

# Earnings Management Behavior: A Study on the Cement Industry of Bangladesh

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## Abstract

This study has been done with the aim to identify whether there is any earnings management in the financial information of the cement industry in Bangladesh. Data have been composed from the annual reports of listed cement companies in Bangladesh covering the period of five years from 2009 to 2013. A comparative time series analysis has been done along with the help of Beniesh Model. The study reveals that some companies involved with the earnings manipulation because there are signs of highly volatile revenue and operating profit. Since the scope of this study is to find out whether there any earnings management exists, an enormous scope for further researches are possible in this area to find out the factors influencing to earnings manipulation in the cement industry in Bangladesh.

**Keywords:** Earnings Management, Beniesh Model, Reasons of Earnings Management, Cement Industry of Bangladesh

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## Introduction

Earnings management is a crucial matter for the shareholder because earnings of an entity are taken as a benchmark to make decisions by the shareholder as well as prospective investors, lenders, suppliers, regulators, taxing authorities etc. But it seems that earnings management has increased worldwide to deception. That is why this study

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is concerned to investigate if there is any earnings management in the corporate level in Bangladesh. The objectives of the study are: i) to explore earnings management behavior on the basis of quality of earnings and quality of revenue. ii) To analyze the volatility of income. iii) to calculate the manipulation score with the help of Beneish probit model.

## Literature Review

Earnings management is an intentional (the intention may be good or bad) misrepresentation of financial data to fulfill a desired goal and to do this there may be deviation from GAAP or not. According to (Schipper, 1989), "Earnings management, in accounting, is the act of intentionally influencing the process of financial reporting to obtain some private gain." Healy and Wahlen define that earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers (Healy & Wahlen, 1999). In other research (Mulford & Comiskey, 2002) explain the earnings management as the active manipulation of earnings toward a predetermined target, which may be set by management, a forecast made by analysts, or an amount that is consistent with a smoother, more sustainable earnings stream. Early research finds that companies more often overstate than understate their earnings. An investor may foresee earnings misreporting, as manipulators have a similar profile (e.g., more leveraged and with lower sales). However, he may receive valuable information from the audit adjustment on the size of earnings misstatement, which can be significantly large (i.e., material in almost all cases (Amat, Elvira, & Platikanova, 2008).

The motivations or reasons for earnings management are various types. Companies manage earnings to window-dress financial statements prior to the public securities' offering (Teoh, Welch, & Wong, 1998). (Payne & Robb., 1997) find the reason is to meet the expectations of financial analysts and investors or public earnings forecasts released by the management. (Healy P. M., 1985) shows the reason of manipulation is to increase corporate managers' compensation and job security. (Sweeny, 1994) and (Defond & Jiambalvo, 1994) find the reason of manipulation is to avoid violating lending contracts. In other research, (Jones, 1991) explains the reasons for earnings management are to reduce regulatory costs or to increase regulatory benefits. Recently (Mulford & Comiskey, 2002) state the earnings management as one kind of financial number game and the potential rewards for playing the financial numbers game can be substantial. Included among them are positive share-price effects, lower borrowing costs and less-stringent financial covenants, boosted profit-based bonuses, and reduced political costs. (Dechow, Sloan, & Sweeney, 1996) find that an important motivation for earnings manipulation is the desire to attract external financing at low cost and to avoid debt covenant restrictions. They show that this motivation remains significant after controlling for contracting motives proposed in the academic literature. They also discover that firms manipulating earnings are: (i) more likely to have boards of directors dominated by management; (ii) more likely to have a Chief Executive Officer who simultaneously serves as Chairman of the Board; (iii) more likely to have a Chief Executive Officer who is also the firm's founder, (iv) less likely to have an audit

committee; and (v) less likely to have an outside block-holder. Finally, they document that firms manipulating earnings experience significant increases in their costs of capital when the manipulations are made public. Surveys performed by (ISA, 2011) reveals the incentives of the manipulation financial information are follows: Influencing the shares' prices, compliance with debt covenants clauses, managers' salaries and bonuses, minimizing of certain costs from political or organizational reasons, decrease of the due taxes quantum, providing the better performance in the future for company's financial pictures. The main benefit of the financial information is to reduce the financial cost of companies' projects. On the other hand one of the incentives of the manipulation financial information is to obtain resources with reduced financial cost. (Kellogg & B., 1991) find two reasons for fraud, misrepresentation, and manipulation in financial statements; i) to encourage investors to buy an interest in a company's stock as owners, or in bonds as creditors and ii) to increase the value of the stock of present shareholders of the company. So the earnings management occurs for a variety of reasons, including to influence stock market perceptions, to increase management's compensation, to reduce the likelihood of violating lending agreements, and to avoid regulatory intervention (Healy & Wahlen, 1999). Other research also finds the agency costs, political costs, and the ownership structure is the most important variables that influence a manager's decision to misstate earnings (Beattie, et al., 2002). (Richardson, Tuna, & Wu, 2002) say, "We find that firms restating earnings have high market expectations for future earnings growth and have higher levels of outstanding debt. We also find that a primary motivation for the earnings manipulation is the desire to attract external financing at a lower cost. Furthermore, our evidence suggests that restating firms have been attempting to maintain a string of consecutive positive earnings growth and consecutive positive quarterly earnings surprises. Together, our evidence is consistent with capital market pressures acting as a motivating factor for companies to adopt aggressive accounting policies. Finally, we document that information in accruals, specifically, operating and investing accruals, are key indicators of the earnings manipulation that lead to the restatement. Collectively, the evidence suggests that market participants can gain substantial value from a careful consideration of information in financial statements."

Earnings management is done by using various ways. Companies use some special case for earnings management; such as, storing earnings for future years, big bath, special charges, purchased in-process research and development, changing the accounting methods, changing the estimations etc. (Mulford & Comiskey, 2002). (Dechow, Sloan, & Sweeney, 1996) verify that the firm-years investigated by the SEC display managed earnings using constructs developed in the academic literature. For example, these firms employ more income-increasing accounting procedures, have higher total accruals, and have higher estimated discretionary accruals. Imprecise standards and/or unstructured transactions help managers gain in reporting flexibility i. e. earnings overstatements and earnings understatements (Nelson, 2002).

The consequences of earnings management may be good or bad. (Dechow, Sloan, & Sweeney, 1996) show the identification as an earnings manipulator is associated with an increase in the bid-ask spread, a drop in analyst following, an increase in short interest, and an increase in the dispersion of analysts' earnings forecasts. These findings are consistent with investors revising downward their beliefs about both the firms' future

economic prospects and the credibility of the firms' financial disclosures. Thus, their results suggest that while unidentified earnings manipulators enjoy lower costs of capital, identification as an earnings manipulator is associated with substantial increases in the cost of capital. According to (Friebel & Guriev, 2005), earnings manipulation does not only redistribute value and raises the cost of capital; it also destroys value. Whenever a CEO has short-term incentives and inflates earnings, there is a risk of whistleblowing. Hence, top management may have to share with subordinates to reduce the risk of information leakage to the outside world. This may take a form of bargaining over a monetary or non-pecuniary bribe, like promotions, or propagation of short-term incentives throughout the hierarchies. As the subordinates are more likely to obtain sensitive information when their own performance is low, earnings manipulations distort internal incentives.

To prevent earnings management there should be precaution measures. If taxable income were linked to accounting income, there will exist an automatic safeguard against manipulation of earnings within the analyzed. Separating taxable income from accounting income will remove this self-controlled mechanism, and accordingly create a need for separate countermeasures to prevent earnings manipulation (Eilifsen, Knivsfla IV, & Sættem, 1999). Companies which manipulate their financial information benefit materially in short-term but in long-term companies are suffering also. Human interests are playing very important role in this case. A very negative or positive action is connected to human beings. Of course detecting or preventing all frauds in financial statements is rather difficult. At least control mechanism may reduce the number of fraud cases (ISA, 2011).

Earnings management practice can be identified by using various models. Among them the most popular model is *Beneish Model* developed by Professor Messod Daniel Beneish. Basically this is an accounting-based model which has strong out-of-sample power not only to detect fraud, but also to predict cross-sectional returns. Firms with a higher probability of manipulation (MSCORE) earn lower returns in every decile portfolio sorted by: Size, Book-to-Market, Momentum, Accruals, and Short-Interest. We show that the predictive power of MSCORE is related to its ability to forecast the persistence of current-year accruals, and is most pronounced among low-accrual (ostensibly high earnings-quality) stocks. Most of the incremental power derives from measures of firms' predisposition to manipulate, rather than their level of aggressive accounting (Beneish, Vargus, & Press, 2012).

### **Methodology of the Study**

This study has taken the data of the cement companies of Bangladesh but there should not be any concern that the cement companies have done any scandal by doing earnings manipulation; just cement industry has been taken randomly among other sectors of industry in Bangladesh to test whether there is any earnings manipulation or not.

The data for this study consists the financial statements of the Cement Companies listed in the Dhaka Stock Exchange (DSE) throughout the period of 5 years from 2009

to 2013 collected from the Annual Reports of the Companies. The names of the companies has mentioned in the table 1.

Table 1; Name of the Cement companies

Companies' Name	Abbreviation
Aramit Cement	ARAMITCEM
Confidence Cement	CONFIDCEM
Heidelberg Cement Bd.	HEIDELBCEM
Lafarge Surma Cement Ltd.	LAFSURCEML
Meghna Cement	MEGHNACEM
M.I. Cement Factory Limited	MICEMENT

To explore earnings management behavior the study has analyzed the quality of earnings (the percentage of operating cash flows to net income) and the quality of revenue (the percentage of collection of sales in cash).

To analyze the volatility of income which is an indication of the business risk, the Standard Deviation tool has been used.

To calculate the manipulation score the Beneish Probit model (established by Professor Messod Beneish, 1999) has been used. This is a probabilistic model, so it will not detect manipulations with 100% accuracy. The M-Score has been used to determine if the companies have manipulated earnings. It's a formula which uses data from a company's financial reports. Companies with a higher score are more likely to be manipulators. The M score can be obtained by using eight variables model or five variables model. The five variables model has been used in this study which is given below:

$$M\text{ Score} = -6.065 + 0.823 \times DSRI + 0.906 \times GMI + 0.593 \times AQI + 0.717 \times SGI + 0.107 \times DEPI$$

Where, DSRI means Days' sales in receivable index which measures whether changes in receivables are in time with changes in sales and can be calculated as:

$$DSRI = \frac{\frac{\text{Net Receivables}_t}{\text{Sales}_t}}{\frac{\text{Net Receivables}_{t-1}}{\text{Sales}_{t-1}}}$$

GMI means Gross margin index which assesses whether gross margins have deteriorated, a negative signal about a firm's prospects and can be calculated as:

$$GMI = \frac{\frac{Sales_{t-1} - COGS_{t-1}}{Sales_{t-1}}}{\frac{Sales_t - COGS_t}{Sales_t}}$$

AQI means Asset quality index which measures changes in the risk of assets realization, with an increase to be interpreted as indicating an increased propensity to capitalize and therefore defer costs and can be calculated as:

$$AQI = \frac{\frac{1 - (Current Assets_t + PP \& E_t)}{Total Assets_t}}{\frac{1 - (Current Assets_{t-1} + PP \& E_{t-1})}{Total Assets_{t-1}}}$$

SGI means Sales growth index which measures growth in sales with respect to previous year to find out whether company is adding fake sales and can be calculated as:

$$SGI = \frac{Sales_t}{Sales_{t-1}}$$

DEPI means Depreciation Index and can be calculated as:

$$DEPI = \frac{\frac{Depreciation_{t-1}}{PP \& E_{t-1} + Depreciation_{t-1}}}{\frac{Depreciation_t}{PP \& E_t + Depreciation_t}}$$

An M-Score of less than -2.22 suggests that the company will not be a manipulator. An M-Score of greater than -2.22 (i.e., less of a negative) signals that the company is likely to be a manipulator.

## Analysis and Discussions

### *Quality of Earnings*

The Quality of Earnings is computed in table 2 and shown in graph 1, as follows:

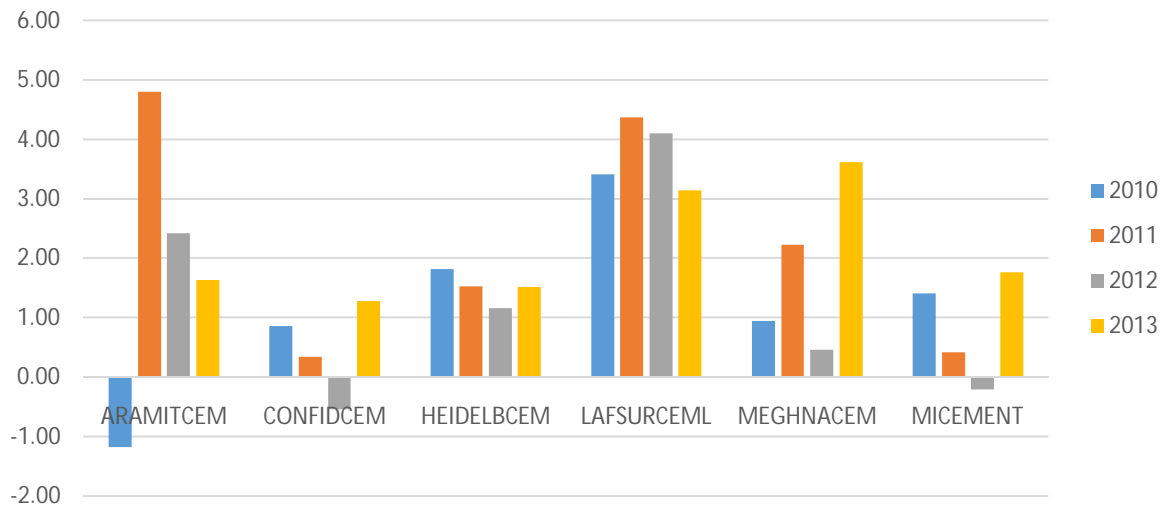
Table 2: Quality of Earnings

	2010	2011	2012	2013
ARAMITCEM	-1.17	4.81	2.42	1.64
CONFIDCEM	0.86	0.35	-0.54	1.29
HEIDELBCEM	1.82	1.53	1.16	1.52
LAFSURCEML	3.15	4.11	4.38	3.42
MEGHNACEM	3.62	0.46	2.23	0.95

MICEMENT	1.77	-0.20	0.42	1.41
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Source: Annual report (2009-2013)

In the context of quality of earnings of the selected companies, the quality of earnings of Aramit Cement, Confidence Cement, Meghna Cement, and M.I. Cement Factory is not stable i. e., there is a volatility in their earnings. In the context of Aramit Cement the quality of earnings is very low in 2010 but rising rapidly in 2011. So there is a high volatility in the Aramit Cement's earnings. In the context of Confidence Cement the quality of earnings is positive in 2011 but negative in 2012. So there is an unstable situation in the quality of earnings of Confidence Cement. In the context of Meghna Cement the quality of earnings in 2012 is comparably much lower than in 2010. In the context of M I Cement the quality of earnings is negative in 2011 but it was comparably higher positive in 2010. So there may be an earnings management in the financial statement of M I Cement.



Graph 1: Quality of Earnings

### Quality of Revenue

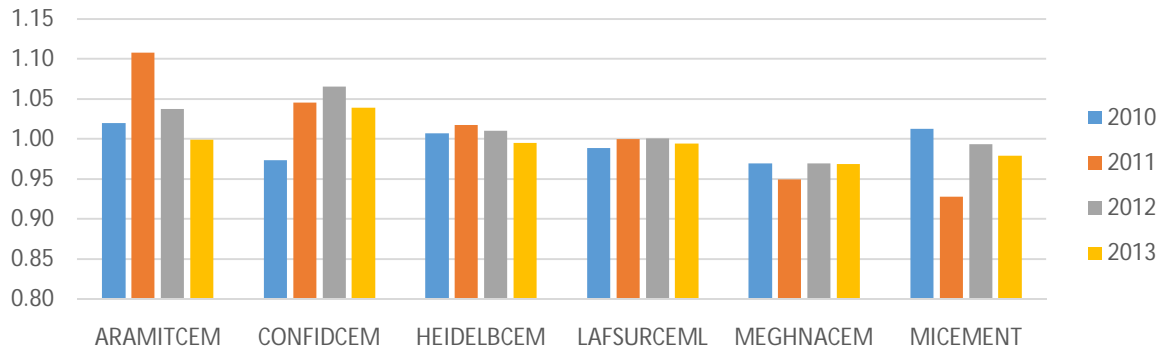
The Quality of Revenue is computed in table 3 and shown in graph 2, as follows:

Table 3: Quality of Revenue

	2010	2011	2012	2013
ARAMITCEM	1.02	1.11	1.04	1.00
CONFIDCEM	0.97	1.05	1.07	1.04
HEIDELBCEM	1.01	1.02	1.01	0.99
LAFSURCEML	0.99	1.00	1.00	0.99
MEGHNACEM	0.97	0.97	0.95	0.97
MICEMENT	0.98	0.99	0.93	1.01

Source: Annual report (2009-2013)

Quality of revenue of the cement companies was unstable over the years especially in the context of Aramit Cement, Confidence Cement and M I Cement. The reason of this volatility may be the large credit period or delayed collections of sales in the cement industry.



Graph 2: Quality of Revenue

### *Volatility of Operating Income*

The volatility of operating income is computed in table 4 and shown in graph 3, as follows:

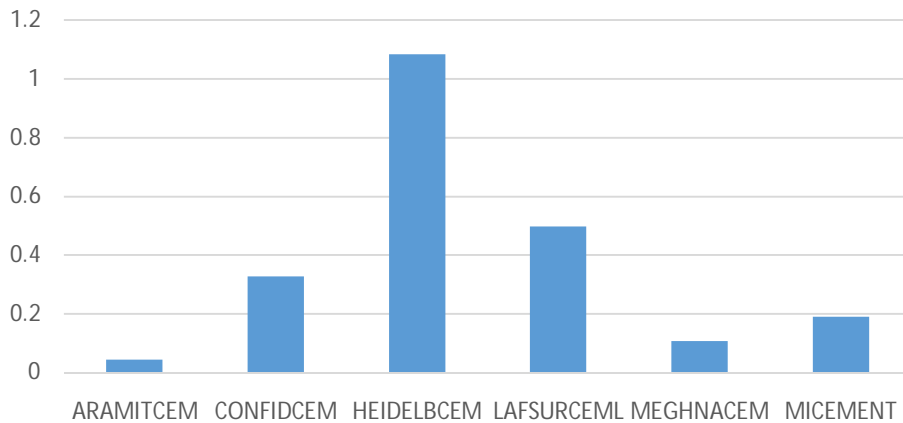
Table 4: Volatility of Operating Income

ARAMITCEM	0.04
CONFIDCEM	0.33
HEIDELBCEM	1.08
LAFSURCEML	0.50
MEGHNACEM	0.11
MICEMENT	0.19

Source: Annual report (2009-2013)

There is a volatility of income in every company. From the graph, it is shown that Heidelberg Cement has the highest volatility, the second highest is Lafarge Surma Cement.





Graph 3: Volatility of Operating Income

*Manipulation Score with the Beneish Probit Model*

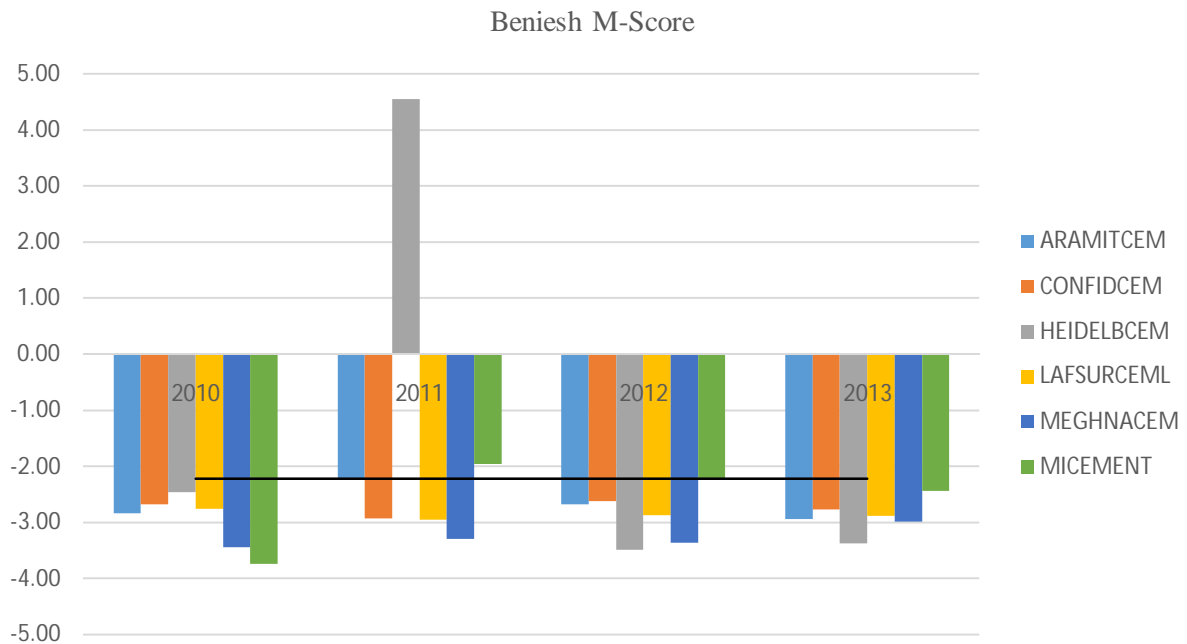
The manipulation score is computed in table 5 and shown in graph 4, as follows:

Table 5: Manipulation Score

M-Score				
	2010	2011	2012	2013
ARAMITCEM	-2.83	-2.23	-2.67	-2.93
CONFIDCEM	-2.67	-2.93	-2.61	-2.76
HEIDELBCEM	-2.46	4.55	-3.48	-3.36
LAFSURCEML	-2.87	-2.87	-2.94	-2.75
MEGHNACEM	-2.97	-3.36	-3.29	-3.43
MICEMENT	-2.44	-2.22	-1.95	-3.73

Source: Annual report (2009-2013)

The above table shows that in 2011 and 2012 there was earnings manipulation in the Heidelberg Cement and M.I. Cement respectively because there was inconsistency in their earnings from one period to another period. However it does not imply that all the companies in the cement industry are engaged in earnings management.



Graph 4: Manipulation Score

## Conclusions and Recommendations

Finally this study reveals that there are earnings management practices in some extent in the financial statements of the cement industry in Bangladesh. Since the scope of the study is to investigate whether there is any earnings management, the study does not ensure why they are adopting this creative accounting. There may be good or bad purpose for every manipulation. Earnings management should be avoided when there is intention of fraudulence because in short-term there may be benefit from this but in the long run there may be chaos for the company. If the earnings management is for providing value to shareholders then it is accepted. No one should create artificial accounting entries or stretch estimates beyond a point of reasonableness. Management should not be given any scope to engage them in taking the incentive for beating the benchmark performance because such practice stimulate them to fraud by doing earnings management with immoral purpose.

## Future Directions

This study does not reveal the reasons and purpose of the management for doing earnings management. It is important to find out how they doing such earnings management and what the purposes of their earnings management are. So the further research can be done to find out in which variables they are using to manage earnings and which factors stimulate them when they adopt earnings management in disclosing their financial statements.

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