Analysis of Liquidity, Solvency and Profitability of Select Cement Companies in Andhra Pradesh

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ABSTRACT The drive of this study is to analysis of liquidity, solvency and profitability of select cement companies in Andhra Pradesh. The data was collected from financial statements of select cement companies for a period of 10 year from 2003-04 to 2012-13, have selected financial ratios such as Current Ratio (CR), Quick Ratio (QR), Absolute Liquid Ratio (ALR) for liquidity analysis, Debt-Equity Ratio (DER), Proprietary Ratio (PR)and Fixed Assets to Proprietary Ratio (FATPR) for solvency analysis and Gross Profit Ratio (GPR), Net profit Ratio (NPR), Return on Capital Employed (ROCE), Return on Investment (ROI) and Earnings per Share (EPS) for profitability analysis to meet objective of the study. The result of the study is liquidity, solvency and profitability position of select cement companies not good, no significant impact of liquidity and solvency on ROCE, no correlation between ROCE and liquidity ratios and positive correlation between ROCE and DER and PR and negative correlation with FATPR.

Introduction

Liquidity means ability of firm to meet short-term obligations when they become due for payment can hardly be over-stressed. In fact, liquidity is a pre-requisite for the very survival of a firm. The short-term creditors of the firm are interested in the short-term solvency or liquidity of a firm. But liquidity implies, from the view point of utilisation of the funds of the firm that funds are idle or they earn very little. A proper balance between the two contradictory requirements i.e. liquidity and profitability is required for efficient financial management.

The solvency generally refers to the capacity of the business to meet its short-term and long-term obligations. Short-term obligations include creditors, bank loans and bills payable etc. long-term obligations consists of debentures, long-term loans and long – term creditors etc.

The Profitability is a measure of the amount by which a firm's revenues exceeds its relevant expenses. Potential investors are interested in dividends and appreciation in market price of stock, so they pay more attention on the profitability ratios. Managers on the other hand are interested in measuring the operating performance in terms of profitability. Hence, a low profit margin would suggest ineffective management and investors would be hesitant to invest in the company.

Literature Review

Singh and Pandey (2008) examined that, the management of working capital is essential as it has a direct impact on profitability and liquidity. Working capital components and found a significant impact of working capital management on profitability for Hindalco Industries Limited. Of this work and reflects some decisive evidences that affirm its viability, as may be marked here it. Nor has any previous research examined the liquidity position and the existence of liquidity and profitability relationship of private sector steel companies in India.

Ajanthan (2013) investigated the relationship between liquidity and profitability of trading companies in Sri Lanka. The study covered 08 listed trading companies in Sri Lanka over a period of past 5 years from 2008 to 2012. Correlation& regression analysis and descriptive statistics were used in the analysis and findings suggest that there is a significant relationship exists between liquidity and profitability among the listed trading companies in Sri Lanka.

N.Venkata Ramana, S.MD. Azash and Pro. K. Ramakrishnaiah (2011) Profitability analysis measures how a firm will is performing in terms of its ability to generate profits. Profitability of the firm is highly influenced by internal and external variables, i.e., size of organizations, liquidity management, growth of organizations, component of costs and inflation rate. The paper made an attempt to know the profitability and to assess the impact of selected profitability ratios on ROE of the company, for fulfilment of the objectives the data collected from the annual report from 2001-2010. The data is analysed and computed to fit for drawing inferences .in this investigation correlation and multiple regression analysis was used to find out impact of selected profitability ratios (Gross Profit, Operating Profit, Net Profit, Earning Per Share, Return on Total Assets) on ROE. The result reveals that selected profitability ratios are not have significant impact on ROE.

Research Methodology:

Objective
To investigate the liquidity, solvency and profitability position of select cement companies in Andhra Pradesh.

Hypotheses
- H01. There is no better liquidity position of select cement companies in Andhra Pradesh.
- H02. There is no better solvency position of select cement companies in Andhra Pradesh.
- H03. There is no better profitability position of select cement companies in Andhra Pradesh.
- H04. There is no significant impact of liquidity on profitability of select cement companies in Andhra Pradesh.
- H05. There is no significant impact of solvency position on profitability of select cement companies in Andhra Pradesh.

Data Sources
The research is totally based on secondary data, from the annual reports of sample companies. Data and information have been collected form the websites of the sampled companies, different articles and papers.

Period of Study
The data was collected for ten year period from 2003-04 to 2012-13.

The following cement companies selected for the study:

ACC Cements Ltd, India Cements Ltd, Kakatiya Cements Ltd, NCL, Ramco Cements Ltd, Sagar Cements Ltd and Zuari Cements Ltd.

Tools of Analysis

$$Current\ Ratio = \frac{Current\ Assets}{Current\ lIabilities}$$

$$Quick\ Ratio = \frac{Quick\ Assets}{Current\ Liabilities}$$

$$Absolute\ Liquid\ Ratio = \frac{Absolute\ Liquid\ Assets}{Current\ Liabilities}$$

$$Debt - Equity\ Ratio = \frac{Debt}{Equity}$$

$$Proprietary\ Ratio = \frac{Proprietary\ Funds}{Total\ Assets}$$

$$Ratio\ of\ Fixed\ Assets\ to\ Proprietary\ Funds = \frac{Fixed\ Assets}{Proprietary\ Funds}$$

$$Gross\ Profit\ Ratio = \frac{Gross\ Profit}{Sales} * 100$$

$$Net\ Profit\ Ratio = \frac{Net\ Profit}{Sales} * 100$$

$$Return\ on\ Investment = \frac{Net\ Profit}{Total\ Investment} * 100$$

$$Return\ on\ Capital\ Employed = \frac{Net\ Profit}{Capital\ Employed} * 100$$

$$Earnings\ per\ Share = \frac{Net\ Profit}{Number\ Equity\ Shares}$$

Table No 1 Liquidity, Solvency and Profitability Ratios of Select Cement Companies in Andhra Pradesh

Year	CR	QR	ALR	DER	PR	FATPF	GPR	NPR	ROI	ROCE	EPS
2003-04	1.44	0.50	0.63	14.00	0.36	233.16	32.22	2.06	4.73	-7.02	0.10
2004-05	1.25	0.50	0.05	8.36	0.41	216.42	31.49	5.57	11.26	14.01	0.14
2005-06	1.06	0.65	0.05	4.60	0.45	148.87	41.46	7.00	15.78	17.57	0.22
2006-07	1.24	0.68	0.12	1.87	0.49	128.04	38.97	17.38	38.34	34.31	0.77
2007-08	1.14	0.63	0.16	2.50	0.51	111.35	42.00	14.01	25.03	19.57	0.724
2008-09	0.83	0.46	0.07	2.28	0.57	132.54	39.96	10.78	18.41	17.14	0.27
2009-10	0.86	0.49	0.02	2.13	0.57	144.41	40.96	8.04	12.98	12.60	0.23
2010-11	1.00	0.52	0.11	1.89	0.58	135.26	31.70	5.61	10.29	10.19	0.22
2011-12	0.98	0.42	0.14	0.62	0.74	114.01	38.63	8.59	14.59	21.68	0.23
2012-13	0.99	0.41	0.12	0.43	0.64	110.87	37.70	8.27	6.56	7.26	0.15
AVG	1.08	0.53	0.09	3.87	0.54	147.49	37.51	8.73	15.80	14.73	0.30
SD	0.19	0.09	0.04	4.23	0.12	42.97	4.14	4.40	9.82	10.66	0.23
CV	17.58	17.53	46.50	109.25	23.27	29.13	3.71	50.47	62.15	72.39	76.38
CGR	7.60	9.10	22.03	5.14	0.06	7.57	13.23	44.60	15.58	11.67	24.27
LGR	0.93	0.40	0.09	3.37	0.07;	139.83	38.18	8.96	16.30	14.81	0.32

SOURCE: Annual Reports of Select Cement Companies

Table 1 Shows that the Current Ratio of select cement companies in Andhra Pradesh during the period of 10 year from 2003-04 to 2012-13. The average of the current ratio of select cement companies in Andhra Pradesh is 1.08. Hence, the liquidity position of the select cement companies in Andhra Pradesh is not good because the current ratio is not satisfy the standard ratio of current ratio is 2:1.

Quick Ratio of select cement companies in Andhra Pradesh from 2003-04 to 2012-13. The average of quick ratio is 0.53 which is not satisfy the standard norm of quick ratio is 1:1. So, the liquidity position of the select cement companies of Andhra Pradesh is not a satisfactory position.

Absolute Liquid Ratio of select cement companies in Andhra Pradesh for a period of 10 year from 2003-04 to 2012-13. The average of absolute liquidity ratio is 0.09. It is not also satisfy the standard norm of absolute quick ratio is 1:2. It means that the select cement companies in Andhra Pradesh liquidity position is worst.

From the above liquidity ratios, there is no better liquidity position of select cement companies in Andhra Pradesh. **Hence, the null hypothesis (H01) is accepted** i.e. there is no better liquidity position of select cement companies in Andhra Pradesh.

Debt-equity ratio of select cement companies of Andhra Pradesh during the period of ten year from 2003-04 to 2012-13. The average debt-equity ratio is 3.87 which is more than the standard norm of 1:1. It means that the select cement companies' solvency position is good.

Proprietary ratio of select cement companies in Andhra Pradesh over a ten year period. The average proprietary ratio is 0.54 which indicates that weak financial position and not security for creditors. A large portion of debt in capital may reduce creditor's interest, increase interest expenses and also the risk of bankruptcy.

Ratio of fixed assets to proprietary funds of select cement companies over a period of ten year from 2003-04 to 2012-13. The average of fixed assets to proprietary funds ratio is 147.49 which states that the select cement companies are using more debt than the fixed assets and equity is less than the fixed assets.

From the above solvency ratios, found that there is no better solvency position of select cement companies in Andhra Pradesh. **Since, the null hypothesis H02 is accepted** i.e. there is no better solvency position of select cement companies in Andhra Pradesh.

Gross profit ratio of select cement companies in Andhra Pradesh over a period of ten year from 2003-04 to 2012-2013. The average gross profit ratio is 37.51 which is very low. The overall select cement companies in Andhra Pradesh gross profit position is low.

Net Profit Ratio of select cement companies in Andhra Pradesh from 2003-04 to 2012-13. The average net profit of select cement companies in Andhra Pradesh is 8.73, it means that net profit position of select cement companies are not good.

Return on Investment Ratio of select cement companies in Andhra Pradesh from 2003-04 to 2012-13. The average return on investment of select cement companies is 15.80 percent. The overall select cement companies in Andhra

Pradesh return on investment is low.

Return on Capital Employed of select cement companies in Andhra Pradesh during the study period from 2003-04 to 2012-13. The average return on capital employed of select cement companies in Andhra Pradesh is 14.73. It indicates that the select cement companies not utilize the capital employed in proper way to generate the revenue.

Earnings per Share of select cement companies over a period of ten year from 2003-04 to 2012-13. The average of earnings per Share of the select cement companies in Andhra Pradesh 0.30. The select cement companies not generate sufficient profit in order to pay equity shareholders.

From the above all profitability ratios, I found that profitability position of the select cement companies is not good. **Hence, the null hypothesis H03 is accepted** i.e. there is no better profitability position of select cement companies in Andhra Pradesh.

Table2 Correlation between ROCE and Liquidity Ratios

		ROCE	CR	QR	ALR
ROCE	Pearson Correlation	1	-.064	.101	.050
	Sig. (2-tailed)		.600	.405	.679
	N	70	70	70	70
CR	Pearson Correlation	-.064	1	.597**	.546**
	Sig. (2-tailed)	.600		.000	.000
	N	70	70	70	70
QR	Pearson Correlation	.101	.597**	1	.546**
	Sig. (2-tailed)	.405	.000		.000
	N	70	70	70	70
ALR	Pearson Correlation	.050	.546**	.546**	1
	Sig. (2-tailed)	.679	.000	.000	
	N	70	70	70	70

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 depicts that the correlation between ROCE and liquidity ratios of select cement companies in Andhra Pradesh. There is no correlation between ROCE and liquidity ratios at 0.01 level of significant.

Table 3 Correlation between ROCE and Solvency Ratios

		ROCE	DER	PR	FATPR
ROCE	Pearson Correlation	1	.260*	.377**	-.254*
	Sig. (2-tailed)		.030	.001	.034
	N	70	70	70	70
DER	Pearson Correlation	.260*	1	.082	-.109
	Sig. (2-tailed)	.030		.498	.369
	N	70	70	70	70
PR	Pearson Correlation	.377**	.082	1	-.668**
	Sig. (2-tailed)	.001	.498		.000
	N	70	70	70	70
FATPR	Pearson Correlation	-.254*	-.109	-.668**	1
	Sig. (2-tailed)	.034	.369	.000	
	N	70	70	70	70

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that correlation between ROCE and solvency ratios of select cement companies in Andhra Pradesh. Positive correlation between ROCE and DER and PR at 0.05 and 0.01 level of significant and negative correlation between ROCE and FATPR at 0.05 level of significant.

Table 4 Regression Analysis between Liquidity Ratios and ROCE

Table 4a Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.191	.036	-.007	21.18487

a. Predictors: (Constant), ALR, CR, QR

Table 4a reveals the "R" value is 0.191 which shows that there is a low correlation between dependent variable (ROCE) and independent variables.

"R square" value **(Coefficient of Determination or Regression Coefficient)** is 3.60 percent of variation in ROCE is caused by predictors.

"Adjusted R square" -0.70 percent variation is caused by predictors considering number of observations and the number of predicted variables.

Table 4b ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	1120.428	3	373.476	.832	.481
1	Residual	29620.725	66	448.799		
	Total	30741.154	69			

a. Predictors: (Constant), ALR, CR, QR
b. Dependent Variable: ROCE

Table 4b indicates that the calculated value of 'F' is less than the table value of 'F'. It indicates that there is no significant effect of liquidity management ratios on ROCE. Therefore, **the null hypothesis (H04) is accepted** i.e. There is no significant impact of liquidity on profitability of select cement companies in Andhra Pradesh.

Table 4c Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
B		Std. Error	Beta		t	Sig.
	(Constant)	11.819	5.866		2.015	.048
1	CR	-5.743	4.287	-.214	-1.340	.185
	QR	15.313	12.459	.196	1.229	.223
	ALR	9.505	24.219	.060	.392	.696

a. Dependent Variable: ROCE

Table 4c shows the constant value is 11.819 which shows that when the all predictors (CR, QR and ALR) are happen to be zero, then the amount of ROCE is 11.819 and the constant is also significant as is $P < 0.05(p = 0.048)$.

CR significant value is $p = 0.185$ which is more than the 0.05 (p = 0.05) and t = -1.340 which shows that any change in CR will bring a negative change in profitability. The value of B for CR is -5.743 which shows that if CR changes by one crore, it will bring -5.743 crore change in profitability (ROCE).

QR significant value is $p = 0.223$ which is more than the 0.05 (p >0.05) and t = 1.229 which shows that any change in QR will bring a positive change in profitability (ROCE). The value of B for QR is 15.313 which indicates that if QR changes by one crore, it will bring 15.313 crore changes in profitability (ROCE).

ALR significance value is $p = 0.696$ which is more than the 0.05 (p>0.05) and t = 0.392 which shows that any change in ALR will bring a positive change in profitability. The value of B for ALR is 9.505, it means that one crore change in ALR, it will bring 9.505 crore change in ROCE.

Table 5 Regression Analysis between Solvency Ratios and ROCE

Table 5a Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442	.195	.158	19.36361

a. Predictors: (Constant), FATPR, DER, PR

Table 5a reveals the "R" value is 0.442 which shows that there is a low correlation between dependent variable (ROCE) and independent variables.

"R square" value **(Coefficient of Determination or Regression Coefficient)** is 19.50 percent of variation in ROCE is caused by predictors.

"Adjusted R square" 15.80 percent variation is caused by predictors considering number of observations and the number of predicted variables.

Table 5b ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	5994.500	3	1998.167	5.329	.002
1	Residual	24746.654	66	374.949		
	Total	30741.154	69			

a. Predictors: (Constant), FATPR, DER, PR
b. Dependent Variable: ROCE

Table 5b depicts that the calculated value of 'F' is more than the table value of 'F'. It indicates that there is significant effect of solvency ratios on ROCE. Therefore, **the null hypothesis (H05) is rejected.** i.e. There is no significant impact of solvency position on profitability of select cement companies in Andhra Pradesh.

Table 5c Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
B		Std. Error	Beta			
	(Constant)	-5.281	10.729		-.492	.624
1	DER	.401	.192	.232	2.086	.041
	PR	32.866	13.202	.370	2.489	.015
	FATPR	.003	.028	.018	.120	.905

a. Dependent Variable: ROCE

Table 5c shows the constant value is -5.281 which shows that when the all predictors (DER, PR and FATPR) are happen to be zero, then the amount of ROCE is -5.281 and the constant is not significant as is $P > 0.05(p = 0.624)$.

DER significant value is $p = 0.041$ which is less than the 0.05 (p < 0.05) and t = 2.086 which shows that any change in DER will bring a positive change in profitability. The value of B for DER is 0.401 which shows that if DER changes by one crore, it will bring 0.401 crore change in profitability (ROCE).

PR significant value is p = 0.015 which is less than the 0.05 (p <0.05) and t = 2.489 which shows that any change in PR will bring a positive change in profitability (ROCE). The value of B for PR is 32.866 which indicates that if PR changes by one crore, it will bring 32.866 crore changes in profitability (ROCE).

FATPR significance value is p = 0.905 which is more than the 0.05 (p>0.05) and t = 0.120 which shows that any change in FATPR will bring a positive change in profitability. The value of B for ALR is 0.003, it means that one crore change in FATPR, it will bring 0.003 crore change in ROCE.

FINDINGS

- Current ratio, quick ratio and absolute liquid of select cement companies are not maintained at standard norms of current ratio, quick ratio and absolute liquid ratio. So the liquidity position of select cement companies in Andhra Pradesh is not good.
- The average debt – equity ratio of select cement companies in Andhra Pradesh is 3.87 which is more than the standard norm of 1:1. It means the select cement companies are maintain more debt in capital structure.
- The proprietary ratio of select cement companies is very low. The select cement companies have more debt and less equity in capital and very weak financial position.
- Fixed assets to proprietary funds ratio of select cement companies in Andhra Pradesh is also low. It is indicates that more debt using than the fixed assets.
- From the above all profitability ratios, I found that profitability position of the select cement companies are not good.

CONCLUSION

Conclude that from the above study, the liquidity position, solvency position and profitability position are not good. There is no correlation between Return on Capital Employed and Current Ratio, Quick Ratio and Absolute Liquid Ratio. There is a positive correlation between ROCE and Debt-Equity Ratio and Proprietary ratio and negative correlation with Fixed Assets to Proprietary Ratio.

I also found that there is no impact of liquidity and solvency on profitability (Return on Capital Employed).

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