

LIQUIDITY MANAGEMENT AND CORPORATE PROFITABILITY: A STUDY ON INDIAN TEXTILE INDUSTRY

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Abstract : *Efficient working capital management is an essential instrument to realize continuous profit which has direct effect on the value of the firm. Better management of liquidity helps the firm to attain its objectives. The objective of any firm or industry is to generate high profit margin. Management of liquidity varies industry to industry due to requirement of raw material, labour force, purchase and sale policy, credit collection policy etc. The traditional rule indicates that liquidity and profitability are inversely related. This study tries to provide the empirical evidence regarding the relationship of working capital management and profitability. For this purpose, we have taken 43 Indian textile sectors listed in Bombay Stock Exchange as sample. Standalone secondary data are collected for 12 years from 2005-06 to 2016-17 using Prowess database. Panel data regression and ratio analysis have been used to make the study. It was found that performance of Indian textile industry is influenced by financial liquidity.*

IndexTerms – Working Capital Management, Profitability, Factors of Working Capital Management,

I. INTRODUCTION

The decentralized power looms, hosiery and knitting sector form the largest component of the textiles sector. The close linkage of the textile industry to agriculture (for raw materials such as cotton), the ancient culture and traditions of the country in terms of textiles make the Indian textiles sector unique in comparison to the same industries of other countries. The Indian textile industry has the capacity to produce a wide variety of products suitable to different market segments, both within India and across the world. It is also seen that a large section of people directly and indirectly engaged in this industry. Management of this industry are facing different problems. They need different information about production, marketing and finance. Therefore, research about finance is very imperative for efficient running of industry.

Efficiency of working capital management depends on the function of credit policy and the cost-efficient supply of raw material and inputs. It is also the major task of financial manager. No doubt to say that profitability of any manufacturing sector is linked with the management of working capital which is a major part of managing financial operations. To improve the efficiency of accounts receivable can generate bad debts; allowing for discounts can improve the collection of receivables but the fast collection of receivables can also lead to lost sales due to a strict credit policy. Management has to consider these factors of realities during selection of sound working capital management policy. A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Liquidity is the ability of the firms to meet their short term obligations and their continued flow can be guaranteed for a profitable venture. Working Capital Management includes maintaining optimum balance of working capital components – receivable, inventory and payables and using the cash efficiently for day-to-day operations. Optimization of working capital balance means minimizing the working capital requirement and getting maximum possible revenues.

II. OBJECTIVES OF THE STUDY

Management of working capital has different aspects. It tries to maintain the optimum requirement of working capital by which a firm can run its regular activities smoothly and effectively. This study has been undertaken for the following objectives:

- i) To analyze the existing literature relating to management of liquidity and its effect on profitability.
- ii) To analyze the effect of different liquidity management ratio on profitability.
- iii) To make some suggestion and conclusions for the management of concerned sector.

Following hypothesis have been formed to attain the above objectives:

- H₀₁: Textile industries are maintaining conventional norms for liquidity management.
 H₀₂: The profitability of textile sector is not influenced by management of working capital
 H₀₃: There found no inverse relation between profitability and liquidity

III. LIMITATION OF THE STUDY

This study suffers several limitations, which are as under:

- i. We have selected only 43 sectors but not considered maximum number of operating units as sample, which may leave some grounds of error.
- ii. We have considered the data for the period of twelve years from 2005-06 to 2016-2017. Hence the time period of the study is very limited.
- iii. The accuracy and reliability of the data is based on the prowess data base.
- iv. Different macroeconomic factors have some impact on this sector. But these factors are excluded from our study.

IV. RESEARCH GAP

Different research studies in financial management have been conducted covering financial planning and control, capital budgeting, management of profitability and liquidity. Most of the previous studies have focused on cement industry, steel industry or manufacturing as a whole but very few studies are fund on textile industry. This industry is basically labour intensive in nature but effects of labour involvement

are not empirically analyzed in any studies. More over both long term and short term funds are sources of working capital but which sources are more suitable to this industry are not examined. Some of the studies provide the idea of working capital management and its important determinants. Very few study show the relationship with performance of working capital management and its important factors of textile sector. This study tries to establish the relationship with liquidity management and profitability of textile sector in India.

V. RESEARCH METHODOLOGY

5.1 Sample size

This study consists of 43 corporate sector of textile industry those are listed under BSE (Bombay Stock Exchange). The study comprises for the 12 years data counted from 2005-06 to 2016-17. The standers for selecting the sample are – (i) firm must be listed on Indian Stock Exchange, (ii) stocks must be listed all throughout the time period of study. (iii) Firms having missing data for above mentioned time were also exempted and not considered in this study.

5.2 Sources of Data

In this study we have considered the secondary data of the selected company. The sample data for this study has been collected through prows for twelve years started 1st April 2005 to 31st March 2017.

5.3 Data Analysis

The data have been analyzed using SPSS software. All relevant data collected from secondary sources have examined and several statistical tests have made to achieve the objective of this study. Statistical significance and P-value are two important statistical terms in our study. By these two terms we can express the nature of different test. **Statistical significance indicates the probably true.** Through this term we can generalize the population. P-value indicates the probability and .05 is the maximum level of statistical significance.

5.4 Variables

We have considered some ratio of liquidity measurement factors as controllable variables and some profitability measurement ratio as dependent variable.

5.4.1 Dependent Variable

- i. **Net Profit Margin (NPM):** Profitability and management efficiency of a business can be judged by the net margin ratio. It is the ratio of net profit to net sales. Higher ratio indicates the greater earning capacity and better is the return to the proprietor's fund. It is calculated by the following formula.

$$NPM = \frac{\text{Profit After Tax}}{\text{Total sales}} \times 100$$

- ii. **Return on Net worth (RONW):** This ratio is used to measure the overall profitability of the business and indicates how profitably proprietors funds being used. Higher ratio indicates the greater financial strength and better return to the proprietors.

$$RONW = \frac{\text{Profit After Tax}}{\text{Net Worth}} \times 100$$

- iii. **Return on Assets (ROA):** Strength of earning capacity of a firm is also measured by the ratio of return on assets (ROA). This ratio shows the management efficiency of current assets and how many amounts is gain by employing one rupee of money in assets. High volume of ratio indicates the better management and proper utilization of current assets. This is the ratio of net income to total assets.

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}} \times 100$$

5.4.2 Independent Variable

- i. **Current Ratio (CR):** It is the ratio of current assets to current liabilities that indicates the power of paying short term liabilities from current assets. Current assets like cash debtors, stock, advance, bill of exchange which are easily convertible into cash within 12 months are taken into consideration. Similarly, current liabilities are those which are fallen due within a year. The standard ratio is 2:1. Higher current ratio indicates the ability of the firm to meet current liabilities as larger amount is available for one rupee of current liabilities. Low current ratio is the indicator of less margins of safety and lower current with high capital turnover ratio are the symptoms case of overtrading.

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

- ii. **Quick Ratio (QR):** This is the ratio of quick current assets and quick current liabilities. It is a subsidiary to current ratio and reveals the ability of the firm to meets its immediate liabilities. This ratio serves a more rigorous measure of liquidity and is considered a better test of financial strength.

$$QR = \frac{\text{Current Assets} - \text{Stock}}{\text{Current Liabilities} - \text{Bank overdraft}}$$

- iii. **Debt Equity Ratio (D/E):** The long term financial solvency is measured by the debt equity ratio. This ratio shows the relationship between borrowed fund and owner's capital. The claims of creditors and shareholders against the assets of the firm are to justify by this ratio. Higher the ratio greater is the risk to the creditors and low ratio represents the high margin of safety to the creditors.

$$D/E \text{ Ratio} = \frac{\text{Long term Debt}}{\text{Shareholders' equity}}$$

- iv. **Size of the firm (SIZE):** The size of the firm is measured as the natural logarithm of sales.

- v. **Growth of the firm (GR):** It is measured by the change of sale volume.

$$GR = \frac{\text{Sales at time } t - \text{Sales at time } (t-1)}{\text{Sales at time } (t-1)}$$

$$t = 1, 2, 3, 4, \dots, 12 \text{ (12 years)}$$

5.5 Data Analysis Model

In this study a model is used to establish the rapport between power of earning capacity and management of working capital. Using a general regression model we have tried to find out the nature of reliance of profitability on variable and nature of effect of variables on profitability. The effect of the variable may be direct or indirect on profitability. All types of nature of each variable will be justified by the regression model. The relation between liquidity management and performance of textile sector is measured by using panel data analysis. The regressions models used in this study are given below.

$$NPM_{it} = \alpha_{it} + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 DE_{it} + \beta_4 SIZE_{it} + \beta_5 GR_{it} + \mu_{it} \dots\dots\dots(i)$$

$$EBIT_{it} = \alpha_{it} + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 DE_{it} + \beta_4 SIZE_{it} + \beta_5 GR_{it} + \mu_{it} \dots\dots\dots(ii)$$

$$ROA_{it} = \alpha_{it} + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 DE_{it} + \beta_4 SIZE_{it} + \beta_5 GR_{it} + \mu_{it} \dots\dots\dots(iii)$$

$i = 1, 2, 3 \dots 43$ (43 textile firms) and $t = 1, 2, 3, 4, \dots, 12$ (12 years)

Where α_{it} is a constant, $(\beta_1, \beta_2 \dots\dots\dots)$ are the coefficient of variables and μ_{it} is residual term.

VI. LITERATURE REVIEW

A lot of research works have been carried out both public and private sector in national and international level. Many scholars have acknowledged the effect of proper management of working capital on firms profit earning capacity. Some research findings on working capital management and the related topics conducted in India as well as other countries are given below.

Swarnkar, Soni, and Gulati,(2013) have considered the secondary data for the listed textile firms for the period of five years from 2008-12. Through their study they have found that to pay the short term obligation of the firm sufficient liquidity is obligatory.

Quayyum (2011) identified the impact of optimum working on prosperity cement sector. To attain the objectives of this study researcher considered the secondary data of cement sector listed in a Dhaka stock exchange for five years from 2005-09. Applying person correlation model the study justified that profitability is influenced by appropriate management of Working Capital. This study also justify that suitable management regarding working capital can sustain the liquidity which in turn improved the profitability.

Bagchi and Khamrui (2012) have examined the nature of working capital management in case of companies engaged in supplying the fast moving consumer goods in India. Selecting 10 companies in India as a sample they explored that there exists negative relation between profitability of companies and its working capital management factors.

Nirmala and Cheriyan (2015) have examined through their study that, at the financial year 2009-10 the long term debt equity ratio of Lakshmi Mills Company Ltd. is 2.82 and the ratio has reduced to 0.16 by the end of the study period 2013-14. The long term debt equity ratio of Lakshmi Mills Company Ltd. has registered -56.22 per cent growth rate per annum. This indicates the company’s riskiness of repaying its debts.

The study of **Hoque, Mia and Anwar (2015)** have considered secondary data of cement industry in Bangladesh for the period of three years 2010 to 2012. They found that both profitability and liquidity position during this period is not satisfactory. They clearly have shown that working capital management factors and profitability are positively correlated.

Akbar (2014) in his study investigated the role of working capital management on firm’s performance by taking a panel data of 77Textile companies in China from 2007 to 2013. Performance of firm is measured by considering the Return on Assets as dependent variable and using ordinary Least Square model and Net Trade Cycle (NTC). The result of this study indicated that NTC is negatively related with the performance of firm.

The study of **Makori and Jagongo (2013)** explored that account receivable period, inventory turnover period and account payable days have negative impact on profitability. It is also examined that profitability can be enhanced by delaying payments to creditors as long as it does not effects the business relationship.

Sharma (2013) has selected some important ratios to measure the financial performance of two major companies in steel sector. He has taken five years data from 2008 to 2012 and analyzed the relationship with liquidity and profitability. Through this study the researcher find a negative relationship with liquidity and profitability.

Aggarwal and Chaudhary (2015) examined the impact of inventory turnover period, debtors turnover period and the creditors’ payment period on gross operating profit. This purpose he has considered the panel data of 364 listed companies under BSE over a period of five years. The result revealed that short collection period, quick cash conversion cycle and short inventory period are favourable for getting higher return.

Different studies have made by different experts showed the relationship between net trade cycle of the firm and its profitability. These studies showed that shorter trade cycle may help in earning high margin (shine and Soenen: 1998, 37-45, Deloof: 2003, 573-588, Raheman and Na, 279-300, Padachi: 2006, 45-58).

Investors are willing to get more return with minimum risk. How much risk is affordable by the investors and how much risk is comfortable to the investors with the margin that an investment generate (Brooks: 2013, 242). High risk is logically yield high profit which is also connected with the aggressive policy of working capital. On the other hand defensive policy is concerned with lower risk with lower return (Weinraub and Visscher: 1998, 11)

VII. EMPIRICAL ANALYSIS AND TEST OF HYPOTHESIS

H₀₁: Textile industries are maintaining conventional norms for liquidity management.

To justify the above hypothesis we have considered the Current ratio (CR) and quick ratio (QR) debt equity ratio (D/E) as the indicator of liquidity performance measurement factors. There is no ideal rule for selecting the standard of liquidity ratios. Conventionally we use 2:1, 1:1 and 1:2 as standard of Current ratio, Quick ratio and Debt-equity ratio. To test the above hypothesis t-test has been used.

Table-1: Result of t-test of current ratio

	N	Mean	Std. Deviation	Std. Error Mean
Current ratio (times)	516	1.6933	1.55323	.06838

	Test Value = 2					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Current ratio (times)	-4.486	515	.000	-.30671	-.4410	-.1724

Source: Computed from collected Data

The result shows that observed value of *t*-value is -4.486 with degrees of freedom ("df") 515, and the *p*-value that is **Sig. (2-tailed)** is less than .05. The result is statistically significant. Therefore, null hypothesis is rejected at 5% level of significance. In liquidity management firms are not maintaining conventional norms of current ratio.

Table-2: Result of t-test of quick ratio

	N	Mean	Std. Deviation	Std. Error Mean
Quick ratio (times)	516	.9278	1.09359	.04814

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Quick ratio (times)	-1.499	515	.134	-.07217	-.1668	.0224

Source: Computed from collected Data

The result shows that observed value of *t*-value is -1.499 with degrees of freedom ("df") 515, and the *p*-value that is **Sig. (2-tailed)** is more than .05. The result is statistically insignificant. Therefore, null hypothesis is accepted. In liquidity management firms are maintaining conventional norms of quick ratio.

Table-3: Result of t-test of debt equity ratio

	N	Mean	Std. Deviation	Std. Error Mean
Debt to equity ratio	516	2.9171	12.25394	.53945

	Test Value = 0.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Debt to equity ratio (times)	4.481	515	.000	2.41709	1.3573	3.4769

Source: Computed from collected Data

The result shows that observed value of *t*-value is 4.481 with degrees of freedom ("df") 515, and the *p*-value that is **Sig. (2-tailed)** is less than .05. The result is statistically significant. Therefore, null hypothesis is rejected and firms are not maintaining conventional norms of liquidity ratio in respect of D/E ratio.

Test of hypothesis:

H₀₂: The profitability of textile sector is not influenced by management of working capital

H₀₃: There found no inverse relation between profitability and liquidity

Model-1

In the **Table-4**, the Growth, Size, CR, QR and D/E are the variables of independent in nature and NPM is the dependent variable. It is found that the value of coefficient of D/E is (-) 0.061, CR is (-) 0.494, QR is 0.622.

The above value indicate that-

- a. NPM will decrease by 49% due to 1% increase in CR.
- b. NPM will increase by 62% due to 1% increase in QR.
- c. NPM will decrease by 6% due to 1% increase in D/E.

The result of the multiple regressions of the factors that influenced the earning performance of Textile sectors are presented below. An evaluation of the model for earning performance for the textile sectors showed that R-Sq value was 13 %. This indicates that approximately 13 percent of the variation in the dependent variable i.e. NPM, was due to the joint effect of the selected predictor variables that were taken into custody in this model. The finding of this model does not confirm our H₀₁ and H₀₂.

Table-4: Result of Ordinary Least Square (OLS) of Multiple Regression Analysis of NPM

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.372 ^a	.138	.130	19.22601

a. Predictors: (Constant), D/E, GR, SIZE, QR, CR

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
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1	Regression	30226.608	5	6045.322	16.355	.000 ^b
	Residual	188516.161	510	369.640		
	Total	218742.768	515			

a. Dependent Variable: NPM, b. Predictors: (Constant), D/E, GR, SIZE, QR, CR

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	-22.153	4.851		-4.566	.000	-31.684	-12.622
GR	8.662	2.645	.135	3.275	.001	3.466	13.858
SIZE	7.094	1.309	.232	5.419	.000	4.522	9.666
QR	11.716	1.763	.622	6.647	.000	8.253	15.179
CR	-6.560	1.245	-.494	-5.269	.000	-9.005	-4.114
D/E	-.102	.070	-.061	-1.463	.144	-.239	.035

a. Dependent Variable: NPM,

Source: Computed from collected Data

Model-1 depicts that predictor variables have 13% joint effect on the performance measurement factor (NPM) of textile sectors. The calculated value of “F” at 5 percent significance level with 5 and 510 degree of freedom is 16.35 which is more than the critical value 4.37. Therefore, null hypothesis is rejected and the second alternative hypothesis, that the profitability of textile sector is influenced by management of working capital and third alternative hypothesis that is, there found inverse relation between profitability and liquidity is accepted. Quick ratio has positive impact whereas Current ratio has negative impact that implies that textile sectors are maintaining large level of inventory.

Model-2

Table-5 explored the effect of the CR, QR and D/E on RONW. It is seen that the coefficient of D/E is (-) 0.287, CR is (-) 0.068, QR is 0.168 but the R Square value is 0.100.

The above value indicate that-

- a. RONW will increase by 16 % due to 1% increase in QR.
- b. RONW will decrease by 6% due to 1% increase in CR.
- c. RONW will decrease by 28% due to 1% increase in D/E.

Table-5: Result of Ordinary Least Square (OLS) of Multiple Regression Analysis of RONW

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.316 ^a	.100	.091	42.12802

a. Predictors: (Constant), D/E, GR, SIZE, QR, CR

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	100416.339	5	20083.268	11.316	.000 ^b
	Residual	905132.754	510	1774.770		
	Total	1005549.093	515			

a. Dependent Variable: RONW, b. Predictors: (Constant), D/E, GR, SIZE, QR, CR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-1.996	10.630		-.188	.851
	GR	12.267	5.795	.089	2.117	.035
	SIZE	1.580	2.868	.024	.551	.582
	QR	6.638	3.862	.164	1.719	.086
	CR	-1.926	2.728	-.068	-.706	.480
	D/E	-1.034	.153	-.287	-6.756	.000

a. Dependent Variable: RONW

Source: Computed from collected Data

After taking the above four variables we find model-2 which has envisaged that predictor variables have 10% joint effect on the performance measurement factor (EBIT) of textile sectors. The calculated value of “F” at 5 percent significance level with 5 and 510 degree of freedom is 11.316 which are more than the critical value 4.37. Therefore, null hypothesis is rejected and the second alternative hypothesis, That the profitability of textile sector is influenced by management of working capital and third alternative hypothesis that is, there found inverse relation between profitability and liquidity, is accepted. Therefore, it will be better to generate fund from long term debt running business.

In the **Table 6**, it is seen that ROA is dependent on Growth, Size, CR, QR and D/E. The result explored that-

- a. ROA will increased by 30% due to 1% increase in QR.
- b. ROA will decreased by 3% due to 1% increase in CR

c. ROA will decreased by 13% due to 1% increase in D/E

These statistics does not confirm our H_{01} & H_{02} .

Table-6: Result of Ordinary Least Square (OLS) of Multiple Regression Analysis of ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.345 ^a	.119	.110	7.55068

a. Predictors: (Constant), D/E, GR, SIZE, QR, CR

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	3918.214	5	783.643	13.745	.000 ^b
	Residual	29076.517	510	57.013		
	Total	32994.731	515			

a. Dependent Variable: ROA, b. Predictors: (Constant), D/E, GR, SIZE, QR, CR

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	-2.097	1.905		-1.101	.271
	GR	4.930	1.039	.198	4.746	.000
	SIZE	1.112	.514	.094	2.163	.031
	QR	2.200	.692	.301	3.178	.002
	CR	-.187	.489	-.036	-.383	.702
	D/E	-.087	.027	-.134	-3.181	.002

a. Dependent Variable: ROA

Source: Computed from collected Data

Considering the CR, QR, D/E, SIZE and GR we find Model-3 which has envisaged that predictor variables have 11 % joint effect on the performance measurement factor (ROA) of textile sectors. The calculated value of "F" at 5 percent significance level with 5 and 510 degree of freedom is 13.74 which is more than the critical value 4.37. Therefore, null hypothesis is rejected and the second alternative hypothesis, that the profitability of textile sector is influenced by management of working capital and third alternative hypothesis, that is, there found inverse relation between profitability and liquidity is accepted. Therefore, it will be better to generate fund from long term debt running business. Quick ratio has less positive impact but Current ratio has negative impact on ROA which implies that textile sectors are maintaining large inventory.

VIII. CONCLUSIONS

In liquidity management textile sectors are not much careful in maintaining conventional norms. The study revealed that textile sectors are maintaining conventional norms only in case of quick ratio but in current ratio and debt equity ratio are out of conventional status. In this study we formulate three models. **Model-1** depicts the impact of CR, QR and D/E and on Net profit margin (NPM). From this model we found that NPM will increase by 62% due to 1% increase in QR on the other hand it will decrease by 49% and 6% due to 1% increase in CR and D/E respectively. Through the **Model-2** we found that RONW decreased by 6% and 28% due to 1% increase in CR and D/E respectively. On the other hand it has been increased by 16% due to 1% increase in QR. From **Model-3** it is seen that ROA will decrease by 3% and 13% due to 1% increase in CR and D/E respectively. It is also found that ROA increased by 30% due to 1% increase in QR.

Three models specifically explored that fund generate form debt is more risky than equity fund. In case of three models it was found that there exist inverse relation between performance measurement factors and debt equity ratio. Impact of Quick ratio and Current ratio indicate that industry is maintaining large inventory. Therefore, large amount is blocked in the form of inventory within working capital. So this industry needs to manage raw material, work-in-progress and finished goods properly.

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