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**WORKING CAPITAL EFFICIENCY: A CASE STUDY OF ASSOCIATED CEMENT COMPANY LIMITED INDIA**

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**ABSTRACT**

*The present paper seeks to examine the efficiency of working capital management of the Associated Cement Company Limited during the period 1997-98 to 2004-05. The empirical findings suggest that all the working capital variables have a positive relationship with return on assets. The empirical findings suggest that leverage and assets structure have significant impact on profitability, while cash conversion cycle has a negative impact.*

**KEYWORDS**

working capital efficiency, profitability, regression analysis.

**INTRODUCTION**

**W**orking Capital efficiency is a measure of how well a company balances money it is owed by customers on sales and money invested in inventoried goods against money it owes for acquiring the inventory. This relationship of paying for goods, owing for goods and waiting to be paid for goods is called the cash conversion cycle. The more efficient a company is at navigating the cash conversion cycle, the higher is its level of working capital efficiency. Almost all businesses must have cash on hand to fund short-term liquidity needs. This cash on hand is known as working capital. The amount of working capital a business has in relation to the need for it will affect the firm's creditworthiness in the eyes of lenders and, if it is a public company, affect investors' opinions of the company's financial health. If a company's working capital efficiency is high, that is if its business practices minimize the need for borrowed funds for short-term operational needs, it can make it easier for the business to borrow when necessary.

Businesses with large investments in permanent assets or firms that primarily provide services have less need for working capital than others. Working capital efficiency becomes very important for businesses such as retailers who must acquire an inventory of goods, owe vendors for that inventory and then are owed by customers who purchase the goods. This is particularly an issue for seasonal retailers who must invest heavily in inventory well in advance of their strongest sales season and yet might not be paid by customers for a matter of months.

Determining a company's working capital efficiency begins with measuring its cash conversion cycle. This is a matter of adding the average number of days between putting a product in inventory and selling it to the average number of days after a product is sold until payment for the sale is collected. From that, the firm subtracts the average number of days between acquiring a product to paying for it. That figure is the company's cash conversion cycle. Typically the higher the cash conversion cycle, which is the higher the average number of days to convert inventory to sales less the average number of days to pay cost of the sales, the lower the business' working capital efficiency rating. This represents a cost to the business, as working capital is either equity in the company that cannot be put to other uses if the firm is inefficient or it is debt, which is more costly the longer it is owed. For almost every business, a goal is to encourage managers at every step of the sales process to operate with a view toward efficient use of the capital. The less time goods are in inventory, the faster payments for sales are collected — the longer payments to vendors can be delayed, the better.

**OBJECTIVE OF THE STUDY**

To examine the working capital management efficiency of Associated Cement Company Limited, India.

**RESEARCH QUESTIONS**

This chapter attempted to provide answers to the following questions:

- Is a firm's leverage significantly related with its profitability?
- How does the size and growth of the firm influence the profitability?
- Does the profitability decline with cash conversion cycle?
- Whether fixed assets to total assets ratio related with profitability?
- Whether or not the working capital management efficiency influences the earning capacity of the firm?

**RESEARCH HYPOTHESIS**

Corresponding to these questions, the study shall be guided by the following null hypotheses:

- There is no significant relationship between Utilization Index of Working Capital Management and Profitability.
- There is no significant relationship between Performance Index of Working Capital Management and Profitability.
- There is no significant relationship between Efficiency Index of Working Capital Management and Profitability.
- There is no significant relationship between Cash Conversion Cycle and Profitability.
- There is no relationship between leverage, size, growth, fixed assets to total assets ratio and profitability of the firm.

**REVIEW OF LITERATURE**

**S.K. Chakaraborthy (1973)**, Opined that working capital is a segment of capital employed. Since return on the capital employed is an aggregate measure of the overall efficiency in concluding a business, in pointed out the excessive working capital would lower the capital turnover ratio and so bring down the overall return on capital employed. Similarly, too small amount of working capital, though it yields an immediate higher return on the capital employed over the succeeding periods. He need for a concerted credit management against the broader perspective of better working capital management and higher return on capital employed.

**Dr. Muthapathay (2004)**, the important of working capital in any industry needs no special emphasis. We are considered to belied-giving force to an economic entity. Every organization whether profit oriented is not irrespective of its size and nature of business needs requisite amount of working capital.

**Dr. Santanu Kr. Ghosh and Santhi Gopal Maji (2004)**, Their study to examine the efficiency of working capital management to best how fast the sample firms have been able to improve their respective level of efficiency in working capital management with respect to a target level. The existence of a very high degree of inconsistency in this matter clearly points out the need for adopting sound working capital management policies try this firms.

**Samilogu F. and K. Demirgunes (2007)**, this study was considered statistically significant relationship between from profitability and component of cash conversion cycle at length. They used a multiple regression model and standardized co – efficient model. They found that the inventory period and leverage affect firm profitability negatively, while growth affects firm profitability positively.



M.A. Zariyawati, M.N. Annur and A.S. Abdul Rahim (2009), Investigated the relationship between working capital management and profitability of the firm. The researcher used the cash conversion cycle as a measure of working capital management. This study has used a panel data of 1628 firm's years for a period of 1996 to 2006. The co-efficient results of pooled OLS regression analysis provide a strong negative significant relationship between cash conversion cycle and profitability of the firms. It is revealed that by reducing the conversion cycle, a firm's profitability can be increased.

### SPECIFICATION OF MODELS

To analyze the determinants of working capital management efficiency, Return on Assets (ROA) is considered as dependent variable. The efficiency of working capital management have assed in terms profitability of the firm. In this study Utilisation Index of Working Capital (UIWCM), Performance Index of Working Capital Management (PIWCM), Efficiency Index of Working Capital Mangement (EIWCM) and Cash Conversion Cycle have been considered as independent variable with some control variables viz., Leverage, Size, Growth and Fixed Assets to Total Assets Ratio. The following regression models have been constructed to solve the issues raised earlier based on ordinary least square method. The regression model involving measures of profitability are stated as under:

The specification of the model is as follows:

$$Y_{[t1,t2]} = \alpha + \sum_{i=1}^n \beta_i X_i + \varepsilon$$

Where,

$Y_{[t1,t2]}$  is Return Assets.

$X_i$  is the vector of independent variables, and 'e' is the error term

In order to understand the efficiency of working capital management more precisely, the above equation is elaborated as follows:

- >  $ROA_{it} = \alpha' + \beta_1 (UIWCM_{it}) + \beta_2 (LEV_{it}) + \beta_3 (SIZE_{it}) + \beta_4 (GROWTH_{it}) + \beta_5 (FATA_{it}) + \mu_t$
- >  $ROA_{it} = \alpha' + \beta_1 (PIWCM_{it}) + \beta_2 (LEV_{it}) + \beta_3 (SIZE_{it}) + \beta_4 (GROWTH_{it}) + \beta_5 (FATA_{it}) + \mu_t$
- >  $ROA_{it} = \alpha' + \beta_1 (EIWCM_{it}) + \beta_2 (LEV_{it}) + \beta_3 (SIZE_{it}) + \beta_4 (GROWTH_{it}) + \beta_5 (FATA_{it}) + \mu_t$
- >  $ROA_{it} = \alpha' + \beta_1 (CCC_{it}) + \beta_2 (LEV_{it}) + \beta_3 (SIZE_{it}) + \beta_4 (GROWTH_{it}) + \beta_5 (FATA_{it}) + \mu_t$

Where

UIWCM	=	Utilization Index of Working Capital Management
PIWCM	=	Performance Index of Working Capital Management
EIWCM	=	Efficiency Index of Working Capital Management
CCC	=	Cash Conversion Cycle
LEV	=	Leverage
SIZE	=	Firm size
GROWTH	=	Growth of the firm
FATA	=	Fixed Assets to Total Assets
ROA	=	Return on Assets

### MEASUREMENT OF VARIABLES

The measurement of both dependent and independent variables used in the regression equation is discussed as under:

#### DEPENDENT VARIABLE

The dependent variable used in the profitability model is ROA. The measurement of this dependent variable is discussed as under:

#### RETURN ON ASSETS (ROA)

The return on capital employed was measured by dividing Profit Before Interest and Tax (PBIT) by Total Assets. The total assets comprise net fixed assets plus total current assets.

It can be calculated with the formula,

$$ROA = \frac{PBIT}{\text{Total Assets}} \times 100$$

#### INDEPENDENT VARIABLES

A brief discussion of the attributes that different theories of working capital and profitability have been given. These attributes are denoted as Utilization Index of Working Capital Management, Performance Index of Working Capital Management, Efficiency Index of Working Capital Management, Cash Conversion Cycle, Leverage, Firm size, Growth of the firm, Fixed Assets to Total Assets and Return on Assets.

#### UTILIZATION INDEX

Performance index represents the average overall performance in managing current assets. Utilization index indicates the ability of the firm in utilities its current assets as a whole for the purpose of generating sales. It an increase in total current asset is coupled with more than proportionate rise in sales. Degree of Utilization of these assets with respect to sales is said to have improved and vice versa. This ultimately reflects the operating cycle of the firm increasing the degree of utilization. Thus, a value of utilization index greater than one is desirable.

Utilization Index of Working Capital Management (UIWCM), was calculated by applying the following model:

$$UIWCM (it) = \frac{At-1}{At}$$

Where, A = current assets/sales.

#### PERFORMANCE INDEX

Performance index of working capital management represent average performance of various components of current assets. A company may be said to have managed its working capital efficiently if the proportionate rise in sales is more than the proportionate rise in current assets during a particular period. Numerically overall performance index more than, indicated efficient management of working capital.

The measure the working capital efficiency based on Performance Index of Working Capital Management' (PIWCM) calculated as:

$$PIWCM (it) = \frac{\sum_{i=1}^n \frac{W_{it(i-1)}}{W_{it}}}{N}$$

Where,

$I_s$  = Sales index defined as:  $S_t / S_{t-1}$ ,

$W_i$  = Individual group of current assets,

N = Number of current assets group,

and

$i = 1, 2, 3, \dots, n$ .

**EFFICIENCY INDEX**

This is the product of the performance index and the utilization index measure utilization efficiency of working capital management of the company.

The Efficiency Index of Working Capital Management (EIWCM) was calculated by multiplying the overall performance index of working capital management with the working capital utilization index. Thus,  

$$EIWCM (it) = UIWCM \times PIWCM$$

**CASH CONVERSION CYCLE**

The cash conversion cycle (CCC) is used as a comprehensive measure of working capital management and is taken as another independent variable. It is a metric that expresses the length of time, in days that it takes for a company to convert resource inputs into cash flows. This metric looks at the amount of time needed to sale inventory, the amount of time needed to credit receivables and the length of time the company is afforded to pay its bills without incurring penalties.

**LEVERAGE**

This ratio is calculated by dividing the amount of debt by the amount of equity. The higher the D/E ratio, the higher the ROA and vice versa. Thus profitability is directly related with Debt/ Equity Ratio. That is ROA is an increasing function of D/E ratio.

**SIZE**

Natural logarithm of total assets used as proxy variable to measure the size of the firm.

**GROWTH**

Growth is pre-requisite for the survival of any firm. It helps the firm to increase the profits and benefits from the economics of sales. Growth rate is measured in this study by ratio of simple growth rate of sales of the firm.

**FIXED ASSET TO TOTAL ASSETS**

Fixed assets to total assets is the measure of efficiency of total assets in generating fixed assets. Total assets include sum of all cash, investments, furniture's, fixtures, equipment receivables, intangible and any other item of value owned by a company. The fixed assets include net block and capital work in progress. Actually, this is the sum of current assets and long-term assets, as the current asset is very important determinants of total assets.

**TABLE 1: REGRESSION RESULTS – ASSOCIATED CEMENT COMPANY LTD.**

Variables	Model 1	Model 2	Model 3	Model 4
Constant	130.236 (1.584)	93.093 (1.211)	130.184 (1.729)	180.076 (0.983)
UIWCM	4.89 (1.229)			
PIWCM		14.169 (0.839)		
EIWCM			21.372 (1.586)	
CCC				-6.413 (0.311)
Leverage	-21.977** (2.876)	-19.039** (2.610)	-22.680** (3.134)	-18.064** (2.434)
Size	-34.593 (1.985)	-27.678 (1.675)	-35.602** (2.182)	-30.581 (1.246)
Growth	-0.002 (0.158)	0.004 (0.096)	0.053 (0.229)	0.0614 (0.247)
FATA	22.832** (2.719)	27.181** (2.889)	28.396** (3.379)	25.370** (2.582)
R <sup>2</sup>	87.8	86.8	88.9	85.9
Adjusted R <sup>2</sup>	81.0	99.4	82.7	78.1
F Test	12.958***	11.824***	14.368***	10.972***

Note: \* - Significant at 10% level, \*\* Significant at 5% level, \*\*\* Significant at 1% level

Table 6.1 discloses that, the adjusted R<sup>2</sup> is statistically significant in all the estimated regression models. The significant value of F proves that the relationship between the dependent variable (ROA) and Independent variables Viz., PIWCM, UIWCM, EIWCM, CCC, Growth, Capital Structure, Size and Ratio of Fixed assets to Total Assets are linear

It is evident from the estimated equation that the coefficient of UIWCM, PIWCM, EIWCM and CCC have the positive sign, which indicates that the efficiency of working capital management of Associated Cement Companies Limited have positive influence on the profitability but the relationship are not statistically significant. It is observed from the estimated  $\beta$  values that the company has utilized its current assets to generate sales. The model found a negative relationship between cash conversion cycle and Return on Assets signifies that when the firm shorten the length time between make payments and receive cash inflows, it will increase its profitability. To check control variables, all models in both the regressions show a positive relationship between Growth and Profitability. Capital structure of the firm relates negatively and significantly with profitability at 5% level of significance. While, Size of the firm have a negative relationship with the profitability

**CONCLUSION**

This study had investigated the relationship between the working capital efficiency and profitability of ACCL from 1997-98 to 2011-2012. The study appears that there is a positive relationship between Working Capital Utilization Index (WCMUI), Working Capital Management Performance Index (WCMPI) and Working Capital Management Efficiency Index (WCMEI) and profitability measures (ROA). It is proved also a negative relationship between the cash conversion cycle (CCC) and profitability. This study had found a positive relationship between growth and profitability; it is suggest that the growing firms are earning more profit. The regression results had also revealed a significant negative relationship between Leverage (LEV) and profitability measure. This study reached to significant positive relationship between Fixed Assets Ratio (FATR) and profitability. After this analysis, the study recommends from the firms to manage their working capital efficiently to achieve the optimal profitability. Thus the firms can manage their working capital through reduce the length time between sell the goods and receive cash of sales, it can do that by accelerating its collections. And it also reduce the length time between convert the raw materials into finished goods to sell these goods through. On the other hand the firms should shorten the length time between purchase goods to pay their purchases. All these will lead to shorten the cash conversion cycle and then lead to achieve the optimal profitability.

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