

An Empirical Study on Relationship between Working Capital Management and Profitability of Listed Manufacturing Companies in Sri Lanka

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Abstract

Efficient working capital management is an important component of financial management. Therefore, this study investigates the relationship between working capital management and the profitability of manufacturing listed companies in the Colombo Stock Exchanges in Sri Lanka during the period of 2009 - 2013. For this study a sample of 29 manufacturing listed companies were taken from the Colombo Stock Exchanges. Cash Conversion Cycle (CCC) was used as a comprehensive measure for working capital management. Average collection period, Average inventory period and Average payable period were taken as indicators for CCC, and Return on Assets (ROA) was taken as an indicator for the profitability of the companies. Correlations and regression analysis were used to analyze the data. The result revealed that CCC has a positive significant relationship with ROA. Therefore the researchers conclude that Working Capital management (WCM) has a positive significant relationship with profitability of listed manufacturing companies in Sri Lanka.

Keywords: working capital, profitability, cash conversion cycle

Introduction

In the modern industrial world the efficient working capital management is very important for the survival and growth of the business because it affects profitability of firm, its risk and its value (Smith, 1980). It deals with current assets and current liabilities. The net working capital is refers to the different between current assets and current liabilities. In means efficient management of working capital is an important component of the general strategy aiming at increasing the market value (Howorth & Westhead, 2003; Deloof, 2003; Afza & Nazir, 2007). Filbeck & Krueger (2005) indicated that success of a firm mainly depends on efficient management of receivable, inventories and liabilities. Further they indicated that the decision making related to working capital requires a wide knowledge of financial management technique. Most of the financial managers' time and efforts are devoted to working capital management.

Nowadays some businesses fail to concentrate on the efficient working capital management to develop their business. If there is no proper working capital management planning, the firm will face the many problems in day to day operations. In the working capital management receivables, payables, inventories and cash are the major influencing factors. It can be expected that the way in which working capital is managed will have a significant impact on the profitability of firms. Van-Horne & Wachowicz (2004) pointed out firms with too few current assets may incur shortages and difficulties in maintaining smooth operations. Efficient working capital management involves planning and controlling the current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations and avoid excessive investment in these assets (Eljelly, 2004).

Research Problem and Research Question

Financial function has a significant role other than other functions in the organization. So the firms have to balance the optimum level of current assets and liabilities. The two important aims of working capital management are profitability and solvency. Many researchers have conducted on working capital management and profitability in Sri Lanka and other countries. Some researchers found that there was a negative relationship between working capital management and profitability (Vijaykumar and Venkatachalam ,(1995); Napompech, (2012); Mahammed & Noriza, (2010); Farzinfar & Arani, (2012) and Barine, (2012) While Aloy Niresh found that there is no relationship between CCC and profitability but some researchers found that there is a strong relationship between WCM and profitability of companies (Appuhami (2008); Alipor,(2011); Amir Shah & Aisha Sana, (2006); Padachi, (2006). Further Asghar Ali & Syed Atif Ali (2012); Bana Abuzayed (2012) found that there was a positive relationship between working capital management and profitability. In this scenario the researcher developed a research question as Does working capital management has a relationship with profitability of listed companies in Sri Lanka?

Objectives of the Study

Based on the above research question, researchers formulated the following research objectives.

- To identify the relationship between working capital management and profitability on manufacturing companies in Sri Lanka.
- To find out the impact of variables of working capital management on profitability.

Significance of the Study

Working capital is managed has a significant impact on profitability of firms (Azam & Haider, 2011). Any firm is to maximize their profit; preserving liquidity is equally an important objective. The problem is that increases in profits at the cost of liquidity can bring serious problems to a firm and therefore, there must be a trade-off between these two objectives. If a firm does not care about profit, it cannot survive for a longer period. On the other hand, a firm that neglects liquidity faces the problem of insolvency. For these reasons, working capital management should be given proper consideration; else it will ultimately affect the profitability of a firm (Pandy, 1999 and 2010). Harris (2005) pointed out that the working capital management play key role in the corporate finance because it directly affect

the earnings, and liquidity and it is simple and a straight forward concept of ensuring the ability of the organization to fund the difference between the short term assets and short term liabilities. Working capital management is significant due to the fact that it plays a vital role in keeping the wheels of the business running (Lawrence & Charles, 1985).

The Sri Lanka's economy has developed with ending of the conflict and it enhances the investors' confidence following the favorable post conflict development. The manufactures have taken timely measure to safeguard and promote the industry in the current economic condition. Manufacturing, the large sub-sector of the industry sector recorded a significant growth to economy. Therefore, in this research, specially manufacturing companies were taken into consideration since those are playing very important role in the Sri Lankan economy in order to enhance the economic growth. In this scenario the researchers interested to study the relationship between working capital management and profitability of listed companies in Sri Lanka.

Review of Literature

Many researchers have studied the relationship between working capital management and profitability because it is an important issue in any organization because without a proper management of working capital components it is difficult for the firms to run its operation smoothly, generally most of the firm keep their attention almost with the short term financing source and specially about their 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 as a youthful area of corporate finance function, an attempt has been made to examine working capital management in manufacturing companies of Sri Lanka. Shin & Soenen (1998) indicated that efficient working capital management is very important to create value for the shareholders. Smith, Meaumont & Begmemann, (1997) emphasized that profitability and liquidity are the most important goals of working capital management. Therefore, many organizations that are profitable on which are forced to cease their operations due to an inability to meet their short-term debt obligations. Raheman and Nasr (2007) pointed out that managers can create value for their shareholders by reducing the number of day's accounts receivable and inventories to a reasonable minimum.

Nimalathan (2010) conducted a research on working capital management and its impact on profitability: A Study of Selected Listed Manufacturing Companies in Sri Lanka during the study period year from 2003 to 2007. The results reveals that cash conversion cycle (CCC) and return on assets (ROA) are negatively correlated. Wasantha & Guneratne (2010) conducted a research on "Working capital management practices of manufacturing sector companies in Sri Lanka: survey evidence" their result revealed that sales growth significantly influences the overall policy in relation to working capital whereas profitability of the company significantly influences the specific working capital policy of the company. Further they suggested that significant number of highly profitable companies follow an aggressive working capital policy and low profitable companies practice conservative and moderate policies in managing their working capital.

Koperunthevi (2010) used panel data to study working capital management and firms' performance of Sri Lankan manufacturing Companies. The findings concluded that the working capital management has more 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. All the above studies provide us a solid base and give us idea regarding working capital management and its components. Further Cash Conversion Cycle and Net Trading Cycle showed significant negative relationship with Return on Assets and Return on Equities showed that firms' performance can be increased with short size of both of them (Azam & Haider, 2011).

Aloy Niresh & Velnampy (2012) investigated the association between working capital management and financial performance through applying on 30 manufacturing firms listed in the Colombo Stock Exchange (CSE) during the period from 2008 to 2011. Their study reveals that, there is a negative relationship between cash conversion cycle and performance.

Asghar Ali & Syed Atif Ali (2012) found that there is a positive impact of working capital management on profitability and 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 and increase in liquidity and time period to supplier will also lead firms' overall performances. Quayyum (2012) investigated "if there is any relationship between working capital management and profitability of manufacturing corporations". For this analysis cement industry, food Industry, pharmaceuticals industry and engineering industry in Dhaka Stock Exchange has been selected during the time period from year 2005 to 2009. His study reveals that the manufacturing firms of Bangladesh have enough scope to better their performance by efficiently managing their working capital.

Methodology

Sample

For the purpose of this study, twenty nine listed manufacturing companies were selected from the Colombo Stock Exchange (CSE) basis on the availability of the required firm-specific data for a consecutive period of five years starting from the financial year 2009 to the financial year 2013. Further companies with any missing observations for any variable in the model during the above range also dropped.

Mode of Analysis

A well know statistical package called "SPSS" (Statistical Package for Social Science) has been used to analyze the data. The upper level of statistical significance for hypotheses testing was set at 5%. All statistical test results were computed at the 2-tailed level of significance.

Model Specifications

Simple and multiple linear regression models were formed to find out the effects of working capital management on profitability for the selected manufacturing firms. The regression model was formulated in the following manner;

Models:

$$Y_{ROA} = \alpha + \beta_1 AIP + \beta_2 ACP + \beta_3 APP + \epsilon \text{ ----- Model 1}$$

$$Y_{ROA} = \alpha + \epsilon \text{ ----- Model 2}$$

Conceptualization

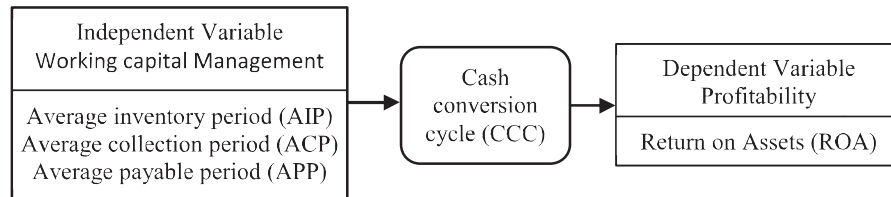


Figure 1. Conceptualization model

Hypotheses

The following hypotheses were formulated for the study:

H₀:- There is no relationship between Cash conversion cycle and Return on Assets.

H_a: - There is a relationship between Cash conversion cycle and Return on Assets.

Operationalization

Table 1: Operationalization

Concept	Variable	Indicator	Measurement
Working capital management	Cash conversion cycle	Average collection period	$ACP = \frac{\text{Average Receivable}}{\text{Credit Sales}} \times 365$
		Average inventory period	$AIP = \frac{\text{Average Inventory}}{\text{Cost of Sales}} \times 365$
		Average payable period	$APP = \frac{\text{Average Payable}}{\text{Credit Purchase}} \times 365$
Financial performance	Profitability	Return on Assets	$ROA = \frac{\text{Profit before interest and tax}}{\text{Total Assets}} \times 100$

In this study, profitability was measured by return on assets, and working capital management was measured by cash conversion cycle. This cash conversion cycle was constructed by combining average collection period, average inventory period and average payable period. Formulas for each variable have been depicted in above table 1.

Analysis

For this study the researchers used correlation coefficient and regression analysis in order to find out the relationship between working capital management and profitability. Further return on assets was used as a dependent variable to measure the profitability while cash conversion cycle used to measure the working capital.

Correlation Analysis

Table 2. Result of Correlation Analysis

	Variable	ACP	AIP	APP	CCC	ROA
ACP	Pearson Correlation	1				
	Sig. (2-tailed)					
AIP	Pearson Correlation	.263**	1			
	Sig. (2-tailed)	.001				
APP	Pearson Correlation	.334**	.386**	1		
	Sig. (2-tailed)	.000	.000			
CCC	Pearson Correlation	.514**	.801**	.046	1	
	Sig. (2-tailed)	.000	.000	.585		
ROA	Pearson Correlation	-.015	.179*	-.069	.168*	1
	Sig. (2-tailed)	.858	.032	.407	.043	

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

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

The above table 2 shows that the relationship between dependent variable and independent variable of companies in term of correlation coefficient. Correlation coefficient of ROA and ACP is -0.015 with a p-value of 0.858 which describes there is no significant relationship between ROA and ACP. The result of correlation analysis of ROA and AIP shows coefficient of correlation 0.179, with p-value of 0.032. It indicates that there is a significant positive relationship between ROA and AIP at 5% significant level. More over Correlation coefficient of ROA and APP is -0.069 with a p-value of 0.407 which describes there is no significant relationship between ROA and APP. Further the result of coefficient of correlation revealed that CCC has a positive significant correlation with ROA with a p-value of 0.043 at 5% level.

Regression Analysis

Simple and multiple linear regression models also were used to analyses the relationship between working capital management and profitability.

Multiple Regressions

Model 1

$$Y_{ROA} = \alpha + 1_{AIP} + 2_{ACP} + 3_{APP} + \epsilon$$

Table 3. Empirical results of dependent variable – ROA

Dependent Variable: ROA	Standardized Coefficients		
	β - value	t	Sig.
(Constant)	.970	1.650	.101
ACP	-.031	-.318	.751
AIP	.372	2.737	.007
APP	-.143	-1.686	.094

Table 3 presents the constant and beta value of model 1. This multiple linear regression equation shows that β equals to -0.031, 0.372, -0.143. That means slope of the regression line, which simply indicates that there is a negative relationship between the ROA and ACP, APP. Meantime AIP has a significant positive relationship with ROA ($p_{(0.007)} < 0.05$). The value of “ α ” is 0.970. It can be derived the regression equation as,

$$ROA = 0.970 - 0.031_{ACP} + 0.372_{AIP} - 0.143_{APP} + \varepsilon$$

ANOVA table of this model indicate that the overall model is significant since the p-value is (0.046) and R^2 is 0.055 indicating the 5.5% of the Return on assets is explained by the given independent variables; average inventory period, average collection period and average payable period. This reveals that, CCC is not the determining factor of profitability of manufacturing firms in Sri Lanka.

Simple Linear Regressions

Model 2

$$Y_{ROA} = \alpha + \beta$$

Table 4. Empirical results of dependent variable

Dependent Variable: ROA	Standardized Coefficients		
	β - value	t	Sig.
(Constant)	0.917	1.605	.111
CCC	0.250	2.042	.043

This table indicates that coefficient of CCC is positive (0.250) significant relationship with ROA ($p_{(0.043)} < 0.05$). and α is 0.917. Therefore the Regression equation has been derived as:

$$Y_{ROA} = 0.917 + 0.250 CCC$$

Hypotheses Testing

H_0 :- There is no relationship between Cash conversion cycle and Return on Asset

H_a :- There is a relationship between Cash conversion cycle and Return on Asset

Table 5. Summarized hypothesis test result

Variables between	Coefficient of Correlation	Alpha Value	Significant value	H_0		H_a	
				Accepted	Rejected	Accepted	Rejected
CCC and ROA	0.250	0.05	0.043	-	✓	✓	-

The table 5 present summarized research hypothesis test result. Using SPSS to analyse the variables CCC and Return on Asset, the relationship between cash conversion cycle return on assets shows that the correlation coefficient (r) = 0.250 at 0.05 level 2 tailed. This value is high, implying that a relationship exist between Cash conversion cycle and Return

on Asset. The significant/ p- value is less than 0.05 ($P0.043 < 0.05$) level of significance, therefore the researchers reject the null hypothesis and accept the alternate and conclude that there is a significant relationship between cash conversion cycle and return on assets.

Conclusion

Most of the Sri Lankan manufacturing firms have large amounts of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. The findings revealed that there is a significant positive relationship between return on assets (ROA) and the average inventory period. Further, found that there is a positive significant relationship between CCC and ROA at 5% significant level. It indicates that there is a positive significant relationship between WCM and Profitability of the Listed Manufacturing companies in Sri Lanka.

Limitations and Further Research

The analysis covers only a period of five years and researcher has selected twenty nine companies from manufacturing sector which are listed in Colombo Stock Exchange in Sri Lanka during the period from 2009-2013. For the results to be more advanced, the future researches can be focused more companies listed from all the sectors in the Colombo stock exchange will have to be included as a sample.

Further capital structure, firm size, credit policy, financial leverage, sales growth, technological changes and seasonal changes in demand may be a greater influence on the profitability of listed manufacturing companies. Those are not described in this present study because, that is beyond the scope of our study. Hence, there is a need for further empirical studies that can help to identify the factors those determine the profitability of manufacturing companies in Sri Lanka. Further fixed effect model (panel data) can be used to analyze the data in further studies.

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