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Management

WORKING CAPITAL MANAGEMENT - IT'S IMPACT ON LIQUIDITY AND PROFITABILITY - A STUDY OF COAL INDIA LTD

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Abstract

The present paper makes an attempt to give a conceptual insight on working capital management and assess its impact on liquidity and profitability of Coal India Ltd. The liquidity and profitability tradeoff has become an important aspect for all the organizations. The attempt also has been made to test the liquidity and profitability position. For this correlation and spearman's rank method has been applied. The correlation and spearman's ranking method indicates weak correlation and negative relationship between liquidity and profitability. The Motaal's test has also been applied to test the liquidity performance. It indicates liquidity position of the firm has improved over the study period. The study covers five year data from 2010-11 to 2014-15. For the analysis ratios indicating working capital performance and some statistical techniques are employed.

Keywords: Current Assets; Liquidity; T-Test; Ratios.

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1. Introduction

In today's competitive world maintaining financial strength on a day to day basis has become a challenge. Every firm wants to see themselves financially sound. The financial attributes like liquidity, solvency and profitability can be improved by effective implementation of the working capital management. Working capital supports the day-today operations of the firm. As it included items like cash, inventory, receivables, payables etc the working capital shows the activities of the companies.

Empirical studies have shown that ineffective management of working capital as one of the major cause of industrial sickness. So, efficient management of working capital is one of the important indicators of financial soundness.

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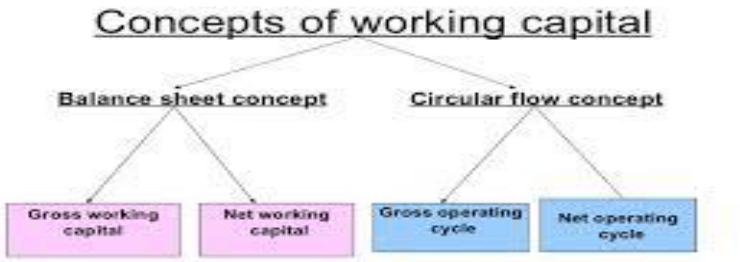
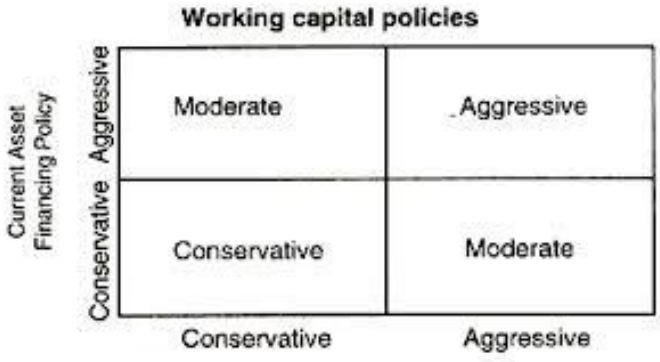
Profitability and liquidity are at most important issue for any firm to tackle in the modern world. These liquidity and profitability decisions are contradictory to each other for finance managers. The managers of the firm should formulate proper policies on working capital management in order to achieve the desired goal.

Basically there are few concepts on working capital. They are the balance sheet and operating cycle concept. Balance sheet concept includes the gross and net working capital and operating cycle concept is to support the operational activities of the firm.



- Gross Working Capital is the sum of all the current assets.
- Net Working Capital is the difference between the current assets and current liabilities i.e. excess of current assets over current liabilities.
- Operating cycle is a time taken for conversion of raw material into cash. It includes raw material-WIP-finished goods-sales-debtors-cash.

Working Capital Policies: Every company needs to monitor its working capital closely in order to cover its cash requirements. As a business grows the firms should keep an eye on the investment of working capital. The firm can also form the effective policies on working capital management to run their business smoothly. The firm needs a separate policy on all the components of working capital like cash policies, inventory policies, credit policies, payable policies etc.



The above working capital policies can be aggressive, moderate or conservative.

Aggressive strategy: This is the most aggressive of all the strategies. It fully focuses on the profit side the firm. It is called high risk, high profit strategy. Here the long term funds are mainly employed in fixed assets.

Moderate strategy: As the name indicates it is moderate. Here part of the long term funds are used in current assets. Here risk and returns are moderate. It is a balance between the aggressive and conservative policies.

Conservative strategy: Here also the working capital is financed with low risk and profit. In this strategy part of the permanent working capital is financed by the long term sources. In this strategy the objective is to play safe.

2. Literature Review

Oladipupo and Okafor (2013) examined the implications of a firm's working capital management practice on its profitability and dividend payout ratio. The study focused on the extent of the effects of working capital management on the Profitability and Dividend Payout Ratio.

Maradi, Salehi and Arianpoor (2012) compared working capital management of two groups of listed companies in Tehran Stock Exchange (TSE), which comprised of chemical industry and medicine industry. In chemical industry, 34 companies and medicine industry, 30 companies were selected and information related to these companies was gathered over 10 years (2001-2010) and analyzed using OLS multiple regression. The results show that, in medicine industry compared to chemical industry, debt ratio makes more impact on reduction of net liquidity.

Sharma and Kumar (2011) examined the effect of working capital on profitability of Indian firms. They collected data about a sample of 263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008 and evaluated the data using OLS multiple regression. The results revealed that working capital management and profitability is positively correlated in Indian companies.

Mathuva (2010) in his study on the influence of working capital management on corporate profitability found that there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers and profitability. He explained that the more profitable firms take the shortest time to collect cash from the customers.

Abel, Maxime (2008), examined the impact of working capital management on cash holdings of Small and medium-sized Manufacturing Enterprises (SMEs) in Sweden.

Singh and Rekha Dayal (2004) studied the economics of production and marketing of milk in the state of Uttar Pradesh. Linear and log-linear functions were used to work out the estimates of factors affecting marketed surplus of milk both for the private and cooperative systems. The results of the study indicated that the feed and fodder cost was the most important item of the total maintenance cost accounting for 55 to 65 percent of the total cost in zone-I and 51 to 66 percent in zone-II. The net profit per day of a Milch buffalo was very low due to the higher maintenance and low milk yield of milch buffalo on each herd size group in each zone of the state.

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3. Statement of the Problem

Though there are number of studies carried out in the area of working capital management but, only very few studies have been done on mining sector. The study aims at examining the relationship between the liquidity and profitability of the selected firm. So, the study is an attempt to contribute to the existing literature.

4. Objectives

- To study the working capital management of Coal India Ltd.
- To examine the liquidity position of Coal India Ltd.
- To know the relationship between the liquidity and profitability.

5. Research Methodology

Sample design: The sample for the study has been selected a company named COAL INDIA ltd which is one of the top public sector companies in the mining sector.

Data Collection: The study is mainly based secondary which is collected from the annual reports and accounts of Coal India ltd.

Time Period: The study covers the data from 2010-11 to 2014-15 .i.e. five years data is being collected to analyze the performance of the company.

6. Coal India Ltd: Brief Profile

Coal India Limited (CIL) is one of the leading public sector companies of Indian mining sector. Coal India ltd as an organized state owned coal mining corporate came into being in November 1975 with the government taking over private coal mines. With a modest production of 79 Million Tonnes (MTs) at the year of its inception CIL today is the **single largest coal producer in the world**. The company is into the production and sale of coal and its related products. It operates approximately in an 82 mining areas extended over eight provincial states of India. The Company has nearly 430 mines, out of which 227 are underground, 175 are opencast and 28 are mixed mines. It also operates in 15 coal washeries (including 12 coking coal and three non-coking coal) and looks after other establishments like workshops, hospitals etc. It also manages 27 training institutes. Indian Institute of Coal Management (IICM) is a training center that managed by CIL. It serves power and steel sectors, as well as cement, fertilizer, brick and kilns industries, among others. Its subsidiaries include Eastern Coalfields Limited, Bharat Coking Coal Limited, Central Coalfields Limited, Western Coalfields Limited, South Eastern Coalfields Limited and Central Mine Planning & Design Institute Limited, among others.

Major consumers of coal in India are power and steel sectors. Others include cement, fertilizer, brick Kilns, and a many other industries. Coal India supplies coal to 72 thermal power stations of the country out of 75. It also caters to around 88% of coal requirement of power utilities in the country. Export of Coal is made to neighboring countries as part of bilateral negotiation held under auspices of Ministry of External Affairs to maintain traditional trade link.

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Major highlights of the company

- Single largest coal producing company globally.
- 82% share in India's coal production during 2014-15.
- The company employed 333097 manpower as on April, 2015.

Company Financials	Rs in Crores
Total Income	80690.71
Net Profit	13727.10
Net worth	44343.33

Ratio	%
ROCE	32.29
NPM	29.97
ROE	34.01

7. Results and Discussions

Working Capital Performance of a Selected Company

To understand the working capital performance of the company following ratios are used.

Performance Drivers	Measures Used
Current Ratio	Current Assets/Current Liabilities
Quick Ratio	Quick Assets/Current Liabilities
Stock Turnover Ratio	COGS/Average Inventory
Stock Velocity(Days)	365/Stock Turnover Ratio
Debtors Turnover Ratio	Credit Sales/Average Debtors
Debtors Velocity(Days)	365/Debtors Turnover Ratio
Working Capital Turnover Ratio	Sales/Working Capital
Return on Capital Employed	EBIT/ Capital Employed
Return on Equity	Net Profit/Networth

Table 1:

Working Capital Performance					
Ratios ↓ Year →	2010-11	2011-12	2012-13	2013-14	2014-15
Current Ratio	2.56	2.55	3.34	3.28	2.94
Quick Ratio	2.35	2.38	3.13	3.05	2.72
Stock Turnover	8.86	11.52	13.72	13.97	13.04
Stock Turnover(Days)	36.98	31.68	26.61	26.13	27.97
Debtors Turnover	16.11	12.34	7.35	9.44	9.47
Average Collection Period(Days)	22.64	29.57	49.64	38.67	38.54
Working Capital Turnover	1.32	1.31	1.24	1.39	1.46
WCCA	60.97	60.88	70.14	69.54	66.04
STCA	8.18	6.95	6.35	6.94	7.38
CA-ST/CA	91.82	93.05	93.65	93.05	92.61
ROCE	32.31	36.17	36.93	35.32	32.29

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ROE	32.62	36.55	35.81	35.63	34.01
EBIT	16463.23	21272.65	24979	22879.57	21584.1
CE(TA-CL)	59198.75	72758.19	83894.9	79807.47	82118.8

The above table shows the current ratio over the period depicting the satisfactory performance in comparison with the normal standard of 2:1 and on the other side Quick ratio is slightly higher, but acceptable. Both the ratios have increased from 2.56 and 2.35 from 2010-11 to 3.28 and 3.05 till 2013-14. In 2014-15 both have decreased to 2.94 and 2.2 respectively.

The stock turnover ratio has increased over the study period from 8.86 to 13.04 from 2010-11 to 2014-15 which indicates a better management of inventory. The age of the stock for the same period has decreased from 36.98 to 27.97 is also an indicator of good inventory management system.

The debtor's turnover ratio has shown a fluctuating trend from 16.11 to 9.47 in the study period. But it has decreased from 2012-13 onwards. The company has to make an effort to bring this ratio to the required level. The collection period has also increased to 38.54 in 2014-15. It indicates the company is lagging in management of receivables.
The working capital ratio has shown an upwards trend over the period which is a good sign for the company. But it has to improve to a level where the company can manage working capital efficiently.

The profitability indicators like return on capital employed (ROCE) and equity (ROE) have shown consistent performance over the past five years. Important indicator like EBIT has increased which is a good sign for the concern.

Table 2:

Particulars	**Mean**	**Standard Deviation**	**Co-efficient of Variation**
Current Ratio	2.93	0.34	11.52
Quick Ratio	2.73	0.33	11.94
Stock Turnover	12.22	1.88	15.42
Debtors Turnover	10.42	3.03	27.71
Working Capital Turnover	1.33	0.07	5.51

From the above table it can be inferred that the average current and quick ratios are above the normal standard of 2:1 which shows the firm has ability to meet its short term obligation on time. The coefficient of variation is also not too high (11.52, 11.94). The average stock turnover ratio and debtors are on the higher side indicating the efficient inventory management. Coefficient of variation is high for debtors. It shows the great level of dispersion of mean. But the working capital ratio is low indicating inefficient use of investment of working capital resources.

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8. Liquidity and Profitability

For analysis of the correlation between liquidity and profitability, the Current Ratio and Return on Capital Employed Ratio is used. Here to test the correlation spearman's rank method is applied.

Hypothesis:

Null Hypothesis: There is a negative relationship between liquidity and profitability.

Relationship between Liquidity and Profitability

Table 3: (Spearman's Rank Method)

Year	CR	Rank	ROCE	Rank	D (Rank Difference)	D^2
2010-11	2.56	4	32.30	4	0	0
2011-12	2.55	5	36.17	2	3	9
2012-13	3.34	1	36.93	1	0	0
2014-15	3.28	2	35.32	3	1	1
2015-16	2.94	3	32.29	5	2	4
					Total	14

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$$

$p = 1 - 6\sum 14/5(5^2\text{-}1)$
= 1 – 6*14/5*25-1
= 1 – 84/5*24
= 1 – 84/120
= 1 – 0.7
= 0.30

t- Test analysis:

$\boldsymbol{t = r\sqrt{n} - 2/\sqrt{1} - r^2}$
= $0.3\sqrt{5}$-2 / $\sqrt{1}$-0.3^2
= $0.3\sqrt{3} / \sqrt{1} - 0.09$
= 0.3*1.73 / 0.9539
= 0.519 / 0.9539
= 0.544

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The table value of the t at 5% significance level of ((n-2)), (5-2) is 3.182 and our calculated value is 0.544 i.e. less than the table value, it means null hypothesis is accepted. So, the test result shows that there is a negative relationship between liquidity and profitability.

Correlation Matrix

Table 4:

	CR	QR	STR	DTR	WCT	N/P	ROCE	ROE
CR	1							
QR	0.269018	1						
STR	0.395347	0.868467	1					
DTR	-0.17037	-0.8799	-0.96446	1				
WCT	0.317823	0.996625	0.873409	-0.88034	1			
N/P	-0.67635	0.181221	0.026264	-0.12993	0.101397	1		
ROCE	-0.27328	0.467053	0.514813	-0.53091	0.400005	0.823308	1	
ROE	-0.02113	0.378481	0.629372	-0.58229	0.330964	0.539206	0.904762	1

The above correlation matrix shows the positive and negative correlation between various working capital performance indicators. There is a highly negative correlation between current ratio and net profit and there is a positive correlation between quick ratio and both the return ratios. The highlighted light red colored values are showing a highly positive correlation and green colored values showing highly negative correlation.

9. MOTAALS Comprehensive Test for Analyzing Liquidity Position

To test the liquidity position the variables as Working Capital, Stock, and Liquid Assets are used as a percentage of Current Assets.

Working Capital	**/**	**Current Assets**
Stock	**/**	**Current Assets**
Liquidity Resource(Liquid assets)	**/**	**Current Assets**

For 1 and 3 higher the percentage more favorable the liquidity position and for 2 lesser the percentage better it is. Thus the ranking is being done in this manner. The ranking all the three has been done in their order of preference. Finally, the ultimate ranking is done on the principle that the lower the points more favorable the liquidity position vice versa.

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MOTAAL'S Comprehensive Test of Liquidity

Table 5:

Years	WC to CA	Rank	Stock to CA	Rank	LR to CA	Rank	Total Rank	Ultimate Rank
2010-11	60.97	4	8.18	5	91.82	5	14	5
2011-12	60.88	5	6.95	3	93.06	2	10	3
2012-13	70.14	1	6.35	1	93.65	1	3	1
2013-14	69.54	2	6.94	2	93.05	3	7	2
2014-15	66.04	3	7.38	4	92.61	4	11	4

The Motaal's test is applied to find out the liquidity position of the Coal India ltd for the selected period of study. Based on the Motaal's test ultimate ranking it can be inferred that the liquidity position was best in the year 2012-13 followed by 2013.14 and 2011-12. In the year 2010-11and 2014-15 there is a cause of concern of liquidity. Overall it shows that liquidity position of the firm has improved over the period of time.

10. Summary and Findings

- The selected performance indicators have shown a positive outlook except debtor's turnover ratio and collection period which have shown negative trend.
- The liquidity ratios like current ratio and liquid ratios are above the standard level which indicates better liquidity position.
- Other turnover ratios like stock turnover and working capital turnover ratios have shown a satisfactory performance.
- The profitability indicators also shown growth trend.
- The spearman's rank correlation has shown a negative relationship between liquidity and profitability which is significant at 5% (2-tailed) indicating maintenance of excess liquidity over the study period.
- The correlation matrix also shows that there is a negative relationship between current ratio and net profit ratio and less significant positive relation between quick ratio and return ratios.
- The Motaal's test of liquidity has shown that the liquidity performance was better in 2012-13, 2013-14 compared to other years.

11. Conclusion

Referring to the objectives of the study the overall working capital performance is found to be satisfactory for the study period. The firm has shown significant improvement in the performance in terms of liquidity and profitability aspects. However, there is a need for improvement in some ratios related to debtors and working capital turnover in order to enhance

the liquidity and profitability position to the greater level. Overall the working capital performance of COAL INDIA LTD is satisfactory.

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