

Working Capital Management and Firms' Profitability: The Listed Companies in Sri Lankan Context

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Abstract:

Difference between current assets and current liabilities is known as working capital. It is necessary for every business to have enough amounts of liquidity to carry out their day-to-day operations without any obstacles. The main objective of the working capital management is to maintain the balance between current assets and current liabilities. This study examined the relationship between working capital management and firms' profitability. Working capital management was measured with cash conversion cycle and liquidity level of working capital was indicated by current ratio and quick ratio. The control variables like; current assets to total assets, current liabilities to total assets, gearing ratio and firm size (measured in terms of natural logarithm of sales) were used for measuring the working capital management. The profitability was determined in terms of return on total assets. The empirical relationship of the variables in this study was found with the panel data analysis of 20 listed companies in Sri Lanka: Evidence from standard and poor's index companies for a period from 2011 to 2015. Descriptive Statistics, Pearson's Correlation, Regression Analysis were used for analyzing the data. The result of this study reveals that, cash conversion cycle as a component of working capital management has a significant negative effect on profitability of listed companies in Sri Lanka. It concluded the listed companies in Sri Lanka have to decrease period of cash conversion cycle other than considering the current ratio and quick ratio to improve the company's profitability in the form of increasing its profit generation to enhance shareholders wealth.

Key words: Profitability, Working Capital Management, Cash Conversion Cycle, Current ratio, Quick ratio, Return on Total Assets.

I. INTRODUCTION

Decision relating to working capital including cash, account receivable and inventory and short-term financing is referred to as working capital management. Usually the working capital is needed to strengthen the solvency, enhance goodwill, obtain loan easily, supply the raw material regularly and face business crises in emergencies such as depression. Efficient working capital management involves planning and control of current assets and current liabilities in a manner to strike a balance between liquidity and profitability. Goal of effective working capital management is to ensure that a company has adequate ready access to the funds necessary for day-to-day operating expenses and involves managing the relationship between a firm's short-term assets and its short-term liabilities.

Working capital management has an important role in every organization. Various tools, approaches and techniques have been created in the past to maintain the optimal balance between current assets and current liabilities. Working capital management is a simple and straightforward concept of ensuring the ability of the firm to fund the difference between the short term assets and short term liabilities [2]. Shortage of funds for working capital as well as the uncontrolled over-expansion has caused many businesses to fail and in less severe cases, has stunted their growth [16].

The main aim of any firm is to maximize shareholders wealth and a firm with maximizing its profit can achieve it. The importance of WCM towards firm's profitability was considered as a traditional concept [15]. If an organization invests more in current assets, Revenue of such funds can be invested in valuecreating profitable projects; therefore it leads to increase the firm's growth opportunities and shareholders wealth. However, management may also face liquidity problems due to underinvestment in working capital. The ability of financial managers to manage their receivables, inventories, and payables effectively and efficiently has a significant impact on the success of the business and on profitability as well [5].

Several researches have been conducted on working capital management of manufacturing companies in various countries, but this study proves that the working capital management is more important not only in the manufacturing companies but also for every type of companies. Therefore, standard and poor's index companies have been selected as sample of this research. It includes various sectors of companies such as bank finance and insurance, hotels and travels, health care, manufacturing, telecommunication and construction and engineering. The S & P Sri Lanka 20 seeks to be comprised of liquid and tradable stocks for easy and cost effective replication as trading instruments. Index constituents are the 20 largest blue chip companies chosen from the universe of all stocks listed on Colombo stock exchange in Sri Lanka (CSE website).

II. LITERATURE REVIEW

In order to investigate various concept regarding working capital management and profitability, many researchers have conducted studies in different views.

Sharaf&Haddad (2015) investigated the relationship between Working Capital Management and Profitability for Industrial Companies Listed in Amman Stock Exchange. The results of regression analysis show a significant negative relationship between cash conversion cycle and profitability. Nguyen , Manh-Dung&Duc-Trung (2016) examined effect of working capital management has on firms' profitability by using the data from listed companies on Vietnamese Stock Exchange. The result implies that there is no correlation between Working Capital Management and firms' profitability.

The relationship of cash conversion cycle with firm size and profitability for firms listed at Istanbul stock exchange was studied by Uyar (2009) using ANOVA and correlation analysis. The results shows retail/wholesale industry has shorter cash conversion cycle (CCC) than manufacturing industries. Gambo&Abdulkarimibn (2016) recommended with their study that management of Food and Beverages companies in Nigeria should decrease period involved in their cash conversion cycle as it will lead to improving the company's performance in the form of increasing its profit generation and make available a free Cash flow to be distribute to shareholders at the end of company's accounting period.

Nimalathanan (2010) examined the Working capital management and its impact on profitability of listed manufacturing companies in Sri Lanka from 2003 to 2007. The results suggest that managers can increase profitability of manufacturing firms by reducing the number of day's inventories and accounts receivable. Yasithamal(2015) have conducted the research to find out effect of working capital management on the profitability of Sri Lankan small and medium sized enterprises. The empirical findings provide evidence that there is a negative linear relationship between the profitability, measured by the return on assets ratio (ROA), and the working capital management (WCM).

Lingesiya&Nalini(2011) analyzed the relationship between Working Capital Management and Firms' Performance using panel data from Sri Lankan Manufacturing Companies. Results indicate that high investment in inventories and receivables lead to lower profitability, and current assets to total assets lead to higher profitability. Jayarathne (2014) studied Impact of Working Capital Management on Profitability using the panel data from listed Companies in Sri Lanka from 2008 to 2012. The findings suggest that the profitability is negatively associated with the account receivable period, inventory turnover period, and cash conversion cycle. Further, it was found that the profitability is positively associated with account payable period. Moreover, the evidence suggests that increase in leverage leads to decline profitability. Therefore, he concluded that manufacturing companies can boost their performance in terms of profitability by managing working capital appropriately.

According to the Balasundaram(2010) work, the managers can increase profitability of manufacturing firms by reducing the number of day's inventories and accounts receivable. Kasirana, Noredi and Othman (2015) have done the research to identify working capital management efficiency of the small medium enterprise in Malaysia. In analyzing the efficiency of working capital management three indexes were used in the study namely, performance index of working capital management (PIWCM), utilization index of working capital management (UIWCM), and efficiency index of working capital management (EIWCM). The results reveal that the selected small medium enterprise company was less efficient in managing their working capital during such study period.

Chowdhury and Amin (2007) stated that inefficient working capital management not only reduces the profitability of business but also ultimately lead to financial crises with their study. Muhammad and Syed (2011) investigated the impact of working Capital Management on firms' performance for non-financial institutions listed in Karachi Stock Exchange (KSE-30) Index. A panel data of 21 firms listed in KSE-30 Index for a period of years 2001 to 2010 was analyzed. Results were obtained using canonical correlation analysis for identifying the relationship between working capital management and firms' performance. The findings show that working capital management has a significant positive impact on firms' performance. They concluded that managers can increase value of shareholder and return on asset by reducing their inventory size, cash conversion cycle and net trading cycle. Yogendrarajah&Sankeetha (2011) studied working capital management and its impact on financial performance: An analysis of trading firms in Sri Lanka with panel data analysis. It concluded that the high investment in inventories and receivables is associated with lower financial performance (ROA).

Koperunthevi (2010) has done research on Working Capital Management and Firms' Performance of Sri Lankan Manufacturing Companies using panel data analysis. The study concluded that the working capital management very much influences on profitability of manufacturing companies and increase of the cash conversion cycle leads to less profitability. Current ratio and Quick ratio are positively related to the profitability.

III. RESEARCH PROBLEM

More number of studies has been conducted in Sri Lankan economy on working capital management and firm profitability of manufacturing companies. However, no study has been done on the standards and poor's index companies listed in Colombo stock exchange in Sri Lanka and this is another contribution to fill the research gap in the working capital management and profitability of standard and poor's index companies in Sri Lanka using more recent data as well. Thus, the problem statement to be analyzed in this study as the following research question.

“To what extent the working capital management impacts on profitability of listed companies in Sri Lanka?”

IV. OBJECTIVE OF THE STUDY

To analyze the problem statement as mentioned above, I have developed objectives of this research. The main aim of this study is to examine the relationship between working capital management and firms' profitability and the other objective is to find out the degree of impact of working capital management on firms' profitability of listed companies in Sri Lanka.

V. RESEARCH HYPOTHESES

Working capital management has to be a significant aspect of every enterprise as it is to maximize the profit and smooth run of the business. Efficient working capital management is necessary for achieving both liquidity and profitability of a company. A poor and inefficient working capital management leads to tying up funds in idle assets and reduces the liquidity and profitability of a company. For this reason, working capital management should give proper consideration and will ultimately affect the profitability of the firm. In this aspect the hypotheses of this study are:

H₁: There is a significance relationship between working capital management and firms' profitability.

H₂: Working capital management has a strong impact on firms' profitability.

VI. METHODOLOGY

This study analyses the relationship between working capital management and firms' profitability with special reference to Standard and poor's index companies in Sri Lanka with the period of five years from 2011 to 2015.

A. Population and Sample

The relevant data were collected from listed firms in the Colombo Stock Exchange. There are 294 listed companies in CSE as at 31.12.2015, but only 20 standard and poor's companies have been selected as sample to represent the whole listed companies in Colombo stock exchange. The purpose that I have chosen this market is due to the reliability of the financial statements. Required information to measure the working capital and profitability is gathered from each selected sample.

B. Variables

The relationship between working capital management and profitability can be established by analyzing the explanatory variables and control variables.

C. Explanatory Variable

Cash conversion cycle (CCC) and liquidity ratios such as current ratio (CR) and quick ratio (QR) were used to examine the working capital management. Profitability is measured in terms of return on total assets (ROTA), which defined as profit before interest and tax divided by total assets.

D. Control Variable

The firm size, a proxy for size (the natural logarithm of sales – (INSALES)), the gearing ratio (financial debt to total assets – (GEAR)), current assets to total assets (CA_TA) and current liability to total assets (CL_TA) act as control variables.

E. Model specification and data analysis

In order to identify the relationship between dependent and independent variables, Pearson's correlation coefficients is calculated. Then the impact of working capital management on firms' profitability of listed companies in Sri Lanka is analyzed using the panel data of standard and poor's index companies. Consistent with previous studies (Deloof 2003 and Padachi 2006). The effects of working capital management on the firm's profitability are modeled using the following regression equations to obtain the estimates:

$$\text{Model (1): } ROTA = \beta_0 + \beta_1 \ln sales_{it} + \beta_2 gear_{it} + \beta_3 cata_{it} + \beta_4 clta_{it} + \beta_5 ccc_{it}$$

$$\text{Model (2): } ROTA = \beta_0 + \beta_1 \ln sales_{it} + \beta_2 gear_{it} + \beta_3 cata_{it} + \beta_4 clta_{it} + \beta_5 cr_{it}$$

$$\text{Model (3): } ROTA = \beta_0 + \beta_1 \ln sales_{it} + \beta_2 gear_{it} + \beta_3 cata_{it} + \beta_4 clta_{it} + \beta_5 qr_{it}$$

$$CCC = INP_days + AR_days - AP_days$$

Where: INP_days = Number of inventory days is (Stock *365)/cost of sales

AR_days = Number of days account receivables is (Account receivable *365)/ Sales

AP_days = Number of days account payable is (Account payable *365)/ cost of sales

VII. RESULTS AND DISCUSSION

A. Descriptive Statistics

The Table 1 shows summarized descriptive statistics for dependent and independent variables as working capital management and profitability respectively. It presents the result for 20 standard and poor's index companies in Sri Lanka for a period of five years from 2011 to 2015, which has a 100 observations for analysis.

I. Descriptive Statistics

Variables statistics	Mean	Std. Deviation
CCC	32.25366	27.39567
CR	1.33966	0.88272
QR	0.95470	0.58934
INSALES	10.34852	0.38001
GEAR	0.13925	0.28909
CA_TA	0.45678	0.29719
CL_TA	0.39179	0.25968
ROTA	0.27933	0.30312

According to the Table 1, the average profit of the firms as indicated by ROTA is 27.93% (Mean 0.27933). The standard deviation of ROTA is indicated as 30.31%, which means that the value of ROTA deviates by 30.3% from mean. Mean value of cash conversion cycle is 32.25 days. That is around one month period but it is deviated 27.39 days from average. Therefore, the listed companies have to reduce the standard deviation to minimize the risk. Average of liquidity ratios such as current ratio and quick ratio are 1.33 and 0.95 respectively while standard deviation of current ratio and quick ratio is 0.88 and 0.58 respectively.

B. Pearson’s Correlation Analysis

Pearson’s Correlation analysis is conducted to identify the relationship between the independent and dependent variables such as the working capital management components and control variables together towards the profitability.

II. Pearson’s Correlation Matrix

	CCC	CR	QR	INSALES	GEAR	CA_TA	CL_TA	ROTA
CCC	1							
CR	.253	1						
QR	.353**	.891**	1					
INSALES	-.023	-.195	-.211	1				
GEAR	.087	-.141	-.193	-.337**	1			
CA_TA	-.024	.359**	.286*	.133	.214	1		
CL_TA	-.280*	-.304*	-.400**	.404**	.274*	.710**	1	
ROTA	-.292*	.464	.784	.186	.223	.651**	.711**	1

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

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

The above Table – 2 reveals that the relationship between components of working capital management and profitability. According to the result cash conversion cycle (CCC) that is used as a comprehensive measure of working capital management has a negative correlation with the Return on Total assets (ROTA) with coefficient of 0.292. Similar result was found in the study conducted by Hailu and Venkateswarlu (2016). It also shows a significant at level 5%. It recommends that if a firm reduces the CCC, it can enhance the profitability of the firm. Based on the research result it can be concluded that companies have to deal with problems of management of receivables, payables and inventory seriously because they have an more impact upon profitability. The strongest correlation has been observed, in this analysis, between ROTA and QR (r=0.784). Current ratio and quick ratio are positively correlated with the Return on Total Assets (ROTA), But those are not significant. Current assets to total assets and current liability to total assets are significantly correlated with the Return on Total Assets (ROTA). Gearing ratio and firm size have the positive relationship but are not significantly correlated to the Return on Total Assets (ROTA). Thus, Hypotheses 1 is accepted as there is a significant relationship between working capital management and firms’ profitability.

C. Regression Analysis

The regression analysis has been done to measure the relationship between identified variables and to identify the degree of impact of independent variable as working capital management (ccc, cr and qr) on dependent variable as profitability (ROTA).

III. Result of Model (1): $ROTA = \beta_0 + \beta_1 \lnsales_{it} + \beta_2 gear_{it} + \beta_3 cata_{it} + \beta_4 clta_{it} + \beta_5 ccc_{it}$
 Dependent Variable : Return on Asset (ROA)

Variable	Coefficient	Std. Error	t – Statistic	Prob.
(Constant)	0.166	0.745	0.222	0.825
CA_TA	0.918	0.140	6.577	0.003
CL_TA	0.052	0.009	0.026	0.046
INSALES	0.027	0.073	0.377	0.708
GEAR	-0.067	0.086	-0.776	0.441
CCC	-0.002	0.001	-2.024	0.048
R-squared		0.466		
Adjusted R-squared		0.444		
F-statistic		7.629		

Table – 3 provides the result of regression analysis for Model 1. It expresses that the cash conversion cycle is negatively related and significant at 5% level, which means increases of cash conversion cycle will significantly affect the ROTA of the firm. Other control variables than the gearing ratio have positive effect on profitability. Current assets to total assets and current liability to current assets related significantly at 5%. The R² of this model is 0.466 which means there is 46% impact of cash conversion cycle on profitability. Hypotheses 2 is accepted as Working capital management has a strong impact on firms’ profitability. The model represents by regression F value and significant F = 7.629 and p = 0.0000. This findings are match with Uyar (2009) , Shin & Soeven (1998) and Athambawa Jahfer (2015)

IV. Result of Model (2): $ROTA = \beta_0 + \beta_1 \text{Insales}_{it} + \beta_2 \text{gear}_{it} + \beta_3 \text{cata}_{it} + \beta_4 \text{clta}_{it} + \beta_5 \text{cr}_{it}$

Dependent Variable : Return on Total Asset (ROTA)

Variable	Coefficient	Std. Error	t – Statistic	Prob.
(Constant)	-0.375	0.732	-0.513	0.610
CA_TA	0.832	0.202	4.109	0.001
CL_TA	0.098	0.243	0.402	0.089
INSALES	0.027	0.073	0.367	0.715
GEAR	0.025	0.087	0.289	0.774
CR	0.032	0.049	0.651	0.018
R-squared		0.250		
Adjusted R-squared		0.227		
F-statistic		9.843		

According to the table – 4 of the model 2, the regression result of current ratio is positively related to profitability with significant at the level of 5%. Current assets to total assets, Current liability to total assets, firm size and gearing of the firm are also positively related to the Return on Total Assets, But Only the current assets to total assets is significantly related to the profitability at 5% level. The adjusted R² of the regression is 0.227 and F value is 9.843 with significance level (p = 0.0000). R² indicates that 25% changes of profitability will be occurred with the changes of current ratio. This result is consisted with the study of Bardia (2004), Koperunthevi (2010) and Lingesiya & Nalini (2011)

v. Result of Model (3): $ROTA = \beta_0 + \beta_1 \text{Insales}_{it} + \beta_2 \text{gear}_{it} + \beta_3 \text{cata}_{it} + \beta_4 \text{clta}_{it} + \beta_5 \text{qr}_{it}$

Dependent Variable : Return on Total Asset (ROTA)

Variable	Coefficient	Std. Error	t – Statistic	Prob.
(Constant)	-0.566	0.693	-0.817	0.418
CA_TA	1.229	0.216	5.702	0.000
CL_TA	-0.403	0.272	-1.486	0.043
INSALES	0.063	0.070	0.901	0.372
GEAR	0.006	0.082	0.073	0.942
QR	0.216	0.082	2.650	0.011
R-squared		0.377		
Adjusted R-squared		0.356		
F-statistic		7.762		

According to the table 5, Model 3 stated that there is a positive relationship between quick ratio and return on total assets significantly at level 5%. Size and gearing of the firm are also positively related but not significantly related to the profitability. Current liabilities to total assets have significant negative impact on the Return on Total Assets. Current assets to the total assets have significant positive impact on the profitability of the firm. R² of the model is 0.377, which shows that Quick ratio impacts on profitability at 37% and another 63% change of profitability is depending on the changes of other variables. This finding is related with the results of Hina Agha (2014) and Bardia (2004).

VIII. CONCLUSION AND RECOMMENDATIONS

This study investigates the impact of working capital management on profitability of listed companies in the Colombo stock market in Sri Lanka for the period from 2011 to 2015. It has been analyzed using five years data of 20 standard and poor's index companies taken as sample of the study. Working capital management were measured using cash conversion cycle, current ratio and quick ratio. Return on Total Assets was used to measure the profitability of the firm. This paper adds further results to previous literature such as Hina Agha (2014), Koperunthevi (2010) and Lingesiya & Nalini (2011) who have found the negative significant impact of cash conversion cycle on firm's profitability.

The study found that there is a negative significant relationship between cash conversion cycle (CCC) and Return on Total Assets (ROTA) and positive significant impact current ratio and quick ratio on the Return on Total Assets. It concluded that cash conversion cycle has more impact on profitability than the current ratio and quick ratio. Therefore, the financial managers of listed companies can try to reduce the days in cash conversion cycle to achieve the main objective of the organization as maximization of the shareholders' wealth by maximizing the profitability of the listed companies in Sri Lanka.

Further research is expected to describe the variable effecting profitability of the firm because there may be some more variable, which can have more effect on profitability of the business than cash conversion cycle, current ratio and quick ratio.

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