Determinants of Capital Structure: An Empirical Study on Cement Industry in Bangladesh

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ABSTRACT

Due to capital intensive country cement industry requires huge amount of funds to organize a business and for further expansion of its capacity. The Capital structure of this industry shows unique features. The Debt ratio is taken to examine the impact of high or low the overall capital structure. Impact on the debt ratio is measured by five independent variables i.e. tangibility, profitability, size, growth, and tax. Spearman's correlation coefficient, multiple regression model, and t-statistics are used as statistical tools. The result suggests that profitability and growth have a significant impact on dependent variable (debt ratio) but they are negatively correlated, size, and tax has no significant impact on debt ratio.

Keywords: Leverage, Capital Structure, Tangibility, Profitability, Size, and Growth

INTRODUCTION

Capital structure is one of the most complex areas of financial decision making because of its interrelationship with other financial decision making. It centers many other decisions in financial management of any company. It tends to focus on financing firm's assets through both equity and debt. It includes project financing, long term securities issues, financing of mergers & acquisitions, dividend policy and so on. Poor capital structure decisions can result in a high cost of capital, thereby lowering the net present value of a project and making more of them unacceptable. Effective capital structure decision can reduce the cost of capital, resulting the higher net present values and more acceptable projects- and thereby increasing the value of the firm.

There are extensive literature, theories and models for facilitating capital structure decisions. Modigliani and Miller (1958) have a great influence which pointed out the prospects of profits and risk inherited to firm's assets, determined its market value and it decided to manage its investments or distribution of dividend independently. Kepping in view, Company or any firm may select from different procedures to finance its projects, these are: a matter of borrow or spend profits and shares to be issued. It involves complexity in assuming and implies on the fact that no matter a firm supports its assets with equity or debt, which is supported by many unrealistic assumptions. The finance world is receiving new literature/ models every year from the researchers / academicians either in the new form or expansion of existing models. After the Modigliani-Miller (1958 and 1963) paradigms of firm's capital structure and their market values, there have been considerable debates, both in theoretical and empirical researches on the nature of relationship that exists between a firm's choice of capital structure and its market value.

Debates have centered on whether there is an optimal capital structure for an individual firm or whether the proportion of debt usage is relevant to the individual firm's value (Baxter, 1967), Although there have been substantial research efforts devoted by different scholars in determining what seems to be an optimal capital structure, yet there is no universally accepted theory throughout the literature explaining the debt-equity choice of firms. But in the last decades, several theories have emerged explaining firm's capital structure and resultant effects on their market values. These theories include Peacking Order Theory, Static Trade-off Theory, and Signaling theory.

The Cement industry is a capital intensive industry that needs a huge amount of capital to install its plant and equipment as well as for its raw materials. It is an adjunct of industrialization in the country. For a developing country like Bangladesh, cement industry has a lucrative future. The government is looking to invest in infrastructure while encouraging FDI in secondary sector. In addition, the standard of living of the population is increasing giving rise to demand for Real Estate. Bangladesh Cement industry is the 40th largest market in the world. The management of this industry has to take the capital structure decision in most efficient way, if they failed to choose the optimal debt-equity ratio they will have to incur a huge amount of cost of capital. What are the potential determinants of such optimal capital structure? This is the questions have to be answered in this study.

STATEMENT OF THE PROBLEM

In the study the researcher tries to find out what should be the best combination of a capital structure. There are so many factors have to be consider while deciding on debt ratio and the whole capital structure. Low business earnings may occur due to the chances of default and bankruptcy. Risk and other so many factors must be considered at the time of taking the capital structure decision. In view of this, researcher has undertaken the present study aiming at examining the relationship and influence of some important factors like Tangibility, Profitability, Size, Growth as well as Tax on the optimal capital structure of the respective industry.

LITERATURE REVIEW

Theoretical Literature Review

Static Trade-off Theory: Myers (1984) divides the contemporary thinking on capital structure into two theoretical currents. The first one is the Static Tradeoff Theory (STT), which explains that a firm follows a target debt-equity ratio and then behaves accordingly. The benefits and costs associated with the debt option set this target. These include taxes, cost of financial distress and agency cost. (i) As the interest payments are a tax-deductible expense, they decrease the tax liability thus providing cash savings. Therefore, firms will use an upper level of debt to take the benefit of tax if the tax rates are higher. If the firms incur losses, this tax advantage will fade away. So if the operating earnings are enough to meet the interest expense, then firms will get the benefit of tax deductibility of interest expenses. (ii) The chance of default increases as the level of debt increases. So there exists an optimal level of debt. If the firm goes beyond this optimal point, it is more likely that the firm will default on the repayment of the loan; as a consequence the control of the firm will be shifted from shareholders to bondholders who will try to recover their investments by liquidating the firm. Because of this threat a firm may face two types of bankruptcy costs. These are direct and indirect costs. Direct costs include the administrative costs of the bankruptcy process. If the firm is large, these costs constitute only a small percentage for the firm. However,

for a small firm, these fixed costs constitute a higher percentage and are considered an active variable in deciding the level of debt. The indirect costs arise because of change in investment policies of the firm in case the firm foresees possible financial distress. To avoid possible bankruptcy, the firm will cut down expenditures on research and development, training and education of employees, advertisements, etc. As a result, the customer begins to doubt the firm's ability to maintain the same level of quality in goods and services. This doubt appears in the form of a drop in sales and eventually results in a drop of the market share price of the firm. This implies that the potential benefits from leverage are shadowed by the potential costs of bankruptcy (Correia et al. 2000).

Pecking Order Theory: The second theory, the Pecking Order Theory (POT) put forward by Myers (1984) and Myers and Majluf (1984), states that firms follow a hierarchy of financial decisions when establishing its capital structure. Initially, firms prefer to finance their projects through internal financing i.e. retained earnings. In case they need external financing, first they apply for a bank loan then for public debt. As a last resort, the firm will issue equity to finance its project. Thus according to POT the profitable firms are less likely to incur debt for new projects because they have the available internal funds for this purpose. The reason firms are reluctant to issue equity is because of asymmetric information between the management and the new stockholders. Myers and Majluf (1984) pointed out under pricing would be the result of less information held by potential investors vis-à-vis management with respect to the expected cash flows from the firm's assets, both current and future. Considering these information asymmetry investors would infer that the management would issue stock only when it is overpriced. Thus the newly issued equity might be sold at a discount. This would be regarded as a wealth transfer from existing investors to the new ones. This problem could be avoided if the firms use internally generated resources, such as retained earnings.

Moreover, the Pecking Order Theory has a more important effect on capital structures for firms that are managed in the interests of equity holders, rather than the combined interests of debt and equity holders. However, when financial distress costs are high, equity-maximizing and value-maximizing firms make similar capital structure choices (Titman & Tsyplakov 2005). Myers (1977) suggests that firms acting to maximize the interest of equity holders will be reluctant to issue equity because of the wealth transfer to debt holders, Myers and Majluf (1984) suggest that firms are reluctant to issue equity because of an adverse selection problem, and Almazan, Suarez and Titman (2003) suggest that firms may be reluctant to issue equity because of the costs associated with being scrutinized. Finally, issuing equity involves substantial transaction costs. These theories are not mutually exclusive. Firms can choose target ratios that reflect the benefits and costs of debt financing put forth in the tradeoff literature, but may deviate from their targets for the reasons described in the pecking order literature.

Signaling Theory: This approach, originally developed by Ross (1977), explains that debt is considered as a way to highlight investors' trust in the company, that is if a company issues the debt it provides a signal to the markets that the firm is expecting positive cash flows in the future, as the principal and interest payments on debt are a fixed contractual obligation which a firm has to pay out of its cash flows. Thus the higher level of debt shows the manager's confidence in future cash flows. Another impact of the signaling factor as we have already discussed it in the Pecking Order Theory is the

problem of the under pricing of equity. If a firm issues equity instead of debt for financing its new projects, investors will interpret the signal negatively: since managers have superior information about the firm than investors, they might issue equity when it is overpriced. Among other explanations about a firm's behavior in choosing its capital structure is the agency theory. Jensen and Meckling (1976) identify the possible conflict between shareholders and a manager's interests because the manager's share is less than 100% in the firm. Furthermore, acting as an agent to shareholders, the manager tries to appropriate wealth from bondholders to shareholders by incurring more debt and investing in risky projects. This is consistent with the work of Myers (1977) who argues that, due to information asymmetries, companies with high gearing would have a tendency to pass up positive NPV (net present value) investment opportunities (under investment problems). Myers therefore argues that companies with large amounts of investment opportunities (also known as growth options) would tend to have low gearing ratios. A manager having a less than 100% stake in the business may try to use these free cash flows sub-optimally or use it to their own advantage rather than use it to increase the value of the firm. Jensen (1986) suggests that this problem can be somehow controlled by increasing the stake of the manager in the business or by increasing debt in the capital structure, thereby reducing the amount of "free" cash available to managers to engage in their own pursuits (Jensen, 1986, Stulz, 1990). Here the reduction in the cash flow because of debt financing is considered to be a benefit. Stutz (1990) suggests that the agency problem can be solved to some extent if the management stake is increased or the proportion of debt in the capital structure is increased.

Review of empirical literature on the determinants of Capital Structure

Using data from the early 1990s on firms from Hungary and Poland, Cornelli, Portes, & Schafier (1998) point out that Eastern European firms' capital structure behaves differently from Western European structure since the level of financial leverage is lower than in Western firms, and there is a negative correlation between tangibility of assets and leverage. Klapper, Sarria-Allende and Sulla (2002) contribute to economic literature with their study on the key relations between different debts ratios and leverage determinants in small and medium-sized firms in 15 CEE countries in 1999. By studying capital structure dynamics, their target leverage and adjustment speed, De Haas and Peeters (2006) emphasize that during the transition process CEE firms increased their leverage and mitigated the difference between target and existing leverage. Jõeveer (2006) explores the significance of firm-level, institutional-level, and country-level factors in explaining variations in leverage by using a sample of firms from nine CEE countries over the period 1995-2002. He finds that in comparison to small and unlisted companies, in which capital structure choices are mainly determined by country-specific factors, the decisions on firms' leverage in listed and large unlisted companies are predominantly driven by firm-specific factors. Delcoure (2007) indicates special factors, influencing firms' leverage decisions in CEE countries, such as financial constraints of banking systems, disparity in legal systems governing firms' operations, shareholders and bondholders rights protection, sophistication of equity and bond markets and corporate governance. Bradley, Jarrell and Kim (1984) use cross-sectional, firm specific data to test for the existence of an optimal capital structure. BJK analyze three firm specific factors that influence the optimal capital structure: the variability of firm value, the level of non-tax shields and the magnitude of the cost of financial distress. Bradley et al find that firm leverage ratios are related inversely to earnings volatility provided there are significant cost of financial distress. However, BJK's results indicate a strong positive relationship between leverage and non-tax shields. Titman and Wessels (1988) analyze the

explanatory power of various factors that have been proposed by a number of capital structure theories as attributes that influence the choice of optimal capital structure. Frank and Goyal (2009) investigate the relative importance of several factors in the capital structure decision of listed US companies for the period of 1950-2003. Among these factors they found a core of six reliable factors that correlated with cross-sectional differences in leverage. The results of the study specify that leverage is positively associated to firm size, tangible assets, median industry leverage, and expected inflation. On the other side, leverage is negatively related to profits and market-to-book ratio. According to the authors all six factors, except profit, have the sign predicted by the static tradeoff theory in which the tax saving of debt are traded-off against deadweight bankruptcy costs. Shah and Hijazi (2004) analyze the determinants of capital structure in listed firms in Pakistan for the period 1997 to 2001. They follow Rajan and Zingales (1995) of selecting only four independent variables: size, tangibility of assets, growth, and profitability. The results show that asset tangibility and size are positively correlated with leverage. In contrast, growth and profitability are negatively correlated with leverage. Crutchley and Hansen (1989) present an empirical test of the Agency theory. They focus on equity agency costs that result from the conflict of interest between managers and stockholders. C&H identify five proxies for agency costs; i.e., earning volatility, discretionary investment (advertising expenses and R&D), flotation costs, diversification loss to managers from holding firm's common stock, and firm size. The results are consistent with the Agency theory. An increase in earnings volatility will have a significant negative impact on leverage. Also, if discretionary expense increased, the firm uses less debt. Moreover, the authors find that large firms tended to rely more on debt. Thies and Klock (1993) provide some support for Pecking Order theory. They suggest that the pecking order theory provides one explanation for the inverse relationship found in their study between profitability and all forms of leverage.

OBJECTIVE OF THE STUDY

- To identify the different stimulants and their influence on the Capital structure decision of cement industry of Bangladesh.
- To find out the determinants of optimal capital structure.
- To examine the impact of leverage ratio on overall capital structure.

METHODOLOGY OF THE STUDY

This section describe about the Data source, size of the sample and measurement of the dependent and independent variable of the study.

Source of Data: Present study was conducted on the basis of secondary data .The secondary data were collected from the annual reports of the sample companies for the period of 2009 to 2014.

Selection of sample

Among the seven listed Cement companies both in Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE) five companies are taken as sample for the present study which covers more than 70% of the Population.

Model Development

To assess the association between different determinants and Capital Structure decision, the following regression model is to be fitted to the data:

$LEVG = \beta_0 + \beta_1(TENG) + \beta_1(PROF) + \beta_2(SIZE) + \beta_3(GROW) + \beta_4(TAX) + €$

Where
LEVG = Leverage
β_0 = is the constant term and β is the coefficient of variable
TENG = Tangibility of Assets
PROF = Profitability
SIZE = Firm Size measure by ln of Sales (ln= Natural Logarithm)
GROW = Growth
TAX = Tax
€ = The error term

Explanation of Variables

In the present study the researcher use Tangibility of Assets, Profitability, Size of the firm, Growth and Tax of the sample firms as explanatory variables to determine the degree of leverage (the response variable). In this section he presented the description of these variables, their measurement process and set up a hypothesis for each of the variables.

Leverage (LEVG)- Dependent Variable: Leverage refers to the percentage of assets financed by debt. Researcher has taken debt ratio as dependent variable. For measuring the ratio he has divided the total debt by the total assets.

Independent Variable

Tangibility of Assets (TENG): Different researcher measure tangibility in different ways. Here the researcher measures the tangibility in terms of total fixed assets divided by the total assets. Having a large amount of fixed assets a firm can easily raise debt at cheaper rates because of collateral value of those fixed assets. The companies having with a higher ratio of tangible assets have an opportunity to borrow more since loans are available to them at a comparatively cheaper rate. Therefore the researcher takes the hypothesis that "tangibility of firm is positively related with debt ratio".

Profitability: Among the different methods of measuring the profitability here the researcher divide the net income by the total assets. Peacking order theory (POT) and Static Tradeoff Theory (STT) have a contradiction in case of building the relationship between leverage and profitability of an organization. According to STT, the higher the profitability of the firm, the more reasons it will have to issue debt, to reduce the tax burden. On the other hand, according to POT, the profitable firm is less likely to incur debt for new projects because they have the available internal funds for this purpose. Here the researcher set the second hypothesis that "firm with higher profitability will have less leverage."

Size: Different methods may be used to measure the size of the firm. It also depends on different factors. Some of them are number of employees, amount of sales etc. As par the amount of the research most of the researcher made the logarithm of sales to measure the size of the firm. Observing the sales amount of all the companies here the researcher take the natural log of them to obtain the value. Here the researcher takes the third hypothesis that "Size of the firm is negatively related with the debt ratio".

Growth: Growth of the firm can be measured with different dimensions. A company may grow with different perspectives. One can grow their sales, profits (revenue), fixed assets, total assets, plants, operations, employees, land, etc. Therefore there are so many methods and ways to measure the growth of the firm. In the study researcher use the percentage change in total assets. Here the researcher expects the positive coefficient for growth and set the fourth hypothesis as "firms with higher growth rate will have higher leverage".

Tax: It is the amount payable by the companies to the government at the end of the year. Therefore it is one of the important variables of capital structure. Here the researcher use the proxy to measure the variable is tax amount divided by the gross profit. Payment of interest is a tax-deductible expense; they decrease the tax liability thus providing cash savings. Therefore firms will use a higher amount of debt to take the advantage of tax benefits if the tax rate is higher, but firms incurring losses, this tax benefit will fade away. Therefore if the operating earnings are enough to meet the interest expense then firms will get the benefit of tax deductibility of interest expenses. On the other hand the chance of default increases as the level of debt increases so the existence of optimal level of debt is required. The fifth hypothesis is set by the researcher as "There is a positive relationship between tax and leverage of the firm".

ANALYSIS AND RESULTS

Result of the descriptive statistics and regression analysis has shown in this section. Table-1 represents the summary of descriptive statistics for the variables in the sample.

Table 1: Descriptive Statistics (6- year's summary)

	N	Minimum	Maximum	Mean	Std. Deviation
Leverage	30	19.48	90.70	48.9973	21.35800
Tangibility	30	4.41	80.26	43.0587	23.87319
Profitability	30	-11.79	23.30	7.3580	6.66569
Size	30	20.00	23.17	21.9997	.98953
Growth	30	-5.35	206.89	22.0583	38.25807
Tax	30	2.24	36.72	19.5200	6.60147

To check the existence of multicollinearity among predictor variables the researcher check the Spearman's correlation among them which is given below in the table-2

Table 2: Spearman's Correlation Coefficient between predictor variables (A check for multicollinearity)

	Tangibility	Profitability	Size	Growth	Tax
Tangibility	1	0.076	0.344	-0.390*	0.224
Profitability		1	0.520**	-0.103	0.272
Size			1	-0.416*	0.171
Growth				1	0.120
Tax					1
*Correlation is significant at the 0.05 level (2-tailed)					
**Correlation is significant at the 0.01 level (2-tailed)					

From the table-2 it is seen that the highest correlation value between two variables is 0.520 with 1% level of significant which shows that there is no multicollinearity problem exist among the selected independent variables.

From the above table it is also seen that tangibility is negatively related with the growth but positively related with Profitability, Size and Tax. The negative correlation between growth and firm size indicates that in the cement industry of Bangladesh, the increase in assets is negligible. Growth of this sector happened marginally i.e, installation of new plant occurs only to increase the productions. On the other hand by increasing assets, production and sales also increases but the asset's value decreases due to depreciation. That's why the researcher found a negative correlation between growth and size.

Since growth is measured by the percentage change in total assets and profitability indicates the amount of net income that can be incurred by utilizing the total assets, the negative relationship between the profitability and growth indicates that, the sample industry failed to utilize properly its total assets to make expected net income.

Regression Analysis Results

The following tables represent the result of pooled regression analysis

Table 3.1: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.755[a]	.571	.481	15.38153	.571	6.383	5	24	.001

a. Predictors: (Constant), Tax, Profitability, Growth, Size, Tangibility

b. Dependent Variable: Leverage

Table 3.2: Regression Coefficients and their significance

	Unstandardized Coefficients		**Standardized Coefficients**	**t-statistic**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	202.707	76.009		2.667	.013
Tangibility	-.404	.155	-.451	-2.606	.015
Profitability	-1.364	.463	-.426	-2.948	.007
Size	-5.831	3.712	-.270	-1.571	.129
Growth	-.242	.089	-.434	-2.736	.012
Tax	.376	.534	.116	.704	.488

a. Dependent Variable: Leverage

The above tables represent the result of the regression analysis. The value of R-square (R^2 = .571: Table 3.1) shows that the five variables i.e., tangibility, profitability, size, growth, and tax explain 57% of variation in the response variable leverage. This means that the choice of capital structure is defined by these five variables more than fifty percent in the cement sector of Bangladesh. The adjusted R-square indicates about fifty percent variation. Value of F- statistic shows that the model is significant at the 1 % level of significance.

Table 4: Expected & Observed Relationship

Determinant	**Measure (proxy)**	**Expected Relationship with leverage**	**Observed relationship**
Tangibility	Total FA / Total Asset	Positive	Negative*
Profitability	Net Income/Total Assets	Negative	Negative**
Size	ln of Sales	Negative	Negative
Growth	Annual percentage change of Total Assets	Positive	Negative*
Tax	Yearly Tax amount /Gross profit	Positive	Positive

*= 5% level of significance & **=1% level of significance

Table- 4 shows that tangibility exhibits the opposite relationship as expected at the 5 % level of significance, profitability and size exhibit the same relationships as expected where

profitability is statistically significance at 1% level of significance but the relationship of size is not statistically significance. Growth of the industry exhibits the opposite relationship as expected at 5% level of significance and tax shows the same relationship as expected which is not statistically significance.

The tangibility of the sample industry is negatively correlated with leverage (β_1= -0.404; Table: 3.2) and it is significant at 5% level. Therefore, it can be accepted the first hypothesis. It shows that cement industry can increase its fixed assets (operating leverage) without increasing debt amount in its capital structure.

Profitability is negatively correlated with leverage (β_2= -1.364; Table 3.2). This suggest that profitable firm in the Bangladeshi cement sector more equity and less debt. It can be concluded that higher profitability keeps firm away from debt instead of encouraging it. Therefore, the second hypothesis can be accepted at 1% level of significance.

The size of the firms is negatively correlated with leverage (β_3= -5.831; Table 3.2) and the regression coefficient is not statistically significant. Therefore, the third hypothesis can be rejected.

Growth was found to be negatively correlated with leverage (β_4= -.242; Table 3.2). This indicates that, in the cement sector the growing firms are becoming able to meet the required funds for the investment of new projects from the internal sources and therefore they have not to rely on debt. The fourth hypothesis is accepted at 5% level of significance.

The Tax was found to be positively related with leverage (β_5= .376; Table 3.2). This means that as the amount of debt is increase the tax shield benefit is achieved by the organization since interest is tax deductible expense. The regression coefficient is not statistically significant; therefore the last hypothesis cannot be accepted.

LIMITATIONS AND SCOPE OF FURTHER RESEARCH

This research estimates the 6 years data for 2009-2014 periods to find out the determinants of capital structure of cement industry of Bangladesh. Due to availability of data the researcher chooses 5 listed cement companies among seven listed companies as well as there are only 5 independent variables are used. So there is a good scope to conduct further research on the same industry and on the same topic by taking the 100% population (7 listed as well as other non-listed cement companies) with more than six years data side by side taking more than five independent variable.

CONCLUSION

This paper examines the determinants of capital structure decisions of firms of the cement industry listed both in Chittagong Stock Exchange (CSE) as well as Dhaka Stock Exchange (DSE) of Bangladesh in the period of 2009-2014. Five independent variables extracted i.e., tangibility, profitability, size, growth and tax. One independent variable is Debt Ratio. To find out the correlation between dependent and independent variables, regression model has been chosen. Among the independent variables tangibility, profitability and growth have a significant impact on dependent variable (debt ratio), and they are negatively correlated, that means if these variables increase debt ratio will go down. The remaining two variables size and tax has no significant impact on debt ratio that means there would be no impact of any change occurs in these variables on debt ratio.

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APPENDICES

Appendix 1: List of the selected Cement Companies

Name of the Cement Companies	Name Used on the Study
Aramit Cement Limited	ARAMIT
Confidence Cement Limited	CONFID
M I Cement Factory Limited(Crown Cement)	MICEMENT
Hidelberg Cement Bangladesh Limited	HIDELB
Lafarge Surma Cement Limited	LAFSUR

Appendix 2: Variables related with the Capital Structure

Variables	ARAMIT	CONFID	MICEMENT	HIDELB	LAFSUR	Year
Leverage = Total Debt/ Total Assets	90.70	19.58	51.34	34.13	70.90	2009
	75.79	19.48	41.47	33.78	84.55	2010
	85.78	32.66	28.21	34.30	65.23	2011
	85	38.93	45.59	31.38	40.09	2012
	82.69	36.14	42.82	30.15	41.95	2013
	65	42.74	49.98	35.85	33.71	2014
Tangibility = Total Fixed Assets/ Total Assets	12.75	72.20	53.55	43.29	75.39	2009
	10.31	73.87	46.84	34.37	80.26	2010
	9.50	69.71	15.97	29.77	74.44	2011
	6.66	62.17	41.71	37.03	63.65	2012
	6.95	43.81	42.67	34.38	72.72	2013
	4.41	38.25	35.41	37.66	62.06	2014
Profitability = Net Income /Total Assets	8.44	6.17	12.34	8.55	5.76	2009
	8.08	7.45	14.55	13.90	-9.15	2010
	5.01	5.31	6.22	9.36	-11.79	2011
	3.32	6.87	5.64	14.06	10	2012
	2.75	7.22	6.80	13.75	23.3	2013
	0.46	4.73	5.94	11.60	14.10	2014
Size = Natural log of Sales	20.55	20.91	21.55	22.13	22.74	2009
	20.64	21.26	21.86	22.84	22.46	2010
	20.09	21.53	22.11	22.87	22.63	2011
	20.82	21.91	22.46	23.11	23.09	2012
	20.59	21.97	22.64	23.02	23.15	2013
	20	22.01	22.80	23.08	23.17	2014
Growth = % Change in Total Assets.	9.94	35.02	-5.35	15.92	-3.02	2009
	36.55	39.04	50.26	19.11	3.60	2010
	30.06	15.50	206.89	11.53	3.60	2011
	20.85	9.35	41.65	14.61	-0.19	2012
	2.84	12.32	-1.39	16.78	2.72	2013
	47.27	10.34	15.98	-5.12	5.09	2014
Tax = Tax payment/ Gross Profit	20.96	21.64	28.36	20.92	16.18	2009
	17.02	21.13	28.40	22.55	36.72	2010
	14.84	17.76	31.87	21.10	17.90	2011
	10.04	17.44	24.66	18.96	18.98	2012
	8.89	17.91	19.64	21.23	14.24	2013
	2.24	19.15	17.05	21.86	15.96	2014

Source: Annual Report and official Record of the Selected Cement Companies (2009 to 2014)