

A STUDY ON WORKING CAPITAL MANAGEMENT IN NLC INDIA LIMITED AT NEYVELI

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ABSTRACT:

Analysis of Working Capital Management is the process of identifying the Operational Efficiency and measure the firm establishing relationship between balance sheet and profit and loss account. The study was undertaken in the NLC India Limited with the view to have an insight in the Working Capital Management, Ratio analysis of India Limited.

Main purpose of study is to identify the impact of Working capital management of NLC India Limited From 2014-2015 to 2018-19 (5 years), Chi square, Correlation and ANOVA tests are preferred to determine the financial condition and performance of NLCIL.

The study throws a light on various aspects such as efficiency in utilizing its assets and the overall financial performance of NLCIL. The objective of study is the Change in Working Capital, level of current asset and current liability, profitability, liquidity position of NLCIL and to study the composition in the capital structure and servicing the capacity of NLCIL limited.

The data was collected from secondary source an interaction with the senior executive of the firm and official website of NLC India Limited, Annual Reports of NLC India Limited. Based on the analysis, suitable suggestions /recommendations have been specified to the firm.

Results reveal that unfavorable status of current working capital management system, and the same should be thoroughly rechecked using proper cost control and taking remedial measures. We hope that the management of the company can do wonders in working capital management and the coming years will reveal an entirely different picture showing favorable results.

Key Words: Working Capital Management, NLC India Limited Working Capital management, Liquidity Management, Inventory Management, Debtor turnover Ratio,

CHAPTER – I

INTRODUCTION

Working capital is a financial tool to measure the operating liquidity available to organisations or business, working capital is considered as a part operating capital gross working capital is equal to current assets. Working capital is measured as current assets - current liabilities, if current assets are compared with current liability is very less, the organization has working capital deficiency, it's also called as working capital deficit.

A company can be empowered with assets and profitability but may fall short of liquidity if its assets cannot be readily converted into cash. Positive working capital is required to ensure that firm is able to continue its operation and it has a sufficient fund to satisfy to meet its current obligation and future operational expenses. The management of working capital involved managing the accounts receivables and payable, managing the inventories and cash.

Most of the organisations have a large amount cash invested in working capital, as well as substantial amount of Short term payables as a course of financing. Organisations have an optimal level working capital that maximizing their values. Large inventory and generous trade credit policy may lead to higher sales and reduces risk of a stock out.

Based on the previous studies related to working capital management in NLC India Limited are no sufficient, the present study is initiated on measuring the working capital management of NLC India limited in past five years through various statistical tools.

PROFILE OF NLC INDIA LIMITED

NLC India Limited formerly Neyveli Lignite Corporation (NLC) is a company in the biggest opencast mining sector and thermal power generation in India. A Navratna company under the ministry coal in India since 1956 – more than 60 Years of its glorious existence, its annually produces about 30 million tonnes of lignite from opencast mines at Neyveli in the state of Tamil Nadu and Barsingar in Rajasthan State. the lignite is used at pithead thermal power station of 3640 MW installed capacity to produce electricity and its joint venture has a 1000 MW thermal power station using coal. Lately is it diversified into renewable energy production and installed Solar and Windmills plants to produce electricity photovoltaic (PV) cells and wind mills. The present power generation capacity is 3640 MW (lignite), 1000 MW (Coal),1352.56 MW (Solar),51 MW (Wind) Totally 6043.56 MW

CHAPTER – II

REVIEW OF LITERATURE

Hyon – Han Shin an LUC Soemen (1998) The study is on the efficiency of the working capital management and business profitability. There are 58 companies are taken for the research and period for the study is 1975 to 1994, study found that there is a strong negative relationship if firm having long Net Trade Cycle and its profitability. In other side short Net Trading cycle created the risk. It has also found measuring liquidity differently, need to be maintain appropriate current ratio having positive relation with profitability.

Singh O. N. (1999) The research discussed the needs of credit to the farmers or agriculture segment and another need is having proper system of working capital finance in agriculture segment in line and commerce finance, with some changes. Research advised a system which is quite similar useful and fulfill the need of both farmers as well as the bankers. Main aim of the study is to make farmers strong in terms of capital.

RaoGovinda D. and Rao P. M. (1999) Study believes that management of working capital is a constant process need of finance proper observation or monitoring and revising the relationship of all variables and give conclusion. This is a proper indication to the manager.

Dutta (2000) Author Dutta has done study on “Working Capital Management of Horticulture Industry in Humachal Pradesh” that was a case study of Himachal Pradesh Horticulture Produce Marketing and Processing Corporation for the stage 1991 to 1998. The study was thrown the light on financing pattern of working capital management. The study exposed that the working capital of HRMC was going worse gradually during the study period. Though, huge losses of the firm holding the huge amount of inventory and that was a main cause of failed trade off among liquidity and profitability. The conclusion of study like that there was no significant correlation between gross working capital and sales.

Jain P. K. and YadavSurendra S. (2001) That was a study of corporate Working capital management related practices in India, Singapore and Thailand. This study tried to understand the relationship of working capital management and current assets and current liabilities. In other hand, authors have revealed the analysis liquidities ratios like current assets and current liabilities. Every sample of study have been pertained these ratios for the management of working capital. In a sum up of the paper the data of samples of three countries confirm that there were wide inter-industry variations in liquidity ratios. At the end, authors suggest the serious consideration attention to be given by respective nation as well industry groups of three companies and should develop corrective measures to take care of areas concern.

Parvathy (2004) Observation of study has shown that in increasing in mode, but net profit has in decreasing in trend because operating cost is high. The others found out and thrown light on the importance of cost of production. Other side found that the return on network and the return to total assets were on the decreasing trend. Researcher has found that the return on investment is stable and the company invested on profitable way. Company's payout ratio was very conservative and that shows growth of the company. With sum up of the research is that for the long term financial stability and formed the debt equity ratio. Opposite side of the research interest coverage ratio and the proprietary ratio were not satisfactory.

Filbeck Greg and Krueger Thomas M. (2005) As per the article, need to study internal working capital management and working capital performance. That article was published in CFO magazines. As per the findings of this article macro economic factors, interest rates, competition, etc. having impact on working capital management. Further finding is that management of working capital goes on stock prices also.

MeszekWieslaw and PolewskiMarcin (2006) By observation of selected construction companies at area of working capital management and working capital policy formation and strategies implication. The Study was based to develop the controlling methodology for working capital. here, study that was going on construction company having the specific factors are to be consider like functional factors and market requirements which make working capital area wide and more focused.

ChowdhuryAnup and Amin Md. Muntasir (2007) That was the study carried on pharmaceutical companies listed in Dhanka Stock Exchange. Observation of the study based on the financial management, according to this major problem found in area of working capital management. It is true that working capital effects go on business performance and growth. The main objective of the study is to evaluate working capital practicability and implication of working capital policy and strategies in the targeted industry. To obtain the goal, evaluation was made regarding principles, procedures and techniques of stock management, creditors' management, and debtors' management.

ArindamGhosh (2007) That was the study carried on Cement Industry of India specific area of study was "Working Capital Management and its practices and impact on profitability. Main aim of the study is to evaluate efficiency of working capital management of selected cement companies in India during the period 1992 to 2001. For the study targeted 20 large cement companies avail in India having very large portion in cement industry of India.

Samiloglu F. and Demirgunes K. (2008) The objective of the study is to examine effect of working capital management on firm's prosperity. The study carried with manufacturing companies listed in Istanbul Stock

Exchange (ISE) the tenure for the study is 1989 to 2007. For the study multi regression statistical method is used. Observed come outs of study revealed that some factors having negative impact and some having positive impact on profitability of firms. Positive factors like growth of sale on other hand debtors' payment period, stock conversion period as well as debt interest negatively affects firms' profitability.

ViraniVarsha (2008) It was a comparative study in CADILA COMPANY This study has been done with certain objectives first is to examine financial performance and second one is to examine profitability trend and at the last to find out assets operational model and evaluate liquidity position of the company. To achieve these goals used two classy analytical tools i.e. ratio analysis and correlation analysis. The study shows relationship between different ratios. That is also observed that correlation and coefficient is near about so there is a high degree of negative and positive correlation between various ratios.

RamachandranAzhagaiah and JanakiramanMuralidharan (2009) In this study author examine the relationship among working capital management proficiency and earnings before interest and tax. The study was made on Paper industry in India during 1997 to 2005. For the measurement of working capital management three indexes are taken into consideration performance index, utilization index and efficiency index, and EBIT of the selected companies for the study period are taken. As a conclusion of the study says paper companies of india performed well during period. Some having very good index and some of them need to improve the working capital management give proper attention on that particular area also.

Rao and Rao&Ramachandran (2010) Main aim of his study is to evaluate the trends and parameters of effectiveness of working capital and its utilization in terms of volume of the firms of cotton textiles industry in India. For that three parameters are taken i.e. different indices first one performance Index, utilization index and efficiency Index. For the study industry is divided in three category means small, medium and large. The output of the study is like that linear growth rate model is used to find out the significance with working capital and PI,UI and EI are significant in respect of small size companies while in medium size only UI is significant. On an average we can say that working capital efficiency was not so satisfied despite having PI in growth mode. The reason behind is that continuous factors are declining.

Rahman Mohammad M. (2011) Research is based on correlation among working capital and profitability. To analyze the effectiveness of working capital management of the selected textile companies. Conclusion of the study found that overall good management in working capital management of selected textile companies and thus most of the companies are profitable way going on.

DrArbab Ahmed and DrMatarneh Bashar (2011) Research carried with registration technique which is very powerful statistical tool to forecast the working capital. The area of working capital management, that is possible to make the projection after starting the average relationship in the past. For the purpose different components are used and to be finalized result. And it is presented in diagrammatic way as well mathematical way.

DrKaddumiThair A. and Dr Ramadan Imad Z. (2012) The evaluation was made in 49 jordanian companies they are listed in Amman Stock Exchange, The carried with topic like effect of working capital management on the profitability in a targeted companies for the period 2005 to 2009. This goal could be achieved with help of two different measures one is for profitability and another one is for performance of working capital management i.e. proxy and five proxies use full for respective goal. For the estimation two regression models fixed effects model and ordinary least model are used.

Kaur Harsh V. and Singh Sukhdev (2013) This article focuses on cash conversion efficiency and setting up the operating cycle days. The study tests the relationship between the working capital attain and profitability calculated by income to current assets and income to average total assets. Authors did study with companies listed in BSE 200 that is spread over 19 industries for the period 2000 to 2010. At the end, the study lay emphasis on that proficient management of working capital notably affects profitability.

Madhavi K. (2014) She has done research based on empirical study of co relation among liquidity position and profitability of the paper mills in Andhra Pradesh. That has been evaluated ineffective working capital negatively effect on profitability of the paper mills.

Gurumurthy N. and Reddy Jayachandra K. (2014) He has conducted serve and observed working capital management position in four pharmaceutical companies APSPDCL, APEPDCL, APNPDCL and APCPDCL and come out with fact that working capital management was not so good in position and need to do better.

CHAPTER - III

RESEARCH METHODOLOGY

Research methodology is a systematic way of solving the problem. It includes the overall research design, the sampling procedure, data collection method and analysis procedure.

RESEARCH DESIGN

A research design is the arrangement of condition for collection and analysis of data in a manner that may result in an economy in procedure. It stands for advance planning for collection of the relevant data and the

techniques to be used in analysis, keeping in view the objectives of the research and availability of time, as the researcher is analyzing the past data and predicts the future trend, it is naturally comes under analytical research design.

OBJECTIVES OF STUDY

To familiarize the following by analyzing annual report for the past 5 years.

- To analyze the liquidity position of the company.
- To analyze the performance of the company.
- To estimate the amount of working capital of the company for a period of 5 years.
- To project the future position.
- To offer suggestions for improving the working capital position of the company.

NEED AND SCOPE OF THE STUDY

Working capital is needed in every organization to meet day-to-day business activities. Since there is a time lag between the sale of produce and realization of cash, every organization requires Sufficient amount of working capital to meet the daily requirement and to tackle the problem as and when they arise for the smooth running of the business.

The study relates to the working capital management in NLC India Limited. The study gives an idea about the working capital position of the company. The study also reveals the method by which the company has been financed. The study will be helpful for the management in decision making relating to working capital

PERIOD OF STUDY

This study contains the working capital analysis for the period of Five years from 2014-2015 to 2018-2019. The accounting year is starting from 1st April to 31st March.

DATA COLLECTION

The analysis of financial condition and performance of the enterprise necessitates and reliable data therefore the data for the present study is collected with the help of secondary data.

SECONDARY DATA

The secondary data is mainly used for the study. It is taken from published source of the company like the annual report magazines, report and other financial official records.

GRAPHS

The interpretation of the financial statement results are done through graphs for clear perception.

TOOLS AND TECHNIQUES

The following tools and techniques of financial analysis are used as a measure of judging the degree of efficiency of financial performance analysis of the company.

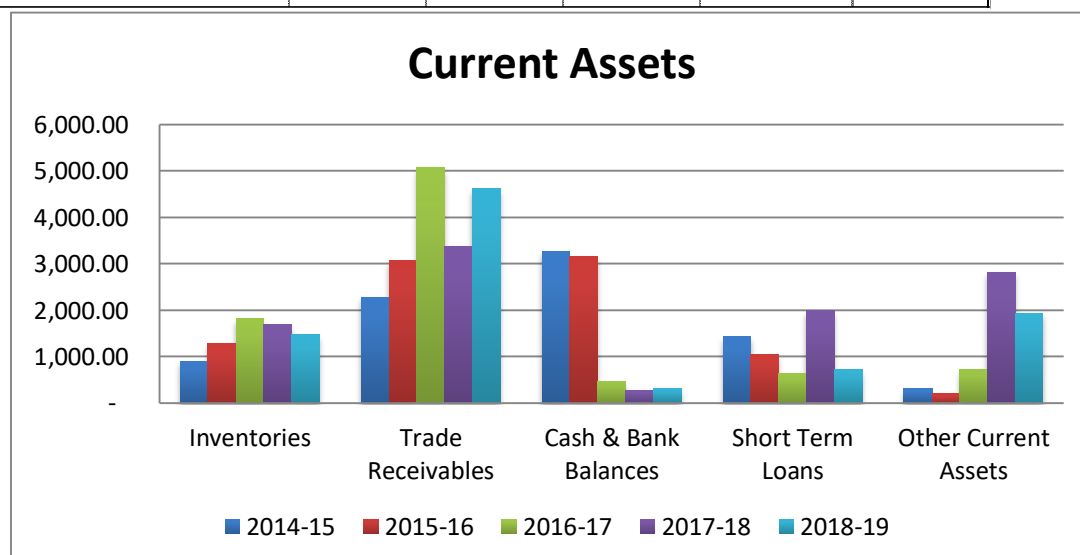
- Ratio Analysis
- Trend Analysis
- Pearson's Correlation Analysis
- Chi – Square Test
- ANOVA

CHAPTER – IV

ANALYSIS AND INTERPRETATION OF WORKING CAPITAL

TABLE 4.1: COMPONENT OF CURRENT ASSET AND CURRENT LIABILITIES IN NLC INDIA LIMITED

		Years				
		2014-15	2015-16	2016-17	2017-18	2018-19
		₹ in crores				
Current Assets	Inventories	898.63	1,277.49	1,813.24	1,688.90	1,464.38
	Trade Receivables	2,282.07	3,060.15	5,066.00	3,366.15	4,606.19
	Cash & Bank Balances	3,265.47	3,157.97	473.70	278.65	317.16
	Short Term Loans	1,423.89	1,035.41	638.49	1,989.74	716.60
	Other Current Assets	302.21	195.14	717.33	2,811.42	1,929.08
	TOTAL	8,172.27	8,726.16	8,708.76	10,134.86	9,033.41

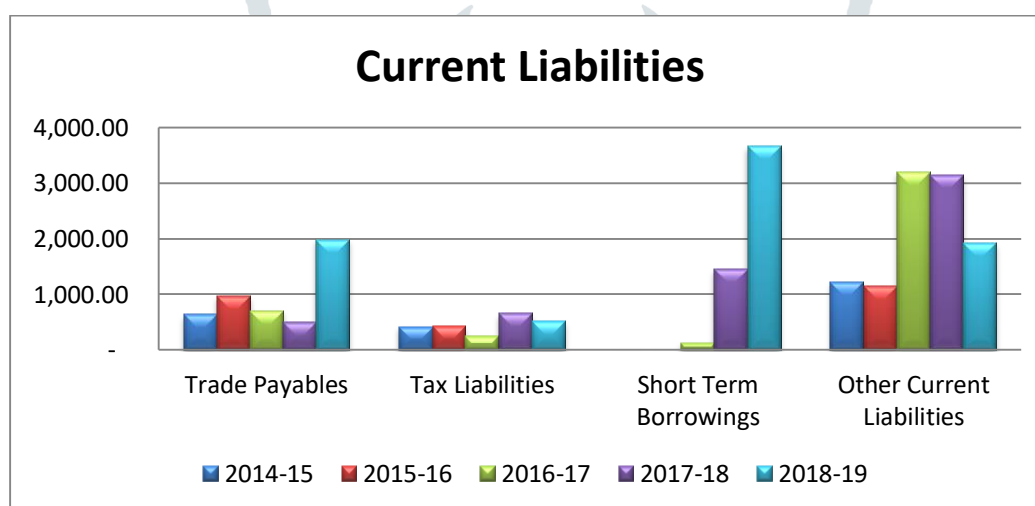


INTERPRETATION

From the above table and chart inferred that, Current Assets alternates between increase and decrease during the study period. However, it stands around the average value of Rs.8, 955.10 Crores.

TABLE 4.2 COMPONENTS OF CURRENT LIABILITIES

		Years				
		2014-15	2015-16	2016-17	2017-18	2018-19
		₹ in crores				
Current Liabilities	Trade Payables	631.41	970.61	707.44	495.24	1,988.07
	Tax Liabilities	422.11	424.65	249.66	657.78	510.10
	Short Term Borrowings	-	-	130.81	1,457.80	3,668.00
	Other Current Liabilities	1,217.61	1,152.97	3,201.44	3,138.58	1,920.24
	TOTAL	2,271.13	2,548.23	4,289.35	5,749.40	8,086.41

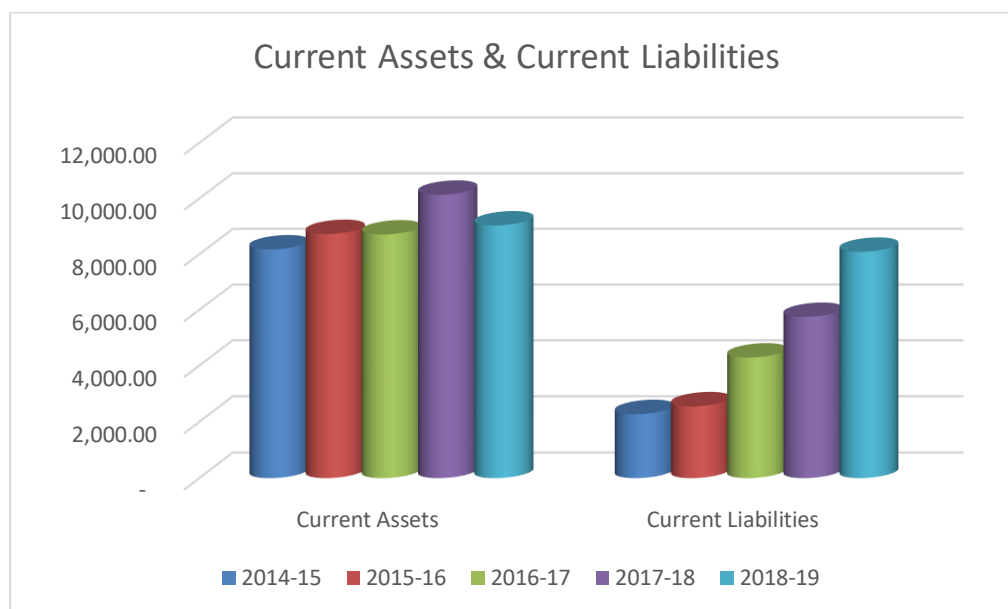


INTERPRETATION

From the above table and chart inferred that, Current Liabilities are steadily increasing from Rs.2, 271.13 Crores to Rs.8, 086.41 Crores. Its average being Rs.4,588.90 crores.

TABLE 4.3: CURRENT ASSETS vs. CURRENT LIABILITIES

		Years				
		2014-15	2015-16	2016-17	2017-18	2018-19
		₹ in crores				
Current Assets		8,172.27	8,726.16	8,708.76	10,134.86	9,033.41
Current Liabilities		2,271.13	2,548.23	4,289.35	5,749.40	8,086.41

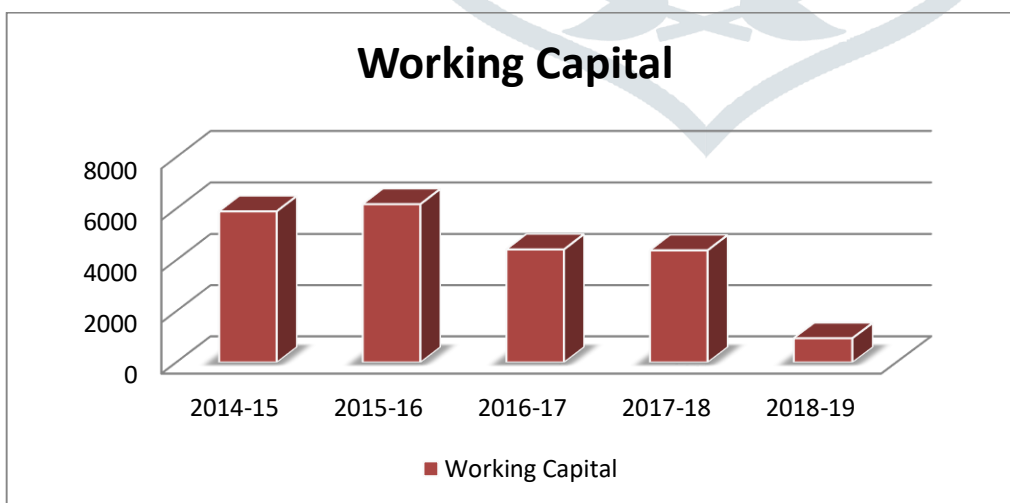


INTERPRETATION

From the above table and chart inferred that, Current Assets are fluctuating however its average is Rs.8,955.10 crores whereas Current Liabilities are increasing from Rs.2,271.13 crores to Rs.8,086.41 crores.

TABLE 4.4: CALCULATION OF WORKING CAPITAL

	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Current Assets	8,172.27	8,726.16	8,708.76	10,134.86	9,033.41
Current Liabilities	2,271.13	2,548.23	4,289.35	5,749.40	8,086.41
Working Capital	5,901.14	6,177.93	4,419.41	4,385.46	947.00

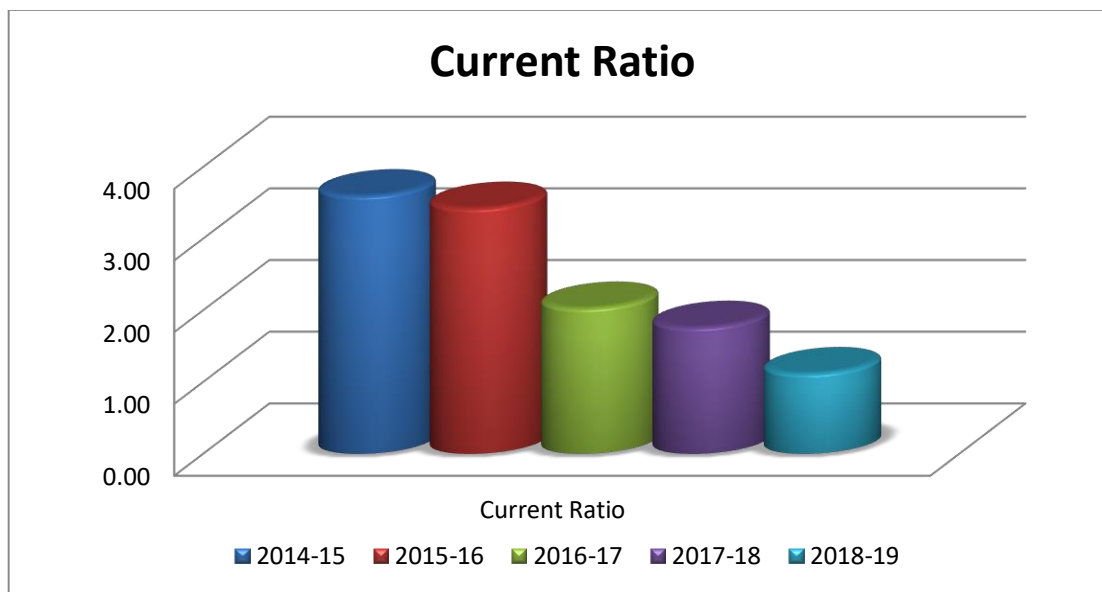


INTERPRETATION

From the above table and chart its identified that, Working Capital is decreasing year by year but it has risen to Rs.6,177.93 crores during the year 2015-16.

TABLE4.5: CURRENT RATIO

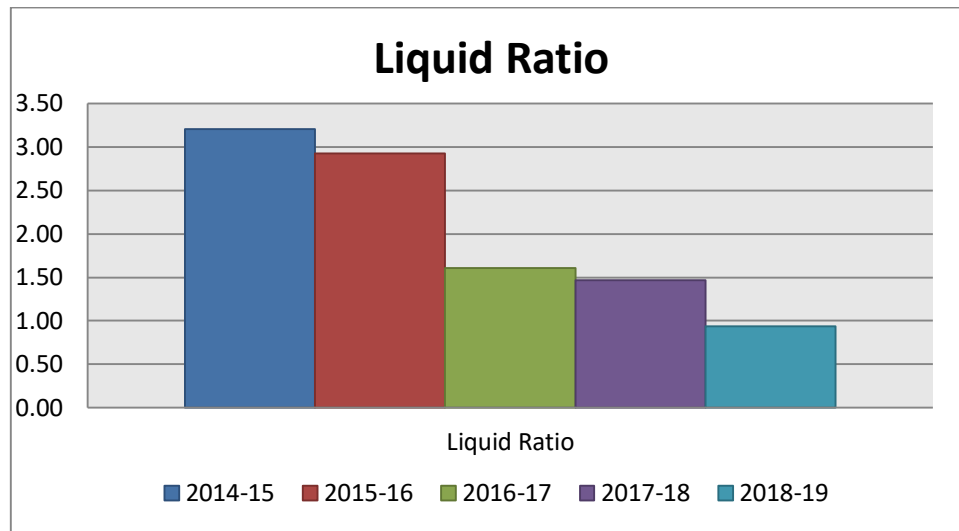
	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Current Assets	8,172.27	8,726.16	8,708.76	10,134.86	9,033.41
Current Liabilities	2,271.13	2,548.23	4,289.35	5,749.40	8,086.41
Current Ratio	3.60	3.42	2.03	1.76	1.12

**INTERPRETATION**

From the above table and chart it's identified that, Current Ratio is decreasing steadily from 3.60 to 1.12. During the years 2014-2017 it remains above the standard of 2.0 whereas during the years 2017-2019 it remains below the standard of 2.0. It has reached the lowest of 1.12 in the year 2018-19.

TABLE 4.6: LIQUIDRATIO

	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Liquid Assets	7,273.64	7,448.67	6,895.52	8,445.96	7,569.03
Current Liabilities	2,271.13	2,548.23	4,289.35	5,749.40	8,086.41
Liquid Ratio	3.20	2.92	1.61	1.47	0.94

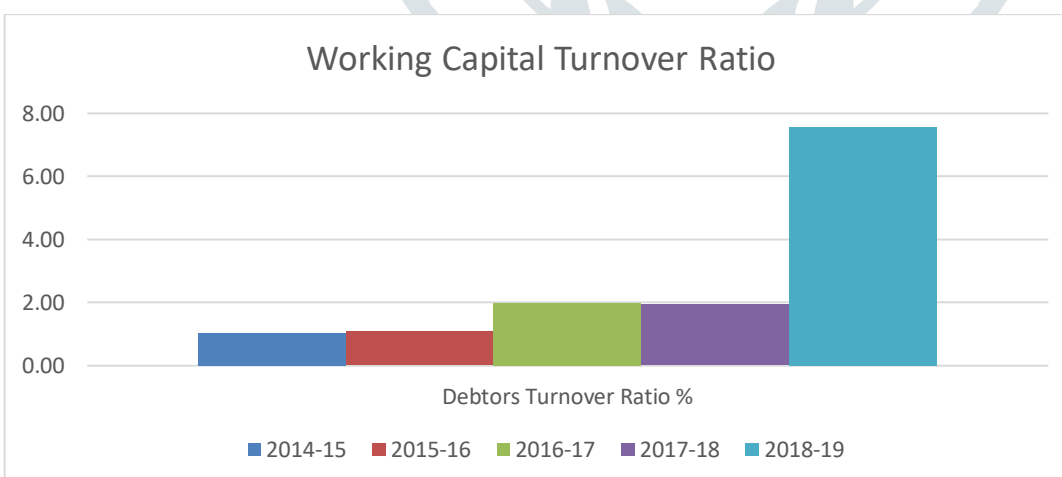


INTERPRETATION

From the above table and chart it's identified that, Liquid Ratio is decreasing steadily from 3.20 to 0.94. During the years 2014-2018 it remains above the standard of 1.0 whereas during the years 2018-2019 it remains below the standard of 1.0. It has reached the lowest of 0.94 in the year 2018-19.

TABLE 4.7: WORKING CAPITAL TURNOVER RATIO

	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Working Capital	5,901.14	6,177.93	4,419.41	4,385.46	947.00
Sales	6,087.68	6,669.05	8,672.84	8,496.20	7,145.92
Working Capital Turnover Ratio	1.03	1.08	1.96	1.94	7.55

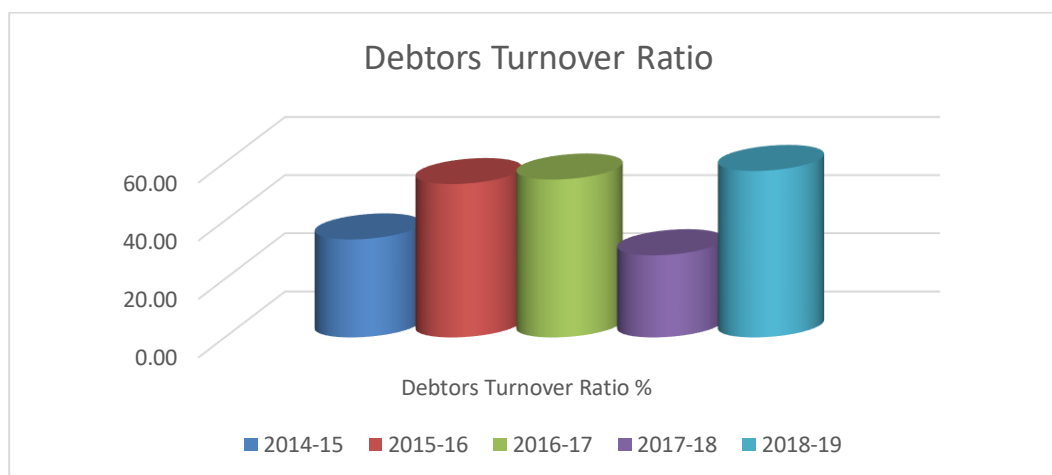


INTERPRETATION

From the above table and chart it's identified that, Working Capital Turnover Ratio steadily moves up and there is a tremendous jump to 7.55 from 1.94

TABLE 4.8: DEBTORS TURNOVER RATIO

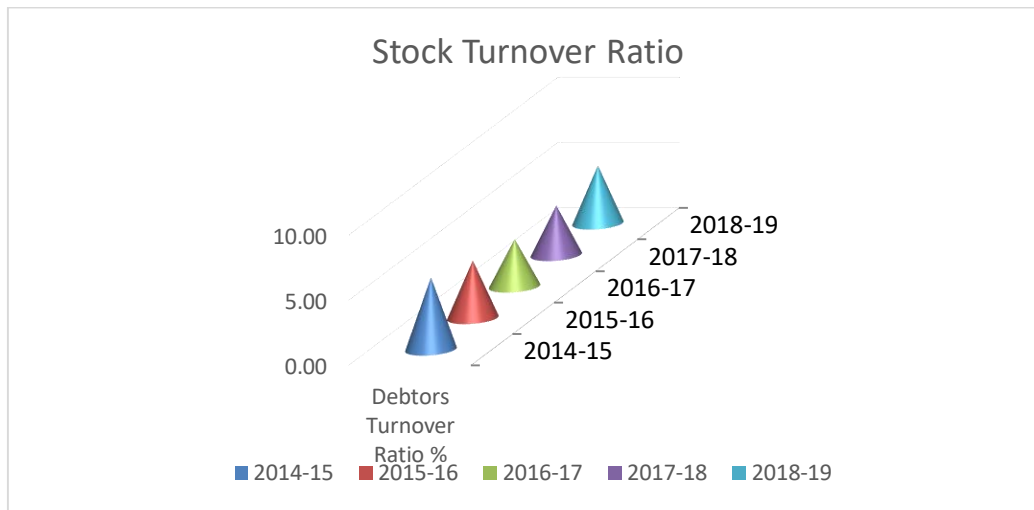
	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Trade Receivables	2,282.07	3,060.15	5,066.00	3,366.15	4,606.19
Sales	6,087.68	6,669.05	8,672.84	8,496.20	7,145.92
Debtors Turnover Ratio %	37.49	45.89	58.41	39.62	64.46

**INTERPRETATION**

From the above table and chart it's identified that, Debtors Turnover Ratio shows a fluctuation between 37.49% and 64.46%.

TABLE 4.9: STOCK TURNOVER RATIO

	Years				
	2014-15	2015-16	2016-17	2017-18	2018-19
	₹ in crores				
Cost of Goods Sold	4,986.38	5,639.54	6,592.36	6,410.30	6,504.68
Closing Stock	898.63	1,277.49	1,813.24	1,688.90	1,464.38
Stock Turnover Ratio	5.55	4.41	3.64	3.80	4.44



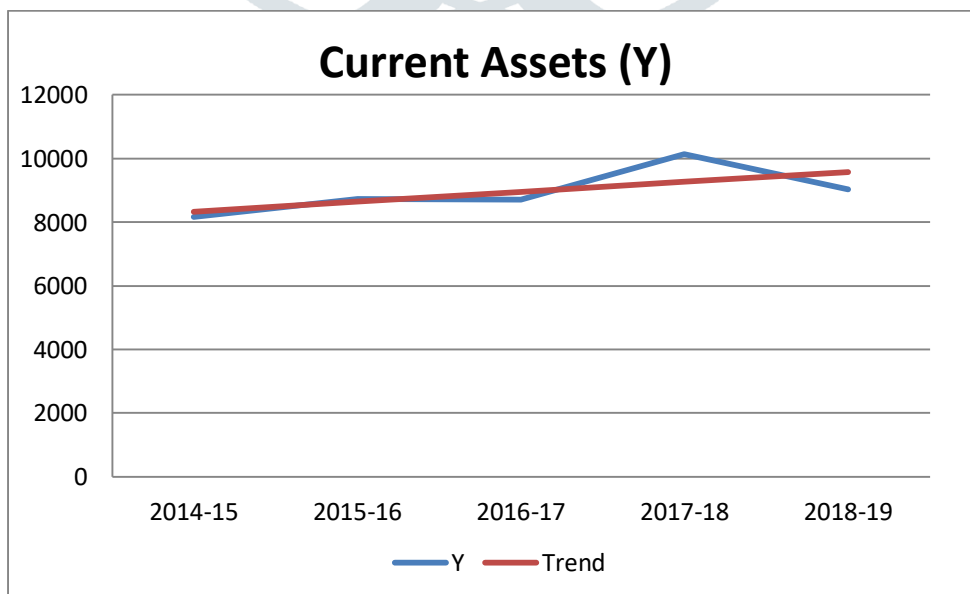
INTERPRETATION

Stock Turnover Ratio steadily roaming around 4.5.

TREND ANALYSIS

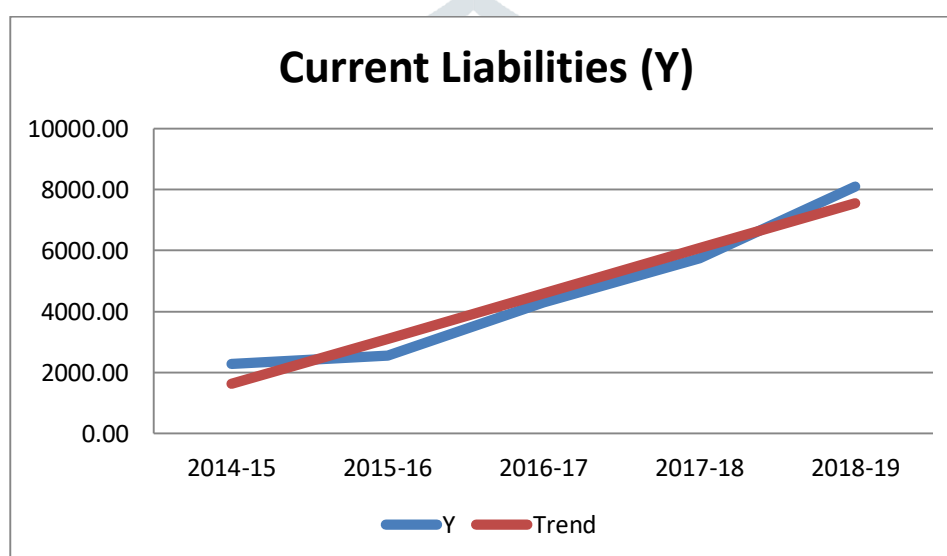
TABLE 4.10: TREND LINE FOR CURRENT ASSET AND CURRENT LIABILITY

	Current Assets					
Year	Y	X	X ²	XY	Trend	
2014-15	8172.27	-2	4	-16344.54	8328.90	
2015-16	8726.16	-1	1	-8726.16	8641.99	
2016-17	8708.76	0	0	0.00	8955.09	
2017-18	10134.86	1	1	10134.86	9268.19	
2018-19	9033.41	2	4	18066.82	9581.29	
Total	44775.46	0	10	3130.98		



TREND LINE FOR CURRENT LIABILITY

	Current Liabilites					
Year	Y	X	X ²	XY	Trend	
2014-15	2271.13	-2	4	-4542.26	1622.56	
2015-16	2548.23	-1	1	-2548.23	3105.73	
2016-17	4289.35	0	0	0.00	4588.90	
2017-18	5749.40	1	1	5749.40	6072.08	
2018-19	8086.41	2	4	16172.82	7555.25	
Total	22944.52	0	10	14831.73		



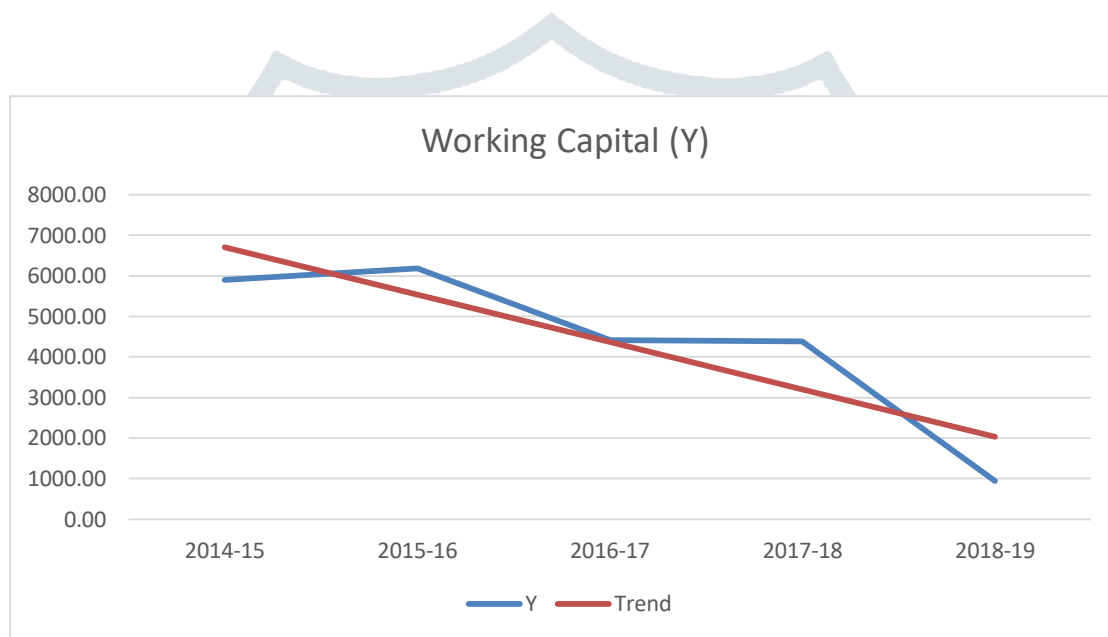
INTERPRETATION

From the above table and chart it's identified that, Trend line for Current Assets is moving upward at 5° from Rs.8,328.90 crores to Rs.9,581.29 crores.

From the above table and chart it's identified that, Trend line for Current Liabilities is moving upward at 45° from Rs.1,622.56 crores to Rs.7,555.25 crores.

TABLE 4.12: TREND LINE FOR WORKING CAPITAL

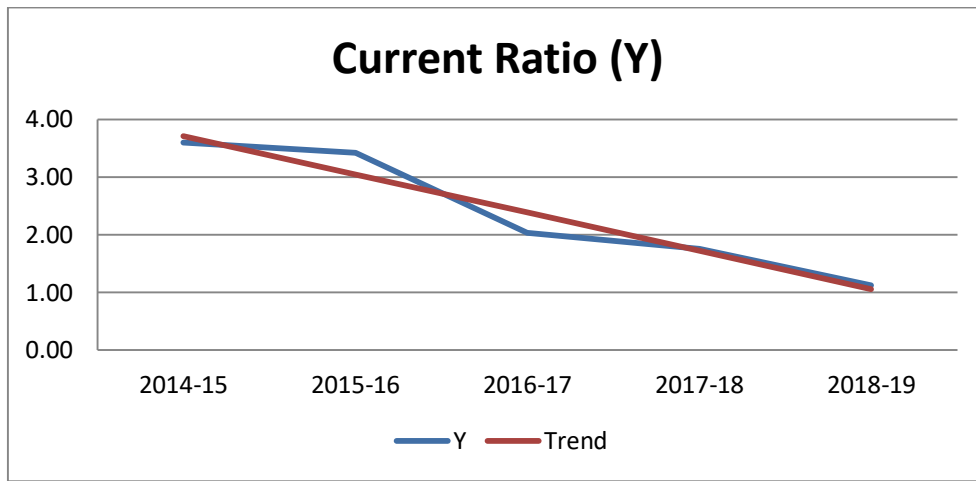
Working Capital						
Year	Y	X	X ²	XY	Trend	
2014-15	5901.14	-2	4	-11802.28	6706.34	
2015-16	6177.93	-1	1	-6177.93	5536.26	
2016-17	4419.41	0	0	0.00	4366.19	
2017-18	4385.46	1	1	4385.46	3196.11	
2018-19	947.00	2	4	1894.00	2026.04	
Total	21830.94	0	10	-11700.8		

**INTERPRETATION**

From the above table and chart it's identified that, Trend line for Working Capital is moving downward at 50° from Rs.6,706.34 crores to Rs.2,026.24 crores.

TABLE 4.13: TREND LINE FOR CURRENT RATIO

Current Ratio						
Year	Y	X	X ²	XY	Trend	
2014-15	3.60	-2	4	-7.20	3.71	
2015-16	3.42	-1	1	-3.42	3.05	
2016-17	2.03	0	0	0.00	2.39	
2017-18	1.76	1	1	1.76	1.72	
2018-19	1.12	2	4	2.24	1.06	
Total	11.93	0	10	-6.62		

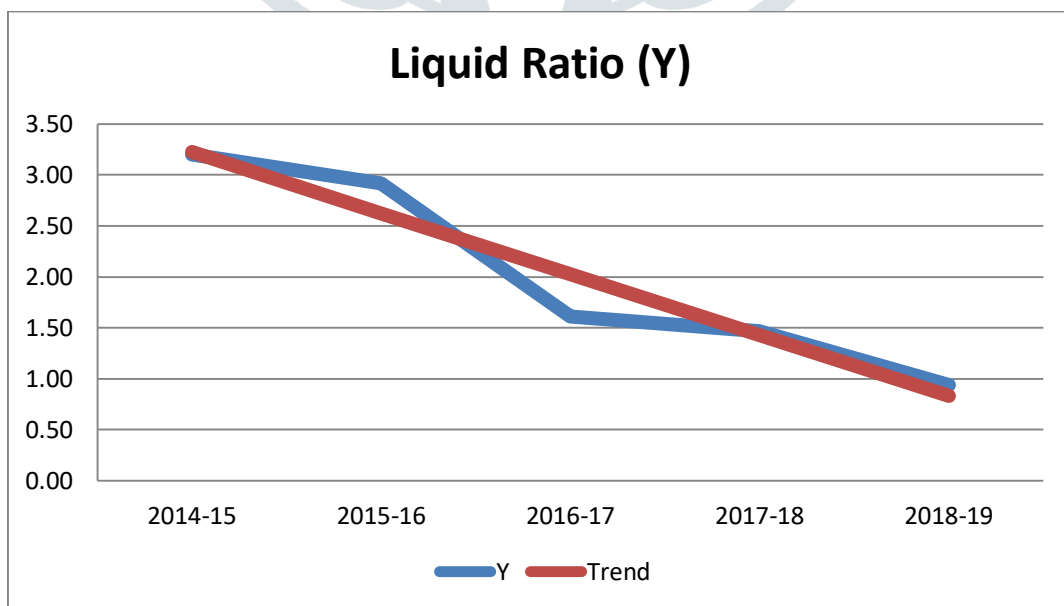


INTERPRETATION

From the above table and chart it's identified that, Trend line for Current Ratio is moving downward at 50° from 3.71 to 1.06.

TABLE 4.14: TREND LINE FOR LIQUID RATIO

Liquid Ratio					
Year	Y	X	X ²	XY	Trend
2014-15	3.20	-2	4	-6.40	3.22
2015-16	2.92	-1	1	-2.92	2.63
2016-17	1.61	0	0	0.00	2.03
2017-18	1.47	1	1	1.47	1.43
2018-19	0.94	2	4	1.88	0.83
Total	10.14	0	10	-5.97	

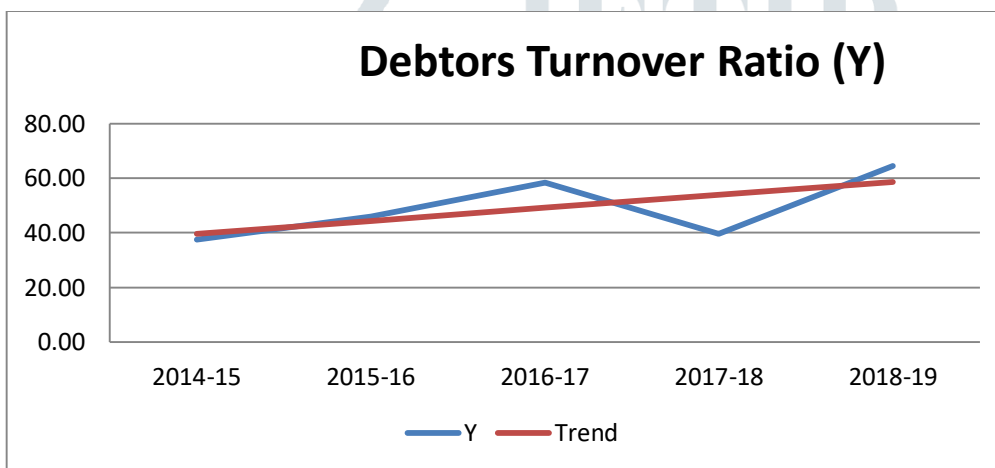


INTERPRETATION

From the above table and chart it's identified that, Trend line for Liquid Ratio is moving downward at 50° from 3.22 to 0.83.

TABLE 4.15: TREND LINE FOR DEBTORS TURNOVER RATIO

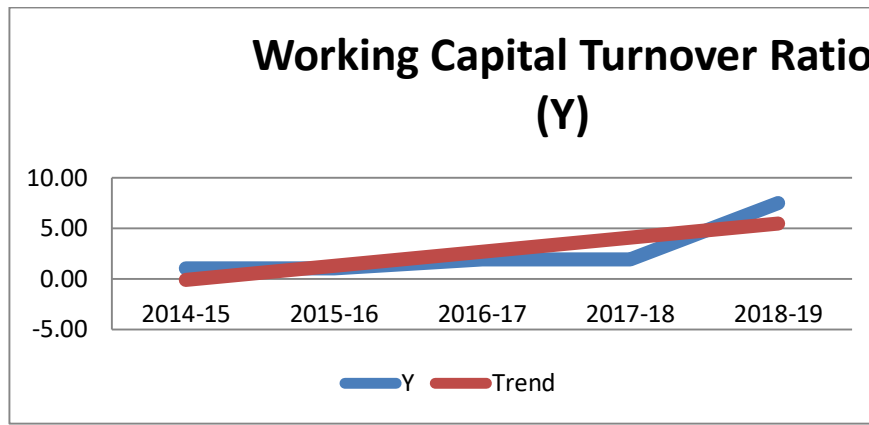
Debtors Turnover Ratio						
Year	Y	X	X ²	XY	Trend	
2014-15	37.49	-2	4	-74.98	39.64	
2015-16	45.89	-1	1	-45.89	44.41	
2016-17	58.41	0	0	0.00	49.17	
2017-18	39.62	1	1	39.62	53.94	
2018-19	64.46	2	4	128.92	58.71	
Total	245.87	0	10	47.67		

**INTERPRETATION**

From the above table and chart it's identified that, Trend line for Debtors Turnover Ratio is moving upward at 10° from 39.64% to 58.71%.

TABLE 4.16: TREND LINE FOR WORKING CAPITAL TURNOVER RATIO

Working Capital Turnover Ratio						
Year	Y	X	X ²	XY	Trend	
2014-15	1.03	-2	4	-2.06	-0.07	
2015-16	1.08	-1	1	-1.08	1.32	
2016-17	1.96	0	0	0.00	2.71	
2017-18	1.94	1	1	1.94	4.10	
2018-19	7.55	2	4	15.10	5.49	
Total	13.56	0	10	13.9		

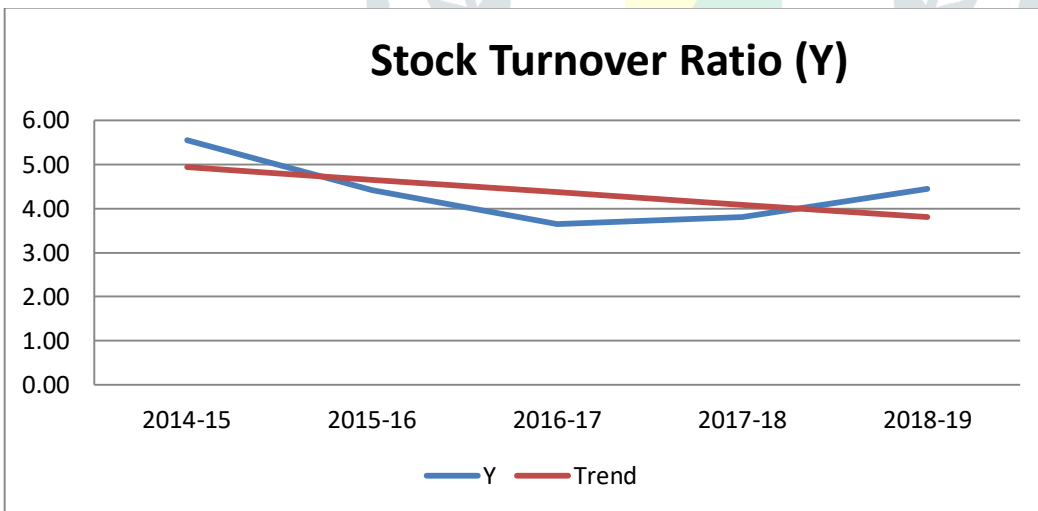


INTERPRETATION

From the above table and chart it's identified that, Trend line for Working Capital Turnover Ratio is moving upward at 45° from -0.07 to 5.49.

TABLE 4.17: TREND LINE FOR STOCK TURNOVER RATIO

Year	Stock Turnover Ratio					Trend
	Y	X	X ²	XY		
2014-15	5.55	-2	4	-11.10	4.93	
2015-16	4.41	-1	1	-4.41	4.65	
2016-17	3.64	0	0	0.00	4.37	
2017-18	3.80	1	1	3.80	4.09	
2018-19	4.44	2	4	8.88	3.80	
Total	21.84	0	10	-2.83		



INTERPRETATION

From the above table and chart it's identified that, Trend line for Stock Turnover Ratio is moving downward at 80° from 4.93 to 3.80.

CORRELATION

TABLE 4.18: KARL PEARSON'S CO-EFFICIENT OF CORRELATION BETWEEN CURRENT ASSETS WITHCURRENT LIABILITIES

Current Assets	Current Liabilities			
X	Y	X ²	Y ²	XY
8172.27	2271.13	66785996.95	5158031.48	18560287.57
8726.16	2548.23	76145868.35	6493476.13	22236262.70
8708.76	4289.35	75842500.74	18398523.42	37354919.71
10134.86	5749.40	102715387.22	33055600.36	58269364.08
9033.41	8086.41	81602496.23	65390026.69	73047856.96
44775.46	22944.52	403092249.48	128495658.08	209468691.01

Karl Pearson's co-efficient of correlation (r)

$$\begin{aligned}
 &= \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2]} \times \sqrt{[N \sum Y^2 - (\sum Y)^2]}} \\
 &= \frac{5 \times 209468691.01 - 44775.46 \times 22944.52}{\sqrt{[5 \times 403092249.48 - 44775.46 \times 44775.48]} \times \sqrt{[5 \times 128495658.08 - 22944.52 \times 22944.52]}} \\
 &= \frac{1047343455.05 - 1027351437.48}{\sqrt{[2015461247.40 - 2004841818.21]} \times \sqrt{[642478290.40 - 526450998.03]}} \\
 &= \frac{19992017.57}{\sqrt{[10619429.19]} \times \sqrt{[116027292.37]}} \\
 &= \frac{19992017.57}{3258.75 \times 10771.60} \\
 &= \frac{19992017.57}{35101951.50} \\
 &= 0.5695 \\
 &= 56.95\%
 \end{aligned}$$

CONCLUSION:

Since the value of r is above the 50% mark, there is some relationship or link or impact between Current Assets and Current Liabilities.

CHI-SQUARE TEST FOR CURRENT ASSETS

Null Hypothesis **H₀**: Current Assets are uniformly distributed during 2014-2019

Alternative Hypothesis **H₁**: Current Assets are **not** uniformly distributed during 2014-2019

TABLE 4.19: CHI-SQUARE TEST FOR CURRENT ASSETS

	Current Assets				
Year	O	E	O - E	(O - E)²	(O - E)²/E
2014-15	8172.27	8955.09	-782.82	612810.28	68.43
2015-16	8726.16	8955.09	-228.93	52409.86	5.85
2016-17	8708.76	8955.09	-246.33	60679.45	6.78
2017-18	10134.86	8955.09	1179.77	1391852.53	155.43
2018-19	9033.41	8955.09	78.32	6133.71	0.68
Total	44775.46				237.17
	Calculated value of X^2		237.17		
	Degree of freedom (d.o.f.)		4		
	Significance level (SL)		5%		
	Table value of X^2		9.488		

INTERPRETATION

Since the Calculated value of X^2 is more than the Table value of X^2 the Null Hypothesis is rejected, so we can conclude that Current Assets are **not** uniformly distributed during 2014-2019.

CHI-SQUARE TEST FOR CURRENT LIABILITIES

Null Hypothesis **H₀**: Current Liabilities are uniformly distributed during 2014-2019

Alternative Hypothesis **H₁**: Current Liabilities are **not** uniformly distributed during 2014-2019

TABLE 4.20: CHI-SQUARE TEST FOR CURRENT LIABILITIES

	Current Liabilities				
Year	O	E	O - E	(O - E) ²	(O - E) ² /E
2014-15	2271.13	4588.90	-2317.77	5372076.32	1170.67
2015-16	2548.23	4588.90	-2040.67	4164350.37	907.48
2016-17	4289.35	4588.90	-299.55	89732.60	19.55
2017-18	5749.40	4588.90	1160.50	1346750.97	293.48
2018-19	8086.41	4588.90	3497.51	12232548.22	2665.68
Total	22944.52				5056.86
	Calculated value of X^2		5056.86		
	Degree of freedom (d.o.f.)		4		
	Significance level (SL)		5%		
	Table value of X^2		9.488		

INTERPRETATION

Since the Calculated value of X^2 is more than the Table value of X^2 the Null Hypothesis is rejected, so we can conclude that Current Liabilities are **not** uniformly distributed during 2014-2019.

CHI-SQUARE TEST FOR WORKING CAPITAL

Null Hypothesis **H₀**: Working Capital is uniformly distributed during 2014-2019

Alternative Hypothesis **H₁**: Working Capital is **not** uniformly distributed during 2014-2019

TABLE 4.21: CHI-SQUARE TEST FOR WORKING CAPITAL

	Working Capital				
Year	O	E	O - E	(O - E) ²	(O - E) ² /E
2014-15	5901.14	4366.19	1534.95	2356077.64	539.62
2015-16	6177.93	4366.19	1811.74	3282409.07	751.78
2016-17	4419.41	4366.19	53.22	2832.58	0.65
2017-18	4385.46	4366.19	19.27	371.41	0.09
2018-19	947.00	4366.19	-3419.19	11690846.58	2677.59
Total	21830.94				3969.72
	Calculated value of X^2		3969.72		
	Degree of freedom (d.o.f.)		4		
	Significance level (SL)		5%		
	Table value of X^2		9.488		

INTERPRETATION

Since the Calculated value of X^2 is more than the Table value of X^2 the Null Hypothesis is rejected, so we can conclude that Working Capital is **not** uniformly distributed during 2014-2019.

ANALYSIS OF VARIANCE (ANOVA)

Null Hypothesis H_0 : There is **no** significant difference between the variances of Current Assets (X) and Current Liabilities (Y).

Alternative Hypothesis H_1 : There is significant difference between the variances of Current Assets (X) and Current Liabilities (Y).

TABLE 4.22: ANALYSIS OF VARIANCE (ANOVA)

	CA			CL		
Year	X	X - X'	(X - X') ²	Y	Y - Y'	(Y - Y') ²
2014-15	8172.27	-782.82	612810.28	2271.13	-2317.77	5372076.32
2015-16	8726.16	-228.93	52409.86	2548.23	-2040.67	4164350.37
2016-17	8708.76	-246.33	60679.45	4289.35	-299.55	89732.60
2017-18	10134.86	1179.77	1391852.53	5749.40	1160.50	1346750.97
2018-19	9033.41	78.32	6133.71	8086.41	3497.51	12232548.22
Total	44775.46		2123885.84	22944.52		23205458.47
	X'	8955.09				
	Y'	4588.90				
	V ₁	530971.46				
	V ₂	5801364.62				
	F	10.93				

INTERPRETATION

Since the Calculated value of F is more than the Table value of F at 5% Significance Level for 4 and 4 degree of freedom is 6.39, the Null Hypothesis is rejected, so we can conclude that there is significant difference between the variances of Current Assets (X) and Current Liabilities (Y).

CHAPTER –V**CONCLUSION**

The analysis of data such as the ratios calculated, trend lines drawn, correlation coefficient found, chi-square test results and ANOVA results show an unfavorable status of current working capital management system, and the same should be thoroughly rechecked using proper cost control and taking remedial measures. We hope that the management of the company can do wonders in working capital management and the coming years will reveal an entirely different picture showing favorable results.

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