

ANALYSIS OF LIQUIDITY OF SELECTED COMPANIES FROM THE AGRO-BASED MANUFACTURING SECTOR IN INDIA

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ABSTRACT

Agro-based sector, which is one of the major upcoming industrial sectors in India, promotes integrated development of both agriculture and industry. It binds and strengthens industrial and agricultural linkages. This research is an attempt to study, analyse and compare the liquidity of companies from three major industries of Agro-based manufacturing sector in India namely: Textile, Paper and Sugar. Four companies from each industry have been selected for financial analysis. Liquidity analysis on data collected from annual reports of the selected companies from Agro-based manufacturing sector in India have been studied for a ten-year period from 2008-09 to 2017-18. Mean, Standard deviation and Co-variance was calculated for three liquidity ratios namely: Current Ratio, Liquid Ratio and Cash & Bank to Current Liability Ratio. Industry wise ranks and overall ranks were given to companies on the basis of mean. Share of each industry in overall industry mean was also found out. Statistical t-test was applied to measure the difference of liquidity among the selected companies. It was concluded that in terms of liquidity, companies from Textile and Paper industry were doing better than companies from Sugar Industry. Companies from Sugar industry were facing financial crunch. Vardhman Ltd from Textile industry was at Rank 1 among all companies. Analysis of ratios indicates that there is a significant difference in the liquidity ratios among the textile and paper industry, among the sugar and paper industry, and among the textile and sugar industry too.

KEYWORDS: *Agro-based Sector; Textile Industry; Paper Industry; Sugar Industry; Liquidity Analysis.*

Introduction

Agro-based industries are those industries which depend on agricultural products as primary raw-material. Agro-industries play an important role in strengthening industrial and agricultural linkages. They help in promoting integrated development of both agriculture and industry. In India, Agro sector is regarded as the 'sunrise sector' of the economy in view of large scope for growth and socio-economic impact on employment, income generation and exports. (Kachru, 2010). Looking at the strategic importance of Agro-based sector, its major industries should be studied and analysed.

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On the basis of the functions they perform, Agro-based industries can be classified into Agro-produce processing units, Agro-produce manufacturing units, Agro-inputs manufacturing units and Agro-service centre. From the above broad classification, Agro –based manufacturing sector is mainly divided into Textile Industry, Paper Industry, Sugar Industry, Vegetable Oil Industry, Leather Goods Industry, Rubber Goods Industry and Wood & Wood Products Industry (Paramasivan and Pasupathi, 2016). For the purpose of this study three major industries of Agro-based manufacturing sector are selected namely Textile, Paper and Sugar.

Use of financial ratios has been multi-dimensional and has been used for monitoring and understanding a company's financial performance, easing comparison, to track a company's financial trend and to spot areas of strengths and weaknesses. Company's such detailed analyses will highlight the areas of concern and remedial actions can be initiated by the management. Hence, the technique of Ratio analysis was used to measure liquidity of the selected Agro-based manufacturing companies of India and to understand and interpret their short-term financial soundness.

This research is an attempt to study, analyse and compare the liquidity of companies from three major industries of Agro-based manufacturing sector in India namely: Textile, Paper and Sugar. Four companies from each industry have been selected for financial analysis done for a ten-year period from 2008-09 to 2017-18. Liquidity analysis indicates short-term financial capacity of the company to meet its short-term financial obligations.

The paper is organized as follows: Section 2 includes a review of literature. Section 3 describes the Research Methodology which is followed by section 4 which includes the analysis and findings. The last section 5 includes the concluding discussion.

Literature Review

Literature review will shed light on prior research studies which are relevant for the selected research topic.

Kachru (2010) studied the growth, status and prospects of Agro-processing industries in India. A summary of the growth history of the sector, role of R &D in development, recent trends vis-a-vis crop-wise status of Agro processing industrialisation, problems faced by the sector, export trends, SWOT analysis, future avenues and role of this sector in the national economy was discussed. He observed significant increase in the number of institutions engaged in Agro processing research and teaching. Also, a fairly well spread network of processing facilities had developed in the country.

Raheman and Nasr (2007) studied the effect of working capital management on liquidity as well as profitability of 94 Pakistani companies listed on Karachi Stock Exchange for a period from 1999-2004. They studied the effect of different variables of working capital management on the Net operating profitability of firms. Pearson's correlation and regression analysis (pooled least square and general least square with cross section weight models) were used for analysis. They concluded that there is a strong negative relationship between variables of the working capital management, debt used by the firm and profitability of the firm. They also concluded negative relationship between liquidity and profitability. However, there is a positive relationship between size of the firm and profitability.

Nandi (2012) studied the liquidity management and their impact on profitability of Bharat Heavy Electrical Ltd. (BHEL) for a period from 1999-2000 to 2009-10. An attempt had been made to observe the trend values of liquidity position of the company and to study the correlation between liquidity and profitability. Data was analysed by using various statistical tests viz. T-test, F-test, Durbin-Watson test and Chi-square test. It was concluded that the company maintained adequate amount of net working capital in relation to current liabilities so as to keep a good amount of liquidity throughout the study period. It was recommended to maintain a definite proportion among different components of working capital.

Gowthami (2012) studied the liquidity performance of top performing manufacturing industries in India for the period 2000-2010. Top 20 manufacturing companies were selected from NSE and classified into five sectors. Multiple regression models were run with four liquidity measures as an independent variable and other measures like profitability, efficiency and leverage as dependent variables. The study concluded that most of the companies had poor liquidity position as reflected by their current ratios.

Arunkumar and Radharamanan (2012) analysed the effects of working capital management on corporate profitability of Indian manufacturing firms. Financial statements were analysed for a period

from 2005-06 to 2009-2010. Methods used for analysis were correlation and regression. The study rightly concluded that shorter cash conversion cycle, equal current assets and current liabilities, and higher turnover improves profitability. They further suggested that in the Indian context, a firm had to maintain a comparatively long period for inventory and accounts payable. The results further highlighted that cash velocity and firm size are significant in both the models.

Reddy and Narayan (2018) studied the impact of liquidity and leverage on profitability of Indian companies in order to analyse the relationship between liquidity and profitability and to investigate the impact of financial leverage and liquidity on the financial performance of select companies. A sample consisting of select ten pharmaceutical companies from Nifty index were analysed for the period 2006-07 to 2015-16. The model selected was pooled regression type of panel data analysis. The results showed that the liquidity of the companies affected the firm's capital structure and profitability. However, no such significant impact of leverage on profitability and capital structure was evidenced in the study.

Panigrahi, Raul and Gijare (2018) attempted to study the association between liquidity and profitability for five selected pharmaceutical companies from 2011-12 to 2015-16 with the intention to know whether companies earn profit while maintaining the necessary liquidity, or whether they are ready to sacrifice liquidity for the sake of earning higher profits. The techniques of Mootal's ultimate rank test were applied to analyse the data. The study concluded that liquidity position of Biocon Ltd. was the best and other companies needed to enhance their liquidity position for better execution. They recommended that firms were likely to enjoy better profitability if they managed their working capital with better efficiency and focused on inventory and cash position. Using Spearman's Rank Coefficient of Correlation study also concluded that liquidity and profitability of the sample companies are negatively correlated.

Research Methodology

Following research methodology has been adopted for the study.

Objectives of the Study

Following are the objectives of the study.

- To give sector/ industry wise ranks to selected companies from Agro-based manufacturing sector on the basis of liquidity
- To give overall ranks to selected companies from Agro-based manufacturing sector on the basis of liquidity
- To compare liquidity of selected companies of the Textile and Paper industry in the Agro-based manufacturing sector in India
- To compare liquidity of selected companies of the Sugar and Paper industry in the Agro-based manufacturing sector in India
- To compare liquidity of selected companies of the Textile and Sugar industry in the Agro-based manufacturing sector in India
- To give recommendations for better financial performance to the Agro-based manufacturing companies in India.

Hypothesis of the Study

Following hypothesis are framed based on the objectives of the study.

- There is no significant difference in liquidity of selected companies of the Textile and Paper industry in the Agro-based manufacturing sector in India
- There is no significant difference in liquidity of selected companies of the Sugar and Paper industry in the Agro-based manufacturing sector in India
- There is no significant difference in liquidity of selected companies of the Textile and Sugar industry in the Agro-based manufacturing sector in India

Sample Design

For the purpose of this study, three leading and major industries namely textile industry, paper industry and sugar industry are selected to represent Agro-based manufacturing sector in India. From each industry, four public listed companies from top ten companies in India on the basis of their sales/turnover have been selected. In total twelve listed companies are taken as sample which are described in table 1.

Table 1: Sample Listed Companies in India for the Study

| No | Industry | Selected Listed companies | Establishment year | Sales/Turnover as on 31-3-2018 (in ten lakhs) |
|----|----------|--|--------------------|--|
| 1. | Textile | Arvind Ltd.(ARV) | 1931 | 64,204.20 |
| | | Bombay Dyeing & Manufacturing Company Ltd. (BOM) | 1879 | 26,623.20 |
| | | Grasim Industries Ltd. (GRA) | 1947 | 1,57,884.70 |
| | | Vardhman Textiles Ltd. (VAR) | 1973 | 58,513.70 |
| 2. | Paper | International Paper APPM Ltd (APPM) | 1964 | 12,640.00 |
| | | Satia Industries Ltd. (SAT) | 1980 | 6342.20 |
| | | Seshasayee Paper & Boards Ltd. (SES) | 1960 | 11,046.50 |
| | | West Coast Paper Mills Ltd. (WES) | 1955 | 17,102.00 |
| 3. | Sugar | Balrampur Chini Mills Ltd. (BAL) | 1975 | 43,425.40 |
| | | Bannari Amman Sugars Ltd. (BAN) | 1983 | 14,807.50 |
| | | 3. DCM Shriram Industries Ltd. (DCM) | 1989 | 17,044.30 |
| | | 4. EID Parry (India) Ltd. (EID) | 1975 | 19,212.90 |

Source: Annual Reports of Selected Companies

These 12 selected samples listed companies from the textile, paper and sugar industry are among top ten companies from their respective sector/industry on the basis of net sales/turnover as on 31-3-2018. Hence, they are selected as sample to represent the Agro-based manufacturing industry in India.

Duration of the Study

Liquidity analysis of the selected companies from Agro-based manufacturing sector in India have been studied for a ten-year period from 2008-09 to 2017-18. The span of 10 years has been selected to be able to have fairly long and cyclically well-balanced period for analysing data.

Data Collection

Liquidity analysis of selected companies of Agro-based manufacturing sector in India was analysed on the basis of data collected from annual reports of selected companies. Moreover, other sources used for collection of the selected company's data include:

Respective company's website

Data bases such as Capitaline and CMIE (Prowess of the Centre for Monitoring Indian Economy)

Websites such as moneycontrol.com

Statistical Techniques

Following statistical tools have been applied for the purpose of analysis.

- Liquidity ratios indicate whether a company can pay its short-term obligations as and when they mature and also whether it has enough cash to meet its operational requirements. Following ratios were used for liquidity analysis of selected companies from Agro-based manufacturing sector in India.

Current Ratio

$$\frac{\text{Current Assets}}{\text{Current Liabilities}}$$

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

Liquid Ratio

$$\frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities}}$$

Liquid Ratio = $\frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities}}$

Cash and Bank to Current Liability Ratio

$$\frac{\text{Cash and Bank Balance}}{\text{Current Liabilities}}$$

Cash Position Ratio = $\frac{\text{Cash and Bank Balance}}{\text{Current Liabilities}}$

SPSS software (version 24) was used to find out mean, standard deviation, co-variance and for other types of descriptive analysis. Sector wise and overall ranks were given to companies on the basis of mean.

Statistical t-test was applied to measure the difference of liquidity among the selected companies.

Data Analysis and Findings

• **Liquidity Analysis**

Liquidity ratios are one of the most important tools to analyse whether a company can repay its current financial obligations as and when they arise or not. Current ratio, liquidity ratio and cash to current liabilities ratio have been taken into consideration to measure the liquidity of the companies.

• **Current Ratio (L-1)**

Current ratio indicates short-term financial capacity of a company to repay its current liabilities. Table 2 indicates current ratio of the selected Agro-based manufacturing companies from the textile, paper and sugar industries for the time period 2008-09 to 2017-18.

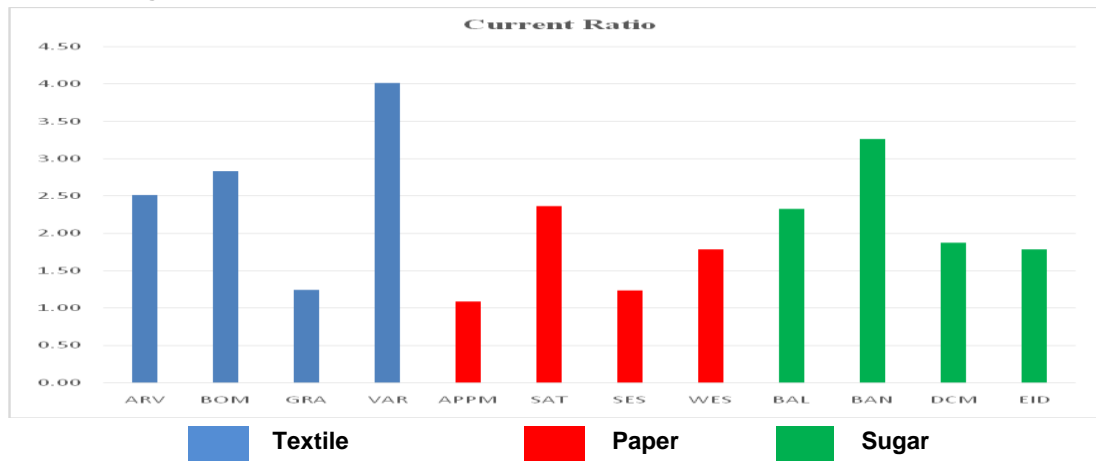
Table 2 indicates that Vardhman from the textile industry, Satia from the paper industry and Bannari Amman from the sugar industry indicated the most preferable ratio for the study period.

Table 2: Current Ratio of Selected Companies

| Year | Textile Industry | | | | Paper Industry | | | | Sugar Industry | | | |
|-------------------------------------|------------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|
| | ARV | BOM | GRA | VAR | APPM | SAT | SES | WES | BAL | BAN | DCM | EID |
| 2008-09 | 2.63 | 2.76 | 0.99 | 2.61 | 1.30 | 1.29 | 1.14 | 2.49 | 1.99 | 2.07 | 1.90 | 1.42 |
| 2009-10 | 3.26 | 2.69 | 1.03 | 4.36 | 1.42 | 1.38 | 1.18 | 1.85 | 1.47 | 1.50 | 1.81 | 1.30 |
| 2010-11 | 2.65 | 3.69 | 1.34 | 4.11 | 1.27 | 1.56 | 2.11 | 2.19 | 3.83 | 3.09 | 1.78 | 2.63 |
| 2011-12 | 2.10 | 4.12 | 1.34 | 3.98 | 1.07 | 1.60 | 1.25 | 1.88 | 2.42 | 3.16 | 1.75 | 2.07 |
| 2012-13 | 2.24 | 2.05 | 1.19 | 4.27 | 0.88 | 1.68 | 1.22 | 1.92 | 2.09 | 3.02 | 1.88 | 2.68 |
| 2013-14 | 2.46 | 1.87 | 1.44 | 4.02 | 1.04 | 2.25 | 1.23 | 1.62 | 1.66 | 4.72 | 1.42 | 2.22 |
| 2014-15 | 2.52 | 2.66 | 1.42 | 4.06 | 0.96 | 3.44 | 1.08 | 1.62 | 2.01 | 5.15 | 1.81 | 1.98 |
| 2015-16 | 2.72 | 2.93 | 1.45 | 4.72 | 1.01 | 3.95 | 1.02 | 1.35 | 2.57 | 3.84 | 1.73 | 1.16 |
| 2016-17 | 2.45 | 1.88 | 1.14 | 3.61 | 0.97 | 3.51 | 0.96 | 1.44 | 3.40 | 3.38 | 2.13 | 1.14 |
| 2017-18 | 2.10 | 3.64 | 1.04 | 4.37 | 0.93 | 3.00 | 1.16 | 1.49 | 1.85 | 2.71 | 2.55 | 1.25 |
| Mean | 2.51 | 2.83 | 1.24 | 4.01 | 1.08 | 2.37 | 1.24 | 1.79 | 2.33 | 3.26 | 1.88 | 1.79 |
| S.D. | 0.34 | 0.79 | 0.18 | 0.57 | 0.18 | 1.01 | 0.32 | 0.35 | 0.76 | 1.10 | 0.29 | 0.60 |
| C.V.% | 13.60 | 27.76 | 14.67 | 14.31 | 16.69 | 42.86 | 25.86 | 19.87 | 32.52 | 33.84 | 15.66 | 33.83 |
| Sector wise Rank as per mean | 3 | 2 | 4 | 1 | 4 | 1 | 3 | 2 | 2 | 1 | 3 | 4 |
| Overall Rank as per mean | 4 | 3 | 10 | 1 | 12 | 5 | 11 | 9 | 6 | 2 | 7 | 9 |

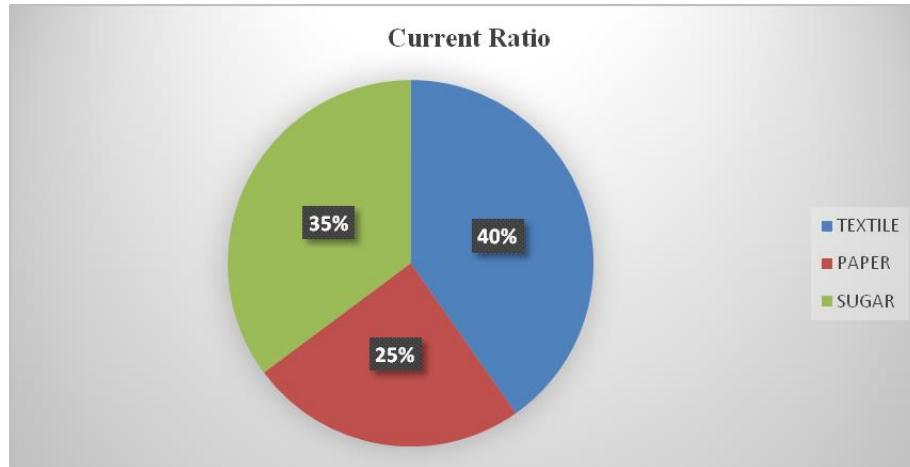
Figure 1 shows ratio mean (mentioned in table 2) of selected Agro-based manufacturing companies.

Figure 1: Mean of Current Ratio of Selected Companies (2008-09 to 2017-18)



Annexure 1 shows that the industry mean of the ratio for the period of 2008-09 to 2017-18 for textile, paper and sugar industry were 2.65:1, 1.62:1 and 2.31:1 respectively. The total mean of all the three industries was 6.58:1

Figure 2: Industry Mean of Current Ratio



Statistical test (t-test) indicates that there is a significant difference between the current ratio of textile and paper industry (p-value 0.000). Also, there is a significant difference between the current ratio of sugar and paper industry (p-value 0.000). However, there is no significant difference between the current ratio of textile and sugar industry (p-value 0.151). Thus, among the three liquidity ratios under study, there is a significant difference between the current ratios in two out of three inter-industry comparisons.

It can thus be concluded that Vardhman, Satia and Bannari Amman indicated a better financial condition for the payment of short-term financial obligations. Further, industry wise analysis indicates that in all the three industries, current assets are higher than current liabilities. The current ratio should normally be between 1.33:1 and 2:1. Therefore, all the three industries indicate preferable financial short-term liquidity condition.

Liquid Ratio(L-2)

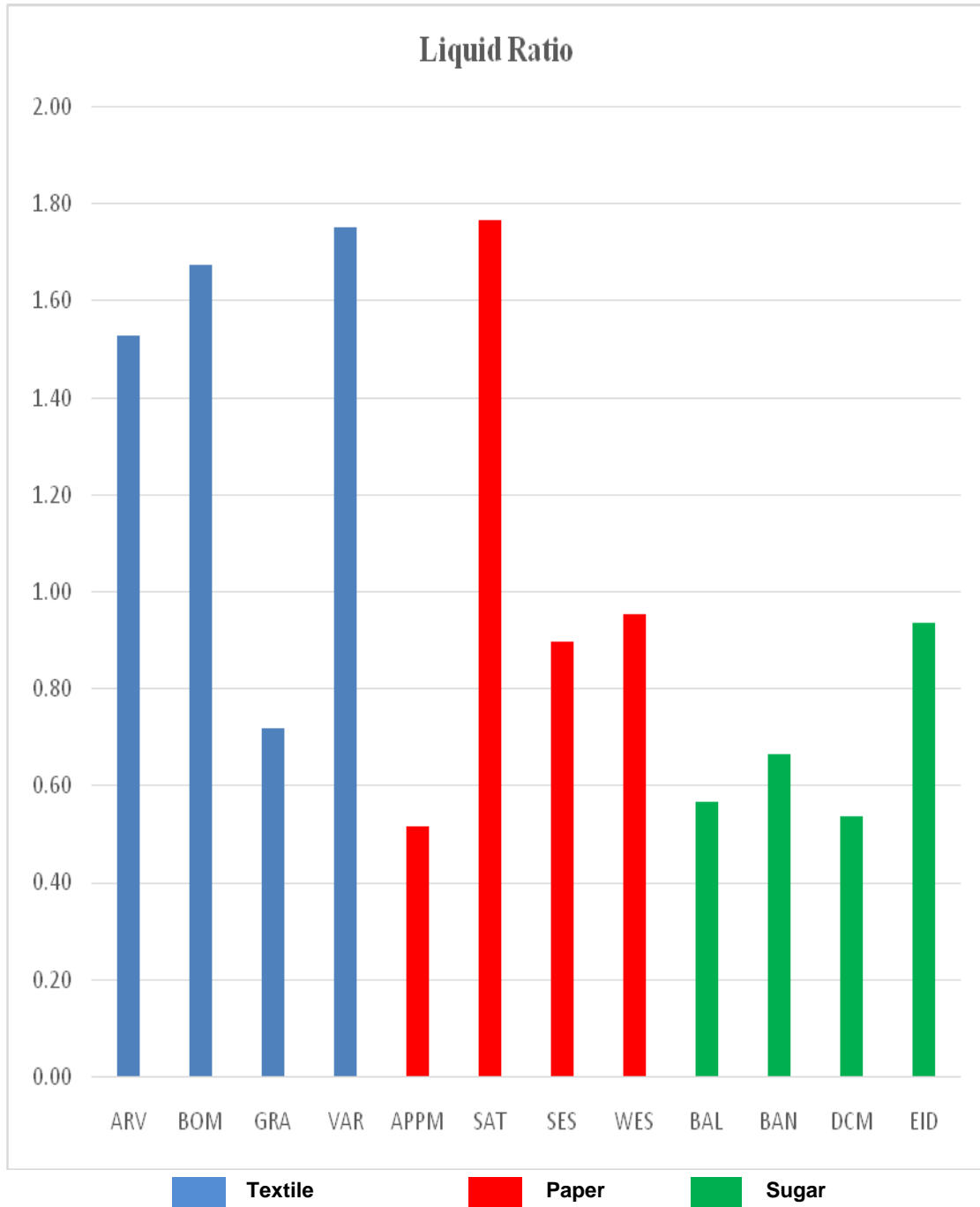
Liquid ratio indicates short-term financial ability of a company to pay its immediate financial obligations. Table 3 indicates liquid ratio of selected companies from textile, paper and sugar industries for the time period 2008-09 to 2017-18. Table 3 shows that Vardhman from textile industry, Satia from paper industry and EID Parry Ltd. from sugar industry indicated preferable ratio for the study period.

Table 3: Liquid Ratio of Selected Companies

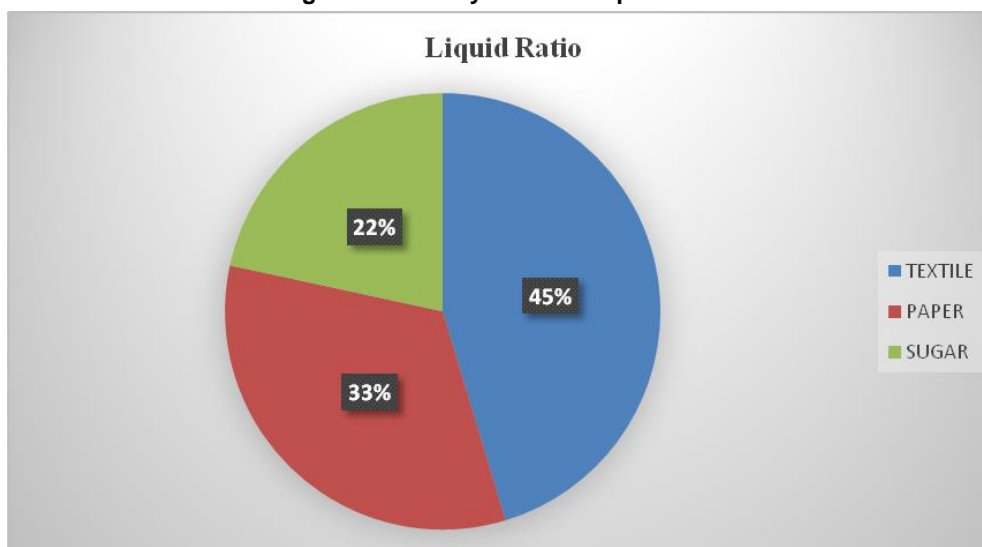
| Year | Textile Industry | | | | Paper Industry | | | | Sugar Industry | | | |
|-------------------------------------|------------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|
| | ARV | BOM | GRA | VAR | APPM | SAT | SES | WES | BAL | BAN | DCM | EID |
| 2008-09 | 1.67 | 1.94 | 0.55 | 1.77 | 0.60 | 1.05 | 0.78 | 1.91 | 0.85 | 0.89 | 0.60 | 1.02 |
| 2009-10 | 2.30 | 2.37 | 0.66 | 2.00 | 0.78 | 1.11 | 0.93 | 1.21 | 0.81 | 0.68 | 0.46 | 0.88 |
| 2010-11 | 1.56 | 1.28 | 0.92 | 1.58 | 0.65 | 1.12 | 1.85 | 1.36 | 1.09 | 0.72 | 0.41 | 1.99 |
| 2011-12 | 1.17 | 1.64 | 0.80 | 1.61 | 0.39 | 1.03 | 0.91 | 0.97 | 0.52 | 0.61 | 0.49 | 1.34 |
| 2012-13 | 1.30 | 0.72 | 0.70 | 1.83 | 0.43 | 1.25 | 0.93 | 0.98 | 0.50 | 0.51 | 0.49 | 1.13 |
| 2013-14 | 1.51 | 1.01 | 0.73 | 1.67 | 0.49 | 1.74 | 0.85 | 0.58 | 0.20 | 0.39 | 0.43 | 0.81 |
| 2014-15 | 1.54 | 1.61 | 0.73 | 1.75 | 0.43 | 2.28 | 0.70 | 0.55 | 0.52 | 0.75 | 0.56 | 0.74 |
| 2015-16 | 1.67 | 1.84 | 0.82 | 2.10 | 0.44 | 2.71 | 0.71 | 0.53 | 0.47 | 0.84 | 0.43 | 0.58 |
| 2016-17 | 1.34 | 1.30 | 0.63 | 1.53 | 0.45 | 3.02 | 0.56 | 0.74 | 0.41 | 0.67 | 0.63 | 0.41 |
| 2017-18 | 1.20 | 3.03 | 0.63 | 1.67 | 0.49 | 2.36 | 0.75 | 0.70 | 0.30 | 0.58 | 0.86 | 0.45 |
| Mean | 1.53 | 1.67 | 0.72 | 1.75 | 0.52 | 1.77 | 0.90 | 0.95 | 0.57 | 0.66 | 0.54 | 0.93 |
| S.D. | 0.33 | 0.67 | 0.11 | 0.18 | 0.12 | 0.76 | 0.35 | 0.44 | 0.27 | 0.15 | 0.14 | 0.47 |
| C.V.% | 21.48 | 40.15 | 15.08 | 10.37 | 23.67 | 43.23 | 39.55 | 46.10 | 47.87 | 22.72 | 25.49 | 50.54 |
| Sector wise Rank as per mean | 3 | 2 | 4 | 1 | 4 | 1 | 3 | 2 | 3 | 2 | 4 | 1 |
| Overall Rank as per mean | 4 | 3 | 8 | 2 | 12 | 1 | 7 | 5 | 10 | 9 | 11 | 6 |

Figure 3 shows the ratio mean (mentioned in table 3) of selected companies from the Agro-based manufacturing sector.

Figure 3: Mean of Liquid Ratio of Selected Companies (2008-09 to 2017-18)



Annexure 1 shows that the industry mean of the ratio for the period of 2008-09 to 2017-18 for textile, paper and sugar industries were 1.42:1, 1.03:1 and 0.68:1 respectively. The total mean of all the industries was 3.13:1.

Figure 4: Industry Mean of Liquid Ratio

Independent Samples t-test indicates that there is a significant difference between the liquid ratio of textile and paper industry (p-value 0.006). Likewise, there is a significant difference between the liquid ratio of paper and sugar industry (p-value 0.003). Again, there is a significant difference between the liquid ratio of textile and sugar industry (p-value 0.000). Therefore, among the three liquidity ratios in this study, there is a significant difference between the liquid ratios in all the three inter-industry comparative analysis.

It can be concluded that Vardhman, Satia and EID Parry indicated better liquid conditions to pay financial obligations on immediate basis. It is further concluded that the liquid condition of the textile industry is better than that of the paper and sugar industries.

Cash to Current Liabilities Ratio (L-3)

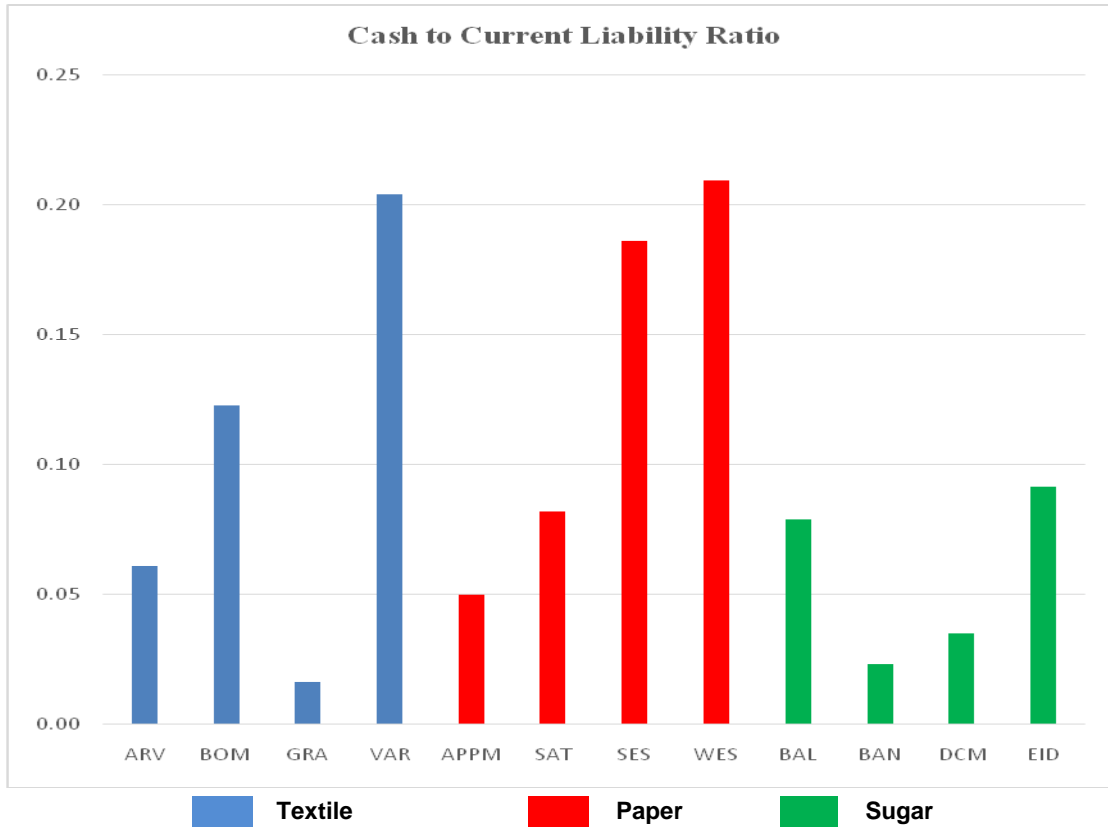
Cash to current liabilities ratio indicates short-term financial ability of a company to pay its current liabilities out of its cash on hand. Table 4 indicates cash to current liabilities ratio of selected companies from textile, paper and sugar industries for the period 2008-09 to 2017-18. Table 4 shows that Vardhman from textile industry, West Coast from paper industry and EID Parry from sugar industry indicated preferable ratio for the study period.

Table 4: Cash to Current Liabilities Ratio of Selected Companies

| Year | Textile Industry | | | | Paper Industry | | | | Sugar Industry | | | |
|-------------------------------------|------------------|--------------|--------------|--------------|----------------|--------------|--------------|---------------|----------------|--------------|--------------|--------------|
| | ARV | BOM | GRA | VAR | APPM | SAT | SES | WES | BAL | BAN | DCM | EID |
| 2008-09 | 0.04 | 0.27 | 0.04 | 0.48 | 0.04 | 0.11 | 0.35 | 1.15 | 0.07 | 0.02 | 0.06 | 0.23 |
| 2009-10 | 0.09 | 0.07 | 0.01 | 0.47 | 0.08 | 0.03 | 0.47 | 0.42 | 0.06 | 0.02 | 0.04 | 0.16 |
| 2010-11 | 0.05 | 0.05 | 0.01 | 0.08 | 0.11 | 0.03 | 0.17 | 0.31 | 0.29 | 0.02 | 0.02 | 0.17 |
| 2011-12 | 0.05 | 0.05 | 0.01 | 0.11 | 0.08 | 0.04 | 0.02 | 0.04 | 0.01 | 0.02 | 0.05 | 0.10 |
| 2012-13 | 0.16 | 0.04 | 0.01 | 0.04 | 0.05 | 0.06 | 0.25 | 0.02 | 0.16 | 0.01 | 0.04 | 0.03 |
| 2013-14 | 0.12 | 0.03 | 0.02 | 0.07 | 0.04 | 0.09 | 0.10 | 0.02 | 0.10 | 0.01 | 0.02 | 0.09 |
| 2014-15 | 0.04 | 0.10 | 0.03 | 0.25 | 0.01 | 0.13 | 0.03 | 0.03 | 0.07 | 0.04 | 0.02 | 0.05 |
| 2015-16 | 0.02 | 0.18 | 0.01 | 0.40 | 0.03 | 0.11 | 0.03 | 0.03 | 0.01 | 0.05 | 0.02 | 0.08 |
| 2016-17 | 0.01 | 0.22 | 0.02 | 0.05 | 0.02 | 0.14 | 0.06 | 0.06 | 0.01 | 0.03 | 0.02 | 0.01 |
| 2017-18 | 0.01 | 0.20 | 0.01 | 0.09 | 0.05 | 0.09 | 0.37 | 0.02 | 0.01 | 0.02 | 0.04 | 0.01 |
| Mean | 0.06 | 0.12 | 0.02 | 0.20 | 0.05 | 0.08 | 0.19 | 0.21 | 0.08 | 0.02 | 0.03 | 0.09 |
| S.D. | 0.05 | 0.09 | 0.01 | 0.18 | 0.03 | 0.04 | 0.17 | 0.36 | 0.09 | 0.01 | 0.01 | 0.07 |
| C.V.% | 83.10 | 70.30 | 53.27 | 89.35 | 58.84 | 49.39 | 89.29 | 171.39 | 112.51 | 51.94 | 41.53 | 81.15 |
| Sector wise Rank as per mean | 3 | 2 | 4 | 1 | 4 | 3 | 2 | 1 | 2 | 4 | 3 | 1 |
| Overall Rank as per mean | 8 | 4 | 12 | 2 | 9 | 6 | 3 | 1 | 7 | 11 | 10 | 5 |

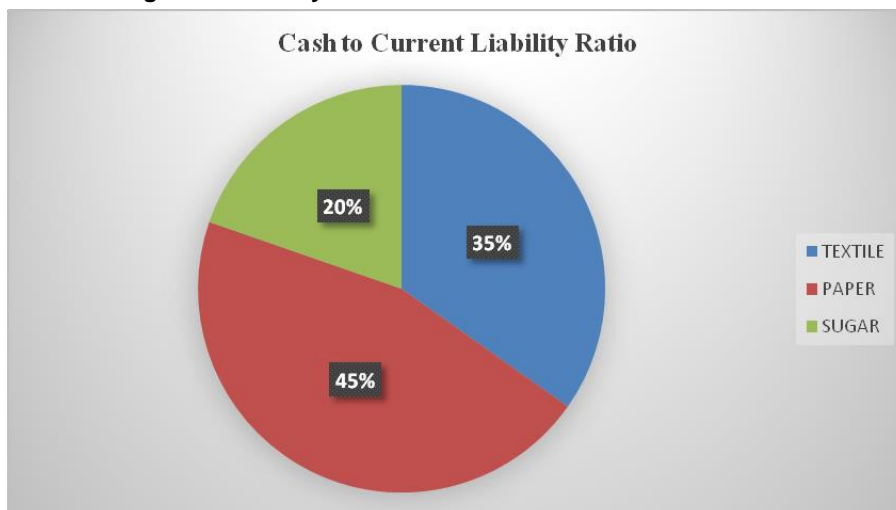
Figure 5 shows ratio mean (mentioned in table 4) of selected companies from Agro-based manufacturing sector.

Figure 5: Mean of Cash to Current Liabilities of Selected Companies (2008-09 to 2017-18)



Annexure 1 shows that the industries mean of the ratio during the study period were 0.1:1, 0.13:1 and 0.06:1 for the textile, paper and sugar industries respectively. Total mean of all the three industries was 0.29:1.

Figure 6: Industry Mean of Cash to Current Liabilities Ratio



Statistical test (t-test) indicates that there is no significant difference between the cash to current liabilities ratio of the textile and paper industry (p-value 0.412). Also, there is a significant difference between the cash to current liabilities ratio of the sugar and paper industry (p-value 0.029). However, there is a significant difference between the cash to current liabilities ratio of the textile and sugar industry (p-value 0.049). Thus, among the three liquidity ratios under study, there is a significant difference between the cash to current liabilities ratios in two out of three inter-industry comparisons.

It can be concluded that Vardhman, West Coast and EID Parry indicated better cash reserves to pay current liabilities. Further, it is concluded that there isn't sufficient cash for payment of current liabilities in any of the three industries. Sugar industry has the least preferred liquid position.

Analysis of the current, liquid and cash to current liabilities ratios indicates that there is a significant difference in the liquidity ratios among the textile and paper industry, among the sugar and paper industry, and among the textile and sugar industry too. Thus, **Hypothesis 1, 2 and 3 are rejected.**

Sector Wise Ranking of Selected Companies from the Agro-Based Manufacturing Sector in India with Reference to Liquidity Ratios

Table 5 mentions sector wise ranks of the selected companies given on the basis of liquidity ratio analysis for the time period 2008-09 to 2017-18. Ranks are based on the mean of the ratios for the period 2008-09 to 2017-18, which are described in tables 1 to 3.

The table below indicates that Vardhman from the textile industry, both Satia and West Coast Ltd. from the paper industry and EID Parry from the sugar industry secured the top position among the selected companies of India. On the other hand, Grasim from the textile industry, APPM from the paper industry and DCM Shriram from the sugar industry secured 4th position among the selected companies in India.

Table 5: Sector Wise Ranks Given to the Companies Based on Ratio Analysis

| Industry | | Textile | | | | Paper | | | | Sugar | | | |
|-----------------|-----|---------|-----|-----|-----|-------|------|------|------|-------|------|------|-----|
| Company | | ARV | BOM | GRA | VAR | APPM | SAT | SES | WES | BAL | BAN | DCM | EID |
| Liquidity Ratio | L-1 | 3 | 2 | 4 | 1 | 4 | 1 | 3 | 2 | 2 | 1 | 3 | 4 |
| | L-2 | 3 | 2 | 4 | 1 | 4 | 1 | 3 | 2 | 3 | 2 | 4 | 1 |
| | L-3 | 3 | 2 | 4 | 1 | 4 | 3 | 2 | 1 | 2 | 4 | 3 | 1 |
| Sector Mean | | 3 | 2 | 4 | 1 | 4 | 1.67 | 2.67 | 1.67 | 2.33 | 2.33 | 3.33 | 2 |
| Sector Rank | | 3 | 2 | 4 | 1 | 4 | 1.5 | 3 | 1.5 | 2.5 | 2.5 | 4 | 1 |

Overall Ranking of Selected Companies from the Agro-Based Manufacturing Sector in India

Table 6 mentions the overall ranks of the companies given on the basis of ratio analysis for the time period of 2008-09 to 2017-18. The ranks are based on the mean of the ratios for the period of 2008-09 to 2017-18, which are described in tables 1 to 3.

The table indicates that Vardhman Ltd. from the textile industry secured first position among the selected companies in India. Bombay dyeing Ltd from the textile industry is on 2nd position, Satia from the paper industry at 3rd position, West Coast Ltd from the paper industry at 4th position and Arvind Mills from the textile industry at the 5th position. However, APPMLtd. from the textile industry secured the 12th position during the study period. Overall, companies from Textile industry had better liquidity compared to paper and sugar.

Table 6: Overall Ranks Given to the Companies Based on Ratio Analysis

| Industry | | Textile | | | | Paper | | | | Sugar | | | |
|-----------------|-----|---------|------|-----|------|-------|-----|-----|-----|-------|------|------|------|
| Company | | ARV | BOM | GRA | VAR | APPM | SAT | SES | WES | BAL | BAN | DCM | EID |
| Liquidity Ratio | L-1 | 4 | 3 | 10 | 1 | 12 | 5 | 11 | 9 | 6 | 2 | 7 | 9 |
| | L-2 | 4 | 3 | 8 | 2 | 12 | 1 | 7 | 5 | 10 | 9 | 11 | 6 |
| | L-3 | 8 | 4 | 12 | 2 | 9 | 6 | 3 | 1 | 7 | 11 | 10 | 5 |
| Sector Mean | | 5.33 | 3.33 | 10 | 1.67 | 11 | 4 | 7 | 5 | 7.67 | 7.33 | 9.33 | 6.67 |
| Sector Rank | | 5 | 2 | 11 | 1 | 12 | 3 | 7 | 4 | 9 | 8 | 10 | 6 |

Conclusion

The result of the hypothesis testing on the basis of t-test for liquidity of selected companies from the Agro-based manufacturing sector in India is as shown in table 7

Table 7: Result of Hypothesis Testing

| Hypothesis Testing Results for Liquidity Ratios | | | | |
|---|---------|-------------------------------------|--|-----------------------|
| Specific Liquidity Ratio | p-value | Results For Inter-sector Comparison | Overall Result For Sector Sub-Category | Hypothesis Conclusion |
| Textile & Paper | | | | |
| Current Ratio | 0.000 | Significant Difference | Significant Difference (2/3) | Hypothesis 1 Rejected |
| Liquid Ratio | 0.006 | Significant Difference | | |
| Cash to CL Ratio | 0.412 | No Significant Difference | | |
| Paper & Sugar | | | | |
| Current Ratio | 0.000 | Significant Difference | Significant Difference (3/3) | Hypothesis 2 Rejected |
| Liquid Ratio | 0.003 | Significant Difference | | |
| Cash to CL Ratio | 0.029 | Significant Difference | | |
| Textile & Sugar | | | | |
| Current Ratio | 0.151 | No Significant Difference | Significant Difference (2/3) | Hypothesis 3 Rejected |
| Liquid Ratio | 0.000 | Significant Difference | | |
| Cash to CL Ratio | 0.049 | Significant Difference | | |

Above table indicates that there is a significant difference in the liquidity ratios among the textile and paper industry, among the sugar and paper industry, and among the textile and sugar industry too.

During the study period, liquidity was not a major issue for any of the industries. Moreover, current ratio of all the industries was within the limits of the ideal ratios. The sugar industry is the only one which needs to improve its liquid ratio by increasing its liquid assets. If management of the industries want to improve their cash on hand situation, they must improve their collection policy or facilitate faster and effective cash realisation from current assets. For revival of sugar industry, government can impose export subsidy on raw sugar, remove existing restrictions on trade policy, ease regulations on release of non-levy sugar, regulate sugar-cane price, etc. Such corrective steps may revive the sugar industry in India and bring it out of working capital shortage.

This will ensure that there is no liquidity crunch or any issue to pay back short-term obligations. This will help the companies to be better equipped to face competition in the market. Hence, with the government's thrust on 'Make in India' initiative and revival measures for domestic industries, the future of textile, paper and sugar sectors looks very promising.

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Annexure 1

Result of t-Test

| Types of Ratio | Ratio Code | Textile | | | Paper | | | Sugar | | | t-Value | | |
|-----------------|------------|---------|------|-------|-------|------|-------|-------|------|--------|-----------------|-----------------|---------------|
| | | Mean | S.D. | C.V.% | Mean | S.D. | C.V.% | Mean | S.D. | C.V. % | Textile & Paper | Textile & Sugar | Paper & Sugar |
| Liquidity Ratio | L-1 | 2.65 | 0.47 | 17.59 | 1.62 | 0.47 | 26.32 | 2.31 | 0.69 | 28.96 | 4.84 | 1.45 | -3.68 |
| | L-2 | 1.42 | 0.32 | 21.77 | 1.03 | 0.42 | 38.14 | 0.68 | 0.26 | 36.66 | 2.83 | 7.27 | 3.11 |
| | L-3 | 0.10 | 0.08 | 74.00 | 0.13 | 0.15 | 92.23 | 0.06 | 0.05 | 71.78 | 0.83 | 2.00 | 2.22 |

