Do securities reflect true value?

Mubashar Tanveer [a]
Mohsin Altaf[*]
Ghulam Ali Bhatti[b]
Haroon hussain [c]
Zahid Ali Akbar [d]

Abstract

The purpose of this study is to find the impact of earnings management on EPS and in turn impact of EPS on share price. Data was taken of 13 listed companies of cement sector of Pakistan for the year 2005-2010. Discretionary accruals were used as a proxy of earnings management, measured using Modified Jones Model. Panel data regression was used to analyze the data. Results of the panel data regression showed positive relationships between earnings management and EPS; and between EPS and share prices. Firms observe high share prices when they report high EPS. In reality, high EPS reported by firm is a result of high level of earnings management. It's evident; the EPS on which share prices are determined is not real. Firms manipulate EPS by using earnings management practices. So, shares of cement companies do not reflect true intrinsic value. These results will be useful for investors while making investment decisions. A change in the sector, sample size and the time period of data may give different results. In future, this model can be investigated on some different sector.

Key Words: Earnings Management, EPS, share price, cement sector, Pakistan

*Corresponding author. Contact mohsin.iltaf@gmail.com. Lecturer, Department of Commerce, University of Sargodha, Pakistan.
a. mubashartanveer@yahoo.com Lecturer, Department of Commerce, University of Sargodha, Pakistan.
b. ghulamali_bhatti@yahoo.com Assistant Professor at Department of Commerce, University of Sargodha, Pakistan.
c. ranaharoonhussain@yahoo.com Assistant Professor at Department of Commerce, University of Sargodha, Pakistan.
d. zahidtiwana@yahoo.com Lecturer, Department of Commerce, University of Sargodha, Pakistan.

INTRODUCTION

A share price can be described as the present value of all the future benefits associated with the share. The greater expected future benefits associated with share, the greater its price is. We can describe earnings and dividends as the expected future benefits. This means that earnings and dividend figures are important with respect to share prices. Dasilas, Lyroudi and Ginoglou (2008) found positive reaction of the market to the announcement of dividend and earnings. This information about dividend and earnings act as a signal and the market reacts to it. Share prices depend on demand and supply for shares. The level of demand may change as a result of the market reaction to the information about earnings and dividend. An increase in demand for shares may result in an increase in the share price and vice versa. A change in demand for shares can occur because of numerous factors. What factors affect the share price remained an important topic of research in the past. Docking and Koch (2005) found positive relationship between the dividend increase and the change in share price. Moreover, Al-Tamimi, Alwan and Rahman (2011) found a positive relationship between EPS and stock prices. It's important from the perspective of investor to know the factors that affect share prices in order to take the appropriate investment decision. Investors also want to know whether securities are correctly priced or mispriced. They want to know whether securities reflect true intrinsic value or not. Incorrect identification of securities may be one of the reasons why investors lose their money. This situation can be avoided if investors have more information and know about the relationship of different variables with share price.

Earning is an important financial indicator considered by many stakeholders. Companies report earnings in their financial statements. Different stakeholders make their decisions on the basis of this information. Moreover, investors also determine the attractiveness of companies' shares on the basis of its earnings. Company with poor earnings may have lower

share price as compare to a company with good earnings. Schleicher and Walker (1999) found that investors anticipate earnings changes and respond accordingly. Their response affects the share prices. Moreover, according to Seetharaman and Raj (2011), there is a strong positive correlation between EPS and stock prices.

Investors invest in the stock of firms to get a reasonable return. It is usual for investors to form expectations about firm's earnings. On the other hand, firms also desire to meet the investor's expectations, since failing to this could result in decrease in share price. To report good earnings, companies may use earnings management. When management intervenes in the process of earning determination to achieve some objective, it is said to have done earnings management (Schipper, 1989). In this regard, management manipulates its earnings by playing with accounting standards. Accrual basis of accounting enables a firm's management to manage earnings. Earnings are managed by changing accounting methods and also by changing accounting estimates and policies. In this respect, a company may change its accounting standards to show good short term earnings. Moreover, it can use ways to smooth its earnings by accelerating or delaying recognition of revenues and expenses. In this case earnings become the accounting profits. According to Stein (1989), rational investors expect managers to be involved in earnings management. In addition to this, Burgstahler and Dichev (1997) found firms use earnings management in order to avoid losses and earnings decreases. Moreover, Nelson, Elliot and Tarpley (2002) reported that managers prefer to take actions that increase their current year income. Theoretically, an impact of earnings management on stock prices motivates a firm's management to manage its earnings. Managers sometimes increase their firm's earnings to bring a temporary increase in share price.

The objective of our study is to investigate whether EPS, on which share price is determined, is real or manipulated. We will investigate the impact of earnings management on EPS, and in turn impact of this EPS on share price. Share price is determined on EPS, but if EPS is found to be a manipulated figure as a result of earnings management, it will indicate that securities are not correctly priced. This will be an indication that shares do not represent true intrinsic value. It's important for investors to know whether firms report real EPS or manipulated EPS, because shareholders make their investment decisions on the basis of earnings of firm.

THEORETICAL BACKGROUND
Share Price
According to Fama (1970), stock prices reflect information in efficient markets. Share prices are sensitive to information. Whenever information arises, it spreads in the market and incorporates into the share prices. This proves the importance of information with respect to share prices. Information can take any form. Past literature shows a study on share price by different researchers. Basu (1977) found that low price earnings ratio results in an increase in the share price. Price earnings ratio is one of the predictors of share price. In addition, Schwert (1981) found the announcement of unexpected inflation has a negative impact on stock prices. Stock return decreases with this. Moreover, according to Chan (1990), certain firms experience an increase in the stock price when they announce an increase in their R & D expenditure. Docking and Koch (2005) found the announcement of dividend increase results in a greater change in share price under some assumptions. In addition, Gallizo and Salvador, (2006) found that the book value influences the market value of large and small size firms differently, because of the stability and current profit generating capacity of larger sized firms as compared to smaller sized firms. Moreover, market value growth prospects of a company are greater than its book value. Furthermore, Rees & Twedt (2011) found that intensity of impact of positive earnings surprise is less as compared to downward earning guidance. In other words, positive earnings surprise results in less price change comparatively. In addition to this, Hussainey, Mgbame and Chijoke-Mgbame, (2011) found positive relation between dividend yield and stock price changes. An increase in dividend yield leads to an increase in stock price. Moreover, firm's debt level and earnings cause change in stock price.

Earnings Per Share
Past literature shows that EPS remained a key variable of research for researchers. Howatt, Zuber, Gandar and Lamb (2009) found a

positive relation between the change in dividend and future change in the mean real EPS. EPS is studied by researchers with other variables as well. Chandrakumarmangalam and Govindasamy (2010) found positive relationship between leverage and EPS, which means an increase in leverage level leads to an increase the EPS of firm.

EPS and Share Price

Earnings of companies often reflect the confidence of investors in regards to the future prospects of the company. The earnings of a company may be the most decisive factor through which investor's confidence level may change. The ability of an organization to generate earnings in the future can also play a crucial role in determining stock prices. Oh, Kim and Kim (2006) found con-integration between EPS and stock prices. In addition to this, Obeidat, (2009) found that EPS positively influenced the stock price. Stock prices increase with increase in EPS. Investors consider EPS as important criteria for making decisions. Demand for shares of a firm increases with an increase in its profits. So, when EPS of a firm increases, demand for its share increases, which in turn results in an increase in the share price. On the other hand share price decreases with decrease in EPS. Al-Tamimi, Alwan and Rahman (2011) found a positive impact of EPS on stock prices. On the basis of this literature we hypothesize that

H1= EPS will positively influence the Share price

Earnings Management

Past literature shows that many researchers studied earnings management as a variable in their research. There are many reasons for a firm to be involved in earnings management. Gramlich & Sørensen (2004) found the manager of firms using earnings management to meet the earnings forecast. Managers take earnings forecast as an implicit contract. They think that they are obliged to meet earning forecast and use earnings management as a way to meet these forecasts. Cost of equity capital is another reason of earnings management. Francis et al., (2004) made a point: there exists a negative association between smoothness of earnings and implied cost of equity capital. According to Gore, Pope and Singh (2007), firms manage their

earnings. Firms reduce the impact of large positive and negative earnings changes by using discretionary accruals. Moreover, Madhogarhia, Sutton and Kohers (2009) found that growth firms do more earnings management than value firms because of intense information asymmetries. .

Managerial incentives are also a reason of earnings management. According to Cheng and Warfield, (2005) managers with high equity incentives are more likely to be involved in earnings management, as their motive is to increase the price of shares to be sold in future. Stock based compensation and ownership makes earnings management attractive for managers and increases the probability of its use by managers. Bergstresser and Philippon (2006) found that earnings management increases in case of CEO incentives. Likewise, Cheng, Warfield, and Ye (2011) make the case that Manager's probability for earnings management increases when they have high equity incentive. Sun (2012) found a positive association between earnings management and the use of option grants. This means that option grants induces earnings management. Researchers also suggested a method to reduce the earnings management. Reduction in earnings management is possible through the legal system. According to Leuz, Nanda and Wysocki (2003) there exists a link between legal institutions, private control benefits and quality of reported earnings. Managers are likely to manipulate financial reports for private benefits but legal systems can protect the right of investors.

Earnings Management and EPS

Stability of share price is an important factor. Shareholders can demand a higher rate of return when share prices are more susceptible to uncertainty. A high required rate of return may not be favorable for an organization, so to keep share prices stable and the required rate of return lower, the management of various organizations' often prefers earnings management to smooth its earnings.

Past literature shows a study on earnings management and earnings by different researchers. According to Nelson, Elliot and Tarpley (2002), managers take certain actions that increase their current year income in order to achieve their objectives. As increase in

earnings leads to an increase in share price, managers use earnings management as a tool to increase share prices. Managers manipulate earnings figure by using managing earnings. In this context, Vargus (2002) added a point: managers over report earnings with an intention to sell their own shares. In addition to this, Cheng and Warfield, (2005) found that managers became more interested in increasing future share prices when they have equity incentives. In addition to this; Di, Marciukaityte and Goodwin (2012) found firms sometimes use earnings management to reduce the temporary effects of EPS dilution. Earnings management enables them to manipulate EPS figure. On the basis of this literature, we developed following hypothesis

H2= Earnings management will positively influence the EPS

EPS is also expected to increase as the firm grows. Growth in sales results in more revenues to offset expenses. As a result, earnings increase. Growth also leads to a change in share price (Hussainey et al., 2011). So, we hypothesize that
H3= Growth will positively influence the EPS

Model Driven form Study
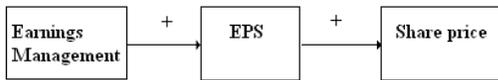
METHODOLOGY
Data Collection
The data of 13 companies of cement sector of Pakistan was taken from the BSA analysis prepared by the State bank of Pakistan. Convenience sampling approach was used to select companies. Market prices of shares of companies were taken from the website of brecorder.

Methodology
As earnings management is investigated through measuring discretionary accruals, we have used cross sectional Modified Jones Model in this respect. This model is as follows:

$$\text{Total Accrual} = \frac{\alpha}{\text{T.Asset}_{(t-1)}} + \beta 1 \frac{(\Delta Rev. - \Delta A/Receivable)}{\text{T.Asset}_{(t-1)}\quad\text{T.Asset}_{(t-1)}} + \beta 2 \frac{(\Delta Plant, Property \&)}{\text{T.Asset}_{(t-1)}}$$

Growth was calculated by taking the log of relative change of sales. Following are two regression equations of our study

EPS= β0+ β1 Earnings Management Efficiency + β2 growth
Share price= β0+ β1 EPS

Panel data regression technique was used due to nature of data. Panel data regression technique has three models. First is common effect model, which assumes that intercept is constant. Second is fixed effect model that assumes that intercept is fixed. Third is random effect model that assumes intercept is random. F-test will be used to decide among use of common or fixed effect model. F-value will be calculated using the following formula

F= {(Rsquare Fixed Effect – Rsquare Common Effect)/N-1}/{(1-Rsquare F.Effect)/(NT-N-K)}

The fixed effect model will be used if calculated F- value is found to be greater than F critical value at 95% confidence interval. In other case common effect model will be used. Hausman test will be used in order to decide among use of fixed or random effect model. If the chi square value is found to be significant (p values less than 0.05), we will reject the hypothesis that random effect model is consistent to use. In this case, we will use fixed effect model. Otherwise, random effect model will be used.

RESULTS
Descriptive Statistics
Table 1 shows Descriptive statistics of the variables
INSET TABLE 1 HERE

Regression Results
In order to investigate the relationship of earnings management and growth with EPS, panel data regression approach was used. F-test was used to make a choice between common effect and fixed effect model. The calculated F value came out to be 4.08, which was less than F-critical value at 95% confidence interval (F critical value = 4.10). So, we accepted the null hypothesis that intercept is constant and decided to use the common effect model. The regression results are as follows.

INSERT TABLE 2 HERE

Regression results showed F statistic value of

6.96. This value is significant as its p-value is 0.0018, which is less than 0.05. These values proved the fitness of our research model. Results showed a significant positive relationship between earnings management and EPS (p-value is less than 0.05). This means that increase in earnings management leads to an increase in EPS. The greater the earnings management, the greater the EPS will be. In addition to this, results also show a significant relationship between growth and EPS because its p- value is less than 0.05. This means that as firm grows, its EPS also increases.

In order to investigate the relationship between EPS and stock price, panel data regression approach was again used.

F-test was used in order to decide among the use of common effect or fixed effect model. When calculated, the F value came out to 9.83, which was greater than F-critical value of 4.84 at 95% confidence interval. On the basis of this, we rejected the hypothesis that intercept is constant and decided to use the fixed effect model. In addition to this, Hausman Test was used in order to decide among the use of fixed or random effect model. The statistic value came insignificant. So, we accepted the null hypothesis that random effect is consistent model to use.

INSERT TABLE 3 HERE

Panel data regression approach was used to analyze the data using the random effect model on the sample of cement industry. Results showed F statistic value of 10.009; which is significant as its p-value is less than 0.05. These values proved the fitness of regression model. Regression results showed a significant positive relationship between EPS and stock price. Its p-value is less than 0.05. This means that an increase in EPS leads to an increase in stock prices.

Positive relationships were found between earnings management and EPS; and between EPS and stock price. This means that increase in earnings management leads to an increase in EPS. This increase in EPS, in turn, increases the stock price. As its evident that firms of cement industry are involved in earnings management. A high EPS is achieved through earnings management at high levels. As stock price reflects the confidence of an investor, investors become more confident when a high EPS is

reported. This in turn leads to a rise in stock price.

CONCLUSION

Results showed positive relationship between earnings management and EPS. This means that increase in level of earnings management leads to an increase in EPS. Moreover positive relationship was also found between EPS and share price. This result in consistent with the results of Obeidat, (2009); Seetharaman and Raj (2011); Al-Tamimi, Alwan and Rahman (2011). On the basis of this result, we can conclude that an increase in EPS will bring an increase in share price of firm. On the other hand a decrease in EPS will result in a decrease in the share price of a firm.

Since positive relationships were found between earnings management and EPS; and between EPS and stock price, we know an increase in earnings management leads to an increase in EPS. This increase in EPS, in turn, increases the stock price. In other words, an increase in earnings management leads to an increase in stock price. As its evident that firms of cement industry are involved in earnings management. High EPS is achieved through earnings management at high level. As stock price reflects the confidence of investor, investors become more confident when a high EPS is reported. This in turn leads to a rise in the stock price. We can say that shares of cement companies do not reflect their true intrinsic value. Share prices are determined on firm's earnings, which is a manipulated figure achieved through earnings management. As EPS of cement companies are not the actual figures, share prices of such companies determined on the basis of manipulated EPS values are also incorrect. They don't represent the true value. Moreover, any investment decision made by investor on EPS value of cement companies is incorrect.

LIMITATION

Changes in sector, sample size and time period of data may give different results.

REFERENCES

Burgstahler, D. & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses.

Journal of Accounting and Economics, 24, 99-126.

Chan, S. H. (1990). Corporate research and development expenditures and share value. *Journal of Financial Economics*, 26(2), 255-276.

Chandrakumarmangalam, S. & Govindasamy, P. (2010)**.** "Leverage" – An Analysis and its Impact on Profitability with Reference to Selected Cement Companies in India. *European Journal of Economics, Finance and Administrative Sciences,* ISSN 1450-2275, (27)

Cheng, T. & Warfield, Z. (2005). Equity Incentives and Earnings Management. *The Accounting Review,* 80(2), 441-476.

Cheng, Q., Warfield, T. & Ye, M. (2011). Equity incentives and earnings management: Evidence from the banking industry. *Journal of Accounting, Auditing and Finance*. 26(2), 317-349.

Dasilas, A., Lyroudi, K. & Ginoglou, D. (2008). Joint effects of interim dividend and earnings announcements in Greece. *Studies in Economics and Finance*, 25(4), 212 – 232.

Di, H., Marciukaityte, D. & Goodwin, E. A. (2012). EPS dilution after SEOs and earnings management. *Managerial Finance*, 38(5), 485 – 507.

Docking, D. S. & Koch, P. D. (2005). Sensitivity of investor reaction to market direction and volatility: Dividend change announcements. *Journal of Financial Research*, 28(1), 21–41.

Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, 25, 383-417.

Francis, J., Lafond, R., Olsson, P. M. & Schipper, K. (2004). Cost of Equity and Earnings Attributes. *The Accounting Review*, 79(4), 967-1010.

Gallizo, J. L. & Salvador, M. (2006). Share prices and accounting variables: a hierarchical Bayesian analysis.

Review of Accounting and Finance, 5(3), 268 – 278.

Gore, P., Pope, P. F. & Singh, A. K. (2007). Earnings management and the distribution of earnings relative to targets: UK evidence. *Accounting and Business Research*, 37 (2), 123-149.

Gramlich, J. D. & Sørensen, O. (2004). Voluntary Management Earnings Forecasts and Discretionary Accruals: evidence from Danish IPOs. *European Accounting Review*, 13(2), 235-259.

Howatt, B., Zuber, R. A., Gandar, J. M. & Lamb, R. P. (2009). Dividends, earnings volatility and information. *Applied Financial Economics*, 19(7), 551-562

Hussainey, K., Mgbame, C. O. & Chijoke-Mgbame, A. M. (2011). Dividend policy and share price volatility: UK evidence. *The Journal of Risk Finance*, 12(1), 57 – 68.

Leuz, C., Nanda, D. & Wysocki, P. D. (2003). Earnings Management and investor protection: an International comparison. *Journal of Financial Economics,* 69, 505-527.

Madhogarhia, P., Sutton, N. K. & Kohers, T. (2009). Earnings management practices among growth and value firms. *Applied Financial Economics*, 19(22), 1767-1778.

Nelson, M. W., Elliot, J. A. & Tarpley, R. L. (2002). Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review*, (77), 175-202.

Obeidat, M. I. (2009). The Internal Financial Determinants of Common Stock Market Price: Evidence from Abu Dhabi Securities Market. *Journal of Economic and Administrative Sciences*, 25(1), 21 – 46.

Oh, K. Y., Kim, B. & Kim, H. (2006). An empirical study of the relation between stock price and EPS in panel data: Korea case. *Applied Economics*, 38(20), 2361-2369.

Schipper, K. (1989). Earnings management. *Accounting Horizons,*

3(4), 91-102.

Schleicher, T. & Walker, M. (1999). Share price anticipation of earnings and management's discussion of operations and financing. *Accounting and Business Research*, 29(4), 321-335.

Schwert, G. W. (1981). The Adjustment of Stock prices to Information about Inflation. *The journal of Finance*, XXXVI (1)

Seetharaman, A. & Raj, J. R. (2011). An empirical study on the Impact of Earnings per share on stock prices of a Listed Bank in Malaysia. *The International Journal of Applied Economics and Finance*, 5(2), 114-126.

Stein, J. C. (1989). Efficient Capital Markets, Inefficient firms: A Model of Myopic Corporate Behavior. *The Quarterly Journal of Economics,* 104(4), 655–669.

Sun, B. (2012). Corporate governance, stock options and earnings management. *Applied Economics Letters*, 19(2), 189-196.

Rees, L. & Twedt, B. (2011). The stock price effects from downward earnings guidance versus beating analysts' forecasts: which effect dominates?. *Accounting and Business Research*, 41(2), 95-118.

Vargus, M. (2002). Insider trading, earnings quality and accrual mispricing. *The AccountingReview,* 77(4), 755–791.

Table 1: Descriptive Statistics

	EPS	Earnings Management	Growth
Mean	2.258	0.01027	-0.0335
Median	0.41	0.00802	0.04969
Maximum	19.31	0.03805	0.65425
Minimum	-12.74	0.00054	-2.8941
Std. Dev.	6.24381	0.00812	0.50602
Skewness	0.76817	1.04906	-2.9154
Kurtosis	3.52805	3.81227	16.9866
Observations	65	65	65
Cross sections	13	13	13

Table 2: Regression Results Earnings Management and EPS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.080204	1.152298	-0.069603	0.9447
Earnings management	240.1873	88.43341	2.716024	0.0086
Growth	3.836342	1.41816	2.705155	0.0088
R-squared	0.18348	F-statistic		6.966014
Adjusted R-squared	0.157141	Prob(F-statistic)		0.001866

Dependent Variable: EPS

Table 3: Regression Results EPS and Share price

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq.Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.593654	1	0.1073

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EPS	1.462306	1.788728	0.041082	0.1073

Random effect Model Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	33.91044	7.679998	4.415423	0
EPS	1.788728	0.558355	3.203567	0.0021
R-squared	0.1371	F-statistic		10.00964
Adjusted R-squared	0.123403	Prob(F-statistic)		0.002397

Dependent Variable: Stock price