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# The Effect of Leverage on Financial Health of the Firms: A Study from Cement Industry of Pakistan

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**Abstract**
This research paper has tried to measure the relationship between leverage and profitability of firms in the cement industry of Pakistan. Debt to equity is used to measure the leverage of the companies in the cement industry in Pakistan. Short term debt to equity (STD/E) and long term debt to equity (LTD/E) are considered as leverage variables .Return on equity (ROE) and return on assets (ROA) are used to measure the financial performance of the companies. For this research paper 10 cement companies are considered, listed in the Karachi Stock Exchange during the time period 2008-2012. To measure the relationship between leverage and profitability of firms in the cement industry of Pakistan regression model and descriptive statistics have been used. Our results found negative and significant relationship between leverage and profitability of the firm.
**Keywords:** Leverage, Profitability, Cement industry, Capital Structure

## 1. Introduction

Importance of the leverage can be seen from its presence in the capital structure of the organizations. It is important for the organizations to take decision of leverage portion in the capital structure. Debt financing not only minimizes the risk of the organization but also provide tax exemptions to the organization. Capital structure theory highlights the real importance and significance of the debt financing in the organizations. Leverage of the firm influence its capital structure. According to Myers (1984) leverage defines capital structure of the firms. Capital structure consists of debt and equity financing.

It is one of the most difficult decisions for the management of the organizations to opt the mixture of debt and equity. Debt portion represent the other's claim and it reduces the risk of the owners (Eckbo, B.E., (1986). In this global world management is not an easy job because it has to take difficult decisions. Management of the company's remains conscious about the debt portion of the organizations because it affects the financial performance of the firms and the performance of the management is measured through the financial performance of the organizations. According to Black *et al*, (1973) Leverage affects not only the performance of the organizations but also it affects the market value of the organizations as well. Management of the debt financing is very crucial in the organization because companies are using the funds of creditors which have to be returned with interest.

Financial leverage and operational leverage are the part of total leverage which affects the profits of the organizations, market value and stock price of the organizations (Denis *et al,* 2012). Financial leverage is cost saving and it also reduces the risk of the owners but it becomes costly when organizations are unable to use it efficiently. Companies have to pay financial charges on the leverage. If companies fail to use leverage effectively than they have to suffer from many problems because they have to return the amount of leverage with interest expenses. Profitable companies prefer to use leverage because it reduces the risk of owners and more cost saving for the shareholders of the organizations. Leverage affects the profitability which has direct impact on the management performance, capital structure, stock price, wealth of shareholder and all the stakeholders.

Cost and benefits of the leverage are better discussed by different researchers whereas it is also explained in the trade-off theory. Combination of debt and equity and its impact on the organizational performance also need consideration because organizations are well familiar with its importance. Trade off theory is helpful for the top management of the organizations because they can take decisions through evaluating the cost and benefits of the organizations in different perspectives. Operational and financial both types of leverage can be assessed and used for taking better decisions. Optimum capital structure is necessary for achieving success and increasing financial performance of the organizations.

## 2. Literature Review

Leverage is the amount or funds taken from people other than the shareholders of the organizations. Debts are the liabilities of the organizations because these are the amount borrowed from others (Merton, Robert, 1974). Leverage reduces the risk of the shareholders because these are the amounts which are not investment of the

owners. Leverage is the amounts which can be claimed by other than the shareholders of the organizations. Debts are the amounts borrowed by the organizations from others which they have to pay with financial charges for using that amount. According to Qureshi *et al,* (2012) Leverage means funds from the creditors which are borrowed by the management of the organizations and it can be calculated by divided total liabilities to total equity. Firms should use the borrowed amounts efficiently because otherwise firms can bankrupt. Efficient use of debt is beneficial for the firms because amount of interest is exempted from tax but if firms are unable to use the debts efficiently than it is very risky and increases the chances of bankruptcy of the firms.

Short term debt and long term debt both affect the profitability of the organizations. Short term debts are the liabilities of the organizations which they have to use and return in a period of one year. Long term debts are used for more than one year time period and that is why interest rate on long term debt or funds is higher. Short term debt and long term debt both are to be returned with interest so it is important to use both types of debt optimally (DeAngelo and Masulis,1980). Creditors prefer to give funds to those firms which are stable and performing well in the market. Profitable firms are using short term and long term debts and earning abnormal profits. There is a strong association between debts and leverage of the firms.

Profitability of the firms is the return for the firms on their investment. Earnings of the firms are reward of the management's efforts and return of shareholders for their investments. Profitability of the firms can be measured through different methods. Return on assets (ROA) and return on equity (ROE) are used commonly to measure the profitability of the companies. Return on assets is the return of the organization for using short term and long term assets to generate the revenues. Return on equity is the return on the investment from the shareholders of the organizations.

According to (Nelson and Daniel,1991) mix of leverage and equity affects profitability of the organizations. Capital structure affects the financial performance and riskiness of the organizations. Many researchers have found the association between return on equity (ROE), financial leverage and size of firms. Results of their studies suggest that there is a significant relationship between leverage and profitability of the firms.

Mauer *et al*, (1994) found a positive and significant connection between the ratio of short-term debt to total assets and profitability but a positive relationship between the ratio of long term debt to total assets and profitability. Barclay *et al,* (1995) have also assessed the association of between leverage and profitability. Their results have shown positive and significant correlation between the debt ratios and profitability. Return on assets and return on equity are positively associated with the profitability of the firms.

Some researchers have reported negative association between leverage and profitability of the firms while some researchers found no significant relationship between leverage and profitability of the firms. Geske and Robert, (1979) reported a significantly negative relationship between the ratio of debt to total assets and profitability. Alkhati (2012) in his research found no statistical significant relationship between leverage and profitability of the firms.

Focus of our research study is on to measure the relationship between leverage and profitability of the firms in the cement industry of Pakistan listed in the Karachi stock exchange. On the basis of the literature review, the following assumption can be formed:
H0: There is positive and significant relationship between leverage and profitability of the firms in the cement industry of Pakistan.
H1: There is no positive and significant relationship between leverage and profitability of the firms in the cement industry of Pakistan.

## 3. Methodology

### 3.1 Data Collection and Population

To test the hypothesis data is gathered from the 10 cement companies listed in the Karachi stock exchange. Independent variable is leverage on capital structure which is measured through short term debt to equity and long term debt to equity. Dependent variable for this research study is Profitability of the firms which is measured through return on equity and return on assets.

### 3.2. Explanation of Variables

Short term debt to equity (STD/E) and long term debt to equity (LTD/E) were measured as leverage variables. In the short term debts all those liabilities which have to be paid in one year are considered. Short term debt to equity (STD/E) is calculated with the help of following formula:

Short term debt to equity (STD/E) = Short term debt or current liabilities / Equity

Long-term debts are the liabilities used for more than one year to operate the business activities. Long-term debt to equity is the second explanatory variable used in the study to explain the mix of leverage structure. Long term

 

debt to equity (LTD/E) is calculated with the help of following formula:

Long term debt to equity (LTD/E) or D/E= Long term debt / Equity

Profitability of the firms is considered as dependent variable and it is measured through return on assets and return on equity. Return on Assets shows the revenues generated by using the assets of the companies in one year. Return on Assets is calculated with the help of following formula:

Return on Assets= Net Income / Average Total Assets

Return on Equity means earnings available for the shareholders of the organizations. Return on Equity is calculated with the help of following formula:

Return on Equity = Operating profit / Equity

**4. Results and Analysis**

The result of the descriptive statistics summarized in the table below:

Table1. Summary of Descriptive Statistics

| Capital Structure | Mean | Std. Deviation |
|---|---|---|
| STD/E | .8214 | .47514 |
| LTD/E | .5963 | .62737 |
| ROE | 41.2319 | 22.1371 |
| ROA | 21.6745 | 15.4562 |

The results describe that mean of return on assets and mean of return on equity are positive and significant by using short term debt and long term debt in the organization.

Table: 2 Regression Model 1

| Model | B | Std. Error | Beta | t | Sig. |
|---|---|---|---|---|---|
| 1 (Constant) | 48.954 | 3.273 | | 13.563 | .000 |
| LTD/E | 13.462 | 1.965 | .973 | 4.741 | .000 |
| STD/E | 1.249 | 2.572 | .148 | 2.429 | .000 |

The results of the above table shows that beta is positive for short term debt and long term debt which means that the relationship between short term debt and profitability (ROE) is positive and the relationship between long term debt and profitability (ROE) is also positive. Beta should be positive for positive relationship and our results are positive. Significance value is 0.000 for both short term and long term debt which means our results are significant because the significance values are less than 0.05. T value for short term and long term debts are greater than 2 which means the results is positive and significant.

Table: 3 Regression Model 2

| Model | B | Std. Error | Beta | t | Sig. |
|---|---|---|---|---|---|
| 2 (Constant) | 33.463 | 1.643 | | 18.352 | .000 |
| LTD/E | 11.325 | 1.235 | .491 | 6.764 | .000 |
| STD/E | 8.173 | 1.879 | .273 | 4.982 | .000 |

The results of the above table shows that beta is positive for short term debt and long term debt which means that the relationship between short term debt and profitability (ROA) is positive and the relationship between long term debt and profitability (ROA) is also positive. For both short term and long term debt significance value is 0.000 which means our results are significant because the significance values are less than 0.05. T value for short term and long term debts are greater than 2 which means the results is positive and significant.

**5. Conclusion**

This research paper investigated the relationship between profitability of the firm and financial leverage. Profitability of the firm is measured through return on assets (ROA) and return on equity (ROE). Short term debt to equity (STD/E) and long term debt to equity (LTD/E) are measured as leverage variables. Our results show that there is a positive and significant association between leverage and firm profitability. Beta is positive for short term debt and long term debt which means that the relationship between short term debt and profitability (ROA) and (ROE) is positive and the relationship between long term debt and profitability (ROA) and (ROE) is also positive.

The average performance of cement companies in Pakistan during our studied period can be measured through descriptive statistics. Descriptive statistics results showed that cement companies are using high amount of short term debt and long term debt during our studied period and the performance of listed cement companies measured by returns on equity (ROE) and return on assets (ROA) were 41%, 21% respectively.

## 6. Limitations and Future Research

The aim of this research study is to measure the relationship between profitability of the firm and financial leverage in the cement industry of Pakistan however other sector like banks, textile, oil and gas sector etc can also be investigated in future. Our results are on the basis of data collected from the annual reports of 10 companies whereas in future sample size can be increased. Our targeted companies were companies listed in the Karachi stock exchange of cement sector from Pakistan but in future this study can be conducted in cement sector of other developing and developed countries as well. Other variables which are affected by leverage like gross profit, operating profit and net profit etc can also be measured in future.

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