IMPACT OF CASH CONVERSION CYCLE ON PROFITABILITY OF TYRE INDUSTRY IN INDIA

S. Hemalatha* & Dr. A. L. Kamalavalli**
* Ph.D Research Scholar, PG and Research Department of Commerce, NGM College (Autonomous), Pollachi, Tamilnadu
** Research Guide & Associate Professor, PG and Research Department of Commerce, NGM College (Autonomous), Pollachi, Tamilnadu

Abstract:
Cash Conversion Cycle (CCC) is a useful measure of a company's efficient working capital management as well as cash management. This study dealt with the extent of CCC that affects the profitability of Indian tyre manufacturing companies. The specific research objective aims at assessing the role of CCC in enhancing the profitability of the Tyre Industry. For this study, the independent variables were CCC, ITR, DTR and CTR and return on equity and return on assets were the Dependent variables, which measured profitability. The control variables were Firm Size and Leverage ratio. To analyse, nine tyre companies data of a ten-year period from 2003-04 to 2012-13 were taken. Results showed that DTR, CTR, and size of the company had a significant association with RoA and RoE whereas, CCC, ITR and Leverage ratio had no significant association with RoA and RoE of the selected tyre companies.

Introduction:
The Cash Conversion Cycle (CCC) measures the number of days it takes to convert the inventory and debts into cash as well as computing the days taken to pay cash to creditors. Companies can enhance their profitability by limiting the length of Cash Conversion Cycle through reducing the receivables collection period and the inventory holding period and increasing the credit payment period. Companies may end up a negative CCC if they collect from customers before paying to suppliers. Cash management depends on Cash Conversion Cycle, and it is a key factor in enhancing the performance of company's profitability. The Cash Conversion Cycle comprises of the three primary working capital component ratios namely, Debtors Turnover Ratio in days (DTR), Inventory Turnover Ratio in days (ITR) and Creditors Turnover Ratio in days (CTR). Thus,

$$CCC = ITR + DTR - CTR$$

When credit sales of a company increase, their debts also increases, which make the low amount of finished goods. At the same time, credit also increase due to purchase of more raw materials. To make CCC more effective, companies collect the amount from debtors quicker and cause some delay in payment to creditors. The Indian tyre industry is an integral part of the automobile sector. As of now, 40 tyre companies are listed in India. Major players are MRF, JK Tyres, Apollo and Ceat hold 63 per cent of market shares. Goodyear holds 11 per cent of shares in the market. Falcon, Ralson, TVS and Balkrish are some of the important players of this industry. Selection of companies for the study are based on the availability of data for a ten-year period from 2003-04 to 2012-13 namely, Apollo, Balkrish, Ceat, Falcon, Goodyear, JK Tyres, MRF, Ralson and TVS.

Significance of the Study:
CCC identifies time needs for the collection of debts, number of time the inventory is converted into sales and how long a company how long a company can keep payment to creditors, which affects the profitability of a company. The study would help the companies to speed up debtors collection, extending the payment time for creditors, to limit investment in inventory, which affects the profitability of the company. Therefore, Cash Conversion Cycle points out when a company to change policies relating to credit purchase and credit sales, as well as to manage the inventory of the business.

Literature Review:
Various studies have extensively examined the relationship between CCC and profitability.

Deloof (2003) has reviewed the relationship between working capital management and profitability on 1009 non-financial Belgian companies during 1992-1996. He used CCC as a comprehensive measure of working capital management and gross profit as the profitability measure. His findings did not ascertain any significant relationship between profitability and CCC. Moreover, reveals a negative association between profitability and accounts receivable collection period, inventory conversion period, and payment period of creditors.

Vijayakumar (2011) has examined the relationship between working capital management and corporate profitability of Indian automobile industries. This study tests 20 firms for the period of 13 years from 1996-2009. Empirical results of the study found a significant negative relationship between profitability and Accounts

Receivable Period (ARP), Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) of Indian automobile industry. The study found a positive association between Accounts Payable Period (APP) and Profitability.

Muneeb and Kashif (2012) has analysed the optimal relationship of cash conversion cycle with firm size and profitability. The study period was 2005-06 to 2009-10. Thirty-one firms listed in Karachi Stock Exchange were the samples. Statistical tools were one-way ANOVA and Pearson correlation analysis. The study found a negative relationship between CCC and profitability and firm size and profitability.

Raheem and Qaisar (2013) have studied on CCC and firm's profitability of listed manufacturing companies of Pakistan. This study evaluated how CCC affects the profitability of manufacturing sector. Variables used in this study were CCC, ROA, ROE, firm size and debt ratio. The study found an inverse and significant association and linkage of cash conversion cycle with the profitability of manufacturing companies and concluded that cash conversion cycle had an opposite effect on return on assets and return on equity.

Paul et al. (2013) have analysed the effects of Working Capital Management on Profitability of manufacturing companies listed in Nairobi Securities Exchange. The study used secondary data and the period of study was 2005 to 2010. Nine production companies form the sample size. Statistical tools were Ratios, Multiple regression and correlation analysis. The study concluded that managers should focus on reducing cash conversion cycle, collect receivables as soon as possible to receive inflows sooner and delay payment of creditors to invest the money in the short term that increases cash inflows.

Ashok (2013) has analysed cash conversion cycle and firms' profitability in case of cement manufacturing companies in India. The study was based on secondary data and the period of study was 2000-01 to 2009–10. Five cement manufacturing companies were the samples. Statistical tools were Correlation and Regression analysis. The study revealed that selected companies had a low average return on asset and return on equity with significantly negative CCC. Regression results showed that CCC is having significant positive association between return on asset and return on equity

Many studies have attempted to identify the significance of either working capital management or profitability or between liquidity and profitability. Only a few studies have attempted the importance of CCC and profitability. This study set out to analyse the impact of CCC on the profitability of Tyre industry in India, which is a driving force for the growth of the economy.

Objective of the Study:
This study aims at assessing the role of Cash Conversion Cycle in enhancing the profitability of the companies.

Data and Methodology:
The study is based on secondary data, sourced from Capitaline Plus database. In this study, tyre manufacturing companies are selected to measure the impact of Cash Conversion Cycle on profitability. The study period was ten years from 2003-04 to 2012-13. The data include Tyre Company's' sales, credit purchase, the cost of goods sold, accounts receivables, accounts payables, and inventory. These data helps to determine the debtors' turnover ratio, creditors' turnover ratio, inventory turnover ratio, and the Cash Conversion Cycle. Tools employed are ratio analysis and correlation analysis.

Variables Used:
Return on Asset (ROA) and Return on Equity (ROE) as a measure of profitability, are the dependent variables. Cash Conversion Cycle (CCC), Inventory Turnover Ratio (ITR), Debtors Turnover Ratio (DTR) and Creditors Turnover Ratio (CTR) are independent variables. Finally, Firm size and debt ratio are the control variables. Control variables help to find how CCC varies between companies based on their size and debt ratio. The control variable is kept constant to test the impact of independent variables. The selected variables are calculated as follows:

- ✓ Inventory turnover ratio (ITR) = (Sales /Inventories) x 365
- ✓ Debtors turnover ratio (DTR) = (Sales /Sundry Debtors) x 365
- ✓ Creditors turnover ratio (CTR) = (Purchases /Sundry Creditors) x 365
- ✓ Cash Conversion Cycle (CCC) = Inventory turnover ratio+ Debtors turnover ratio - Creditors turnover ratio
- ✓ Return on Assets = Net Profit/ Total Assets
- ✓ Return on Equity = Net Profit/ Shareholders funds
- ✓ Size of Firm = Natural Log of Sales
- ✓ Debt Ratio = Total Debt/ Total Assets
- ✓ Debtors' turnover ratio measures the average number of days from the sale of goods to a collection of receivables. It is calculated as [(Sales/Debtors)*365].
- ✓ Inventory turnover ratio is used to identify the length of time needed to convert raw materials into finished goods and selling those goods to creditors. It is calculated as [(Cost of goods sold/inventory)*365].

✓ Creditors' payable period is the average length of time taken to pay the creditors from the date of purchase. It is computed as [(Credit purchase/creditors)*365].

The cash conversion cycle is calculated as [Inventory days + Debtors days-Creditors days].

Correlation Analysis:

Correlation is used to find out the relationship between the dependent and independent variables used in the study. The correlation coefficient will vary from -1 to +1. A -1 indicates perfect negative correlation and +1 indicates perfect positive correlation.

Positive Association:

The positive association indicates the direct relationship between two variables and the value of variables fluctuate together in the same direction. If two variables have a positive association; when the values of one variable tend to increase, the value of the other variable also increases.

Negative Association:

The negative association indicates the indirect relationship between two variables and the value of variables fluctuate together in the opposite. If two variables have a negative association, when the values of one variable tend to decrease, the values of the other variable will increase. Table 1 shows the relationship between return on assets (RoA) with other independent variables namely CCC, ITR, DTR, CTR, Size and Leverage ratio.

Table 1: Correlation Analysis for ROA

Variables	Correlation coefficient (r)	Coefficient Determination (r^2)
CCC	-0.464	0.2153
ITR	0.463	0.2144
DTR	0.808**	0.6529
CTR	0.739*	0.5461
Size	0.865**	0.7482
Leverage	0.280	0.0784

Debtors Turnover Ratio:

Debtors' turnover ratio shows a positive association with profitability. Co-efficient of correlation between debtors' turnover ratio and return on asset is 0.808, and it is significant at one percent level. A positive correlation implies that as debtors turnover ratio increases, the profitability also increases. The co-efficient of determination explains 65 per cent of the variation in profitability.

Creditors Turnover Ratio

Creditors' turnover ratio shows a positive association with profitability. Co-efficient of correlation between creditors' turnover ratio and return on asset is 0.739. The value of correlation coefficient is found to be significant at five percent level. The positive correlation implies that as creditors turnover ratio increases, the profitability also increases. The co-efficient of determination explains 55 per cent of the variation in profitability.

Size:

Size shows a positive association with profitability. Co-efficient of correlation between size and return on asset is 0.865, and it is significant at one percent level. The positive correlation implies that as size increases profitability also increases. The co-efficient of determination explains 75 per cent of the variation in profitability. Table 2 shows the relationship between return on equity (RoE) and other independent variables namely CCC, ITR, DTR, CTR, Size and Leverage.

Table 2: Correlation Analysis for RoE

Variables	Correlation coefficient (r)	Coefficient Determination (r^2)
CCC	-0.455	0.2070
ITR	0.472	0.2228
DTR	0.812**	0.6593
CTR	0.756**	0.5715
Size	0.897**	0.8046
Leverage	0.182	0.0331

Debtors Turnover Ratio:

Debtors' turnover ratio shows a positive association with profitability. Co-efficient of correlation between debtors' turnover ratio and return on equity is 0.812, and it is significant at one percent level. A positive correlation implies that as debtors turnover ratio increases, the profitability also increases. The co-efficient of determination explains 66 per cent of the variation in profitability.

Creditors Turnover Ratio:

Creditors' turnover ratio shows a positive association with profitability. Co-efficient of correlation between creditors' turnover ratio and return on equity is 0.756. The value of correlation coefficient is found to be significant at one percent level. A positive correlation implies that as creditors turnover ratio increases, the profitability also increases. The co-efficient of determination explains 57 per cent of the variation in profitability.

Size:

Size shows a positive association with profitability. Co-efficient of correlation between size and return on equity is 0.897, and it is significant at one percent level. A positive correlation implies that as size increases profitability also increases. The co-efficient of determination explains 80 per cent of the variation in profitability.

Findings of the Study:

Correlation analysis finds that DTR, CTR and Size have a significant association with ROA. CTR is significant at one percent level whereas DTR and Size are significant at five percent level of significance. DTR, CTR, Size, and have an association with ROE at five percent level of significance.

Conclusion:

This study analyses the impact of Cash Conversion Cycle on the profitability of selected Tyre companies in India. The study finds that a positive correlation is found between debtors' turnover ratio, creditors' turnover ratio and Size, which have an association with ROA at one, and five percent level of significance. Debtors' turnover ratio, creditors' turnover ratio and Size and have association with ROE at five percent level of significance whereas this study finds no association between other variables with ROA and ROE.

References:

1. Deloof. M (2003). Does working capital management affect the profitability of Belgium firms? Journal of Business, Finance and Accounting, Vol 30 (3&4), pp: 573 – 587.
2. Vijay Kumar. A (2011). Cash conversion cycle and corporate profitability. An empirical enquiry in automobile firms. International Journal of Research in Commerce and Management, Vol 1(2), pp: 84-91
3. Muneeb Ahmed Attari and Kashif Raza (2012). The optimal relationship between cash conversion cycle with firm size and profitability. International Journal of Academic Research in Business Social Science, Vol 2 (4), pp: 189-203.
4. Paul Muoki Nzioki, Stephen Kirwa Kimeli, Marcella Riwo Abudho and Janiffer Mwende Nthiwa (2013). Management of working capital and its effect on the profitability of manufacturing companies listed on Nairobi Securities Exchange (NSE), Kenya. International Journal of Business and Finance Management Research, Vol 1, pp: 35 – 42.
5. Ashok Kumar Panigrahi (2013) Cash Conversion Cycle and Firms' Profitability in cement manufacturing companies. International Journal of Current Research, Vol 5 (6), pp: 1484-1488.
6. Raheem Anser and Qaisar Ali Malik (2013). Cash conversion cycle and firms' profitability. A study listed manufacturing companies of Pakistan. IOSR Journal of Business and Management, Vol 8 (2), pp: 82-87.