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The Impact of Liquidity on Profitability of ceramic tiles companies of India: The Financial Statement Analysis (FSA) Approach

Abstract

The principal tool of financial statement analysis is financial ratio analysis which essentially involves a study of ratios between various items or groups of items in financial statement. Financial ratio may be divided into five broad types: liquidity, profitability, leverage, turnover and valuation ratios (Chandra). Liquidity ratio is used to judge the ability of a firm to meet its short term maturing obligations. The higher the ratio greater the margin of safety to short-term creditors (current & quick ratio). While profitability ratio is concern with relative profitability and efficiency of utilization the business resources. Thus, this study seeks to determine the following: (1) The correlation between current ratio and profitability; as measured by return on assets (ROA), (2) The correlation between Quick ratio and profitability; as measured by ROA, (3) The correlation between return on capital employed (RCE) and profitability; as measured by ROA. The research design adopted for this study is the "quantitative research design". The population consists of ceramic floor tiles companies of India. The sampling technique adopted is the purposive sampling from the non-probability sampling technique to choose sample of nine NSE listed floor tiles companies of India. The data used for the study was secondary data collected from websites of companies as well as NSE and Money control. Simple correlation analysis was used to test the hypothesis at 10% level of significance. The overall findings of this study indicate that: (1) there is a significant negative correlation between current ratio and profitability, (2) There is a significant negative correlation between Quick ratio and profitability. (3) There is significant positive correlation between return on capital employed and profitability.

Key Words: Financial statement analysis, Current ratio (CR), Quick ratio (QR), Return on capital employed (ROCE), profitability, Return on assets (ROA), Correlation.

Introduction

Profitability and liquidity are the most prominent issues that management of each organization should take studying and thinking about them into account as their most important duties. Liquidity refers to the ability of a firm to meet its short term obligations. Liquidity plays a crucial role in working capital management for successful functioning of a business firm. A study of liquidity is of major importance to both the internal and external analysts because of its close relationship with day to day operations of a business (Bhunia, 2010). A weak liquidity position creates a threat to the solvency as well as profitability of a firm and makes it unsafe and unsound. 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. The liquidity and profitability goals are contradictory to each other in most decisions which the finance manager takes. For example, the firm by following a lenient credit policy may be in a position to increase its sales, but its liquidity may tend to worse. In addition to this, referring to the risk return theory there is a direct relationship between risk and return. Thus, firms with high liquidity may have low risk and then low profitability. Conversely, firm that has low liquidity may face high risk results to higher return. Consequently, a firm is required to maintain a balance between liquidity and profitability in its day-to-day operations. India is growing economy and

on path of infrastructural development. Ceramic industry is one of the core parts of infrastructure. According to ICCTS "India ranks in the top 3 list of countries in terms of tile production in the world". ICCTS also added that despite an overall slowdown of the economy continues to grow at a healthy 15% per annum (Indian Council of Ceramic Tiles and Sanitaryware).

LITERATURE REVIEW

According to Victor Chukwunweike in the paper of "The Impact of Liquidity on Profitability of Some Selected Companies: The Financial Statement Analysis (FSA) Approach", on four publicly quoted companies. They concluded that there is a significant positive correlation between current ratio and profitability, there is no definite significant correlation between Acid-test ratio and profitability and there is no significant positive correlation between return on capital employed and profitability (Chukwunweike, 2014). Mustafa Afeef in this paper of "Analyzing the Impact of Working Capital Management on the Profitability of SME's in Pakistan" investigate, effect of working capital management was determined on profitability of a sample of 40 Pakistani small and medium enterprises (SME's) listed in Karachi Stock Exchange for a period of six years from 2003 to 2008 which led to a total of 240 firm-year observations. He analyzed There is no significant associations were found between the profitability measures and the Payable Deferral Period, Cash Conversion Cycle & Current Ratio (Afeef, 2011). Afia and Khaled in his paper of "Liquidity-Profitability Relationship in Bangladesh Banking Industry" conclude that there is no significant relationship between liquidity (measured as current ratio) and profitability (measured as return on asset) in these banks (Afia Akter, 2014). Amarjit, Biger and Mathur in the paper of "The Relationship Between Working Capital Management And Profitability: Evidence From The United States" investigate the relationship between the working capital management and the firms' profitability for a sample of 88 American manufacturing companies listed on the New York Stock Exchange for the period of 3 years from 2005-2007, they conclude that profitability can be enhanced if firms manage their working capital in a more efficient way (Amarjit Gill, 2010). Aloy Niresh investigate in his paper of " trade-off between liquidity & profitability : a study of selected manufacturing firms in Sri Lanka", Their study covered 31 listed manufacturing firms in Sri Lanka over a period of past 5 years from 2007 to 2011. Correlation analysis and descriptive statistics were used in the analysis and findings suggest that there is no significant relationship between liquidity and profitability among the listed manufacturing firms in Sri Lanka (Niresh, 2012).

India is developing economy and real estate is one of the core parts for development. According to ceramic industry report "Growth in the real estate industry, increasing population in developing nations, and an increasing standard of living is projected to drive the ceramic sanitary ware market". (Ceramicindustry, 2015). And research says "Expanding production and consumption patterns of ceramic tiles in India, India is now the third largest producer in the world". (Research and Market, 2014). As India is open economy ASSOCHEM report said "Dumping of ceramic products by China in large numbers is adversely impacting profit margins of ceramic producers and manufacturers in India thereby pushing a number of smaller units on the verge of closure." (ASSOCHAM, 2013).they also add that Ceramics manufacturers are not able to pass on the rise in input costs to the consumers owing to the emerging competition from Chinese ceramic imports which further hurts their profitability and has even lead to closure of certain ceramic units unable to bear rising production costs," (ASSOCHAM, 2013). As a part of ceramic industry "Indian ceramic tile industry consisting of floor tiles, vitrified tiles, porcelain tiles, wall tiles, industrial tiles and sanitaryware is highly fragmented comprising majority of small and medium enterprises (SMEs) and a very few large players." (ASSOCHAM, 2013). The Indian tile industry is divided into organized and unorganized sector. The organized sector comprises of approximately 14 players. The current size of the organized sector is about Rs 7,200 Crores. The unorganized sector accounts for nearly 60% of the total industry bearing testimony of the growth potential of this sector (Indian Council of Ceramic Tiles and Sanitaryware).

Thus, this study aims at determining the relationship between liquidity and profitability, using a sample of nine publicly quoted on NSE ceramic floor tiles manufacturing companies of India.

OBJECTIVES OF THE STUDY

This research seeks to pursue the following objectives:

1. To determine the relationship between current ratio and profitability i.e. ROA.
2. To determine the relationship between quick ratio and profitability, i.e. ROA.

3. To determine the relationship between return on capital employed and profitability i.e. ROA.

THE THEORETICAL FRAMEWORK OF FINANCIAL STATEMENT ANALYSIS

The importance of financial statement analysis to business decision making cannot be over emphasized. In this current age of globalization and economic liberalization, businesses need to be up and doing if they are to secure their continuous existence in the competitive business environment. One of the relevant exercises that will give them an idea of whether or not their financial future is secured is financial statement analysis.

P. C. Tulsian defines Financial statement are organized summaries of detailed information about the financial position and performance of an enterprise. He also added that "users can get better insight about the financial strength and weaknesses of the firm if they properly analyses the information from their own point of view" (P.C.Tulsian, 2009). The third edition of the Oxford Dictionary of Accounting defines financial statement analysis as "an analysis of the financial statement of a business, to asses its performance and financial position". As per Bhalla, the important tools of financial analysis are comparative financial statement, trend analysis, ratio analysis, Fund flow and cash flow, etc. out of this ratio analysis is one of the most useful and common method of analyzing financial statement. He added that as compared to the other tools of financial analysis, the ratio analysis provides regular conclusion about various points of the working like financial position, solvency, stability, liquidity, liquidity and profitability of the enterprise (Dr.V.K.Bhalla). Jill Husey affirmed that, "ratio analysis is a method of describing and interpreting the relationship of certain financial data which would otherwise be devoid of meaning". He also went further to state that "financial ratios allow comparisons to be made between companies of different sizes, a particular company and the industry average, and the same company over a period of time" (Husey, 1994). Christy and Roden define the liquidity of an asset as moneyless. Donald Miller describe the current ratio as one which is generally recognized as the patriarch among ratios. Current ratio is liberal test of liquidity where as liquid ratio (quick or acid test ratio) is more stringent test of the firm's ability to meet current liabilities. For profitability Christy and Roden state that profit is the figure at the bottom of the income statement what is left for shareholders after all charges have been paid. Profit is an absolute figure and profitability is a ratio (Rathnam, 1990).

The research problem consisted of two main questions:

1. Do active liquidity strategies have a positive impact on a company's profitability of ceramic companies?
2. Does there any correlation between liquidity and profitability of ceramic manufacturing companies of India?

RESEARCH METHODOLOGY

Kothari and Garg defined research methodology is a way to systematically solve the research problem (C R Kothari, 2014). Thus, this chapter sets out the rationale for choosing the research population and samples. It also includes a highlight of the data collection process and the statistical technique adopted for testing the validity of the hypotheses already formulated.

RESEARCH POPULATION AND SAMPLE SIZE

Because of the researcher's interest to carry out a study on the correlation between liquidity and profitability; as measured by the various liquidity ratios and return on assets (ROA) respectively, the population of this study shall consist of all ceramic tiles manufacturing companies. However, the sample will be on the base of availability of secondary data as well as the representation of all floor tiles companies. Using non-probability – purposive sampling, the researcher purposively choose the particular units of the population for constituting a sample on the basis that the small mass that they so selected out of huge one will be typical or representative of the whole (C R Kothari, 2014). Sample consist of nine floor tiles manufacturing companies listed on National stock exchange (NSE), which are Kajaria ceramics Limited, HSIL limited, Somany Ceramics Limited, NITCO tiles, and Asian Granito India Limited, CERA sanitaryware Limited, Orient Bell Limited, Euro ceramics Ltd and Murudeshwar Ceramics Ltd.

METHOD OF DATA COLLECTION

Data's used for this study were secondary data collected from websites of companies as well as NSE, moneycontrol and other securities websites. The use of Secondary data was necessary because of the quantifiable and verifiable nature of the variables involved; liquidity and profitability. Other secondary data and information used were collected from textbooks, Journals, the internet, newspapers etc.

TECHNIQUE OF DATA ANALYSIS

Method of data analysis simply means the statistical total or technique utilized in processing the data collected, with a view to arriving at valid conclusions. The statistical technique adopted for this study is the Pearson product-moment correlation coefficient is a measure of the linear correlation between two variables X and Y, giving a value between '+1' and '-1' inclusive, where '1' is perfect positive correlation, ($0 < r < 1$) there is partial positive, '0' is no correlation, ($-1 < r < 0$) there is Partial negative and '-1' is perfect negative correlation. This statistical model was chosen because of the fact that it measures the degree of association between two variables; in this case, liquidity and profitability. The correlation coefficient derived from the analysis will be subjected to 10% level of significance test.

The correlation coefficient is defined as follows:



Where:

R = Correlation Coefficient

N = Number of observation

Σ = Summation Sign

X = Independent Variables (Individual Liquidity Ratios).

Y = Dependent variable (Profitability i.e. return on assets (ROA))

To test for significance, the following formulae will be applied.

$$Df = N - 2$$

Where:

Df = Degree of freedom

N = number of observations.

LIMITATIONS OF THE STUDY

- The study is limited to past five year's data only.
- The study is limited to nine listed companies only.
- Research was based on secondary data and historical in nature.
- Financial statement analysis and ratio has its own limitation.
- Sample companies are manufacturing not only floor tiles but also other wall tiles, vitrified and sanitary ware products.

DECISION RULE FORMULATION

- Null hypothesis (H_0): there is no significant Correlation coefficient (r) between two variable CR (QR or RCE) and ROA.
- Alternative Hypothesis (H_1): There is significant Correlation coefficient (r) is between two variables CR (QR or RCE) and ROA.

Test of Significance: To test for the significance of association between the two variables correlated, there is and to determine the degree of freedom (df), which will enable us determine the critical value of (r).

$$\begin{aligned} Df &= N - 2 \\ &= 5 - 2 \\ &= 3 \end{aligned}$$

Critical Values 'r' for Pearson's correlation coefficient table, At 3 degrees of freedom, and at 10% level of significance, is (+/- 0.805). If correlation coefficient is in the range of (- 0.805) to (+ 0.805) then required correlation is significant, so we reject Null hypothesis and accept alternative hypothesis i.e. there is significant Correlation coefficient (r) is between two variables CR (QR or RCE) and ROA or vice versa.

DATA PRESENTATION AND ANALYSIS

This session encompasses the presentation of the secondary data collected, in a tabulated format, and an analysis of these data through the application of financial ratios and correlation analysis, to enable the researcher draw a valid conclusion.

Table 1: Financial ratio and correlation coefficient with hypothesis testing

1. Kajaria ceramics Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho
1	2011	0.53	0.42	28.18	30.25	CA v/s ROA	0.971
2	2012	0.62	0.5	36.01	38.31	QR v/s ROA	0.975
3	2013	0.6	0.56	35.38	48.49	RCE v/s ROA	0.103
4	2014	0.79	0.64	35.1	65.17	Critical value	
5	2015	1.14	1.01	31.81	90.87	(+/-) 0.805	

2. Hindustan Sanitaryware & Industries Ltd (HSIL) limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho
1	2011	1.14	0.8	14.37	106.16	CA v/s ROA	-0.487
2	2012	0.91	0.84	11.33	153.41	QR v/s ROA	-0.115
3	2013	0.95	0.98	8.98	164.91	RCE v/s ROA	-0.631
4	2014	0.73	0.84	8.1	169.8	Critical value	
5	2015	1.01	0.73	11.39	198.58	(+/-) 0.805	

3. Somany Ceramics Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho
1	2011	0.79	1.04	17.18	29.7	CA v/s ROA	0.968
2	2012	0.78	0.9	20.59	35.95	QR v/s ROA	-0.160
3	2013	0.82	0.86	22.82	43.7	RCE v/s ROA	0.178
4	2014	0.86	0.96	17.81	56.77	Critical value	
5	2015	0.91	0.95	20.72	65.39	(+/-) 0.805	

4. NITCO Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho
1	2011	0.87	0.71	5.47	166.56	CA v/s ROA	-0.121
2	2012	0.79	0.58	5.1	147.26	QR v/s ROA	-0.072
3	2013	4.46	2.99	-5.53	76.3	RCE v/s ROA	0.970
4	2014	1.33	0.84	-6.69	17.04	Critical value	
5	2015	0.99	0.68	-9.78	-7.15	(+/-) 0.805	

5. Asian Granito India Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho
1	2011	1	1.46	11.18	106.35	CA v/s ROA	-0.791
2	2012	0.92	1.6	11.3	113.76	QR v/s ROA	-0.168
3	2013	0.84	1.79	10.08	118.26	RCE v/s ROA	-0.823
4	2014	0.83	1.76	8.23	124.14	Critical value	
5	2015	0.87	1.27	9.21	130.36	(+/-) 0.805	

6. CERA sanitaryware Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho	
1	2011	1.11	1.08	29.65	88.12	CA v/s ROA	0.894	Accept
2	2012	1.11	0.88	29.1	109.98	QR v/s ROA	0.203	Reject
3	2013	1.1	1.07	31.94	141.85	RCE v/s ROA	-0.394	Reject
4	2014	1.12	0.96	33.35	176.98	Critical value		(+/-) 0.805
5	2015	1.16	1.06	26.43	270.42	Critical value		

7. Orient Bell Limited

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho	
1	2011	0.73	1.03	9.33	65.36	CA v/s ROA	0.232	Reject
2	2012	0.75	0.9	9.09	124.68	QR v/s ROA	-0.832	Accept
3	2013	0.7	0.73	11.89	129.22	RCE v/s ROA	0.163	Reject
4	2014	0.78	0.73	8.49	130.13	Critical value		(+/-) 0.805
5	2015	0.75	0.85	9.63	131.24	Critical value		

8. Euro ceramics Ltd

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient	Ho	
1	2011	0.72	1.07	15.02	98.44	CA v/s ROA	0.872	Accept
2	2012	0.73	1.44	-8.08	31.95	QR v/s ROA	0.681	Reject
3	2013	0.46	0.99	-12.07	-6.06	RCE v/s ROA	0.245	Reject
4	2014	0.26	0.2	-404.04	-11.77	Critical value		(+/-) 0.805
5	2015	0.19	0.14	22.59	-47.74	Critical value		

9. Murudeshwar Ceramics Ltd

Sr. No	Year	CA	QR	RCE	ROA	Correlation coefficient - r	Ho	
1	2011	0.89	0.89	6.44	83.47	CA v/s ROA	-0.106	Reject
2	2012	1	1.37	6	81.12	QR v/s ROA	-0.970	Accept
3	2013	0.99	1.45	5.13	78.14	RCE v/s ROA	0.868	Accept
4	2014	0.95	1.94	5.2	75.38	Critical value		(+/-) 0.805
5	2015	0.91	1.9	5.55	75.8	Critical value		

Source: www.moneycontrol.com/financials

r = Pearson's Correlation Coefficient Ho = Null hypothesis

CA = Current Assets Ratio

H1 = Alternative hypothesis

QA = Quick Asset Ratio

ROA = Return on total Assets

RCE = Return on Capital employed (%)

TEST OF HYPOTHESES**Table 2 : Correlation coefficient and hypothesis testing**

Sr. no	Company Name	CA v/s ROA	Ho	QR v/s ROA	Ho	RCE v/s ROA	Ho
1	Kajaria	0.971	Accept	0.975	Accept	0.103	Reject
2	HSIL	-0.487	Reject	-0.115	Reject	-0.631	Reject
3	Somany	0.968	Accept	-0.160	Reject	0.178	Reject
4	NITCO	-0.121	Reject	-0.072	Reject	0.970	Accept
5	AGL	-0.791	Reject	-0.168	Reject	-0.823	Accept
6	CERA	0.894	Accept	0.203	Reject	-0.394	Reject
7	Orient	0.232	Reject	-0.832	Accept	0.163	Reject
8	Euro	0.872	Accept	0.681	Reject	0.245	Reject
9	Murudeshwar	-0.106	Reject	-0.970	Accept	0.868	Accept

DISCUSSION AND FINDINGS

The analysis conducted in the previous session for current asset ratio (CA) and Return on assets

(ROA) correlation coefficient indicates 44.4 % companies accept the null hypothesis. While 55.6 % companies reject the null hypothesis means accept alternative hypothesis. Hence there should be some significant relation between profitability and liquidity in major sample companies. After studying the table 2, we observed that there should be some partial negative correlation between current asset ratio (CA) and Return on assets (ROA).

In case of Quick ratio and Return on assets, 33.3% companies accept null hypothesis, means there should be no significant correlation between liquidity and profitability. And remain 66.7 % companies reject null hypothesis, means its represent there should be significant relation between liquidity and profitability. After studying table 2, majority companies have partial negative correlation between Quick ratio and Return on assets, and hence there should be some significant negative correlation between profitability and liquidity.

For Return on capital employed and return on assets, result is same as quick ratio v/s ROA. Analysis says 33.3 % companies accept null hypothesis, and remain 66.7 % reject null hypothesis, so there should be some significant correlation between RCE and ROA. And after studying table 2, majority companies have positive correlation between Return on capital employed and return on assets, and hence there should be some significant positive correlation between profitability and liquidity.

CONCLUSION

From the findings of this study, after the analyses in the previous chapters have been made, the following conclusions drawn for floor tiles manufacturing ceramic companies are

- A. There is a significant negative correlation between current ratio and profitability as measured by return on assets (ROA).
- B. There is significant negative correlation between quick ratio and profitability as measured by return on assets (ROA).
- C. There is significant positive correlation between return on capital employed and profitability as measured by return on assets (ROA).

RECOMMENDATIONS

Based on the conclusions drawn from the findings of this study, the researcher recommends that firms should maintain a moderate level of liquidity that does not threaten their present status of working, and yet allows them to make ample profits on their investments. This is because the negative correlation between liquidity and profitability indicates that both of them have an inverse relationship, such that gaining more of one means losing more of the other. Thus, firms should try to find an optimum balance between liquidity and profitability.

In addition to the above, the researcher also recommends that other researchers should carry out studies to find out the cause of the relationship between liquidity and profitability, in order to evaluate if there is a causal relationship between them or there is another factor causing the relationship between them. They could also carryout comparative studies on the subject matter.

RECOMMENDATION FOR FURTHER STUDY

Based on the summary, conclusion and recommendation in this research work, other researchers should carry out further studies on the leverage ratio, turnover ratio or others which show the degree of financial risk a company is exposed to. Research should also be done on the area of investment and financing or stock market ratio and long term solvency and stability ratio to know the ability of the company in meeting its long term obligations.

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