating the estimated return  $E(R_{it})$ , we have measured the impact of announcement of AGM date on the share's return in the event window. For a particular day  $t$  in the event window which is the AGM date, we have calculated the share's abnormal return ( $AR_{it}$ ) as the difference between its actual return and the return that would be estimated by the following equation:

$$AR_{it} = R_{it} - E(R_{it})$$

Where  $R_{it}$  is the actual stock return in event window day  $t$  and  $E(R_{it})$  is the estimated return by the share's  $\alpha_i$  and  $\beta_i$  and KSE 100 index return. We have interpreted the abnormal return during the event window as a measure of the impact of announcement of AGM date on the market value of the share.

The cumulative abnormal return (CAR) is a measure of the total abnormal returns during the event window. We have calculated the Cumulative Abnormal Return (CAR) for each day ranging from (Day -5) to (Day +5). The formula to calculate the CAR for time  $t$  is mentioned below:

$$CAR_t = \sum_{t=-5, \dots, +5} AR_t$$

ARs have been calculated to see the announcement of AGM date effect on stocks over the event window before and after the event day. Then we have calculated the t-statistics for all days to know that whether the ARs are significantly different from day 0 or not throughout the event window. The t-statistics has been calculated by using the following formula for all AR values.

$$\text{t-statistic (AR)} = \text{AR} / \text{Standard Error}$$

After calculating the ARs and CARs for the days in the event window, average AARs and CAARs for each company for each day in the event window are calculated. Formula used to calculate average AAR and CAAR values are mentioned below:

29

$$\text{CAAR} = \sum_{n=1} \text{CAR}_t / 29$$

CARs have been calculated to see the impact on stocks over the event window before and after the event day. Then Average CAARs have been calculated which is checked by calculating the t-statistics for event window to know that whether the average CAARs are significantly different from day 0 or not throughout the event window. The t-statistics has been calculated by using the following formula for all the average CAR values.

$$\text{t-statistic (CAAR)} = \text{CAAR} / (\sigma/n)$$

where  $\sigma$  = the standard deviation of the time series.

#### 4. Results and Analysis

We have attempted an event study to judge the impact of the announcement of AGM date on the returns of 30 listed companies of KSE, however, the results of one company is discussed here. We first determine the event window as the 205 trading days preceding the 5 days before the announcement on 29<sup>th</sup> October 2010 of Al- Qadir Textile. The regression results indicate the normal behavior of Al- Qadir Textile in the estimation window:

$$E(R_{\text{Al-Qdir},t}) = -0.004730385 + 0.434016961 * R_{\text{KSE100},t}$$

We have also determined the standard error of the regression predicted y-values by running the regression. Furthermore, with the help of this value we measure whether the event's abnormal returns are significant or not.

We have defined the event window as -5 days before and +5 days after the announcement. To measure the impact of the announcement effect in the event window, we use the market model  $E(R_{Al-Qadir,t}) = -0.004730385 + 0.434016961 * R_{KSE100,t}$ . The results show that the announcement of the AGM date of Al-Qadir Textile led to several significant large abnormal returns in the event window. As mentioned earlier, the standard error of the regression prediction is used to measure the significance of the abnormal returns. Before 29<sup>th</sup> October 2010 which is the event day, we can see in the Table-2 on 26<sup>th</sup>, 27<sup>th</sup> and 28<sup>th</sup> October 2010 and after the event day on 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 5<sup>th</sup> November 2010 the t-statistic values are significant at the 95 percent level.

Table-2 Event Window - Al- Qadir Textile

Days	Dates	ER	Abnormal Return	CAR	t -Statistics	Decision
-5	22-Oct-10	-0.00089	0.000894207	0.000894	0.01008001	no
-4	25-Oct-10	-0.00265	-0.15150257	-0.15061	-1.707823779	no
-3	26-Oct-10	-0.00658	0.202696586	0.052088	2.284912073	yes
-2	27-Oct-10	-0.00286	0.242848015	0.294936	2.737521989	yes
-1	28-Oct-10	-0.00754	0.197380446	0.492317	2.224985488	yes
0	29-Oct-10	-0.00623	0.006226208	0.498543	0.070185388	no
1	1-Nov-10	-0.0072	-0.189123071	0.30942	-2.13190363	yes
2	2-Nov-10	0.001144	0.17537641	0.484796	1.976943387	yes
3	3-Nov-10	-0.00735	-0.193323101	0.291473	-2.179248769	yes
4	4-Nov-10	-0.00129	0.001288335	0.292761	0.014522845	no
-5	5-Nov-10	0.002501	0.19816964	0.490931	2.23388174	yes

If the t-statistic is larger than 2.58, its significance level is 1 percent. We can see from the Table-2 that on 27<sup>th</sup> October 2010 the abnormal return is significant at 1 percent level. Furthermore, the stock returns show that the announcement of AGM date had positive impact on its stock returns of Al- Qadir Textile. There may have been some leakage of the information prior to the announcement on 29<sup>th</sup> October 2010. The Graph-1 shows that the Cumulative Abnormal Return (CAR) is highly significant on 28<sup>th</sup> October before the event day and on 29<sup>th</sup> October the event day. The CAR is also highly significant after the event

day on 2<sup>nd</sup> and 5<sup>th</sup> November. In the short period of time measured by this event window, it has been observed that there is positive value creation for Al-Qadir Textile shareholders.

Graph- 1 Event Window - Al- Qadir Textile

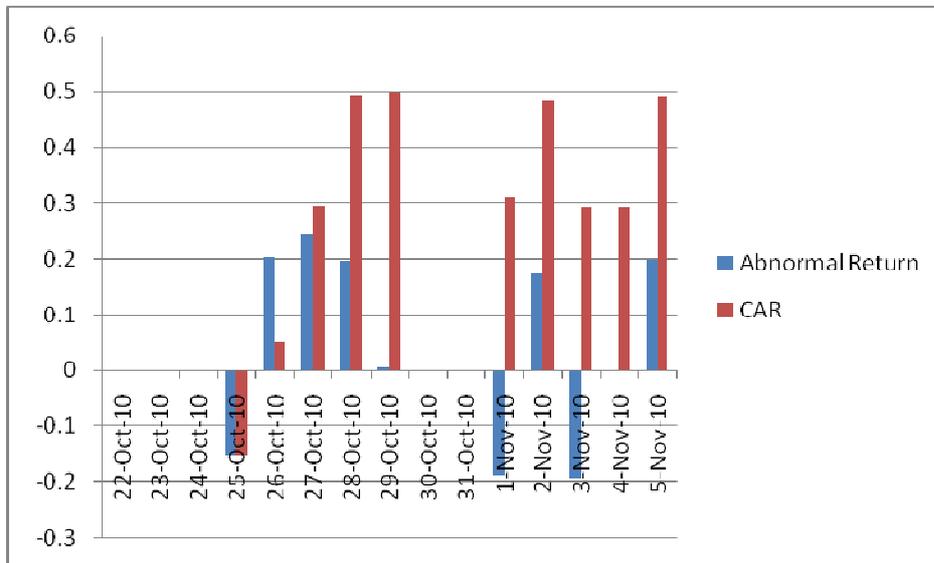


Table-3 Cumulative Abnormal Returns of selected 30 Companies

						Event day						
CAR	-5	-4	-3	-2	-1	0	1	2	3	4	5	
	-0.36944	-0.39923	-0.16867	0.442389	0.743323	-0.1331	-0.06761	0.278716	-0.04963	-0.14793	0.211196	
	-0.62652	-0.38036	-0.23121	0.396795	0.808128	-0.12163	-0.09463	0.328581	-0.02246	-0.14902	0.216087	
	-0.67026	-0.29987	-0.23914	0.39944	0.752587	-0.06121	-0.00758	0.251974	-0.01393	-0.20818	0.196607	
<b>CAAR</b>	-0.19159	-0.42937	-0.03106	0.320385	0.559435	0.012153	-0.10166	0.305163	-0.10035	-0.12781	0.156937	
<b>T-values</b>	<b>-2.76834</b>	<b>-5.64395</b>	<b>-0.55486</b>	<b>6.154332</b>	<b>8.652231</b>	<b>0.426157</b>	<b>-2.24526</b>	<b>5.549205</b>	<b>-2.43691</b>	<b>-4.33103</b>	<b>3.477105</b>	

The Table-3 shows the cumulative abnormal returns and their respective t-statistics for the samples of 30 listed KSE companies. The results indicate that before the event day, (day -5), (day-4), (day-2) and (day-1) show the significant t-statistics values. After the event day, all the t-statistics values are significant. Therefore, it has been seen that CAARs are significantly different from day 0 throughout the event window.

## **5. Conclusion**

The empirical investigation has been conducted on 30 listed companies of KSE stocks and the results reveal that there is strong evidence of announcement of financial results effect on stock prices. Moreover, the analysis shows the significant abnormal returns have been earned by investors after the event day. Furthermore, in some cases there is evidence of leakage of financial results before the event day and that is why investors earn abnormal returns before the announcement of financial results.

Therefore, this study do not supports the efficient market hypothesis. It is concluded that there is no existence of semi-strong market efficient hypothesis in the KSE. Nevertheless, there is impact of announcement of financial signals on the stock prices. In other words it is an anomaly of the efficient market hypothesis. In future, further research can be carried out on South Asian stock exchanges by increasing the sample size to make a comparative study with KSE.

## **REFERENCES**

- Abarbanell, J. 1991. Do analysts' earnings forecasts incorporate information in prior stock price changes? *Journal of Accounting and Economics* 14 (June): 147-165.
- Abarbanell, J, and V. Bernard. 1992. Tests of analysts' overreaction/underreaction to earnings information as an explanation for anomalous stock price behavior. *Journal of Finance* 47 (July): 1181-1207.
- Abarbanell, J, and B. Bushee. 1997. Fundamental analysis, future earnings, and stock prices. *Journal of Accounting Research* 35 (Spring): 1-24.
- Ball, R. 1992. The earnings-price anomaly. *Journal of Accounting and Economics* 15 (June/September): 319-345.
- Ball, R, and P. Brown. 1968. An empirical evaluation of accounting income numbers. *Journal of Accounting Research* 6 (Autumn): 159-178.
- Beaver, W., R. Clarke, and W. Wright. 1979. The association between unsystematic security returns and the magnitude of the earnings forecast error. *Journal of Accounting Research* 17 (Autumn): 316-340.

Bernard, V. 1987. Cross-sectional dependence and problems in inference in market-based accounting research. *Journal of Accounting Research* 25 (Spring): 1-48.

Fama, E., and K. French. 1992. The cross-section of expected stock returns. *Journal of Finance* 47 (June): 427-465.

Fama, E., and J. Macbeth. 1973. Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy* 81 (May/June): 607-636.

Feltham, G., and J. Ohlson. 1995. Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research* 11 (Spring): 689-731.

Holthausen, R., and D. Larcker. 1992. The prediction of stock returns using financial statement information. *Journal of Accounting and Economics* 15 (June/September): 373-411.

Jeffery S., Abarbanell and Brain J. Bushee 1998. Abnormal Returns to a Fundamental Analysis Strategy. *The Accounting Review* 73(January): 19-45

Klein, A. 1990. A direct test of the cognitive bias theory of share price reversals. *Journal of Accounting and Economics* 13 (July): 155-166.

Lakonishok, J., A. Shleifer, and R. Vishny. 1994. Contrarian investment, extrapolation, and risk. *Journal of Finance* 49 (December): 154 1-1578.

Lev, B., and S. R. Thiagarajan. 1993. Fundamental information analysis. *Journal of Accounting Research* 31 (Autumn): 190-215.

Ohlson, J. 1995. Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research* 11 (Spring): 661-687.

Ou, J., and S. Penman. 1989a. Financial statement analysis and the prediction of stock returns. *Journal of Accounting and Economics* 11 (November): 295-330.

Penman, S. 1992. Return to fundamentals. *Journal of Accounting, Auditing and Finance* 7 (Fall): 465-483.

Plumlee, M. 1997. The impact of tax complexity on analysts' effective tax rate forecasts. Working paper, University of Utah.

Pulliam, S. 1997. Bloated inventories at retailers may mean trouble for investors. *Wall Street Journal* (May 21): C1.

Raedy, J. 1997. A reconciliation of stock market anomalies. Working paper, University of North Carolina.

Sloan, R. 1996. Do stock prices fully impound information in accruals about future earnings? *The Accounting Review* 71 (July): 289-315.