Efficiency of Managing Working Capital in Select Companies in the Indian Tyre Industry: An Empirical Analysis

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Abstract

The paradigm shifts that have taken place in the business environment have also impacted working capital management (WCM) practices in the Indian corporate sector. One such sector is the Indian tyre industry. Since inception, the Indian tyre industry has grown rapidly; hence, efficient management of working capital (WC) in this industry has immense importance. The present paper attempts to measure the efficiency in WCM of five well-known companies in the Indian tyre industry during the period 2009-10 to 2018-19. The study has been made using relevant ratios relating to WC and statistical tools and techniques at appropriate places. The study revealed that the efficiency of managing WC was the highest in Ceat Ltd. followed by JK Tyre & Ind. Ltd., MRF, Apollo Tyres and Balkrishna Ind., in that order. The study also indicated strong evidence of positive association between overall profitability and overall efficiency of WCM of Balkrishna Industries during the study period.

Keywords: *Working Capital, Working Capital Management, Statistical tools, Profitability, Ratio Analysis, Market, Consumption*

Introduction

The success of a business firm is dependent on the efficient management of its Working Capital (WC). Management of WC is regarded as an extremely crucial area of financial management for every sector of the economy, including the tyre manufacturing sector. In fact, effective and efficient management of WC can ensure survival of a business firm. A firm should have neither too high nor too low investment in WC because both these situations adversely affect the firm's profitability. Efficient working capital management (WCM) helps the firm in running its business smoothly and generates surplus at the optimal level.

The origin of the Indian tyre industry dates back to 1926 when Dunlop Rubber Limited set up the first tyre company in West Bengal. MRF followed suit in 1946. Since then, the Indian tyre industry has grown rapidly. India's tyre market is the fourth largest market in the world. There are more than 40 companies operating in the Indian tyre sector, which contributes around 3 per cent to the country's manufacturing GDP. More than 100 countries in the world import Indian tyres. The Indian tyre industry earns 20 per cent of its total revenue from exports. This sector provides employment to more than 20 lakh people. The Indian tyre industry plays a vital role in developing India's economy.

Many studies on WCM of different sectors in India have been made in recent times. However, no notable study has been carried out on the efficiency of WCM of tyre companies operating in India during the present decade. In this backdrop, the present paper seeks to analyse the efficiency of WCM of the five selected well-known tyre companies in India during the period 2009-10 to 2018-19. It is expected that the outcome of the study will identify the aspects responsible for the efficiency of WCM which will guide the concerned managers in taking decisions regarding WCM in the Indian tyre industry.

The remainder of the paper is structured as follows. Section II deals with the review of the related literature. Section III is concerned with the objective of the study. Section IV narrates the methodology adopted in the study. Section V discusses the empirical results obtained from the study. Section VI presents the concluding observations.

Review of Related Literature

Movalia (2015) in his study, showed the impact of debt-equity ratio on profitability of the fourteen selected Indian tyre companies for the period 2009-10 to 2013-14. In this study, ratio analysis and some simple statistical techniques were used. The study revealed that the debt-equity ratio of the selected companies had a notable impact on their profitability during the period under study.

Panigrahi (2017) in his study, attempted to analyse the connection of WCM with profitability and the linkage between the different components of WC and profitability of the thirty selected cement companies listed on BSE for the period 2005-06 to 2014-15. In this study, statistical tools like mean, median, standard deviation, etc. and statistical techniques like simple correlation matrix and ordinary least squares were applied at appropriate places. The study observed negative relationship of profitability with number of days of accounts payables and the number of days of inventory conversion cycle, whereas a positive relationship between profitability and number of days of accounts receivables was found during the period under study. The study also revealed strong evidence of negative relationship between WCM efficiency and profitability during the period under study.

Singh and Kumar (2017) in their study, evaluated the efficiency in managing WC of 896 selected non-financial companies listed on BSE after the financial crisis of 2008. The data of the selected companies for the period 2001-02 to 2012-13 was used in this study. To achieve the research objectives of the study, the WC Utilisation Index, Working Capital Efficiency Index and WC Performance Index were analysed in the study. Some statistical measures like t-test, analysis of variance and Fisher's least significant differences test were also used in this study. The findings of the study showed that the efficiency in managing WC of the selected companies improved significantly after the financial crisis of 2008.

Pandey et. al (2017) in their study, analysed the impact of WCM on profitability of selected tyre companies during the period 2003-04 to 2013-14. In order to measure the impact of WCM on profitability, statistical techniques such as correlation and regression analysis were used. The study revealed that there was a significant impact of WCM on profitability of the selected companies during the study period.

Jayakumar (2018) in his study, analysed the growth of thirteen selected tyre and tubes companies in India during the period 2001-02 to 2010-11 by using Compounded Annual Growth Rate (CAGR) and statistical techniques such as mean, standard deviation and coefficient of variation. The study found that out of these thirteen selected companies, the growth rates of Apollo Tyres, MRF, and Balkrishna Industries were satisfactory during the period under study.

Ajmera (2019) in his study, analysed the liquidity of four selected tyre companies in India for the period 2013-14 to 2017-18. For tackling the issues in the study, relevant ratios relating to liquidity, statistical tools and techniques were used at appropriate places. The study revealed that the liquidity was not found to be satisfactory in any of the four selected companies during the period under study.

Baskar (2019) in his study, analysed the profitability of JK Tyre & Industries. Ltd. during the period 2008-09 to 2017-18 by using selected profitability ratios and Compounded Annual Growth Rate (CAGR). The study revealed that the profitability of the company was sound enough during the period under study.

Sivasankaran et. al (2019) in their study, examined the impact of corporate governance on WCM of Indian firms. The investigation was performed using balanced panel data procedures for a sample of 223 Indian non-financial firms listed on the BSE for the period 2006-07 to 2016-17. The outcome derived from the study indicated that the CEO duality, one of the nine board indicators, played a noticeable role in improving the WCM of the sample firms during the period under study.

Thus, a considerable number of studies have been carried out during the last few years addressing the different aspects of financial performance of the Indian tyre industry in which, along with the other aspects of financial performance, the efficiency of WCM has also been considered. Moreover, a good number of studies have also been conducted in India in the recent past on the same issue associated with some other non-financial sectors. But no significant study has been conducted in the recent past to assess only the efficiency of WCM of the Indian tyre industry. So, in order to bridge the gap, the present study was conducted.

Objectives of the study

1. To analyse the efficiency of WCM of the selected companies using some selected efficiency indicators.
2. To ascertain the actual status of the selected companies in respect of efficiency of WCM applying comprehensive rank approach.
3. To measure the extent of relationship between the efficiency of managing selected components of WC and profitability of the companies under study.
4. To examine whether there was any relationship between the overall efficiency of WCM and profitability of the selected companies.

Methodology

Sample: The study was based on top five companies taken on the basis of their market capitalization as on 13.04.2020. The selected companies were [1] MRF, [2] Balkrishna Industries., [3] Apollo Tyres, [4] Ceat Limited, [5] Goodyear India Limited. Due to non- availability of adequate data of Goodyear India Ltd., this company was excluded from the study and in its place, JK Tyre & Industries Limited, which captured the sixth position in terms of market capitalization as on 13.04.2020 , was incorporated in the study.

Collection of data: The data of the selected companies for the period 2009-10 to 2018-19 used in this study was collected from secondary sources i.e. Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai.

Analysis of data: While analysing the efficiency of WCM of the selected companies, four efficiency ratios – debtors turnover ratio (DTR), cash turnover ratio (CTR), inventory turnover ratio (ITR) and working capital turnover ratio (WCTR) – were used as the indicators of efficiency of debtors management, efficiency of cash management, efficiency of inventory management and efficiency of WCM respectively, and ROCE was considered as the profitability measure. For analysing the data used in the study, simple statistical tools like arithmetic mean (AM), standard deviation (SD), consistency coefficient (i.e. the ratio of AM to SD); statistical techniques, such as linear trend analysis, Pearson's correlation coefficient and Spearman's rank correlation coefficient; and popular statistical test like t-test were applied at appropriate places.

Empirical Results and Discussion

Table 1.1 : Analysis of Debtors Turnover Ratio of the selected companies

Year	MRF	Balkrishna Ind	Apollo Tyres	Ceat Ltd.	JK Tyre & Ind. Ltd.
2009-10	10.73	6.04	44.89	8.100	7.91
2010-11	9.17	6.85	32.12	8.250	7.99
2011-12	8.58	7.01	28.72	8.270	7.14
2012-13	8.06	6.48	26.71	7.820	6.09
2013-14	8.09	6.37	33.92	7.920	5.66
2014-15	7.11	6.20	31.89	8.090	5.02
2015-16	11.24	5.61	28.58	8.830	4.77
2016-17	6.99	7.72	26.3	9.750	4.46
2017-18	7.25	9.73	21.99	9.450	4.68
2018-19	7.04	9.8	21.12	9.500	5.21
Average	8.426	7.181	29.624	8.598	5.893
CC	3.558	2.526	3.948	4.701	2.651
Slope	-0.279	0.332	-1.778	0.192	-0.397
t-value	- 1.868*	2.622**	- 3.679***	3.780***	- 5.753***

***Significant at 10 per cent level**
****Significant at 5 per cent level**
*****Significant at 1 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai.

DTR measures the efficiency of the credit and collection policies adopted by the company. Theoretically, higher the DTR, higher is the company's efficiency in collecting its receivables. A high value of DTR implies that the company collects cash more frequently and possesses good quality of debtors. So, the higher the efficiency of debtor management, the higher is the liquidity of the company. Table 1.1 shows that out of the five companies under study, two companies, namely Balkrishna Ind. and Ceat Ltd. achieved positive trend in DTR while other three companies, namely MRF, Apollo Tyres, JK Tyre & Ind. Ltd. failed to do so during the period under study. All the positive and negative slopes of DTR line were found to be statistically significant during the period under study. In respect of mean DTR, Apollo Tyres holds the top-most position followed by Ceat Ltd., MRF, Balkrishna Ind. and JK Tyre & Ind. Ltd. respectively in that order, while based on consistency coefficient of DTR, Ceat Ltd. was placed in the first position and it was followed by Apollo Tyres, MRF, JK Tyre & Ind. Ltd. and Balkrishna Ind. respectively in that order. On the basis of the analysis of average DTR, it can be said that Apollo Tyres was the most efficient in managing its receivables while JK Tyre & Ind. Ltd. established itself as the inefficient performer in managing receivables. However, considering the consistency aspect in managing receivables, Ceat Ltd. proved itself as the best performer whereas Balkrishna Ind. was considered as the worst performer during the period under study.

Table 1.2 : Analysis of Cash Turnover Ratio of the selected companies

Year	MRF	Balkrishna Ind	Apollo Tyres	Ceat Ltd.	JK Tyre & Ind. Ltd.
2009-10	103.122	332.838	28.115	83.500	65.447
2010-11	155.047	177.718	38.868	73.074	56.751
2011-12	174.044	7.890	70.576	133.773	78.406
2012-13	194.272	11.981	55.156	65.762	63.408
2013-14	36.671	364.970	43.829	57.273	36.901
2014-15	18.649	8.893	47.810	95.863	67.708
2015-16	275.476	10.870	33.543	254.823	105.140
2016-17	53.724	276.253	71.199	364.998	98.151
2017-18	109.225	181.630	40.514	86.704	91.002
2018-19	263.642	94.309	56.781	114.351	75.906
Average	138.387	146.735	48.639	133.012	73.882
CC	1.536	1.041	3.319	1.339	3.613
Slope	4.533	-6.891	1.283	12.939	3.567
t-value	0.436	- 0.423	0.778	1.214	1.759

***Significant at 10 per cent level**
****Significant at 5 per cent level**
*****Significant at 1 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai.

CTR measures the frequency of a company's cash resources replenishment through sales revenue. Generally, a high CTR value indicates the company's high efficiency in managing cash whereas a low value of CTR reflects its reverse situation. The higher the efficiency of cash management, the more favourable is the status of the company from the viewpoint of its liquidity. Table 1.2 reveals that out of the five companies under study, four companies, namely MRF, Apollo Tyres, Ceat Ltd. and JK Tyre & Ind. Ltd. adopted positive trend in CTR while only Balkrishna Ind. followed a negative trend in this parameter during the period under study. However, all the positive and negative slopes of CTR lines of the companies under study were found to be statistically significant during the period under study. In respect of average CTR, Balkrishna Ind. secured the top most position followed by MRF, Ceat Ltd., JK Tyre & Ind. Ltd. and Apollo Tyres respectively in that order, while based on the consistency coefficient of CTR, JK Tyre & Ind. Ltd. was placed in the first rank followed by Apollo Tyres, MRF, Ceat Ltd. and Balkrishna Ind. respectively in that order. On the basis of analysis of mean CTR, it can be said that the efficiency of cash management was the highest in Balkrishna Ind. and it was the least in Apollo Tyres whereas in respect of consistency in managing cash, JK Tyre & Ind. Ltd. established itself as the best performer and Balkrishna Ind. stood last during the study period.

Table 1.3 : Analysis of Inventory Turnover Ratio of the selected companies

Year	MRF	Balkrishna Ind	Apollo Tyres	Ceat Ltd.	JK Tyre & Ind. Ltd.
2009-10	7.68	7.42	10.47	7.93	9.11
2010-11	7.35	4.76	4.83	6.97	7.91
2011-12	7.94	5.86	7.34	7.72	9.29
2012-13	6.76	7.38	7.59	10.07	7.41
2013-14	7.33	6.76	7.55	8.21	8.57
2014-15	8.22	9.78	8.38	9.63	9.15
2015-16	11.79	11.49	9.57	9.94	8.88
2016-17	6.16	8.23	5.74	6.91	7.1
2017-18	7.01	7.51	6.13	8.38	6.41
2018-19	5.37	7.36	6.02	7.08	6.7
Average	7.561	7.655	7.362	8.284	8.053
CC	4.424	4.047	4.172	6.823	7.395
Slope	-0.091	0.278	-0.195	-0.005	-0.231
t-value	-0.453	1.407	-1.004	-0.034	- 2.373**

***Significant at 10 per cent level**
****Significant at 5 per cent level**
*****Significant at 1 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai

ITR measures the company's efficiency in managing inventory. A high value of ITR is good from the liquidity point of view and implies sound inventory management whereas a low value signifies excessive inventory level than warranted by volume of operations indicating inefficiency in inventory management. Table 1.3 depicts that out of the five selected companies, only one company, Balkrishna Ind. adopted positive trend in its ITR which was not found to be statistically significant, while the remaining four companies, namely MRF, Apollo Tyres, Ceat Ltd. and JK Tyre & Ind. Ltd. followed negative trend in ITR, out of which only the slope of ITR in JK Tyre & Ind. Ltd. was found to be statistically significant at 5 per cent level during the period under study. In respect of average ITR, Ceat Ltd. captured the top most position followed by JK Tyre & Ind. Ltd., Balkrishna Ind., MRF and Apollo Tyres respectively in that order, while considering the consistency aspect of ITR, JK Tyre & Ind. Ltd. was placed in the first rank and it was followed by Ceat Ltd., MRF, Apollo Tyres and Balkrishna Ind. respectively in that order. On the basis of analysis of mean ITR, it can be said that the average efficiency of inventory management was the highest in Ceat Ltd. and it was the least in Apollo Tyres, whereas in respect of consistency of efficiency in managing inventory, JK Tyre & Ind. Ltd. established itself as the best performer and Balkrishna Ind. was the last during the period under study.

Table 2 : Computation of Final Rank based on Selected WCM Efficiency Indicators

	DTR				CTR				ITR					
Company	AVG	RANK	CC	RANK	AVG	RANK	CC	RANK	AVG	RANK	CC	RANK	Sum of Ranks	Final Rank
MRF	8.426	3	3.558	3	138.387	2	1.536	3	7.561	4	4.424	3	18	3
Balkrishna Ind.	7.181	4	2.526	5	146.735	1	1.041	5	7.655	3	4.047	5	23	5
Apollo Tyres	29.624	1	3.948	2	48.639	5	3.319	2	7.362	5	4.172	4	19	4
Ceat Ltd.	8.598	2	4.701	1	133.012	3	1.339	4	8.284	1	6.823	2	13	1
JK Tyre & Ind. Ltd.	5.893	5	2.651	4	73.882	4	3.613	1	8.053	2	7.395	1	17	2

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai

Table 2 presents the status of each of the companies under study in terms of efficiency of its WCM more precisely during the study period by applying a comprehensive rank approach. While measuring the composite rank of a company in respect of efficiency of WCM over the period under study, the individual ranks of DTR, CTR, and ITR were considered. In case of DTR, CTR or ITR, a high value indicates favourable position, and ranking was done accordingly. The ultimate WCM efficiency rank was ascertained on the basis of the principle that the lower the sum of individual ranks of DTR, CTR and ITR, the higher is the efficiency (Sur, 2012). Table 2 discloses that the efficiency of managing WC was the highest in Ceat Ltd. and it was followed by JK Tyre & Ind. Ltd., MRF, Apollo Tyres and Balkrishna Ind. respectively in that order during the study period.

Table 3 : Analysis of Working Capital Turnover Ratio of the selected companies

Year	MRF	Balkrishna Ind	Apollo Tyres	Ceat Ltd.	JK Tyre & Ind. Ltd.
2009-10	21.502	3.772	35.336	-946.950	-184.615
2010-11	10.969	2.932	18.992	-1749.385	19.679
2011-12	16.712	1.968	24.215	38.823	111.066
2012-13	16.126	2.602	29.716	-754.551	11.337
2013-14	14.459	3.589	-31.691	17.570	12.197
2014-15	11.096	4.848	126.294	48.484	20.700
2015-16	65.860	19.792	146.637	38.664	22.896
2016-17	23.506	359.417	74.463	18.149	7.510
2017-18	-102.408	6.940	25.848	1130.402	15.726
2018-19	161.949	4.978	11.328	115.180	7.580
Average	23.977	41.084	46.114	-204.361	4.408
CC	0.372	0.367	0.848	-0.264	0.060
Slope	3.914	11.388	3.587	194.09	7.439
t-value	0.533	0.915	0.577	3.289**	0.915

***Significant at 10 per cent level**
****Significant at 5 per cent level**
*****Significant at 1 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai

Table 3 presents the efficiency of managing WC of the selected companies using WCTR. The higher the value of WCTR, the higher is the efficiency of managing WC. Table 3 discloses that all the companies under study, namely MRF, Balkrishna Ind., Apollo Tyres, Ceat Ltd. and JK Tyre & Ind. Ltd adopted positive trend in WCTR, out of which only the linear trend equation of the WCTR in Ceat Ltd. was found to be statistically significant at 5 per cent level during the study period. In respect of average WCTR, Apollo Tyres captured the top most position followed by Balkrishna Ind., MRF, JK Tyre & Ind. Ltd. and Ceat Ltd. respectively in that order, and on the basis of consistency coefficient of WCTR, again Apollo Tyres occupied the first position followed by MRF, Balkrishna Ind., JK Tyre & Ind. Ltd. and Ceat Ltd. respectively in that order. Based on the analysis of WCTR, it can be said that in respect of both the mean efficiency and consistency of efficiency in managing WC, Apollo Tyres established itself as the best performer while Ceat Ltd. was placed in the last rank during the study period.

Table 4 : Analysis of Correlation (Pearson's Simple Correlation Coefficient) between selected Profitability indicator (ROCE) and WCM Efficiency Indicators (DTR, CTR, ITR)

Company Name	Between ROCE and DTR	Between ROCE and CTR	Between ROCE and ITR
MRF	0.714*	0.121	0.827**
Balkrishna Ind	0.586	0.521	-0.201
Apollo Tyres	0.589	-0.45	0.795**
Ceat Ltd.	-0.39	-0.029	0.642*
JK Tyre & Ind. Ltd.	0.103	-0.099	0.558

***Significant at 10 per cent level**

****Significant at 5 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbai

Table 4 presents the measure of the extent of relationship between the efficiency of managing the selected components of WC and profitability of the companies under study using Pearson's simple correlation coefficient. This table shows that the correlation coefficient between DTR and ROCE was positive as well as found to be statistically significant in MRF only. However, in the other selected companies, the correlation coefficients between these two were either positive or negative, but they were not found to be statistically significant during the study period. The correlation coefficients between CTR and ROCE in all the selected companies were either positive or negative, which were not found to be statistically significant during the same period. The correlation coefficients between ITR and ROCE of MRF, Apollo Tyres and Ceat Ltd. were positive and also found to be statistically significant, whereas in Balkrishna Ind., the correlation coefficient was positive and in JK Tyre & Ind. Ltd., it was negative, but both of them were not found to be statistically significant. It implies that strong evidence of positive association between profitability and efficiency of inventory management was noticed in MRF, Apollo Tyres and Ceat Ltd. only.

Table 5 : Analysis of Correlation (Spearman's Rank Correlation Coefficient) between Profitability (ROCE) and Overall WCM Efficiency Indicator (WCTR)

MRF	Balkrishna Ind.	Apollo Tyres	Ceat Ltd.	JK Tyre & Ind. Ltd.
0.127	0.721*	0.552	-0.212	-0.236

***Significant at 5per cent level**

****Significant at 10 per cent level**

Source: Compiled and computed from Capitaline Corporate Database of Capital Market Publishers (I) Ltd., Mumbal

In Table 5, the nature and extent of relationship between the efficiency of WCM and profitability of the selected companies were examined applying Spearman's rank correlation coefficient. While doing so, WCTR was used as the indicator of overall efficiency in WCM, and ROCE was considered as the overall profitability measure. In order to test whether the computed values of correlation coefficients were statistically significant or not, t-test was used. Table 5 discloses that the correlation coefficient between WCTR and ROCE was positive as well as found to be statistically significant only in Balkrishna Ind. However, in the remaining four selected companies, the correlation coefficients between WCTR and ROCE were either positive or negative, but they were not found to be statistically significant during the period under study. It reveals that Balkrishna Ind. managed its WC efficiently, which made positive contribution towards enhancing its profitability during the study period.

Concluding Observations

[i] Based on the composite score as ascertained by incorporating both the average and consistency aspects of the three selected WCM efficiency indicators, it can be concluded that Ceat Ltd. captured the top most position in respect of efficiency of WCM followed by JK Tyre & Ind. Ltd., MRF, Apollo Tyres and Balkrishna Ind. respectively in that order.

[ii] The outcomes derived from Pearson's simple correlation coefficient analysis revealed that in MRF, the efficiency of managing debtors as well as inventory made a significant contribution towards enhancing its profitability during the period under study, whereas in Apollo Tyres and Ceat Ltd., the overall profitability was influenced notably only by the efficiency of their inventory management during the same period.

[iii] The results obtained from Spearman's rank correlation coefficient between ROCE and WCTR showed that a strong positive association between overall profitability and efficiency of WCM was observed only in Balkrishna Ind.

On the basis of the above concluding remarks, it can be said that cash management had no significant contribution towards enhancing the profitability of the tyre companies in India. Similarly, in almost all the cases, debtors management also did not show any noticeable impact on the profitability of the companies belonging to the Indian tyre industry. In some cases, only inventory management made notable contribution towards accelerating the earning capability of the tyre companies in India. So, it can be generalized that in India, tyre companies had not been able to manage the different components of their WC efficiently. This conclusion conforms to the net outcome derived from the analysis of Spearman's rank correlation between WCTR and ROCE which indicates that in almost all cases, except one case, the WCM failed to put any mark on the profitability of the selected companies in the Indian tyre industry.

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