Estimating Profitability Ratios of Cement Companies in India : A Company Level Econometric Analysis

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Abstract* – Profitability ratios are considered as best parameters to judge the performance of the company.Return on equity,return on total assets and profit margins are the main profitability ratios considered for the evaluation of a company.But the question arises what percentage of ratios should be considered as profitability ratios.Although the efficiency will depend on the industry in which the company is operating, econometric model has been used to find these profitability ratios in cement industry. Analysis of residuals have been done and the parameters of best performing companies have been taken for the calculation of profitability ratios.These ratios can be used benchmark for the performance of companies operating in Cement Sector in India JEL Classification.

Keywords:Residuals, Return on equity, Return on total Assets, Profit margin,Ratio Analysis.

I. INTRODUCTION

Production of Cement was started in 1904 at Chennai in India but the foundation of stable Indian Cement Industry was laid in 1914 when the Indian Cement Company limited started production at Porbander in Gujarat.During planning period,the cement industry has recorded continuous growth.India became not onlyself-reliant at the end of Seventh Plan but also started export of cement.Cement is one of the most technologically advanced industries in the country. It plays a crucial role in the housing and infrastructure sector of the economy. The price and distribution control of cement has been removed since 1989 and it has been exempted from licensing in 1991 under the Industrial (Development and Regulation) Act, 1951. Since then, cement industry has made rapid strides both in capacity/production and process technology.

It not only ranks second in the production of cement in the world but also produces quality cement which meets global standards.The Cement industry has kept pace with technological advancement and modernization. The induction of advanced technology has helped the industry immensely to conserve energy and fuel and to save materials substantially.Cement Industry also contributes in country's exports.Improvement in quality of Indian cement has found its ready markets in Bangladesh, Indonesia, Malaysia, Nepal, Middle East countries, Burma, Africa and South East Asian countries.Cement Industry in India has developed over the years in a bigway.A Cement unit has been established as large units. These units are more labour intensive and require very High capital investment.

Cement industry has grown tremendously in the recent years in India is due to availability of material and resources.It has grown in clusters due to availability of raw material.Growth and survival of these firms mainly depend s upon their profitability.There are various financial ratios which help in measuring the over all health of the Industry. Profitability ratios are considered as best parameters for stakeholders and investors to assess the financial position of the company for investment decision making.It is necessary to assess and find out the company with the best performance on the basis of profitability and the profitability ratio of the best performing company can be set as the standard profitability ratios of the industry. It is necessary to establish standard profitability ratio for the industry so that any company existing in the industry can compare its performance with those ratio. Government and financial institution can also assume these ratios as standard ratio for their future policy making for the industry.

The broad objective of the study is to Estimate profitability Ratios for Cement Companies in India.In order to accomplish the broad objective, the following objectives have been identified as:

- To estimate and analyse profitability ratio among the cement companies in India.
- To find out the consistency in the performance of the cement companies in achieving profitability Ratios.
- To Rank the performance of the cement companies on the basis of their profitability.
- To establish profitability bench mark for the other cement companies in the industry.

II. REVIEW OF LITERATURE

Much research has not been done on this topic "Estimating Profitability Ratios of Cement Companies in India: A Company Level Econometric Analysis" so far. Although a very few research are available the ratio analysis of different companies and industries, but specific research on Cement companies in India for estimating profitability ratios for the cement companies has not been done so far.To know the state of research on the topic, review of literature has been carried out.This has helped in providing direction to the research project in hand and locating research gaps.

Kallu Rao emphasized on intercompany financial analysis in 1993 of a Tea industry.It was projected to analyse important variables and trends in sales and profit for upcoming 10 years. The analysis was done to facilitates top management policy makers in policy and decision making process. Rao had come up with all financial calculation in study. Further, he finds that tea has a larger scope of growth in future.

Pai, Vadivel and Kamala (1995) studied the diversified companies and financial performance: A study. An effort was made to study the relationship between diversified firms and their financial performance. Seven large firms having different products both related and otherwise-in their portfolio and operating in diverse industries were analysed. A set of performance measures/ratios and employed to determine the level of financial performance. The results reveal that the diversified firms studied have been healthy financial performance.However,variation in performance from one firm to an other has been observed and statistically established.

Sidhuand Gurpreet Bhatia (1998) studied different factors affecting profitability in Indian textile industry.They made an attempt to identify the major determination of profitability in Indian textile industry through empirical data. Data was taken from the annual reports of various textile companies to check out the different factors of affecting profitability. They applied regression analysis for the study. It is shows clearly that there was no clear cut relationship between current profitability and capital intensity in Indian textile industry.

Vijayakumar (2002) in "Determinants of Profitability-A firm level study of the Sugar Industry of Tamil Nadu",delved into the various determinants of profitability viz., growth rate of sales,vertica lintegration and leverage.A part from these three variables,he had selected current ratio,operating expenses to sales ratio and inventory turn over ratio. Economic models were used to test the various hypothesis relating to profitability performance, whereas on the other hand, the current liabilities were on the increase because of poor liquidity performance of the mill.

Sudarsana Reddy (2003) studied the Financial Performance of Paper industry in Andhra Pradesh. The objective for study are to evaluate financing methods and practices to analyse the investment pattern and utilization of fixed assets,to ascertain the working capital condition; to review the profitability performance and to suggest measures to improve the profitability.The data collected for study have been examined through ratios, trend, common size, comparative financial statement analysis and statistical tests have been applied in proper context.Major findings of the study are: A.P. paper industry needs the introduction of additional funds along with restructuring of finances and modernization of technology for better operating performance.

Vijaykumar (2011) worked on the determinants of profitability of Indian Automobile industry. Determinants were analyzed b using the techniques of ordinary least squares.Result shows that the size is the strongest determinants of profitability of Indian automobile industry followed by the variable's vertical integration, past profitability, growth rate of assets and inventory turnover.

Alireza (2012) worked on the evaluation of the financial ratio capability to predictthe financial crisis of companies.64 financial ratios were used as an independent variable for relatively predicting the financial companies in one,two and three years before bankruptcy in Iran. Discriminant analysis was used to analyse the information.

III. RESEARCH METHODOLOGY

Panel Data analysis with multiple regression model will be employed to understand the relationship between independent variable and dependent variable.To analyse the data,the statistical tools used is ordinary least square method for estimating the profitability ratio.The significance of various explanatory variables will be tested by computing t values at 5% level of significance.To determine the proportion of explained variation in the independent variable,the coefficient of determination (R^2) will be measured.The significance of R^2 will be tested with the help of F value.The sample size was consisting of a balanced panel set of 15 firms over the 10 years.So over all observations were 150.The panel data analysis will be performed by using pooled ordinary least square regression model.The following regression OLS equation will be used to obtain the estimates:

$$\hat{Y}_{it}=\alpha+\beta_1 N_{it}+ \beta_2 A_{it}+\beta_3 S_{it}+ e_{it}$$

WhereP= Net Profit after Tax, N= Net Worth,

A = Total Assets, S= Sales.

Data Collection:

The data shall be collected from the defined respondents through annual reports of the cement companies.

Scope Of The Study:

The study will examine the development pattern and financial performance of the cement companies in the India on the basis of profitability.It will estimate profitability ratios for the company on the basis of setting standard profitability ratios. The study will be helpful for the government, banking and financial institutions and other policy makers in making policy for the cement companies in the industry.The study will also be useful for the company to set high standard in utilization of their resources and comparing its performance with the other cement company.

Sampling Technique:

Cement manufacturing companies of India constitute the universe of the study.The population for the present study includes existing cement companies of India.In order to obtain a representative sample of respondents, stratified random sampling technique shall be used.

Sampling Units/Respondents:

The population of the study consists Cement units in India which includes units of same size on the basis of their investment in Plant and Machinery.

Sample size:

A sample sizeof 15 major Cement companies has been taken and there data related to profits, net sales, net worth and total assets have been taken for 10 years.

IV. FACTS &FINDINGS

Regression Analysis:

The Regression run on the model has given the following results.

$$\hat{Y}_i = 55.88103376 + 0.175257706 \text{ Net Worth} - 0.136037108 \text{ Total Assets} + 0.114358677 \text{NetSales}$$

SE	(25.41888)	(0.024577)	(0.022936)	(0.021316)
t value	(2.198407)	(7.131069)	(-5.93108)	(5.364958)
Sig.	(0.029495)	(0.0000)	(0.0000)	(0.0000)

$R^2 = 0.837137685$

Adjusted $R^2 = 0.833791199$

$F = 250.1543$

Sig = .0000

The overall model is good fit as p value of the model is less than 0.05.It shows there is significant difference between the explained variance and unexplained variance.In other words there is significant association between the dependent variable and independent variables.R square of the model is 0.837137685which is quite good.It means the model can explain 83.71% of the variation independent variable. All the explanatory variables including intercept are significantly different from zero.

Ranking Of The Companies On The Basis Of Residuals:

The best performance among all the companies in all the years was of Ambuja Cements in 2007, while the second-best performance was also of Ambuja Cement in year 2006. The third best performance was of TC in year 2006.The worst performance was of ACC Cementsin year 2012.Profitability ratios calculated on the basis of best performance i.e. Ambuja Cements in year 2007 are as follows:

Return on equity= Profit after tax/ Net Worth

= 1769.10 / 4661.25 = 37.95%

Return on Total assets = Profit after Tax/ Total Assets = 1769.10 / 4991.67 = 35.44%

Profit Margin= Profit after tax/ Net Sales

= 1769.10/ 5671.39= 31.19%

The over all performance during this time period was of Ambuja Cements while the worst performance was of CT. Profitability ratios calculated on the basis of best performance i.e .Ambuja Cements are as follows: -

Return on equity= Profit after tax/ Net Worth

= 1294.17 / 6626.86 = 19.52%

Return on Total assets = Profit after Tax/ Total Assets = 1294.17 / 6923.72 = 18.69 %

Profit Margin= Profit after tax/ Net Sales

= 1294.17 / 7255.45 = 17.83 %

V. CONCLUSIONS

It can be concluded from above that there is significant relationship between Profits,Net worth,Total Assets and Net Sales of the companies in Cement Sector.The performance of companies varies in different years.The best performing company in the cement sector in the last 10 year was Ambuja Cement.Profitability ratio established on the basis of average performance of the best performing company i.e.Ambuja Cements.These ratios were return on equity of 19.52%, Return on total assets 18.69% and profit margin of 17.83% are considered as Profitability ratios for the cement sector and every company should consider these as benchmark for their performance.

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