

Measuring Correlation Between Selected Scripts Under Cement Sector

1. **Rajesh R. Desai**

Assistant Professor,
Ambaba Commerce College, MIBM & DICA-Surat,

2. **Mr. Aatish I. Patel**

Assistant Professor,
Ambaba Commerce College, MIBM & DICA-Surat.

Abstract

India is the second largest producer of cement in the world. No wonder, India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. Ever since it was deregulated in 1982, the Indian cement industry has attracted huge investments, both from Indian as well as foreign investors. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major initiatives such as development of 98 smart cities are expected to provide a major boost to the sector. The present study aims to measure correlation between Ambuja and ACC Ltd with respects to Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Capital Employed Ratio, Return on Net Worth Ratio, Return on Asset Ratio, and to test whether positive relationship between two variables or not. Author finally found that there is high degree of positive correlation between Ambuja and ACC limited in relation to Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Net Worth Ratio and Return on Asset Ratio.

Keywords: Cement Industry, Correlation, Ambuja Cement, ACC Limited.

1. Introduction

India is the second largest producer of cement in the world. No wonder, India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. Ever since it was deregulated in 1982, the Indian cement industry has attracted huge investments, both from Indian as well as foreign investors. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major initiatives such as development of 98 smart cities are expected to provide a major boost to the sector. Cement production is reached to 337.32 million tonnes in 2018-19 and stood at 278.79 million tonnes from April 2019-January 2020. The Indian cement industry is dominated by a few companies. The top 20 cement companies account for almost 70 per cent of the total cement production of the country. A total of 210 large cement plants account for a cumulative installed capacity of over 410 million tonnes, with 350 small plants accounting for the rest. Of these 210 large cement plants, 77 are located in the states of Andhra Pradesh, Rajasthan and Tamil Nadu.

According to data released by the Department for Promotion of Industry and Internal Trade (DPIIT), cement and gypsum products attracted Foreign Direct Investment (FDI) worth US\$ 5.28 billion between April 2000 and December 2019. The eastern states of India are likely to be the newer and virgin markets for cement companies and could contribute to their bottom line in future. In the next 10 years, India could become the main exporter of clinker and gray cement to the Middle East, Africa, and other developing nations of the world. Cement plants near the ports, for instance the plants in Gujarat and Visakhapatnam, will have an added advantage for exports and will logistically be well armed to face stiff competition from cement plants in the interior of the country. India's cement production capacity is expected to reach 550 million tonnes by 2025.

Some of the other leading consumers of cement include public infrastructure at twenty percent and industrial development at fifteen percent. India's overall cement production capacity was nearly four hundred and sixty million tonnes as of 2017-18. Its consumption is expected to grow by five percent in the financial year of 2019 supported by a pick-up in the housing segment and higher infrastructure spending. Currently, the industry is planning to produce three hundred megatons in order to meet its domestic demand and five megatons for exports requirement. At this juncture, it is worthwhile to analyse the correlation between Ambuja cement limited and ACC limited in relation to Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Capital Employed Ratio, Return on Net worth Ratio, Return on Asset Ratio.

2. Reviews of literature

P.D. Erasmus (2010) has found that statistically significant negative relationships between a firm's profitability and its net trade cycle (NTC), debt ratio and liquidity ratio. He has also found that the liquidity and debt ratios appear to play a more important role than the NTC.

Olivier TaileManikom and Charles Guillermet (2014) have found that the crude oil price has a negative relationship with the financial ratios and that the crisis had an impact during that time period on the financial performance of the IOCs. They have also noted that the debt level and the size of IOCs have a strong relationship with their financial performance.

Samarakoon (1999) examined the determinants of leverage in a cross section of listed companies in Sri Lanka using a sample of firms listed in the Sri Lanka Stock Exchange. The results indicate that the use of long term debt is relatively low. The tangibility and growth opportunities are not related to leverage. Firm size is reliably positively related to leverage indicating a tendency for large firms to use more leverage. Profitability is negatively correlated to leverage suggesting that more profitable firms tend to use less leverage.

3. Methodology

This study totally base on secondary data which was collected from the In-house website as well as others concerning websites used for study purpose. The present study covered the period of five years starting from 2015 to 2019. This is long enough to derive conclusion. Quantitative approach has been used. Moreover, this

period is selected because the complete data for the present study are available. Six independent variables have been used for study purpose like Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Capital Employed Ratio, Return on Net worth Ratio, Return on Asset Ratio. The present study used Karl Pearson correlation method of statistics is used as the data sets were real and it gives an informative and accurate statement of the strength of the linear association between the two ratios is calculated with the help of SPSS software.

3.1. Research Objectives:

- 1) To measure correlation between Ambuja and ACC limited with respect to Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Capital Employed Ratio, Return on Net worth Ratio, Return on Asset Ratio.
- 2) To test whether positive relationship between two variable or not.

4. Analysis and Interpretation

In the present study profitability ratios were studied for the Ambuja Cement limited as well as ACC limited like Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Capital Employed Ratio, Return on Net worth Ratio, and Return on Asset Ratio etc.

4.1. Operating Profit Margin Ratio

In this part Pearson Correlation for Operating Profit Margin Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 1 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 1. Correlation of OPM between Ambuja & ACC

		OPM_Ambuja	OPM_ACC
OPM_Ambuja	Pearson Correlation	1	.588
	Sig. (2-tailed)		.412
	N	4	4
OPM_ACC	Pearson Correlation	.588	1
	Sig. (2-tailed)	.412	
	N	4	4

H_0 : There is no correlation between Ambuja Cement limited and ACC limited ltd based on operating profit margin ratio.

H_1 : There is correlation between Ambuja Cement limited and ACC limited based on operating profit margin ratio.

Three pieces of information appears in each cell of the correlation matrix. The top number is the value of correlation coefficient, the number below this is the two tailed p- value for the correlation, and the bottom

number in the cell show the sample size. The correlation between Ambuja Cement limited and ACC limited based on Operating Profit Margin Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear positive correlation between Ambuja Cement limited and ACC limited based on Operating Profit Margin Ratio. The correlation coefficient is 0.588 and is statistically significant as the p-value is greater than 0.05 ($0.412 > 0.05$).

4.2. EBIT Margin Ratio

In this part Pearson Correlation for EBIT Margin Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 2 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 2. Correlation of EBIT between Ambuja & ACC

	EBIT_Ambuja	EBIT_ACC
EBIT_Ambuja Pearson Correlation	1	.863
Sig. (2-tailed)		.137
N	4	4
EBIT_ACC Pearson Correlation	.863	1
Sig. (2-tailed)	.137	
N	4	4

H_0 : There is no correlation between Ambuja Cement limited and ACC limited based on EBIT margin ratio.

H_1 : There is correlation between Ambuja Cement limited and ACC limited based on EBIT margin ratio.

The correlation between Ambuja Cement limited and ACC limited based on EBIT Margin Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear positive correlation between Ambuja Cement limited and ACC limited based on EBIT Margin Ratio. The correlation coefficient is 0.863 and is statistically significant as the p-value is greater than 0.05 ($0.137 > 0.05$).

4.3. Net Profit Margin Ratio

In this part Pearson Correlation for Net Profit Margin Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 3 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 3. Correlation of NPM between Ambuja & ACC

		NPM_Ambuja	NPM_ACC
NPM_Ambuja	Pearson Correlation	1	.837
	Sig. (2-tailed)		.163
	N	4	4
NPM_ACC	Pearson Correlation	.837	1
	Sig. (2-tailed)	.163	
	N	4	4

H₀: There is no correlation between Ambuja Cement limited and ACC limited based on net profit margin ratio.

H₁: There is correlation between Ambuja Cement limited and ACC limited based on net profit margin ratio.

The correlation between Ambuja Cement limited and ACC limited based on Net Profit Margin Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear positive correlation between Ambuja Cement limited and ACC limited based on Net Profit Margin Ratio. The correlation coefficient is 0.837 and is statistically significant as the p-value is greater than 0.05 ($0.163 > 0.05$).

4.4. Return on Capital Employed Ratio

In this part Pearson Correlation for Return on Capital Employed Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 4 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 4. Correlation of ROCE between Ambuja & ACC

		ROCE_Ambuja	ROCE_ACC
ROCE_Ambuja	Pearson Correlation	1	-.980*
	Sig. (2-tailed)		.020
	N	4	4
ROCE_ACC	Pearson Correlation	-.980*	1
	Sig. (2-tailed)	.020	
	N	4	4

*. Correlation is significant at the 0.05 level (2-tailed).

H₀: There is no correlation between Ambuja Cement limited and ACC limited based on return on capital employed ratio.

H₁: There is correlation between Ambuja Cement limited and ACC limited based on return on capital employed ratio

The correlation between Ambuja Cement limited and ACC limited based on Return on Capital Employed Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear negative correlation between Ambuja Cement limited and ACC limited based on Return on Capital Employed Ratio. The correlation coefficient is -0.982 and is statistically significant as the p-value is less than 0.05 ($0.02 < 0.05$).

4.5. Return on Net worth Ratio

In this part Pearson Correlation for Return on Net worth Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 5 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 5. Correlation of RONW between Ambuja & ACC

		RONW_Ambuja	RONW_ACC
RONW_Ambuja	Pearson Correlation	1	.894
	Sig. (2-tailed)		.106
	N	4	4
RONW_ACC	Pearson Correlation	.894	1
	Sig. (2-tailed)	.106	
	N	4	4

H_0 : There is no correlation between Ambuja Cement limited and ACC limited based on return on net worth ratio.

H_1 : There is correlation between Ambuja Cement limited and ACC limited based on return on net worth ratio.

The correlation between Ambuja Cement limited and ACC limited based on Return on Net worth Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear positive correlation between Ambuja Cement limited and ACC limited based on Return on Net worth Ratio. The correlation coefficient is 0.894 and is statistically significant as the p-value is greater than 0.05 ($0.106 > 0.05$).

4.6. Return on Asset Ratio

In this part Pearson Correlation for Return on Asset Ratio of the Ambuja Cement limited and ACC limited companies under the study have been carried out. The summary of Pearson Correlation based on the data given in Table No. 6 is as follows. For this Pearson Correlation the H_0 and H_1 are as follows.

Table 6. Correlation of ROA between Ambuja & ACC

		ROA_Ambuja	ROA_ACC
ROA_Ambuja	Pearson Correlation	1	.904
	Sig. (2-tailed)		.096
	N	4	4
ROA_ACC	Pearson Correlation	.904	1
	Sig. (2-tailed)	.096	
	N	4	4

H_0 : There is no correlation between Ambuja Cement limited and ACC limited based on return on asset ratio.

H₁: There is correlation between Ambuja Cement limited and ACC limited based on return on asset ratio.

The correlation between Ambuja Cement limited and ACC limited based on Return on Asset Ratio appears in correlation matrix. The result of the above correlated data reveals that there is a linear positive correlation between Ambuja Cement limited and ACC limited based on Return on Asset Ratio. The correlation coefficient is 0.904 and is statistically significant as the p-value is greater than 0.05 ($0.096 > 0.05$).

5. Conclusion

From the analysis, it has been concluded that there is linear positive correlation between Ambuja Cement limited and ACC limited in relation to Operating Profit Margin Ratio, EBIT Margin Ratio, Net Profit Margin Ratio, Return on Net worth Ratio, and Return on Asset Ratio. It has been also found that there is linear negative correlation between Ambuja Cement limited and ACC limited in relation to Return on Capital Employed Ratio. Overall, it can be concluded that there is linear positive correlation between Ambuja Cement limited and ACC limited.

References

- 1) Khan, M.Y. and P.K. Jain, (2007), Financial Management- Text, Problems and Cases, Tata McGraw Hill Publishing Company Ltd., New Delhi, 4th ed., 7: 21-22.
- 2) Olivier TaileManikom Charles Guillermet (2014), "Oil & Gas producers' financial performance International Oil Companies' financial performance and Crude oil prices in the Eurozone from 2004 to 2013", Umea School of Business and Economics , Master's Thesis.
- 3) P.D.Eramus (2010). Working Capital Management and Profitability: The relationship between the net trade cycle and return on assets, Management dynamics, Vol, 19 No.1 Pp2.
- 4) Samarakoon (1999), "growth opportunity in the Sri Lankan stock exchange" Urban Studies, Vol. 43, No. 7, pp 1025–1039.
- 5) <https://www.ibef.org/industry/cement-india.aspx>
- 6) <https://www.insightssuccess.in/the-growth-of-cement-industry-in-india/#>