Working Capital Structure and Liquidity Analysis : An Empirical Research of Indian Commercial Vehicles Industry

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Abstract

The structure of working capital and liquidity analysis plays a key role in the process of wealth maximization of shareholders. The firm should, therefore, make judicious investment in various current assets. Having attempted to study effectiveness of structuring the working capital, the study revealed that the sample companies on an aggregate basis invested most of their funds in inventories followed by trade receivables and loans and advances. The firms had held very insignificant amount of funds in cash and near cash assets. The study also revealed that the variation between current assets turnover ratio and working capital turnover ratio was very high across the industry which, in turn, implies that the sample companies achieved higher sales with less working capital. The application of coefficient of correlation revealed that the current assets of Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazad Ltd. varied significantly with sales and all the sample companies were efficient in terms of achieving higher sales with lower levels of current assets.

Key Words: *Shareholders, Wealth Maximisation, Current Ratio, Working Capital Turnover, Liquidity Position and Analysis of Variance*

Introduction

Working capital or short-term finance as it is otherwise known as, may be regarded as the lifeblood of any business unit. Its effective management can do much more to the success of the business while its ineffective management will undoubtedly lead to ensured failure of the business (Leslie R, Howard, 1971). Effectiveness of working capital and liquidity management has got direct bearing on shareholders' wealth maximization. It is in this context that management of working capital assumes paramount importance. In the present scenario of cut-throat competition, the business does not have any other option than cutting the cost of its operations in order to survive and continue to be financially healthy. As Mr.Jagdish Khattar (Indian Management), Managing Director, Maruthi Udyog Ltd., reiterates it, if the business wants to improve the bottom line and fight competition, there is no other way than cutting the cost. He also said that the market movement was unpredictable

but cost cutting was in the hands of the business itself. It is in this connection, effective management of working capital forms an absolute part of cost reduction.

Many organizations suffer the losses due to ineffective management of working capital. As pointed out by Ralph Kennedy and Steward McMullen (Kennedy, Ralph Dale *et al*. 1958) the inadequacy or mis-management of working capital is the leading cause of business failure.

Working capital is defined as the amount of funds needed to run day-to-day operations of the firm. It is that portion of the total funds of the business which is earmarked for meeting routine obligations like payment for raw materials, wages etc. As against this definition, fixed capital means investment of funds in fixed assets and, hence, it is also known as capital expenditure. The word 'working capital', however, may be understood in different ways by different people to suit their convenience. The research conducted by N.M.Khandelwal (1985) revealed that significant percentage of respondents includes only inventories in the definition of working capital whereas the rest of the respondents have included all current assets.

Literature Review

Though there is innumerable number of studies on working capital management, the researchers screened and reviewed the most pertinent studies. The reviews have been arranged in chronological order.

The first and foremost formal study conducted and compiled on Working Capital Management in India was by National Council of Applied Economic Research (NCAER, 1996). The council published a report on "Structure of Working Capital" which confined to the analysis of the composition of working capital with special reference to fertilisers, cement and sugar industries. The study revealed that working capital management practices were highly unplanned and hence expressed the dire need for suitable and appropriate working capital management policies in the success of the business.

A study conducted by S.P.Vijayasaradhi and K.Rajeswara Rao (1978) on Indian public enterprises revealed that the management of working capital played a key role in the success of the business. The study has indicated that increasing trend in the investment of current assets resulted in higher carrying costs which, in turn, has negatively affected the profitability position of the company.

N.M.Khandelwal (1985) carried on half-complete empirical research initiated by late N.M.Agarwal, among 40 small-scale industries in Jodhpur industrial estate. The study attempted to investigate into working capital management process and practices among the selected units between the years 1975-76 and 1979-80. The study revealed that the sample firms held more investments in inventories than required and management of receivable was found to be highly disorderly. It was found that bills receivables constituted as much as 50 per cent of total current assets. Highlighting the sickness in Jodhpur Industrial estate, the study attributed the main reason to inefficient management of working capital. Based on findings the study suggested that the entrepreneurs needed to be educated about the basic concepts and efficient way of working capital management.

Swami H.R (1987) in his study on "Materials Management in Public Sector Undertakings" took five central public sector enterprises in the state of Rajasthan. The study revealed that the inventory alone constituted by 61 per cent of total current assets during the study period (1977-78 to 1981-82). The growth of inventories during the period found to be very high indicating no control. The study concluded that the materials management in select companies was not satisfactory and recommended for improvement through continuous monitoring and necessary action.

Jain R.K (1988) in his study among ten manufacturing, trading and service industries in the state of Rajasthan, brought out various working capital management practices followed by the selected companies. The study found out that the companies had both over-investment and under-investment problems. The study strongly recommended for the release of excess funds in working capital and to invest the same in short-term or long-term assets. On the other hand, the study recommended that the companies should avoid under-investment in working capital if they wanted higher profit margins.

Sinha, Sinha and Singh (1988) conducted a study on analysis of working capital management in Fertiliser Corporation of India and Gujarat State Fertiliser Corporation. The analysis revealed that a huge portion of funds was tied up as working capital especially in inventories and receivables. The study revealed that the sample companies failed to manage working capital efficiently by the usage of latest techniques and hence the funds were locked up at various levels during the course of business operations. The study recommended for urgent need for streamlining working capital management practices failing which the firms would get affected.

Praveen kumar Jain (1993) conducted a study among seven papers companies in India to analyse the basic components of working capital. The study revealed that the current ratio in public sector undertakings during the study period was found to be highly erratic while the same in private sector undertakings registered continuous decrease. As far as the inventory was concerned, the study revealed that it was highly unplanned in public sector undertaking units when compared to private sector units. The study contributed much in terms of realising the importance of effective management of working capital.

In his study on "Working Capital Turnover in Pharmaceutical Companies" Mr. Siddharth G. Das (1994) attempted to ascertain efficient or otherwise use of working capital in selected pharmaceutical firms in India. Having studied the data of ten years, he concluded that the overall working capital turnover ratio was 9.03 times. However, the study also revealed that working capital turnover ratio declined gradually over the period under review.

Indrasena Reddy P and Someswar Rao K (1996) conducted a study in Hindustan Cables Ltd. for the period from 1989-90 to 1993-94. Having studied current ratio, quick ratio, working capital turnover ratio, etc. they concluded that liquidity position of the company was unsatisfactory. However, the study revealed that there was a sign of improvement in the management of inventory and ineffectiveness in the

management of debtors. The study recommended for effective utilisation and control of current assets.

Studying the management of working capital in Colgate Palmolive (India) Ltd., Mr. Debasish Sur (1997) attempted to assess the efficiency of working capital management in terms of working capital ratio, quick ratio, ratio of current assets to total assets, ratio of current assets to sales, and composition of working capital. The study revealed that the working capital management was inefficient during the study period. The study recommended for special attention to the management of inventories, which constituted the highest part of current assets.

A study conducted by M. Subramanya Sharma and Thiruvengala Chary (1999) in VST Industries Ltd. revealed that working capital management in the sample unit was inefficient. A disproportionate investment in current asset in relation to sales resulted in declining working capital turnover ratio. Having analyzed working capital in terms of current ratio, quick ratio, working capital turnover ratio etc. the study revealed that the company failed to manage inventory efficiently which, in turn, has resulted in lower profitability.

The Need and Objectives of the Study

As stated earlier, many researchers showed that working capital management plays pivotal role in the economic success of the business. It is at this juncture that the business needs to monitor the management of working capital constantly if it wanted to maximize the profit. Thus, keeping the importance of working capital management in view the present study aims to analyse:

- Working capital structure of Indian Commercial Vehicles Industry.
- Liquidity position of Indian Commercial Vehicles Industry, and
- Working capital turnover position of Indian Commercial Vehicles Industry

Hypotheses of the Study:

The present study tests the following null hypotheses :

$H0_1$: The average current ratios of sample companies do not differ significantly.

$H0_2$: The average quick ratios of sample companies do not differ significantly.

$H0_3$: The average ratios of current assets to total assets do not differ significantly.

$H0_4$: The average ratios of current assets to sales of sample companies do not differ significantly.

$H0_5$: The average current assets turnover ratios of sample companies do not differ significantly.

$H0_6$: The average working capital turnover ratios of sample companies do not differ significantly.

Methodology of the Study

The present study is conducted among five commercial vehicle companies, which constitute Indian Commercial Vehicles Industry. The companies taken for the study purpose are: Tata Motors Ltd. (TML), Ashok Leyland Ltd. (ALL), Bajaj Tempo Ltd. (BTL, now Force Motors Ltd.), Eicher Motors Ltd. (EML) and Swaraj Mazda Ltd.

(SML). The data of ten years (from 1995 to 2004) required for the analysis part have been collected through online database "http://www.asiancerc.com". The analysis part is carried out with the help of the variables: Current Ratio (Current Assets / Current Liabilities), Quick Ratio (Quick Assets / Current Liabilities), Ratio of Current Assets to Total Assets (Current Assets / Total Assets x 100), Ratio of Current Assets to Total Sales (Current Assets / Total Sales x 100), Current Assets Turnover Ratio (Sales / Current Assets) and Working Capital Turnover Ratio (Sales / Working Capital) which measure the efficiency of working capital management. Apart from these ratios, the study also uses statistical tools like averages and one-way ANOVA. MS Excel software has been used to derive the results.

Analysis and Discussion of Results

The analysis and interpretation part of the study is carried on in the sequential order of the parameters mentioned in the methodology of the study. Thus, the discussions in terms of cross sectional comparison are as follows:

Working capital structure: The working capital structure of Indian Commercial Vehicles Industry is presented in table 1.

Table 1: Working Capital Composition of Indian Commercial Industry

(Rs. in crore)

Particulars	TML	ALL	BTL	EML	SML	Mean
Current Assets:						
Inventories	1013.5	502.65	167.05	41.05	45.38	353.93
% of T.C.A	30.32	32.08	59.88	32.12	42.94	39.47
Trade Receivables:	1264.7	675.49	44.65	49.13	45.52	415.9
% of T.C.A	35.65	43.05	15.1	37.12	38.58	33.9
Loans & Advances:	924.65	255.98	57.3	29.07	13.8	256.16
% of T.C.A	26.7	16.71	20.29	23.43	13.38	20.1
Cash & Bank Balances:	268.62	118.29	13.49	9.67	5.66	83.15
% of T.C.A	7.33	8.16	4.72	7.33	5.09	6.53
T.C.As	3471.5	1552.41	282.49	128.93	110.37	1109.14
Current Liabilities:						
Trade Payables	1947.8	350.76	142.26	77.99	64.27	516.62
% of T.C.Ls	68.71	61.7	77.99	77.62	74.16	72
Other Current Liabilities:	514.31	167.35	23.21	21.91	15.58	148
% of T.C.Ls	18.54	26.69	12.28	14.63	21.73	19
Total Provisions:	327.45	70.94	18.96	9.36	4.35	86
% of T.C.Ls	12.75	11.62	9.73	7.75	4.11	9
T.C.Ls	2789.6	589.04	184.43	109.25	84.2	751
Net Working Capital:	681.92	963.36	98.06	19.68	26.17	358

Source: Computed from the data available in"http://www.asiancerc.com". The figures mentioned are ten-year average ones.

T.C.As = Total Current Assets; T.C.Ls = Total Current Liabilities

Of all the current assets across Indian Commercial Vehicles Industry, as it could be observed in table 1, inventories alone constituted the highest percentage of 39.47, followed by trade receivables (33.90%), loans and advances (20.10%), and cash and bank balances (6.53%). In the case of Bajaj Tempo Ltd and Swaraj Mazda Ltd., the average inventories were more than the industry aggregate whereas in the case of Tata Motors Ltd, Ashok Leyland Ltd., and Eicher Motors Ltd., it was below the industry aggregate. As far as trade receivables were concerned, except Bajaj Tempo Ltd. all other four companies in the industry had more percentage of receivables than the industry aggregate. The average composition of loans and advances was more than the industry aggregate in the case of Tata Motors Ltd., Bajaj Tempo Ltd., and Eicher Motors Ltd. while in the case of Ashok Leyland Ltd. and Swaraj Mazda Ltd. it was below the industry aggregate. Though, the constitution of cash and bank balances was a bit negligible across the industry, the Tata Motors Ltd., the Ashok Leyland Ltd., and the Eicher Motors Ltd. had more percentage of cash and bank balances than the industry aggregate whereas the Bajaj Tempo Ltd. and the Swaraj Mazda Ltd. had less cash and bank balances than the industry aggregate. Of all the current liabilities across the industry, the trade payables alone constituted the highest of 72 per cent followed by the other current liabilities (19%) and the total provisions (9%). The average composition of trade payables of Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. was more than the industry average while that of the Tata Motors and the Eicher Motors Ltd. was below the industry average. Of all the firms in the industry, the Swaraj Mazda Ltd., was the only company to have more percentage of other current liabilities than that of the industry aggregate. However, the Tata Motors Ltd., the Eicher Motors Ltd., and the Bajaj Tempo Ltd. had more percentage of total provisions than the industry average and the Eicher Motors Ltd. and the Swaraj Mazda Ltd. had lesser percentage when compared to the industry average.

Current Ratio: The current ratio of Indian Commercial Vehicles Industry is depicted in table 2.

Table 2: Current Ratio of Indian Commercial Vehicles Industry

Year	TML	ALL	BTL	EML	SML	Mean
1995	1.48	3.32	1.25	1.63	1.09	1.75
1996	1.39	3.13	1.34	1.57	1.28	1.74
1997	2.00	3.17	1.42	1.84	1.55	2.00
1998	2.20	3.98	1.67	1.78	1.47	2.22
1999	1.46	3.60	1.54	1.58	1.59	1.95
2000	1.35	3.37	1.50	1.43	1.45	1.82
2001	1.06	2.81	1.67	1.32	1.37	1.65
2002	1.04	2.04	1.50	0.83	1.43	1.37
2003	0.85	1.76	1.59	0.80	1.10	1.22
2004	0.72	1.45	1.60	1.02	1.18	1.19
Mean	1.35	2.86	1.51	1.38	1.35	1.69

Source: Computed from the data available in "http//www.asiancerc.com"

The current ratio of commercial vehicles industry varied between the highest of 2.22 times in 1998 and the lowest of 1.19 times in 2004 with ten years average of 1.69 times. The data in table 2 reveal that, the Tata Motors Ltd. could not maintain its current ratio above the industry average in any year. The ten years average current ratio of Eicher Motors Ltd. was much higher than the ten years industry average of 1.69 times. The current ratio of Bajaj Tempo Ltd. was much below the industry aggregate in every year. The current ratios of Eicher Motors Ltd. and Swaraj Mazda Ltd. were also much below the industry aggregates. The distribution of industry average current ratio reveals that it was only the Ashok Leyland Ltd, which influenced yearly average current ratio throughout the study period.

The average current ratios of sample companies have been compared using one-way ANOVA and are tested by the following hypotheses. The results are shown in table 3.

Table 3: ANOVA Results for the average current ratios of sample companies

Source of Variation	SS	df	MS	F	P-value	F-crit
Between Groups	17.32289	4	4.330723	19.35872	2.52E-09	2.578737
Within Groups	10.06691	45	0.223709			
Total	27.3898	49				

Source: ANOVA is performed using MS Excel software

$H0_1$: The average current ratios of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since $F_{cal} > F_{crit}$ we reject H_{01} and conclude that the average current ratios of sample companies differ significantly.
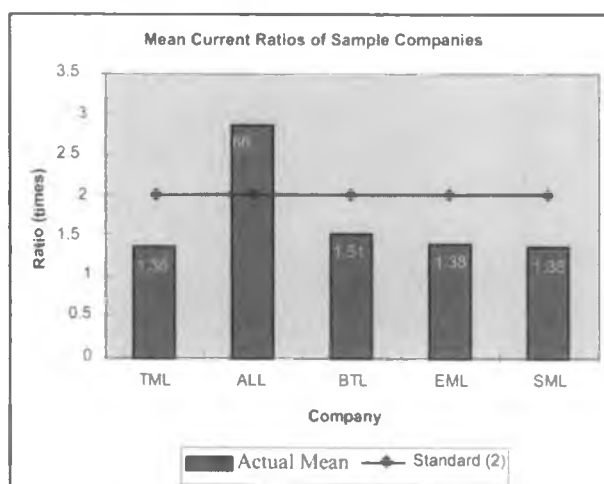

Figure 1: Mean Current Ratios of Sample Companies

Figure 1 shows that it was only Ashok Leyland Ltd. which maintained current ratio above the industry norm of 2 while the rest of the companies across the industry registered below the norm.

Quick Ratio: The quick ratio of Indian Commercial Vehicles Industry is presented in table 4.

Table 4: Quick Ratio of Indian Commercial Vehicles Industry

Year	TML	ALL	BTL	EML	SML	Mean
1995	1.01	2.52	0.54	1.06	0.65	1.16
1996	0.98	2.32	0.53	0.99	0.56	1.08
1997	1.52	2.12	0.55	1.3	0.67	1.23
1998	1.68	2.54	0.51	1.15	0.68	1.31
1999	1.18	2.53	0.41	1.25	0.82	1.24
2000	0.91	2.31	0.56	0.91	0.98	1.13
2001	0.63	1.85	0.52	0.87	0.88	0.95
2002	0.68	1.26	0.64	0.58	0.94	0.82
2003	0.52	1.22	0.76	0.55	0.65	0.74
2004	0.51	0.94	0.88	0.7	0.81	0.77
Mean	0.96	1.96	0.59	0.93	0.77	1.04
C.V	0.42	0.31	0.23	0.28	0.18	0.20

Source: Computed from the data available in "http://www.asiancerc.com"

As it is depicted in table 4, the quick ratio of Indian Commercial Vehicles Industry varied between the highest of 1.31 times in 1998 and the lowest of 0.74 times in 2003 with an average of 1.04 times. The quick ratio of Tata Motors Ltd. was higher than the yearly industry average in 1997 and 1998 while of the Eicher Motors Ltd. was much higher than the yearly averages during the entire study period. The Bajaj Tempo Ltd. could not maintain the quick ratio above the industry yearly average in any year during the study period. As far as the Eicher Motors Ltd. was concerned, it was negligibly higher than the yearly average in 1999 and in the rest of the years, it was much below the average. Even in the case of Swaraj Mazda Ltd., the ratio was slightly higher than the yearly industry average in 2002 and in the rest of the years it was much below the average. On an aggregate basis, it is found that it was only the Eicher Motors Ltd. which maintained the quick ratio above the industry average.

The average quick ratios of sample companies have been compared using one-way ANOVA and are tested by the following hypothesis. The results are shown in table 5.

Table 5: ANOVA Results for the average quick ratios of sample companies

Source of Variation	SS	df	MS	F	P-value	F-crit
Between Groups	11.43783	4	2.859458	22.21943	3.54E-10	2.578737
Within Groups	5.79113	45	0.128692			
Total	17.22896	49				

Source: ANOVA is performed using MS Excel software.

H_{02}: The average quick ratios of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since $F_{cal} > F_{crit}$, we reject H_{02} and conclude that the average quick ratios of sample companies differ significantly.
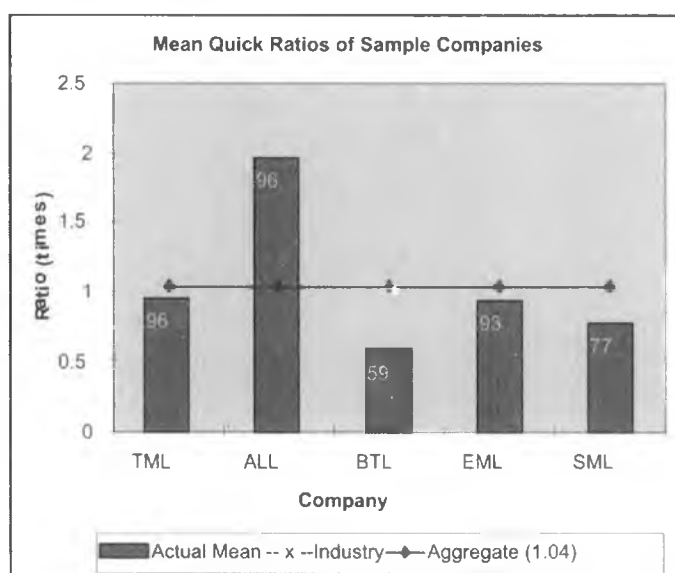
Figure 2: Mean Quick Ratios of Sample Companies

As it is shown in figure 2, across the industry, Ashok Leyland Ltd. alone could maintain above the industry average liquidity position on ten-year basis while Tata Motors Ltd. and Eicher Motors Ltd. were much closer and Bajaj Tempo Ltd. and Swaraj Mazda Ltd. were below the industry average.

Ratio of Current Assets to Total Assets: The ratio of current assets to the total assets of Indian Commercial Vehicles Industry is depicted in table 6.

Table 6: Ratio of Current Assets to Total Assets of Indian Commercial Vehicles Industry

Year	TML	ALL	BTL	EML	SML	Mean
1995	67.94	69.73	84.69	73.96	84.76	76.22
1996	67.99	71.5	71.81	75.81	88.12	75.05
1997	70.07	71.67	66.27	75.97	89.40	74.68
1998	62.13	70.14	69.35	65.4	84.25	70.25
1999	62.15	62.34	70.07	66.88	87.23	69.73
2000	45.72	62.09	72.85	63.72	89.32	66.74
2001	43.81	63.73	73.93	60.22	89.83	66.30
2002	46.08	62.59	73.45	47.65	89.98	63.95
2003	48.99	60.46	78.50	43.57	89.03	64.11
2004	56.43	63.27	74.85	53.02	91.50	67.81
Mean	57.13	65.75	73.58	62.62	88.34	69.48

Source: Computed from the data available in "http://www.asiancerc.com"

The current assets of Indian Commercial Vehicles Industry constituted as the highest percentage of the total assets by 76.22 per cent in 1995 and the lowest of 63.95 per cent in 2002 with an average of 69.48 per cent. Table 6 shows that, of all the companies, the Swaraj Mazda Ltd. blocked more funds in the current assets by an average of 88.34 per cent of the total assets followed by the Bajaj Tempo Ltd. (73.58%) whereas the Tata Motors Ltd. had invested least amount of funds (average of 57.13%) in current assets when compared to the industry average.

The average ratios of current assets to total assets of sample companies have been compared using one-way ANOVA and are tested by the following hypothesis. The results are shown in table 7.

Table 7: ANOVA Results for average ratios of current assets to total assets of sample companies

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5860.157	4	1465.039	25.32589	5E-11	2.578737
Within Groups	2603.137	45	57.8475			
Total	8463.295	49				

Source: ANOVA is performed using MS Excel software

H_{03}: The average ratios of current assets to total assets of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since F_{cal} > F_{crit} we reject H_{03} and conclude that the average ratios of current assets to total assets of sample companies differ significantly.

Ratio of Current Assets to Sales: The ratio of current assets to sales of Indian Commercial Vehicles Industry is presented in table 8.

Table 8: Ratio of Current Assets to Sales of Indian Commercial Vehicles Industry

Year	TML	ALL	BTL	EML	SML	Mean
1995	44.10	81.70	48.75	45.61	49.84	54.00
1996	42.76	82.21	37.17	47.38	52.77	52.46
1997	47.75	78.86	40.73	40.64	62.38	54.07
1998	56.22	90.05	44.86	31.88	47.03	54.01
1999	67.07	69.73	47.67	35.41	63.61	56.70
2000	34.41	55.83	44.56	29.19	45.81	41.96
2001	34.24	58.25	43.29	20.16	52.31	41.65
2002	32.08	59.12	36.63	20.18	45.52	38.71
2003	27.90	43.61	34.18	16.72	39.04	32.29
2004	24.76	37.27	30.62	25.99	40.09	31.75
Mean	41.13	65.66	40.85	31.32	49.84	45.76

Source: Computed from the data available in "http://www.asiancerc.com"

As it is shown in table 8, except in 1998 and 1999, the current assets of Tata Motors Ltd. constituted by less than the yearly average during the study period whereas in the case of Eicher Motors Ltd. the current assets as percentage of sales was higher than the industry average in every year. The current assets of Bajaj Tempo Ltd. as percentage of sales constituted more than the yearly average in 2000, 2001 and 2003 and in the rest of the years it was lower than the yearly average. In every year of the study period, the current assets as percentage of sales of Eicher Motors Ltd. was much lower than the industry average and in the case of Swaraj Mazda Ltd. the percentage of current assets was higher than the industry average in 2000, 2001, 2002, 2003 and 2004 respectively. Though it has shown a decreasing trend on an aggregate basis, the Ashok Leyland Ltd. and the Swaraj Mazda Ltd. were the two companies to have invested more in current assets as percentage of sales by 65.66 and 49.84 respectively.

The average ratios of current assets to sales of sample companies have been compared using one-way ANOVA and are tested by the following hypothesis. The results are shown in table 9.

<p align="center">Table 9: ANOVA Results for the average ratios of current assets to
sales of sample companies</p>

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	6669.985	4	1667.496	11.76343	1.27E-06	2.578737
Within Groups	6378.863	45	141.7525			
Total	13048.85	49				

Source: ANOVA is performed using MS Excel software

H_{04}: The average ratios of current assets to sales of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since $F_{cal} > F_{crit}$ we reject H_{04} and conclude that the average ratios of current assets to sales of sample companies differ significantly.

Current Assets Turnover Ratio: The current assets turnover ratio of Indian Commercial Vehicles Industry is depicted in table 10.

<p align="center">Table 10: Current Assets Turnover Ratio of Indian Commercial Vehicles Industry</p>

Year	TML	ALL	BTL	EML	SML	Mean
1995	2.27	1.22	2.05	2.19	2.01	1.95
1996	2.34	1.22	2.69	2.11	1.90	2.05
1997	2.09	1.27	2.46	2.46	1.60	1.98
1998	1.78	1.11	2.23	3.14	2.13	2.08
1999	1.49	1.43	2.10	2.82	1.57	1.88
2000	2.91	1.79	2.24	3.43	2.18	2.51
2001	2.92	1.72	2.31	4.96	1.91	2.76
2002	3.12	1.69	2.73	4.96	2.20	2.94
2003	3.58	2.29	2.93	5.98	2.56	3.47
2004	4.04	2.68	3.27	3.85	2.49	3.27
Mean	2.65	1.64	2.50	3.59	2.06	2.49

Source: Computed from the data available in "http://www.asiancerc.com"

The data in table 10 reveal that the current assets turnover ratio of Indian Commercial Vehicles Industry varied between the highest of 3.47 times in 2003 and the lowest of 1.88 times in 1999 and the aggregate ratio was 2.49 times. The current assets turnover ratio of Tata Motors Ltd. was above the yearly industry average in all the years except in 1998 and 1999. In the case of Eicher Motors Ltd. the current assets turnover ratio was much below the yearly industry average in every year during the study period. During the first five years, the current assets

turnover ratio of Bajaj Tempo Ltd. was above the yearly industry average and during the next five years it was below average. In the case of Eicher Motors Ltd., this ratio was much above the yearly industry average during the entire study period. As far as the Swaraj Mazda Ltd was concerned except in 1995 and 1998 the current assets turnover ratio was below the yearly industry average during the study period. On the whole, the Eicher Motors Ltd. was highly efficient in achieving the higher sales with lower investment in current assets followed by the Tata Motors Ltd.

The average current assets turnover ratios of sample companies have been compared using one-way ANOVA and are tested by the following hypothesis. The results are shown in table 11.

Table 11: ANOVA Results for average current assets turnover ratios of sample companies

Source of Variation	SS	df	MS	F	P-value	F-crit
Between Groups	21.45333	4	5.363333	9.166301	1.67E-05	2.578737
Within Groups	26.33014	45	0.585114			
Total	47.78347	49				

Source: ANOVA is performed using MS Excel software

H_{05}: The average current assets turnover ratios of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since $F_{cal} > F_{crit,}$ we reject H_{05} and conclude that the average current assets turnover ratios of sample companies differ significantly.

Working Capital Turnover Ratio: The working capital turnover ratio of Indian Commercial Vehicles Industry is presented in table 12.

Table 12: Working Capital Turnover Ratio of Indian Commercial Vehicles industry

Year	TML	ALL	BTL	EML	SML	Mean
1995	7.04	1.75	10.28	5.66	7.14	6.37
1996	8.32	1.79	10.55	5.83	4.62	6.22
1997	4.20	1.85	8.27	5.39	7.14	5.37
1998	3.27	1.48	5.56	7.16	4.72	4.44
1999	4.73	1.99	5.98	7.67	4.52	4.98
2000	11.18	2.55	6.74	11.38	6.35	7.64
2001	53.85	2.67	5.76	20.63	5.81	17.74
2002	85.07	3.32	8.18	-24.07	22.08	18.92
2003	-20.13	5.31	7.87	-23.97	12.43	-3.70
2004	-10.52	8.71	8.74	245.64	15.98	53.71
Mean	14.70	3.30	7.79	26.13	9.08	12.17

Source: Computed from the data available in "http://www.asiancerc.com"

The working capital turnover ratio of Indian Commercial Vehicles Industry, as depicted in table 12, ranged between the highest of 53.71 times in 2004 and the lowest of 4.44 times in 1998. The industry suffered deficit of working finance in 2003 and hence the turnover of working capital was negative. The Tata Motors Ltd. was able to turnover its working capital into sales above the yearly industry average in 1995, 1996, 2000, 2001 and 2002 by suffering the deficit of working capital in 2003 and 2004. It is worth noting that the working capital turnover of Tata Motors Ltd. was abnormally high in 2001 and 2002 when compared to the industry aggregates. The Eicher Motors Ltd. was found to be highly efficient in terms of achieving the higher sales with the lower investment in working capital. The Bajaj Tempo Ltd. was able to achieve higher turnover of working capital than the yearly industry average during the first five years. The Eicher Motors Ltd. was able to achieve more turnover of the working capital than the yearly industry average in 1997 through 2001. The turnover of working capital of Eicher Motors Ltd. was abnormally high of 245.64 times in 2004. In the case of Swaraj Mazda Ltd., the turnover of working capital was above the yearly industry average in 1995, 1997, 1998, 2002 and 2003 respectively. On an aggregate basis, the Eicher Motors Ltd. was the most efficient company by achieving the average working capital turnover ratio of 26.13 times which was much above the industry aggregate ratio of 12.17 times. Followed by it, the Tata Motors Ltd. could achieve the higher turnover of working capital than the industry aggregate while the Ashok Leyland Ltd., the Bajaj Tempo Ltd. and the Swaraj Mazda Ltd. were below the industry aggregate ratio.

The average working capital turnover ratios of sample companies have been compared using one-way ANOVA and are tested by the following hypothesis. The results are shown in table 13.

Table 13: ANOVA Results for the average working capital turnover ratios of sample companies

Source of Variation	SS	df	MS	F	P-value	F-crit
Between Groups	3115.606	4	778.9015	0.542596	0.705245	2.578737
Within Groups	64597.91	45	1435.509			
Total	67713.52	49				

Source: ANOVA is performed using MS Excel software

H_{06}: The average working capital turnover ratios of Tata Motors Ltd., Ashok Leyland Ltd., Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. do not differ significantly.

Inference: Since $F_{cal} > F_{crit}$, we reject H_{06} and conclude the average working capital turnover ratios of sample companies differ significantly.

Application of 't' Statistics

In order to find out whether there was any significant increase in current ratio, quick ratio, current assets turnover ratio and working capital turnover ratio of the sample companies 't' statistic is applied for obtaining the results. The test statistic 't' is worked out as:

$$'t' = \frac{X - \mu}{\sigma / \sqrt{n}}$$

Also in order to test whether the coefficient of correlation between the following was significant: (a) current assets and total assets, and (b) current assets and sales. The following 't' statistics was applied for obtaining the results.

$$'t' = r \ x \ \frac{\sqrt{n-2}}{\sqrt{1-r^2}}$$

The results with respect to 't' statistics of the variables of the study are summarized in table 14.

Table 14: Test statistic /t/ results (calculated values) for the variables of the sample companies

Company	Current Ratio	Quick Ratio	Ratio of CAs to TAs	Ratio of Current Assets to Sales	Current Assets Turnover Ratio	Working Capital Turnover Ratio
TML	4.37*	2.92*	2.95*	0.58**	0.59**	2.36*
ALL	3.22*	3.26*	11.03*	0.23**	5.33*	2.55*
BTL	11.14*	16.8*	7.54*	3.41*	00	2.12**
EML	5.16*	4.74*	69.98*	7.79*	2.61*	1.63**
SML	10.83*	12.86*	140.68*	11.28*	4.21*	0.39**

* Significant at 5% level of significance.

** Not Significant at 5% level of significance.

As revealed in table 14, current ratios and quick ratios of all sample companies varied significantly from the standards whereas current assets turnover ratio of only Ashok Leyland Ltd. and Eicher Motors Ltd. varied significantly from the standard. As far as working capital turnover ratio is concerned, only in case of Tata Motors Ltd. and Ashok Leyland Ltd. it varied significantly from the standard. The table 14 also reveals that the correlation between current assets and total assets of all sample companies was significant. The coefficient of correlation between current assets and sales of Bajaj Tempo Ltd., Eicher Motors Ltd., and Swaraj Mazda Ltd. was found to be significant.

Conclusion

The structure of working capital has been analysed through the construction of

tables indicating the percentage composition of individual current assets and current liabilities during the years from 1995 to 2004. The study revealed that, of all the current assets across the industry, inventories formed the highest percentage followed by trade receivables and loans and advances whereas cash and bank balances formed very negligible part. However, inventories formed the highest part in the case of Bajaj Tempo Ltd. and Swaraj Mazda Ltd. whereas in the case of Tata Motors Ltd., Ashok Leyland Ltd. and Eicher Motors Ltd. it was the second highest part of total current assets. The study also revealed that the variation between current assets turnover ratio and working capital turnover ratio was very high across the industry which, in turn, implies the sample companies achieved higher sales with less working capital. However, the Ashok Leyland Ltd. was relatively poor in the efficient usage of current assets.

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