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Analyzing Management of Working Capital and Expenses Criterion at Kirloskar Pneumatics Co. Ltd

Mr. Santanu Kumar Das
Research Scholar, School of Management studies, Singhania University, Pacheri Bari, Jhunjhunu, Rajasthan
E-Mail: santanu.das.kumar@gmail.com

Abstract

Working Capital Management (WCM) is a major aspect of corporate financial management because of its strong nexus with the liquidity, profitability and solvency objectives of an organization. The effectiveness and efficiency of the top level management largely depends on its ability to ensure a sound working capital management. According to Ganesan (2007), WCM is the management of short-term financing requirements of a firm. This includes maintaining optimum balance of working capital components-receivables, inventory and payables with the resultant effects on the day-to-day operations of the business.

The present paper examines the working capital performance of Kirloskar Pneumatics Co Ltd. during the period 2004-05 to 2008-09. Financial ratios are applied in measuring the working capital performance and statistical as well as econometric techniques are employed in order to assess the behavior of the selected ratios. The empirical findings reveal significant positive trend growth in most of the selected performance indicators. Further, the selected ratios show satisfactory performances during the study period. Motaals test also indicates significant improvement in liquidity performance during the period. Finally, there exists significant negative relationship between liquidity and profitability, which indicates that Kirloskar Pneumatics Co. Ltd. has maintained post optimal level of liquidity (i.e., excess liquidity) during the period under study.

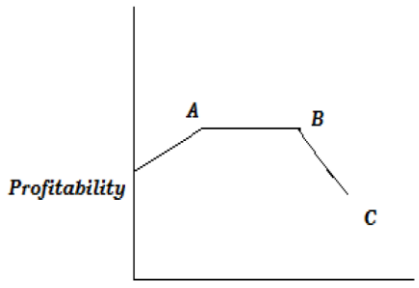
KEYWORDS: Trend Growth Rates, Selected Ratios, Liquidity, Profitability, Post Optimal Level.

Introduction

Working capital management involves the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable and payable, and cash.

Working capital is the single best method of determining the position of a company, or how well that company may be doing. When all is said and done, the company's working capital is what makes it profitable or not profitable. The more working capital a company has the better that company is doing, financially. Many potential investors and others in the public sphere will scrutinize a balance sheet to find the working capital calculation of a company.

It is usually seen that there is always a negative relationship between liquidity and profitability. But it cannot be denied that unless there is a minimum level of investment in the current assets, output and sales cannot be maintained up to a certain level. Therefore, one is complementary to each other. Maintenance of a sound liquidity position increases profit, provided that the established liquidity level harmonizes with the nature of the firm. Gentry hypothesized a relation between liquidity and profitability as perceived by business. According to him, the relationship between liquidity and profitability may not be continuously positive. But it has the shape of an inverted tea cup: up to certain level, increase in liquidity leads to increase in profitability (points between O and A), beyond that profitability remains constant with the increase in liquidity up to a certain point (points A and B). Thereafter, any further attempt to increase liquidity will lead to decline in profitability (points between B and C). The said relationship is shown below:



Liquidity at different capacity level

[Source: James E. Gentry "Management Perception of the Working Capital Process: Faculty Working Paper, College

of Commerce & Business Administration, University of Illinois, 1976 (Quoted from the Management Accountant, June, 1981, p.274)]

2.Kirloskar Pneumatics Co. Ltd: A Brief Profile

Pneumatic tools mainly use compressed air to drive pneumatic motor and to output kinetic energy, and pneumatic tool is the upgrade of hand tools. Compared to traditional hand tools, the power of pneumatic tools is greater, and it is easy to operate and will not easily causes damage, and it can be widely used in some special work environment. Pneumatic tool is becoming an important branch point in the hardware and tools industry, such as pneumatic gun and pneumatic nails and staples.

Established in 1958, Kirloskar pneumatic company limited started with the manufacture of air compressors and pneumatic tools. Immediately thereafter the company expanded its activated in the field of air-conditioning and refrigeration a machinery. Further diversification in the manufacture of hydraulic power transmission equipment followed. Kirloskar pneumatic is held in high esteem for process system engineering and turnkey project expertise. The result of its success in this area is reflected in company s association with virtually every project and industry in the country.

3. Review Of Past Studies

Some of the important works that have been carried out in the area of working capital management are outlined below:

Rajeswara, Rao K. (1985), examined the working capital policies of Public Enterprises in India and found that working capital efficiency could not be achieved by majority of the selected companies. Mohan, Reddy P. (1991), examined the various aspects relating to working capital management among six selected large-scale private companies in Andhra Pradesh from 1977 to 1986. The study revealed that the investment in current assets in the selected companies were more than that of fixed assets. Dutta, Sukamal (1995), evaluated the working capital crisis and working capital management requirements of selected paper mills of West Bengal during the period 1983-84 to 1985-86. The study concluded that the overall financial conditions of 40% of the firms were assumed to be precarious. Shanmugam, R. and Poornima, S. (2001), showed that the effective management of working capital is still most crucial in organizations‟ success for 28 medium and large scale spinning mills in Coimbatore in the state of Tamil Nadu. Anand, Manoj and Malhotra, Keshav (2007), examined the working capital management performance

of Indian corporate over the period 2001-02 to 2003-04. Pandey, I.M. and Parera, K.L.W. (1997), carried out an empirical study of working capital management policies and practices of the private sector manufacturing companies listed on the Colombo Stock Exchange in Sri Lanka. Sarawat, B.P. and Agarwal, R.S. (2004), attempted to evaluate the working capital position of Nepal cement industry for a period of eight years from 1993-94 to 2000-01 by selecting two major players in the public sector. Safi, Hijazi, Tahir and Kamal, Yasir (2005), in their study, "Impact of Working Capital Management on the Profitability of Firms: Case of Listed Pakistani Companies", investigated the relationship between measures of working capital management and the corporate profitability of the non-financial firms. Garcia-Teruel, Pedro Juan and Martinez-Solana, Pedro (2007), provided empirical evidence on the effects of working capital management on the profitability of a sample of small and medium-sized Spanish firms during the period 1996 to 2002. Abel, Maxime (2008), examined the impact of working capital management on cash holdings of Small and medium-sized Manufacturing Enterprises (SMEs) in Sweden.

Research Gap:

Although, lot of studies has been carried out in the area of working capital management, few studies have been carried out in the Pneumatic industry. Moreover, no comprehensive indices were formed to examine the relationship between liquidity and profitability. Hence, the present study is an attempt to contribute to the existing literature.

4. Research Objectives

The main objective of the study is to examine and evaluate the working capital management of the selected company.

To attain this main objective, the following incidental objectives are sought to be achieved:

i. To examine the trend growth of selected performance indicators.

ii. To examine the working capital performance of the selected company.

iii. To study the liquidity position of the company more precisely by applying Motaals test.

iv. To examine the relationship between liquidity and profitability.

5. Research Hypotheses

In conformity with the objectives of the study, the following are the testable hypotheses:

i. There exist significant positive trend growth rate.

ii. There is significant negative relationship between liquidity and profitability.

6.Research Methodology

To carry out the present study, the methodologies that have been adopted are stated as follows:

6.1 Sample Design

The study has been carried out by selecting a company namely Kirloskar pneumatic company limited; which is one of the leading company in the Indian pneumatic company.

6.2 Data Source

The data required to complete the study has been collected from the published annual reports of the selected company.

6.3 Study Period

Taking into account the availability of data, we have chosen the study period spanning from
2004-05 to 2008-09.

6.4 Tools and Techniques Of Data Analysis

The data collected from the published annual reports of the selected company for the 5 year period have been suitably re-arranged, classified and tabulated as per requirements of the study.

The trend growth rate of selected performance indicators in respect of liquidity and profitability have been examined by fitting log linear trend equation, which is shown below:

$\log y_t = a + bt + ut$

Where: y = predicted value; a = intercept; b = regression co-efficient
t = time
u = error term of the model

The popular "t" test has been used for examining the statistical significance of the trend growth rates. The "t" statistic is computed as follows:

$$t = \left| b^* \div S_{b^*} \right|$$

Where:
b* = estimated regression co-efficient;
S_{b^*} = standard error of the estimated regression co-efficient

6.4.2 Working Capital Performance of The Selected Company

To analyze the working capital performance of the selected company, the technique of ratio analysis has been used. The ratios which are taken into consideration are as follows:

Performance Drivers	**Performance Measures**
Current Ratio	Current Assets ÷ Current Liabilities
Quick Ratio	(Current Assets – Stock)÷ (Current Liabilities – Bank Overdraft)
Absolute Liquid Ratio	(Cash + Cash Equivalent + Marketable Securities) ÷

	(Current Liabilities – Bank Overdraft)
Inventory Turnover Ratio (times)	Cost of Goods Sold ÷ Average Stock
Inventory Turnover Ratio (days)	365 ÷ Inventory Turnover Ratio (times)
Debtors Turnover Ratio (times)	Net Sales ÷ Closing Debtors
Debtors Turnover Ratio (days)	365 ÷ Debtors Turnover Ratio (times)
Working Capital Turnover Ratio	Net Sales ÷ Net Working Capital
Current Assets Turnover Ratio	Sales ÷ Current Assets

6.4.3 Analysis of the Liquidity Position by Motaals Comprehensive Test

In this test, the following ratios (each expressed as a percentage) are taken into consideration, namely:

a) Inventory ÷ Current Assets;
b) Debtors ÷ Current Assets;
c) Cash & Bank ÷ Current Assets
d) Loans & Advances & Other Assets ÷ Current Assets

For (a) lower the ratio, the more favorable is the position and ranking has been done in that order. For (b), (c) and (d), higher the ratio, the more favorable is the position and thus ranking has been done in that order. Ultimate ranking has been done on the principle that lower the points scored the more favorable are the position and vice versa.

6.4.4 Relationship between Liquidity And Profitability

To analyze the relationship between liquidity and profitability, Spearman's rank correlation has been applied on the basis of the factor scores obtained from factor analysis. For this purpose, Spearman's rank correlation co-efficient is computed below:

6.4.5 Other Methods

Apart from the above, simple statistical measures like mean, standard deviation, coefficient of variation have been used in the study.

7. Empirical Findings and Analysis

7.1 Trend Growth Rate Analysis

From Table-1, it is observed that the R^2 values of all the performance indicators (except cash & bank balances) are found to be healthy. These high R^2 values indicates that the selected performance indicators are well explained by the explanatory variable i.e., time during the period under study. The growth rate of all the selected performance indicators are observed to be positive and significant (except cash & bank

balances) at 1% and 5% levels (2-tailed). Among the working capital performance indicators, net working capital registered highest trend growth (28.57%), which implies that Kirloskar pneumatic Ltd. has maintained a satisfactory level of liquidity during the period under study. Further, the growth rate in current assets (23.45%) is higher than that of the growth rate in current liabilities (14.98%), thereby leading to a favorable liquidity position of the company. The profitability indicators also reveals positive trend growth rate, which are significant at 1% and 5% levels (2-tailed). Overall, the first hypothesis has been accepted.

Table: 1

TREND GROWTH RATE ANALYSIS			
Selected Performance Indicators	**R^2**	**Growth Rate (%)**	**t-value**
Current Assets	0.99	23.45***	23.19
Current Liabilities	0.95	14.98***	7.85
Net Working Capital	0.99	28.57***	15.66
Inventory	0.94	14.15***	7.08
Debtors	0.99	27.45***	15.35
Cash and Bank Balances	0.40	36.87[i]	1.41
Gross Profit	0.87	13.28**	4.43
Net Profit After Tax	0.83	14.24**	3.84
Net Sales	0.99	19.65***	15.36
Capital Employed	0.98	26.82***	13.75

Source: Published Annual Reports of Kirloskar pneumatic Co. Ltd. (2004-05 to 2008-09)

Notes: *** marked values indicate significant at 1% level (2-tailed)

** marked values indicate significant at 5% level (2-tailed)

i marked values indicate insignificant

Growth rates are computed by multiplying the trend co-efficient with 100 to express it in percentage per annum form

7.2 Analysis of the Working Capital Performance of Cipla Ltd.

The ratios selected for this purpose are shown in Table-2 below:

TABLE: 2
SELECTED RATIOS OF WORKING CAPITAL IN CIPLA LTD. DURING 2004-05 TO 2008-09

↓ Ratio / Year→	2004-05	2005-06	2006-07	2007-08	2008-09	Mean	S.D.	Co-efficient of Variation
Current Ratio	2.25	2.52	3.01	3.00	3.15	2.786	0.383	13.747%
Quick Ratio	1.29	1.47	1.97	2.10	2.15	1.796	0.391	21.771%
Absolute Liquid Ratio	0.02	0.05	0.14	0.06	0.04	0.062	0.020	32.258 %
Inventory Turnover Ratio (times)	2.52	2.56	2.71	3.00	3.20	2.798	0.293	10.472 %
Inventory Turnover Ratio (days)	145	143	135	122	114	132	-	-
Debtors Turnover Ratio (times)	3.71	3.31	3.34	2.87	2.70	3.186	0.403	12.649 %
Debtors Turnover Ratio (days)	98	110	109	127	135	116	-	-
Net Working Capital Turnover Ratio	2.24	2.09	1.82	1.60	0.65	1.680	0.626	37.262 %
Current Asset Turnover Ratio	1.24	1.26	1.21	1.07	1.12	1.180	0.082	6.949 %

Source: Published Annual Reports of Kirloskar pneumatic Co. Ltd. (2004-05 to 2008-09)

Current Ratio

From Table-2, it is observed that the current ratio shows an increasing trend with an average of 2.786. It ranged between 2.25 in 2004-05 to 3.15 in 2008-09. Further, the ratio is above the conventional standard norm of 2:1 in all the years under study. Hence, the performance of the selected company in terms of current ratio is satisfactory during the study period. The S.D. of the ratio is 0.383 and C.V. is 13.747 %.

Quick Ratio

The quick ratio of the selected company also shows an increasing trend (Table-2) for the study period with an average of 1.796. The ratio is also above the standard norm of 1:1 in all the years under study. Hence, the performance of the company is also satisfactory in terms of quick ratio. The ratio varies between 1.29 in 2004-05 to 2.15 in 2008-09. The S.D. of the ratio is 0.391 and C.V. is 21.771 %.

Absolute Liquid Ratio

From Table -2, it is observed that the absolute liquid ratio shows an increasing trend for the first three years and then a decreasing trend for rest of years under study. The ratio ranged between 0.02 to 0.14 with an average of 0.062. In all the years under study, the ratio is found to remain below the conventional norm of 0.5:1. Hence, the liquidity position in terms of this ratio is not satisfactory during the study period. The S.D of the ratio is 0.020 and C.V. is 32.258 %.

Inventory Turnover Ratio

As per Table-2, inventory turnover ratio of the company shows an increasing trend during the entire study period, which indicates better management of inventory. The ratio varies between 2.52 to 3.20 with an average of 2.798. The S.D of the ratio is 0.293 and C.V. is 10.472 %.

Similarly, the age of inventory reflects a decreasing trend during the study period. The age of inventory ranged between 114 days to 145 days with an average of 132 days.

Debtors Turnover Ratio

According to Table-2, the debtor's turnover ratio shows fluctuating trend during the study period. The ratio lies between 2.70 to 3.71 with an average of 3.186, which indicates a satisfactory debtor's management of the company. The S.D of the ratio is 0.403 and C.V. is 12.649 %.

Similarly, the age of debtors varies between 98 days to 135 days with

an average of 116 days during the period under study.

Working Capital Turnover Ratio

From Table-2, it is observed that this ratio shows a decreasing trend during the study period. The ratio ranged between 0.65 in 2008-09 to 2.24 in 2004-05 with an average of 1.68. This indicates the working capital utilization of the company during the study period. The S.D of the ratio is 0.626 and C.V. is 37.262 %.

Current Assets Turnover Ratio

According to Table-2, it is observed that this ratio shows mixed trend during the study period. It ranged between 1.07 to 1.26 with an average of 1.18. The ratio indicates the overall efficiency of working capital management of the company during the study period. The S.D of the ratio is 0.082 and C.V. is 6.949 %.

7.3 Liquidity Ranking Analysis By Motaals Test

The liquidity position of a firm is largely affected by the composition of working capital in as

much as any considerable shifts from the relatively more current assets to the relatively less current assets and vice versa will materially affect a firm's ability to pay its current debts promptly. Therefore, to determine the liquidity position of the company under study more precisely, a comprehensive test known as Motaals test has been done which is shown below in Table 3.

TABLE: 3
STATEMENT OF LIQUIDITY IN ORDER OF RANKING OF KIRLOSKAR PNEUMATIC CO. LTD.
(MOTAALS TEST)

Year	Inventory to Current Assets (%)	Debtors to Current Assets (%)	Cash & Bank to Current Assets (%)	Loans & Advances & Other Assets to Current Assets (%)	Liquidity Rank				Total Rank	Ultimate Rank
	1	2	3	4	1	2	3	4	1+2+3+4	
2004-05	42.54	33.51	0.88	23.08	5	5	5	4	19	5
2005-06	41.75	38.21	1.94	18.10	4	2	3	5	14	4
2006-07	34.52	36.29	4.64	24.55	3	4	1	3	11	3
2007-08	29.93	37.23	2.12	30.72	1	3	2	1	07	1
2008-09	31.64	41.57	1.20	25.59	2	1	4	2	09	2

Source: Published Annual Reports of Kirloskar pneumatic Co. Ltd. (2004-05 to 2008-09)

From the Table-3, it is observed that the company under study registered the most sound liquidity position in the year 2007-08 followed by the year 2008-09. The third, fourth and fifth position have been occupied by the years 2006-07, 2005-06 and 2004-05 respectively. This yearly ranking indicates that there has been an improvement in the liquidity performance of the selected company during the study period.

7.4 Relationship between Liquidity and Profitability

Indices for liquidity and profitability have been obtained by using factor analysis (principle component method). Thereafter, Spearman's rank correlation on the basis of the indices has been worked out to get the said relationship. From Table-4, we

found two principal components for liquidity, but the first principal component has been selected (Eigen value being highest at 5.30) for computing liquidity index.

For profitability (Table-4), we found one principal component (Eigen value 2.78) which is considered for computing profitability index. The selected factors (i.e., principal components) considered for the formation of indices also explains a significant portion of total variance (75.72 % and 92.63 % for liquidity and profitability respectively).

Table: 4
Factor Analysis For Liquidity And Profitability Ratios Of Kirloskar Pneumatic Co. Ltd. During 2004-05 to 2008-09

Category of Ratios	Chosen Principal Component	Eigen Value	Percentage of Total Variance
Liquidity	Factor 1 Factor 2	5.30 1.29	75.72 18.46
Profitability	Factor1	2.78	92.63

Notes:
i. Extraction Method: Principal Component Analysis.
ii. Principal Components are chosen on the basis of Kaiser's criterion (i.e., for the Chosen Principal Component Eigen value is greater than or equal to 1).

The corresponding factor scores of the selected principal components are treated as indices for liquidity and profitability which are presented in Table-5. The rank correlation co-efficient between liquidity and profitability of the selected company is observed to be -0.90. It is statistically significant at 5% level (2-tailed), since the calculated value of "t" (3.58) is greater than the table value of "t" (3.18) at 5%level.Thus, it indicates that Kirloskar pneumatic Ltd. has maintained post optimal level of liquidity, thereby creating a negative impact on profitability during the study period. This also leads to the acceptance of the second hypothesis of the study.

TABLE: 5
Liquidity and Profitability Indices Obtained From Factor Analysis (Principal Component Method) of Kirloskar Pneumatic Co. Ltd. During 2004-05 To 2008-09

Year	Factor Score for Liquidity Ratios (Liquidity Index)	Factors Score for Profitability Ratios (Profitability Index)
2004-05	-1.19859	0.64234
2005-06	-0.76329	1.10192
2006-07	0.02022	0.27380
2007-08	0.75251	-0.64715
2008-09	1.18915	-1.37091

Results
Rank Correlation Co-efficient (R) = -0.90; t – value = 3.58; Table value = 3.18 (5 % level)
Significant at 5% level (2-tailed)

8. Summary of the Findings and Conclusion

- Except cash and bank balances, the selected performance indicators have shown positive and significant trend growth rate during the period under study.
- The current ratio of the company always remained above the standard norm of 2:1, during all the years under study. Hence, the performance of the company is satisfactory in terms of current ratio during the study period.
- The performance of the company in terms of quick ratio is also satisfactory, since the ratio remained above the standard norm of 1:1 during all the years under study.
- The performance of the company in terms of absolute liquid ratio is not satisfactory. The ratio remained below the standard norm of 0.5:1 during all the years of the study.
- The inventory turnover ratio as well as debtor's turnover ratio shows satisfactory performance during the study period.
- The working capital turnover ratio and current assets turnover ratio are rather low and therefore indicates low utilization of working capital during all the years under study.
- As per Motaals test, the liquidity position of the selected company is better in 2007-08 followed by

2008-09, 2006-07, 2005-06 and 2004-05.

- The rank correlation coefficient between liquidity and profitability of the company is observed to be negative, which is statistically significant at 5% level (2- tailed). This indicates that the selected company has maintained excess level of liquidity during the study period.

In relation to the main objective, it may be concluded that the working capital management of Kirloskar pneumatic Co. Ltd. is satisfactory during all the years under study. Moreover, the company has shown significant improvement in liquidity position over the years under study. The study may therefore act as a trend setter for other companies in the pharmaceutical industry. However, there is a need for further improvement in working capital turnover ratio as well as in the current assets turnover ratio in order to generate liquidity efficiently in the coming years. Besides, inventory of slow moving items, if any, should be reduced to the maximum possible extent.

9. Limitations of the Study

The study suffers from certain limitations which are stated as follows:

i. The study has been conducted over a very limited period of five years only.

ii. The study is based on secondary data.

iii. The study is limited to a single company. Hence, it will reflect only a partial view of the overall working capital management in the Indian pharmaceutical industry.

iv. The study is based on consolidated financial statements of the selected company, which may leave some grounds of error.

9. Direction for Future Research

The present study is limited to the extent of a single company. Hence, further research may be conducted to reflect the overall view of working capital management in the Indian pneumatic Companies.

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