

Relationship between Cash Conversion Cycle and Firm Profitability: Contract and Construction Companies listed on BSESME



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Cash conversion cycle is useful in understanding the efficiency of converting firm's inventory into sales and same converting in to cash. Present study has objective to find out the relationship between cash conversion cycle and firm profitability of contract and construction companies listed on BSESME. CCC comprises of Inventory Turnover Period, Debtors Turnover Period and Creditors Turnover period are independent variables. Return on Assets and Return on Equity are dependent variables. Finding shows significant negative relationship between cash conversion cycle and Profitability of the firms. There should be a constant watch on working capital Management.

Keywords: Cash Conversion Cycle, Return on Equity, Return on Assets, BSESME

1. Introduction

Working capital Management plays very important role in the performance of any organization. The idea of working capital management talks the companies handling their short term capital and the goal of management of working capital is to promote the liquidity, profitability and shareholder's value. It handles the current assets and current liabilities effectively to provide the maximum return on assets and return on equity and shorten the payment of liabilities (Makori, 2013). Working capital Management and liquidity management hold an important position among the financial decision because they are affecting the firm's profitability, risk and its market. Liquidity management is very crucial as it is the trade-off between risk and returns in association with short term assets. Cash conversion cycle is very important tool to evaluate and measure the risk and returns connected to liquidity management. It measures the number days required to convert the raw material into cash. It includes from the day of purchases of raw material till the finished goods sold in the market as well as it includes the recovery from the customers. It shows how effectively raw material are converted in to cash in a shorter span. Cash conversion cycle will be useful in all types of business for e.g. Banking, hotels, hospitality, Manufacturing etc. For business owners it is very important area where they should constantly watch on cash conversion cycle to run their business effectively. Any problem in cash conversion cycle leads to closure of business. It is very difficult to survive in the business if working capital management cannot handle effectively. Cash conversion cycle is very useful in finding out the length of the business cycle which is useful in liquidity analysis. Cash conversion cycle includes inventory turnover period in days, Debtors collection period in days and Creditors Payable period in days. To understand the cash conversion cycle in days we need to add inventory turnover days and debtors collection period in days and deduct creditor's payable period in days.

The registered Small and Medium Enterprises on Bombay stock exchanges are 240 companies representing 46 types of Industries as on October 2019 with a market capitalization of Rs.18671.39 crores. Contract and Construction is one of the industry contribute to Indian economy, comprised with 17 companies which function in different locations. Construction industries plays very important role in the Indian economy as it helps in upward and downward industries. A big number of companies of various sizes and capabilities operate in this industry. But other than a few large and medium-sized companies, the majority are small contractors, whose activities are restricted to constructing residential and commercial units. Construction companies have tied up with large amount of working capital. So it is very critical to manage the working capital. Mis-management of working capital may leads to increases in the risk and impact on the firm's profitability. CRISIL has examined the presentation of 305 smaller scale, little, and medium endeavours (MSMEs) in the development part, appraised based on their 2013-14 (money related year April 1 to March 31) financials. The example incorporates MSMEs occupied with development movement identified with streets, spans, water system ventures and modern tasks, and avoids land ventures. The investigation uncovers that while these MSMEs recorded an expansion in their normal yearly turnover - from Rs 10.81 crore in 2011-12 to Rs 13.57 crore in 2012-13 and Rs 15.03 crore in 2013-14 - the area demonstrated a year-on-year decrease in development, from 25 percent in 2012-13 to 11 percent in 2013-14. Development figures for 2014-15 and 2015-16 are required to stay languid attributable to bring down request build-up and moderate venture execution. The development segment contributes around 10 percent of India's GDP, and is among the biggest business creating segments in the nation. Notwithstanding, going ahead, the development of MSMEs in this area would rely upon the administration's inclination to guarantee convenient execution of different activities proposed for the improvement of foundation in the nation. (CRISIL, 2015).

Cash Conversion cycle is particularly used as a measure of assessing and calculating the risk and return associated to liquidity management. Since every organization should be more focussed towards the working capital management. They should know how to sustain in the business and earns the profit for the business. It should be constantly keep an eye on the

profitability of the business. So present study is to the relationship between cash conversion cycle and firm’s profitability of companies comes under contract and construction industry listed on BSESME.

2. Literature Review

2.1 Theoretical Aspects

2.1.1 Working capital Management- Working Capital is the amount of money a company has available for day to day business operations. It is the management of current assets and current liability. Working capital refers to the investment in current assets i.e. stock, account receivables, cash, marketable securities etc. Net working capital refers to current assets minus current liabilities. Working capital Management is also called the circulating capital which flows from one form to other form (L.J.Gitman). (Krueger, 2005) defines working capital management is the variance between reserve in cash or freely convertible into cash and managerial commitments for which cash soon will be required for payment of liabilities. As per (Deloof, 2003), Companies should obtain the ideal level of working capital in order to increase the firm value. According to (Gardner, 1986)There is a long discussion about the risk and return trade off that aggressive policy of working capital is connected with higher returns and higher risk and conservative policy of working capital is connected with lesser risk and lesser returns.

2.1.2 Cash conversion cycle – Current ratios and liquidity ratios impact on profitability of the firms. Accounts receivables, Inventories and account payables affect the liquidity of the firms in a very large scale. Cash conversion cycle (CCC) is the measurement in time that funds are tied up in working capital or the length of time between paying of working capital and collecting cash from the sale of working capital. (Brigham.F., 2007). If production process is longer, then inventory is tied up in process for longer time and it is the blocking of fund. If firm allows longer credit to the customers then it shows higher values in account receivables. It impacts on Cash conversion cycle and the length of CCC will increase. Same way if delay in making the payment to accounts payables for material purchases it will decrease the CCC period, as no use of cash outflow at this moment. In other words accounts payables reduced net working capital. CCC may be negative or positive. According to (Hutchison, 2007)a positive result shows that company should borrow the net working capital to run the business and negative working capital shows that the company has received cash from sales before paying it to their suppliers. Objective of any company should reduce the length of CCC or try to make it negative. It shows the efficiency of company.

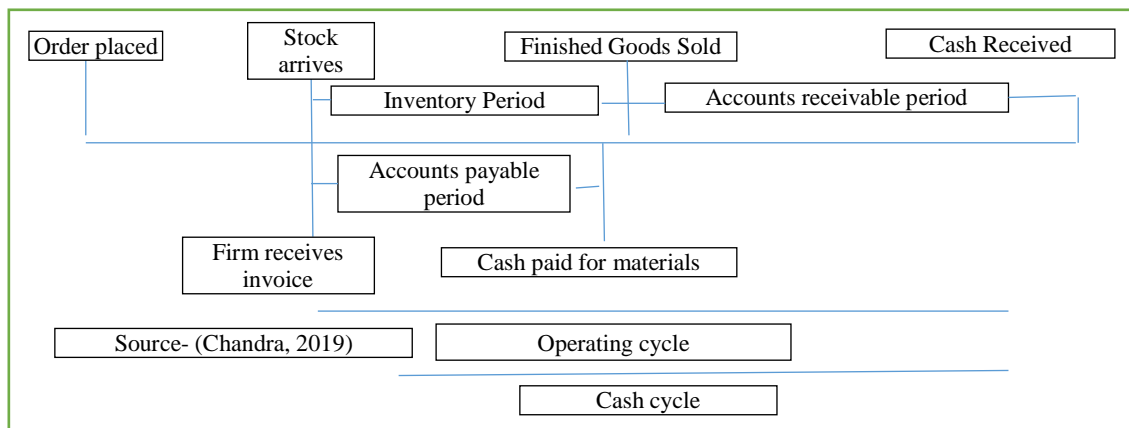


Figure 1 Operating and Cash Cycle

Figure 1 shows the relationship between order places, stock arrives, Finished goods sold and cash received. It shows the operating cycle and cash cycle. To the extent the firm uses the credit from vendors the cash cycle will be reduced.

2.1.3 Inventory and Inventory Turnover Ratio (ITR) - Inventory management is very important in working capital management. Always company should try to maintain optimum level of inventory. If maximum level of inventory is maintained then it is unnecessary blockage of fund. If minimum level of inventory then there could be shortage of inventory and production could be stopped. Inventory affects both income statement and balance sheet of the firm. It is very important in calculation of profits and it is very important part of current assets. The average number of days in inventory shows the period that inventories are held by the companies before they are sold. For lesser CCC, a lower number of days of inventory would be better. The average amount of inventory is calculated by totaling the opening and closing inventory and it is divided by two. The average inventory is then divided with the cost of goods sold to see how major part of the cost of goods sold that comes from the inventory. In order to get the inventory conversion in number of days then it is multiplied with the 365 days in a year. As per Deloof (2003) inventory conversion days and performance of the company has shown the negative relations. If ITR is more the profitability of the company would be lesser as it impacts on the performance of the company. In order to maintain the inventory at optimum level company should go for Just in time approach, Economic Order Quantity, use the superior quality to reduce the volume of inventory.

2.1.4 Debtors and Debtors Turnover Ratio (DTR) - Debtor account is created when there is a credit sale of goods and services. Company should maintain the debtors account in a systematic manner. Generally 30 to 60 days of credit allowed to the customers for the payment of their outstanding. According to the (Kimmel, 2005) trade receivable is the amount to be received from the customers which was the resulted from the sales of goods and services. DTR is to be calculated by total receivables divided by credit sales which is multiplied by 365 days. Shorten the DTR will increase the profitability of the company. As per Deloof (2003) if the number of days for amount recoveries are less will impact on the profitability of the company. It improves the performance of the companies. If it takes more number of days for conversion of Accounts receivables into cash, then it reduces the profitability of the company.

2.1.5 Creditors and Creditors Turnover Period (CTR) –When company is dealing in credit transaction with suppliers of material in that case creditors account will be raised. It is mostly 45 to 60 days of credits received from suppliers. According to (Gitman, 2003) the buyer agrees to pay to the suppliers in a specific credit period which is mention in the invoice. The study of Deloof (2003) has showed the negative relationship between the number of days of creditor’s turnover and profitability. It shows that company with lower profitability will take the longer payment period. It is calculated by adding all the receivables and divide it by credit purchases and multiplied by 365 days. Company should try to increase the number of days of creditor’s turnover period to increase the performance of the company

2.2 Empirical Aspect

(Larzridis.J) analyzed the relationship of Cash conversion cycle and profitability by using a sample of 82 manufacturing firms which are listed on Greece Stock Exchange and they found positive relationship between cash conversion cycle and return on Assets. But there is no relationship between CCC and Return on Equity.

(Wang, 2002) Examined that there is a relationship between liquidity management and company profitability and firm value. He has analyzed Japanese and Taiwanese manufacturing firm for last 11 years. He has found out negative significant relationship between CCC and ROA and ROE. He has also found out that due to strong liquidity management there is decreased in CCC and improved the profitability of the firm.

(A.Eljelly, 2004) Analyzed the relationship between profitability and liquidity through the measurement of current ratio and cash conversion cycle on a sample of 929 companies in Saudi Arabia. It has been concluded that the effect of CCC on profitability is stronger than the current ratio on it and found significant negative relationship between the firm’s profitability and its liquidity level.

(Solano, 2007) Conducted the study on Small and Medium Enterprises of Spanish manufacturing firms in Spain. The have found out the adverse relation between profitability and the number of days account receivables and inventory days. The study has showed more concern for working capital management of SMEs. If it is properly management then it would be possible to reduce the number days of CCC.

(Ajilore, 2009) Analyzed the effect of CCC on profitability by using a sample of 50 Nigerian manufacturing firms for the period 1996-2005. The study has used the panel data method. They found a significant adverse association between net operating profit and the receivable days, ITR and Payable days and CCC. They found there is significant negative relationship between time taken by the firms to collect cash from its receivables and the profitability. There is a positive relationship between the time taken to convert the inventories into turnover and profitability by opposing the thought while there has been existed a highly significant positive relationship between time it takes the firm to pay its payables and the profitability.

(Malik, 2013) Studied how CCC would impact on profitability of manufacturing sector listed at Karachi stock exchange of Pakistan. Return on equity and return on assets are used as a dependable variables and firm size and debt ratio has been considered as a controlled variable. CCC is used as an independent variable. The data has been collected from the financial statement from 2007 to 2011. It was found that CCC was having significantly reverse association with both return on assets and return on equity.

3. Material and Methods

The study aims at identifying the impact of cash conversion cycle on firm’s profitability at contract and construction industry listed on BSESME. Twelve listed companies listed on BSESME have been selected as the sample on the basis of available information for five years starting from 2014-15 to 2018-19. Inventory turnover ratio, Debtors turnover ratio, creditors turnover ratio, Cash Conversion Cycle considered as independent variables whereas profitability has been measured through return on assets and return on equity would be considered as independent variables which has shown in Figure 2.

Independent Variables
Cash Conversion Cycle
Inventory Turnover Ratio (ITR)
Debtors Turnover Ratio (DTR)
Creditors

Figure 2 Conceptual Framework

Dependent Variables
Profitability
Return on Assets
Return on Equity

Source - (Sugathadasa, 2018)

Hypothesis

As per the title we have drawn following hypothesis

H₀ –There is no significant relationship between cash conversion cycle and profitability.

H₁ - There is significant relationship between cash conversion cycle and profitability.

H₀₁ – There is no significant relationship between Inventory turnover ratio and profitability.

H₁₁- There is significant relationship between Inventory turnover ratio and profitability.

H₀₂ - There is no significant relationship between Debtors Turnover ratio and profitability.

H₁₂ - There is significant relationship between Debtors Turnover ratio and profitability.

H₀₃ – There is no significant relationship between Creditors Turnover ratio and profitability.

H₁₃ – There is significant relationship between Debtors Turnover ratio and profitability.

Data Collection and Sampling

The study has been conducted for 12 companies comes under contact and construction industries for five years. Secondary data has been collected from published financial statements. The data has been collected from 2014-15 to 2018-19. On BSESME 15 companies are registered. Out of 15 companies we have received full data of only 12 companies.

Data Analysis

Descriptive statistic, correlation and Regression Analysis were conducted to test the hypothesis of this study. As the main analysis tool, two linear multiple regression models which have been developed as follows:

Model 1: $ROA = \beta_0 + \beta_1 ITR + \beta_2 DTR + \beta_3 CTR + \epsilon$

Model 2 $ROE = \beta_0 + \beta_1 ITR + \beta_2 DTR + \beta_3 CTR + \epsilon$

Where,

ROA = Return on Assets

ROE= Return on Equity

ITR = Inventory Turnover Ratio

DTR = Debtors Turnover Ratio

CTR = Creditors Turnover Ratio

B = Constant

ϵ = Error term

4. Result

The study has been conducted with the help descriptive analysis, correlation, coefficients and regression analysis to test the hypothesis which has been used to answer the question can be accepted or rejected.

The descriptive analysis of table 1 shows the descriptive statistics of all selected variables in the study including maximum, minimum, mean and standard deviation to measure the central tendency values. The average values of data set indicating by means while standard deviation values imply whether those mean values are focused around mean or spread far. As it is shown in table standard deviation of ROA and ROE are to be concentrated near means values and all other variables are spread far-off with its mean values.

Table 1 Descriptive Analysis

	Maximum	Minimum	Mean	Std. Deviation
ROA	9.19	-15.71	1.272666667	3.157974499
ROE	40.32	-17.5	4.7705	8.508278008
ITR	5076.5	0	180.7396733	741.8554093
DTR	6059	0	461.0790867	1069.038858
CTR	10195.66667	0	282.5709509	1311.209425

Correlation analysis is a statistical tool to analyze the relationship between the dependent variables and independent variables. We have found out two models to find out the relationship of dependent and independent variables. We have analyzed the impact on ROA and ROE of all independent variables.

Table 2 Correlation Analysis between ROA and ITR, DTR and CTR

Variables	ROA	ITR	DTR	CTR
ROA	1			
ITR	-0.07809	1		
DTR	-0.2111	-0.0802	1	
CTR	-0.0124	-0.03417	-0.01582	1

Table 2 – According to table 2 ROA has been considered as dependent variable and ITR, DTR and CTR would be considered as an independent variables. This table shows relationship of ROA with ITR, DTR and CTR. ROA is weakly and negatively related with ITR, DTR and CTR.

Table 3 Correlation Analysis between ROE and ITR, DTR and CTR

	ROE	ITR	DTR	CTR
ROE	1			
ITR	-0.11652	1		
DTR	-0.17572	-0.0802	1	
CTR	-0.05695	-0.03417	-0.01582	1

According to Table 3 ROE has been considered as a dependent variables and ITR, DTR and CTR would be considered as an independent variables. All three components are weakly and negatively co related with the ROE. So entire cash conversion cycle is negatively and weakly correlated with the profitability of companies comes under contract and construction industries.

Model 1: $ROA = \beta_0 + \beta_1 ITR + \beta_2 DTR + \beta_3 CTR + \varepsilon$

$$\beta_0 = 1.667$$

$$\beta_1 = -0.00043$$

$$\beta_2 = -0.00065$$

$$\beta_3 = -0.000046$$

Table 4 Result of Regression Analysis on ROA

R Square	0.054017467
Adjusted R Square	0.002418419

Table 4 explains co efficient between dependent and independent variables were 5.4% indicated very low level of explanatory power of dependent variable by independent variable.

Model 2 $ROE = \beta_0 + \beta_1 ITR + \beta_2 DTR + \beta_3 CTR + \varepsilon$

$$\beta_0 = 5.900$$

$$\beta_1 = -0.0015$$

$$\beta_2 = -0.0014$$

$$\beta_3 = -0.000417$$

Table 5 Result of Regression Analysis of ROE

R Square	0.052202658
Adjusted R Square	0.000504621

Table 5 indicated the result of regression analysis. The coefficient between dependent and independent variables were 5.2% indicated very low level of explanatory power of dependent variable by independent variable. The result of regression analysis can be concluded that inventory Turnover ratio, Debtors Turnover Ratio and Creditors Turnover Ratio has very weak and negative relationship with ROA and ROE.

5. Conclusion

The present study has investigated the relationship between cash conversion cycle and profitability of companies' under contract and construction industries. The study has been done for five years starting from 2014-15 to 2018-19. Total

registered companies are 15 on BSESME. Due to non-availability of data we could take only 12 companies for the study. The identified variables are cash conversion cycle, inventory turnover period, debtor's turnover period, return on equity and return on assets. Out of these variables we have taken return on equity and return on assets as a proxy of dependent variables and cash conversion cycle, inventory turnover ratio, debtor's turnover ratio and creditors turnover ratio would be considered as proxy of independent variables. Cash conversion cycle comprises of ITR, DTR and CTR. All the data has been collected from secondary sources using financial statement of the companies. Descriptive statistics and correlation analysis has been used to find out the relationship of dependent and independent variables. Regression analysis has been used with two separate models of dependent variables to draw conclusions and test the empirical relations in data. Coefficient of correlations is used to check the causal relationship between the variables with two separate models as components of cash conversion cycle and return on assets and components of cash conversion cycle and return on equity. The result showed that there is no significant relationship between cash conversion cycle and profitability. It has also shown that there is no significant relationship of inventory turnover period, Debtors turnover period and creditors' turnover period with the profitability. The final conclusion is that there was in significant relationship of cash conversion cycle and profitability of the contract and construction companies listed on BSESME.

Few limitations of these studies will be considered for future research. This study is only for contract and construction companies listed on BSESME so sample size is very less. The further research can be done for unlisted company also. Only five years will be considered for study as the data was available for very limited period. Only small and medium companies are considered for the study. Primary survey will be very useful for knowing the cash management, debtors' management and creditors' management of small scale companies.

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