

Working Capital Management & Financial Performance of Manufacturing Sector in Sri Lanka

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Abstract

Working capital management is considered to be a crucial element in determining the financial performance of an organization. The primary purpose of this paper is to investigate the relationship between working capital management and financial performance of listed manufacturing firms in Sri Lanka. A sample of 30 manufacturing firms listed on the Colombo Stock Exchange was used for this study. Data were collected from annual reports of sampled firms for the period of 2008 to 2011. Performance was measured in terms of return on assets and return on equity while cash conversion cycle, current assets to total assets and current liabilities to total assets were used as measures of working capital management. Correlation and regression analysis were used for the analysis. The findings reveal that, there is no significant relationship between cash conversion cycle and performance measures. The study also concludes that, manufacturing firms in Sri Lanka follow conservative working capital management policy.

Key words: Working Capital Management, Performance, Cash Conversion Cycle.

1. INTRODUCTION

Working capital management is considered to be a crucial element in determining the financial performance of an organization. Working capital management is a simple and straight forward concept of ensuring the ability of the firm to fund the difference between short-term assets and short-term liabilities (Harris, 2005). The essential part in management of working capital lies in maintaining adequate liquidity in day-to-day operations to ensure smooth functioning of the business. Therefore, a firm is required to invest more in current assets rather than fixed assets to maintain adequate liquidity. However, the firm's decision about the level of investment in current assets involves a trade-off between risk and return. When the firm invests more in current assets it reduces the risk of illiquidity, but loses in terms of profitability since the opportunity of earning from the excess investment in current assets is lost. The firm therefore is required to strike a right balance.

Working capital management efficiency is vital especially for manufacturing firms, where a major part of assets is composed of current assets (Horne and Wachowitz, 2000). Every organization whether, profit oriented or not, irrespective of size and nature of business requires necessary amount of working capital. Therefore, it is possible to say that working capital can be regarded as life blood of the firm and its efficient management can ensure the success and the sustainability of the firm while its inefficient management may lead the firm into a pitfall.

2. RESEARCH PROBLEM

Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004). Working capital management is one of the most important areas while making the liquidity and profitability comparisons among firms (Eljelly, 2004), involving the decision of the amount and composition of current assets and the financing of these assets. Shin and Soenen (1998) argued that, efficient working capital management is very important to create value for the shareholders while Smith et al. (2007) emphasized that profitability and liquidity are the salient goals of working capital management. In order to sustain the business, it is essential for any organization to successfully manage its working capital. Keeping in view the realistic importance of working capital management, an attempt is made to examine the working capital management of listed manufacturing firms in Sri Lanka.

3. OBJECTIVES

The objectives are geared towards the following:

- * To identify the nature and extent of the relationship between working capital management and profitability.
- * To find out the impact of variables of working capital management on firm profitability.
- * To provide appropriate management policy recommendations.

4. REVIEW OF LITERATURE

Many researchers have studied working capital management from different views in different economies. Some of which are found to be very interesting and useful for my present study. The essence of those literatures is mentioned here under.

Deloof (2003) investigated the relationship between working capital management and firm profitability by using Cash Conversion Cycle (CCC) as a measure of working capital management. He found a negative relation between gross operating income and receivables collection period, inventory turnover period and creditors' payment period by using a sample of 1009 large Belgian non-financial firms for the period of 1992 to 1996.

Afza and Nazir (2007) through cross-sectional regression models on working capital policies and profitability and risk of the firms, found a negative relationship between the profitability measures of firms and degree of aggressiveness on working capital investment and financing policies. Their result indicates that, the firms yield negative returns if they follow an aggressive working capital policy by investigating the relative relationship between the aggressive or conservative working capital policies for 208 public limited companies listed at Karachi Stock Exchange (KSE) for a period of 1998 to 2005.

Velnamby, T. (2006) in his study of investment appraisal and profitability of toddy bottling project in Sri Lanka found that, the management of the project failed to achieve the budgetary results. Even though, the Net Present Value (NPV), Internal Rate of Return (IRR) and benefit cost ratio shows the project as worthwhile. Another study has been done by Velnamby, T. in the same discipline.

To determine the effect of working capital management on the net operating profitability and liquidity, Raheman and Nasr selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6 years. Average collection period, inventory turnover in days, average payment period, cash conversion cycle, current ratio, debt ratio, size of the firm and financial assets to total assets ratio are the selected independent variables and net operating profit is the dependent variable used in their analysis. They found that, there is a strong negative relationship between variables of working capital management and profitability of the firms. Their study also demonstrates a considerable negative relationship between liquidity and profitability and positive relationship exists between size of the firm and its profitability. Furthermore, there is a significant negative relationship between debt used by the firm and its profitability.

Velnamby, T. (2006) examined the financial position of the companies and the relationship between financial position and profitability with the sample of 25 public quoted companies in Sri Lanka by using the Altman Original Bankruptcy Forecasting Model. His findings suggest that, out of 25 companies only 4 companies are in the condition of going to bankrupt in the near future. He also found that, earning/total assets ratio, market value of total equity/book value of debt ratio and sales/total assets in times are the most significant ratios in determining the financial position of the quoted companies.

Padachi (2006) examined the trends in working capital management and its impact on firm's performance. The results proved that a high investment in inventories and receivables is associated with lower profitability. Further, he showed that inventory days and cash conversion cycle had positive relation with profitability. On the other hand, account receivables days and accounts payable days correlated negatively with profitability.

A study on value added, productivity and performance of few selected companies in Sri Lanka with the sample of 15 financial companies listed under the Colombo Stock Exchange (CSE) reveals that, profit before tax per employee and value added per rupee of fixed asset is positively correlated and labour cost to sales and gross profit is also positively correlated. Further the labour cost to value added is correlated with gross profit and value added per rupee of fixed asset and no relationship was found between the rest of the productivity and performance measures (Velnamby, 2011).

Velnamby, T. and Nireesh, J.A. (2012) investigated the association between capital structure and profitability of listed Sri Lankan banks over the period of 8 years from 2002 to 2009. Results of their analysis show that, there is a negative association between capital structure and profitability except the association between debt to equity and return on equity.

Samiloglu and Demirgunes (2008) analyzed the effect of working capital management on firm profitability in Turkey for a period of 1998-2007. Empirical results showed that, accounts receivables period, inventory turnover period and leverage significantly and negatively affect profitability. They also proved that cash conversion cycle, size and fixed financial assets had no statistically significant effect on profitability.

5. CONCEPTUALIZATION

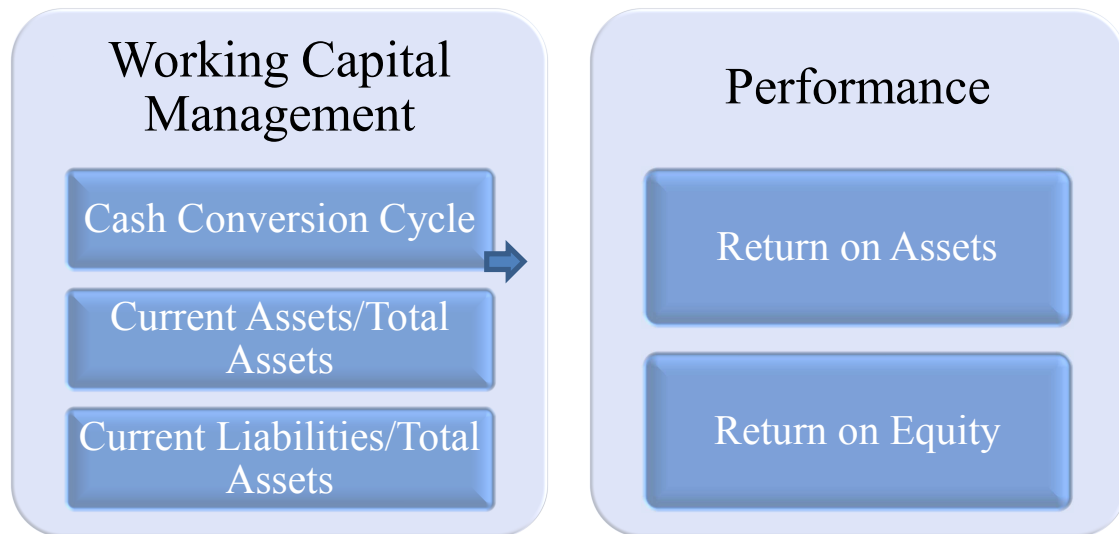


Figure 1: Conceptualization Model

6. HYPOTHESES OF THE STUDY

The following hypotheses were formulated for the study.

H0:- There is no significant relationship between cash conversion cycle and performance measures.

H1:- There is a significant negative relationship between cash conversion cycle and performance measures.

7. METHODOLOGY

7.1 Data Source & Sampling Design

The data used in the present study was acquired from the balance sheets and income statements of the sample manufacturing firms. In addition to this, scholarly articles from academic journals and relevant text books were also used. The sample of this study is confined to the manufacturing sector consists of 30 manufacturing firms out of 39 listed in the Colombo Stock Exchange (CSE). This represents 78% of the firms listed under the manufacturing sector.

7.2 Mode of Analysis

The quantitative research approach is employed to arrive at the findings of the study. Correlation and regression analysis are used in the study to identify the nature and extent of relationship and to find out the impact of working capital management variables on performance measures.

7.3 Research Model

Simple linear regression model is formed to find out the effects of working capital management variables on performance measures for the selected manufacturing firms. The regression model will be formulated in the following manner;

$$Y = \alpha + \beta X$$

Where Y is the dependent variable, α is an intercept and β is the co-efficient of the independent variable. By substituting both dependent and independent variables in the above model, the following models can be formed;

$$\left. \begin{array}{l} ROA = \alpha + \beta_1 CCC \\ ROA = \alpha + \beta_1 CATA \\ ROA = \alpha + \beta_1 CLTA \end{array} \right\} \text{Model I}$$

$$\left. \begin{array}{l} ROE = \alpha + \beta_1 CCC \\ ROE = \alpha + \beta_1 CATA \\ ROE = \alpha + \beta_1 CLTA \end{array} \right\} \text{Model II}$$

Where;

ROA = Return on Assets

ROE = Return on Equity

CCC = Cash Conversion Cycle

CATA = Current Assets/Total Assets

CLTA = Current Liabilities/Total Assets

8. RESULTS & ANALYSIS

8.1 Correlation Analysis

Table 1: Correlation Matrix

Variables	CCC	CATA	CLTA	ROA	ROE
CCC	1				
CATA	0.190 (0.316)	1			
CLTA	-0.378** (0.039)	0.371* (0.044)	1		
ROA	-0.143 (0.451)	0.217 (0.250)	-0.181 (0.339)	1	
ROE	-0.237 (0.208)	0.031 (0.871)	0.049 (0.798)	0.630** (0.000)	1

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

The table mentioned above displays the correlation values between the working capital management variables and the firm's performance variables. The ROE is positively correlated with CATA and CLTA. The positive correlation between

CATA and CLTA ($R=0.371^*$) indicates that if more current assets are used to finance the total assets it will have a positive impact on ROE. ROA and ROE are positively correlated with CATA consisting the R values of 0.217 and 0.031 respectively. This reveals that, current assets are kept by the selected manufacturing firms in relation to the total assets putting the firms in conservative position. Furthermore, CCC is negatively correlated with ROA and ROE consisting the R values of -0.143 and -0.237 respectively. But, the association is found to be insignificant implying that, there is no significant relationship between CCC and performance measures used in the study. Hence, null hypothesis is accepted and research hypothesis is rejected.

8.2 Regression Analysis

Table 2: Predictors of Performance - Model Summary I

Model	Dependent Variable	R	R ²	Adjusted R Square	Std.Error of the Estimate
1	ROA	0.143	0.020	-0.014	11.290
2	ROE	0.237	0.056	0.022	19.936

a. Predictors: (Constant), CCC

The R² values of 0.02 and 0.056 which are in the above mentioned table denotes that only 2% and 6% of the observed variability in Return on Assets (ROA) and Return on Equity (ROE) is explained by the variability in the independent variable of Cash Conversion Cycle (CCC). This reveals that, CCC is not the determining factor of profitability of manufacturing firms in Sri Lanka.

Table 3: Predictors of Performance - Model Summary II

Model	Dependent Variable	R	R ²	Adjusted R Square	Std.Error of the Estimate
1	ROA	0.217	0.047	0.013	11.137
2	ROE	0.031	0.001	-0.035	20.510

a. Predictors: (Constant), CATA

The table 3 shows that the composition of Current Assets to Total Assets (CATA) exerts a very little impact on the dependent variables of Return on Assets (ROA) and Return on Equity (ROE). This reveals that, other factors are probably found to be better predictors of performance.

Table 4: Predictors of Performance - Model Summary III

Model	Dependent Variable	R	R ²	Adjusted R Square	Std.Error of the Estimate
1	ROA	0.181	0.033	-0.002	11.220
2	ROE	0.049	0.002	-0.033	20.495

a. Predictors: (Constant), CLTA

The R² values which are mentioned in the table 4 reveal that only 3% and 0.2% variations in Return on Assets (ROA) and Return on Equity (ROE) are explained by the variations in Current Liabilities to Total Assets (CLTA). The remaining 97% and 99.8% is influenced by factors other than CLTA. Those are not described in my study. Because, that is beyond the scope of my study.

Table 5: Co-efficient for predictors of Performance

Models	Un Standardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std.Error	Beta		
1 - ROA					
Constant	10.084	2.436		4.139	0.000
CCC	-0.006	0.008	-0.143	-0.765	0.451
Constant	3.495	5.181		0.675	0.505
CATA	11.399	9.708	0.217	1.174	0.250
Constant	12.038	3.658		3.291	0.003
CLTA	-8.051	8.275	-0.181	-0.973	0.339
2 - ROE					
Constant	10.585	4.302		2.460	0.020
CCC	-0.019	0.015	-0.237	-1.290	0.208
Constant	6.190	9.541		0.649	0.522
CATA	2.927	17.880	0.031	0.164	0.871
Constant	6.195	6.682		0.927	0.362
CLTA	3.910	15.116	0.049	0.259	0.798

From the table 5, the regression coefficients of Cash Conversion Cycle (CCC) relating to Return on Assets (ROA) and Return on Equity (ROE) are -0.006 and -0.019 respectively. Thus, confirms negative relationship between Cash Conversion Cycle (CCC) and performance measures. The implication of this is that, a firm with a relatively shorter Cash Conversion Cycle (CCC) is more profitable. However, this coefficient exhibits a non-significant relationship.

To check the working capital investment and financing policy, two variables as Current Assets to Total Assets (CATA) and Current Liabilities to Total Assets (CLTA) are used in the regression. The first variable CATA shows positive association with the performance measures. On the other hand, CLTA ratio shows negative relationship with ROA and positive relationship with ROE consisting the coefficient values of -8.05 and 3.91 respectively.

8.3 Hypotheses Testing

No	Hypotheses	Results	Tools
H0	There is no significant relationship between cash conversion cycle and performance measures.	Accepted	Correlation
H1	There is a significant negative relationship between cash conversion cycle and performance measures.	Rejected	Correlation

9. CONCLUSION & RECOMMENDATION

This study had investigated the association between working capital management and financial performance through applying on 30 manufacturing firms listed on the Colombo Stock Exchange (CSE) from 2008 to 2011. The study reveals that, there is a negative relationship between cash conversion cycle and performance measures. The study recommends the manufacturing firms to manage their working capital efficiently to achieve optimal profitability. This can be achieved by improving the inventory control process, collecting receivables in line with the agreed credit terms and by delaying payments to suppliers. All these will lead to shorten the cash conversion cycle resulting to an increase in profitability.

The current assets to total assets ratio shows a weak positive association with the performance measures of return on assets and return on equity used in the study. This reveals that, manufacturing firms in Sri Lanka follow conservative policy. Which is contrary to the traditional belief, more investment in current assets (conservative policy) might also increase profitability. When high inventory is maintained, it reduces the cost of interruptions in the production process, decrease in supply cost, protection against price fluctuation and loss of business due to scarcity of products (Blinder and Maccini, 1991).

10. LIMITATIONS & SCOPE OF FUTURE RESEARCH

The study utilized 30 listed manufacturing firms in Sri Lanka for the period of 4 years from 2008 to 2011. Furthermore, findings and conclusions were drawn with the help of secondary data.

Findings reveal that, there is no significant relationship between cash conversion cycle and performance measures used in the study. The R^2 values reveal that the variables of working capital management have a very little impact on return on assets as well as return on equity. This reveals that, other factors are probably found to be better predictors of performance. Capital structure patterns, firm size, credit policy, financial leverage, sales growth, technological changes and seasonal changes in demand may exert a greater influence on the performance measures, which are not taken into consideration in the present study. Hence, there is a need for further empirical studies that can help to identify the factors those determine the financial performance of manufacturing firms in Sri Lanka.

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