RESEARCH ARTICLE

ADHYAYAN Volume 12, Issue 2, 2022 Print ISSN: 2249-1066 Online ISSN: 2455-8656

Study of Financial Performance of the Cement Industry by using Du-Pont Analysis

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Abstract

This study attempts basically to measure the financial performance of the cement Industry taking ten major companies listed in BSE like ACC Ltd, Ambuja Cement Ltd, Birla Corporation Ltd, Damila Bharat Ltd, JK Cement Ltd, Jk Laxmi Cement Ltd, Prism Cement Ltd, Ramco Cement Ltd, Star Cement Ltd, Ultratech Cement Ltd for the period 2011-2021. In order to achieve our goals in this paper we have measured the ratios of ROE, ROA by applying the DuPont analyses, which have been demonstrated with the aim of tables to show the change periodically. DuPont analysis (ROI and ROE)) is an important tool for judging the operating financial performance. It is an indication of the earning power of the firm.

DuPont Model is based on analysis of return on equity (ROE) and return on investment (ROI). The return on equity disaggregates performance into three components: net profit margin, total asset turnover, and equity multiplier. ROI consists of assets turnover and profit margin. The return on investment consists of assets turnover (Operating Income X Total Assets) and profit margin (EBIT X Operating Income).

In conclusion, ROE & ROI is a firm's most comprehensive measure of profitability. It considers the operating and investing decisions made as well as the financing.

Keywords: Return on Equity, DuPont. Profitability.

Adhyayan: A Journal of Management Sciences (2022); DOI: 10.21567/adhyayan.v12i2.10

Introduction

Several models are available to describe how effectively any private sector firm is doing. The DuPont model, for instance, was developed in the early 1900s but is still useful for determining profitability. Although it is uncommon, the DuPont model might be used in risk analysis if you wish to speak the language of business (Sheela, 2012)Dr. Reddy's Laboratories, Ranbaxy for the period 2003-2012. In order to achieve our goals in this paper we have measured the ratios of ROE, ROA applying the DuPont analyses, which have been demonstrated with the aim of tables to show the change periodically. DuPont analysis (ROI and ROE. An investment must respond yes to the question "Will the acquisition of this asset raise the value of the owner's equity?" for the firm's financial management to approve it (Arditti, 1967). The needs of the external lenders of loan and equity capital are at the forefront of a for-profit company's financial goals. Dividends and capital gains based on the market value of the shareholders' shares make up the economic returns to the shareholders. Investors care most about financial metrics like profits, ROA, and ROE since they define what can be paid out as dividends in the long -run (Thorpe, 2008). The primary tenet of contemporary finance and investment management is enhancing a company's worth for investors and additional parties involved (Jensen, 2001). Although the value-based management theory is not the focus of this essay, we would like to highlight two key issues. First, the return on invested money must be greater than a predetermined threshold, meeting the interests of all parties involved and taking into account the firm's size, degree of risk, and rate of return on the market. The investments should also be made in a way that will serve the interests of the company's primary stakeholders, whether those advantages are financial or

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How to cite this article: Singh, G., Sengupta, A. (2022). Study of Financial Performance of the Cement Industry by using Du-Pont Analysis. Adhyayan: A Journal of Management Sciences, 12(2):54-58.

Source of support: Nil

Conflict of interest: None

in other ways. This implies a strong relationship between the company's efficiency and investment attraction.

Literature Review

Rogova (2014) In this paper, she studied the performance of oil companies based in Russia from 2008-12 using DuPont Analysis. The study suggested that managers can benefit from solving ROE problems for proper decision-making. It is established in (Higgins 2011) that 82 significant American firms over a three-year period showed a link between the weighted average ROE and the market capitalisation. Therefore, ROE may also be used to gauge a company's investment appeal. Sengupta (2018) analyzed the cement industry's performance using ratio analysis. Shahnia & Endri (2020) used Dupont analysis to study-trading companies' performance in Indonesia. In order to do this, this study analyzed the ROE ratio and ROA using DuPont analysis. The results are displayed in a table to indicate periodic variations. The Return on Asset (ROA) and Return on Equity (ROE) analyses form the basis of DuPont's study. Returns on equity broken down the three elements of performance are the equity multiplier, total asset turnover, and net profit margin. This research strongly emphasizes comparing and contrasting seven businesses in the commerce, service, and investment sectors. Laxmi(2019) investigate the financial performance of Automobile companies by using this method. She suggested due to greater asset turnover ratios, which indicate higher operating efficiency and minimal debt, automobile businesses utilizing DuPont analysis have higher returns on equity.

Research Methodology

This research is descriptive in nature for this data has been collected from secondary sources from annual reports of companies. For the study, 10 companies has selected from BSE list; analysis has done for 10 years, which is from 2011-21.

Objectives of Research

- To find out ROE of the selected companies
- To study the impact of profit, asset turnover ratio, and leverage ratio of ROE
- Analyze the performance by year-wise ranking.

Hypothesis

H_0: There no relationship between NP, ATR, LR with ROE
H_a: There no relationship between NP, ATR, LR with ROE

Above Table 1 is summary table of Return of Equity for 10 years of ten companies. ACC's data shows that ROE has fallen from 2011-12 and it was least in 2018-19 than increases. Ambuja cement had good return in initial years than fallen too much in 2018-19 (5.57) later it has recovered. Birla corporation ROE is varied in 10 years , it increased in 2012-12 (31.22) form 25.25 in year 2011-12 it has shown it least ROE in year 4.45. Dalmia Bharat Cement did al long jump in 2012-13 (67.56) from 4.78 in the previous year. Than its performance is fluctuating over the years. JK Cement recovered it ROE, it was 15.58 in 2011-12 , than after variation between years it has 14.66 in 2020-21. Results of JK Laxmi Cement Ltd also fallen in 2011-12, it was 21.48, worst years was 2018-19, with (0.01) and in year 2020-21 (3.82). Prism Cement's ROE was in negative for three successive years 2014-15, 2015-16 and 2016-17, again in 2019-20 (-0.18). Ramco Cement is one of the companies with positive growth in compare to past. It shows double figure result in last three years 17.4 (2018-19), 17.46 (2019-20) and 13.73 (2020-21). Result of ROE of Star Cement Ltd was zero in first two years of analysis, later it improved with growth 8.92 (2017-18), 9.84 (2018-19), 12.74 (2019-20) and 25.14

Table 1: Summary of ROE for 10 years of ten companies

SUMMARY OF ROE										
YEAR	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
COMPANIES										
ACC	27	17	18	14	14	14	7	7	10	10
AMBUJA	18.81	17.23	15.22	14.69	13.51	14.76	7.86	5.57	7.33	9.73
BIRLA	25.25	31.22	15.6	10.69	11.05	5.14	6.68	5.73	6.67	4.45
DALMIA	4.78	67.56	4.22	6.3	7.65	8.71	4.31	5.22	4.55	6.08
JK CEMENT	15.58	20.68	5.48	13.61	15.77	5.03	8.88	3.64	10.38	14.66
JK LAXMI	21.48	23.62	5.65	9.25	14.31	7.28	7.69	0.1	6.12	3.82
PRISM	14.05	21.77	8.39	-1.52	-5.43	-8.14	0.24	0.28	-0.18	4.09
RAMCO	9.43	7.97	4.94	8.45	8.3	2.66	9.37	17.4	17.46	13.73
STAR	0	0	20.44	9.02	5.7	-3.07	8.92	9.84	12.74	25.14
ULTRA TECH	27.13	23.73	13.16	19.02	17.43	12.54	10.68	10.95	10.97	8.6

Source: by Author

(2020-21). Ultratech is biggest company of India also have low performance in past decade in 2020-21 (8.6) and 2011-12(27.13).

Table 2, is a descriptive analysis shows mean, Std deviation. The Mean of ROE is 10.93 with Std Deviation is 3.28. The mean profit is 12.74 and the standard deviation is 7.19. The mean of ATR is 59.1, the standard deviation is 24.49 and the mean of leverage ratio is .76 with S.D is .44.

Table 2: Descriptive Statistics mean, std deviation

	Mean	*Std. Deviation*	*N*
rReturn on equity	10.9380	3.28727	10
Profit Ratio	12.7434	7.19058	10
Asset turn over ratio	59.1123	24.49447	10
Leverage ratio	.7600	.44387	10

Source: Calculation by using SPSS.

Table 3, indicated correlation between ROE and NP, ATR, & LR. There is high correlation between ROE with Profit on the other hand there is highly negative correlation between ATR (-.573) and LR(-.605),

Table 4, 5 and 6 are related to result of SPSS for regression analysis. To analyse the impact on ROE, it is considered a dependent variable while NP, ATR, and LR are independent variables at 95% confidence level. In Table 4, value of R is .808, which is the correlation coefficient and R square is the coefficient of determination .653.

Table 5, ANOVA shows a significance value 0.7, which is greater than *p-value* 0.05. Hence, null hypothesis has been rejected.

Table 7, is rank analysis table, for 10 years to understand the years-wise rank of selected companies from 01 to 10.

Table 3: correlation between ROE and NP, ATR, and LR

		Return on equity	*Profit*	*Assets turn over ratio*	*Leverage ratio*
Pearson correlation	return on equity	1.000	.722	-.573	-.605
	profit	.722	1.000	-.831	-.391
	assets turn over ratio	-.573	-.831	1.000	.130
	leverage ratio	-.605	-.391	.130	1.000
Sig. (1-tailed)	return on equity	.	.009	.042	.032
	profit	.009	.	.001	.132
	assets turn over ratio	.042	.001	.	.360
	leverage ratio	.032	.132	.360	.
N	return on equity	10	10	10	10
	profit	10	10	10	10
	assets turn over ratio	10	10	10	10
	leverage ratio	10	10	10	10

Source: Calculation by using SPSS. Source: Calculation by using SPSS.

Table 4: 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	.808a	.653	.479	2.37173	.653	3.763	3	6	.079
a. Predictors: (Constant), leverage ratio, asset turnover ratio, profit									

Source: Calculation by using SPSS.

Table 5: ANOVA[a]

Model		*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
1	Regression	63.505	3	21.168	3.763	.079b
	Residual	33.751	6	5.625		
	Total	97.255	9			
a. Dependent Variable: return on equity, b. Predictors: (Constant), leverage ratio, assets turn over ratio, profit						

Source: Calculation by using SPSS.

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Upper Bound	Lower Bound
1	(Constant)	12.307	7.306		1.684	.143	-5.570	30.183
	profit	.188	.230	.412	.817	.445	-.375	.752
	assest turn over ratio	-.024	.063	-.176	-.376	.720	-.177	.130
	leverage ratio	-3.122	2.092	-.422	-1.492	.186	-8.241	1.998

a. Dependent Variable: return on equity

Source: Calculation by using SPSS.

Table 7: Rank Metrics

RANK METRICS FROM 2011-2021 AS PER RETRUN ON EQUITY										
NAME	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
ACC	2	8	2	3	4	2	7	4	5	4
AMBUJA	5	7	4	2	5	1	5	6	6	5
BIRLA	3	2	3	5	6	6	8	5	7	8
DALMIA	9	1	10	9	8	4	9	7	9	7
JKC	6	6	8	4	2	7	4	8	4	2
JKLM	4	4	7	6	3	5	6	10	8	10
PRISM	7	5	6	10	10	10	10	9	10	9
RAMCO	8	9	9	8	7	8	2	1	1	3
STAR	10	10	1	7	9	9	3	3	2	1
ULTRATECH	1	3	5	1	1	3	1	2	3	6

Source: Developed by Author.

Findings

As per Table 1, most of the companies are showing a downfall in recent year 2020-21 compared to 2011-12, especially in 2018-19, but some firms like RAMCO and STAR cement increased the ROE in 2020-21, 2019-20. It means both companies changed their strategic decision making for improvement. In this paper, value of ANOVA is 0.7 and we accepted the alternate hypothesis as there is some relationship between ROE with NP, ATR, LR. Ranked analysis table, shows ULTRATECH Cement is leading, it acquired first rank in four years out of ten, while Prism Cement Ltd having last rank in five years. In past two years, RAMCO and STAR Cement Ltd performed well and able to achieve top rank; other hand big companies like ULTRATECH, JKLAXMI, BIRLA failed to get positon.

Conclusion

The financial performance of companies can measure by different tools. Dupont Analysis is one of the tools, in this we judge ROE by three factors net profit ratio, asset turnover ratio and leverage ratio. By using this method, the study shows that companies not depend on their market share and big companies not able to retain their performance due to various environmental factors.

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