Working Capital Management and Corporate Performance of Listed Manufacturing Companies in Sri Lanka

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Abstract
Working capital management plays a significant role in better performance of manufacturing firms. The researcher attempts to analyze the relationship between Working Capital Management and profitability under the heading of "The impact of working capital management on corporate performance of Listed Manufacturing Companies in Sri Lanka", for the period 5 years from 2008 to 2013. For this purpose, balanced panel data of 36 manufacturing firms, which are listed in Colombo Stock Exchange, are used. The research objectives are to identify the nature and extend of the relationship between working capital management and profitability, to find out the impact of variables of working capital management on corporate profitability. Cash conversion cycle was used as a comprehensive measure for working capital management and net operating profitability was used as a measure of profitability. Multiple linear regression tools were used to find out the relationship between independent and dependent variable in this research. The result of regression analysis found a significant positive relationship between Cash Conversion Cycle and Net Operating Profitability.

Keywords: Working Capital Management, Net Operating Profitability, Cash Conversion Cycle.

Introduction

This paper is aimed at analyzing the relationship between Working Capital Management and profitability. A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Liquidity is a precondition to ensure that firms are able to meet its short-term obligations and its continued flow can be guaranteed from a profitable venture. *Working Capital* is the flow of ready funds necessary for the working of a concern. It comprises funds invested in *Current Assets*, which in the ordinary course of business can be turned into cash within a short period without undergoing diminishing in value and without disruption of the organization. *Current Liabilities* are those which are intended to be paid in the ordinary course of business within a short time. Every company has to make arrangements for adequate funds to meet the day-to-day expenditure apart from investment in *Fixed Assets*.

Manufacturing is the first largest sector of the economy of Sri Lanka. WCM efficiency is vital especially for manufacturing firms, where a major part of asset is composed of current assets (Raheman & Nasr, 2007). Nevertheless, this is not an effortless task because managers must ensure that the firm is running in efficient and profitable manner and there are high possibilities of mismatch of current asset and current liability

during this process. If this happens and firm's manager failed to manage it properly then it will affect firm's growth and profitability that will further escort to financial distress and finally firms can go bankrupt. 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. The greater the relative proportion of liquid assets, the lesser the risk of running out of cash, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play a vital role in the performance of any firm. Shin and Soenen, (1998) argued that efficient working capital management is very important to create value for the shareholders while Smith et.al., (1997) emphasized that profitability and liquidity are the salient goals of working capital management.

Research Problem

The focus of research problem of this study how the working capital management contributes to the performance and the profitability of the listed manufacturing companies in Sri Lanka. There are some researches was conducted in Sri Lanka and foreign countries regarding the effectiveness and the impact of the working capital management, profitability and the liquidity of the manufacturing companies. Profitability has been measured in terms of net operating profitability. The WCM is very important to short term and long-term survival and growth of the business. Now a day some businesses fail to concentrate on the WCM to develop their business. In the firm, if there is no proper WCM planning, the firm will face the many problems in day-to-day operation. In the WCM receivables, payables, inventories and cash are the major influencing factors. These factor determining the profitability, earnings and survival of the companies. There is a conflict between the level of working capital and profitability. To support the same level of output, the firm can have different level of current assets. These levels are decided by WCM. The significance of relationship between WCM and profitability is very important.

If the company does not care about profit, it cannot survive for a longer period, and neglecting of liquidity, will force to it to face insolvency. For the reason, WCM should be given proper consideration. Otherwise, it would ultimately affect the profitability of the listed companies. While conducting day-to-day business activities of listed manufacturing companies, it is required to maintain a balance between liquidity and earnings.

In order to sustain the business in the market place, it is essential for an organization to successfully manage its working capital. The financial manager should determine the optimum level of the current assets. So, that the wealth of shareholders is maximized. It can be done only through the profitability.

Significance of the Study

Working Capital Management is one of the most important managements of corporate finance. The corporate management has to be conscious about the implications of their Working Capital Management as it is being one of the most important concerns of managers and investors, they need to be guided a well- informed study on this topic. Therefore, it is expected that the conclusion drawn from this study would benefit to the investors and managers in many ways. Firstly, it provides managers with a deep understanding on the impact of Working Capital Management on Corporate Performance. Secondly, it would help the investors to understand the effect of Working Capital Management on the corporate performance and aid them with wise investment decisions. Thirdly, it would help the management for making the decision of the period of keeping

the short-term debtors and creditors with the organization and the period of the inventory turnover in days that enhances the corporate performance.

The basic purpose of this research is to investigate the relationship between the working capital management efficiency and firms' profitability of listed manufacturing companies in Sri Lanka. It is possible to say that working capital can be regarded as lifeblood of the firm and it ensures the long-term survival of the firm while its bad management may lead the firm into a pitfall.

Based on the research problem and the findings of the past researches and throughout the literature review, the following research questions are formulated.

- How do efficient working capital management and financing of working capital management impact on Net operating profitability of manufacturing firms?
- How do average collection period, average payment period, inventory turnover in days, cash conversion cycle contributes to the working capital management?
- What type of relationship do the WCM and profitability have?
- How far is the impact of WCM on ensuring the significant profitability in Sri Lanka?

To study the nature and extent of the relationship between the working capital management efficiency and firm's profitability of listed manufacturing companies in Sri Lanka. (Main objective)

- To study the effect of accounts receivable, accounts payable, cash conversion cycle, inventory turnover on working capital management (different components of WCM).
- To find out the impact of WCM on firm profitability.

Literature Review

Nature and Importance of Working Capital

The working capital meets the short-term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than a year. The money invested in it changes form and substance during the normal course of business operations. The need for maintaining an adequate working capital can hardly be questioned. Just as circulation of blood is very necessary in the human body to maintain life, the flow of funds is very necessary to maintain business. If it becomes weak, the business can hardly prosper and survive. Positive working capital is required to ensure that a firm is able to continue its operations and that it has sufficient funds to satisfy both maturing short-term debt and upcoming operational expenses. Working capital is the difference between the resources in cash or readily convertible into cash(current assets) and organizational commitments for which cash will soon be required(current liabilities)(Thomas M .Kruger, 2005).

Many researchers have studied working capital management from different views in different environments some of which are found very interesting and useful for our present study. The essence of those literatures is mentioned hereunder. Some studies proof the negative relationship between WCM and firm's profitability.

Moreover, an optimal WCM positively contributes in creating firm value (B Bagchi, B Khamrui 2012). Working capital management is a very important aspect of corporate Finance (Biswajit Bose, 2013). Trade credit may stimulate sales because it allows customers to asses product quality before paying (Long Malitz&Ravid, 1993; and Jegers, 1996). Traditional approach to corporate finance always emphasized the long-term

financial decisions like capital budgeting and capital structure, the interest on WCM developed over the past two decades (Lyroudi and Lazaridis, 2000). If resources are blocked at the different stage of the supply chain, this will prolong the cash operating cycle. Although this might increase profitability (due to increase sales), it may also adversely affect the profitability if the costs tied up in working capital exceed the benefits of holding more inventory and/or granting more trade credit to customers (Biswajit Bose, 2013). A cross-sectional study using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001–2004 was conducted by Lazaridis and Tryfonidis (2010) explores a statistically significant negative relationship between profitability measured through gross operating profit and independent variables like CCC and financial debt using correlation and regression tests. They suggest that managers can create profits for their companies by correctly handling the CCC and by keeping each component of the conversion cycle at an optimum level.

To determine the effect of working capital management on the net operating profitability and liquidity, Raheman and Nasr (2008) 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, CCC, 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.

Methodology

This chapter is mainly devoted to discuss the methodology of this research. This chapter has been devoted to present the collected data that are being used for the empirical evidence of this research to describe the correlation model that is the data collected to summarize the findings and prove the evidence. This research is mainly intended to find the relationship of NOP and the measures of WCM (ACP, ITID, APP, CCC, and NTC) it is necessary to design upon the sample and source of data. The impact of working capital management on corporate performance of manufacturing sector is tested by panel data methodology. Our study focuses exclusively on the manufacturing firms operating in major industry groups, which are both registered and organized as public / private companies. The quantitative method has been followed in order to find better results and outcomes that can be implemented in the future. Survey research method has been done for collection of data, as such method would consist secondary data throughout the research. The qualitative data is not used in my research. Supporting facts and data were extracted from research works carried out in the same field study. Questionnaires and interviews are not being conducted in this regard.

Our study focuses exclusively on the manufacturing firms operating in Sri Lanka which are listed in Colombo Stock Exchange. Thus the empirical study is based on a sample of 36 manufacturing companies. The firms included in the study qualify the criteria that they remained listed on the Colombo Stock Exchange during 2008 to 2013 and also performed operations during this time period and submitted annual reports to CSE. Thus the data set covers 36 firms from five industry subsectors: accessories, chemical, Fertilizer, cement, pharmaceutical, oil and gas marketing, Food and personal care products, Glass and ceramics, textile, Gem and jewelers, Cable and Electric Goods, Leather, Cement, Synthetic and rayon, allied textile composite. This has given a balanced panel data observations for a sample of 36 firms.

For the purpose of this study, profitability is measured by Net Operating Profitability (NOP), which is defined as earnings before interest and tax plus depreciation divided by total assets. Thus a comprehensive measure of profitability is best captured by computing the Net Operating Profitability here the total assets is equal to the total liabilities of the firms, made up mainly of equity capital and current liabilities.

Data and Variables

The efficiency ratios, namely accounts receivable, inventory and accounts payable have been computed, using the formulas as listed in table 1. The Cash Conversion Cycle (CCC) is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchases of raw material and the collection of sales of finished goods. The longer the cycle, the larger the funds blocked in working capital. The return on assets is a better measure since it relates the profitability of the business to the asset base. There are many ways of managing Net Operating Profitability.

Table 1. Measurement of variables and abbreviation

Variables	Measurement	Abbreviation
Net Operating Profitability	(Earnings before interest and tax + Depreciation)/Total Assets	NOP
Average Collection Period	Accounts receivables/Net sales *365	ACP
Inventory turnover in Days	Inventory / Cost of goods sold *365	ITID
Average Payment Period	Accounts payable / Purchase *365	APP
Cash Conversion Cycle	ACP +ITID-APP	CCC

Model Specification

The measurement could be carried out through statistical measurement. For this, researcher analyzed data by employing correlation and regression, descriptive statistics. A well known statistical package like 'Statistical Package for Social sciences' (SPSS) 17.0 versions were used in order to find out the relationship between different variables, first Pearson Correlation Coefficients are calculated.

The research model outlines the way in which examining the relationship between WCM and NOP of listed manufacturing companies.

We specify our model as:

Model 1; $YNOP = \alpha + \beta\ 1ACP + \beta\ 2ITID + \beta\ 3APP + \varepsilon$

Model 2; $YNOP = \alpha + \beta\ CCC$

Where, Net Operating Profitability (NOP) is used as a measure of firm's performance.WCM is Working Capital Management, which is a key variable of the study used as a vector of Average Collection Period (ACP), Inventory Turnover in Days (ITID), Average Payment Period (APP), and Cash Conversion Cycle (CCC) of the firm. It is expected that WCM have positive relationship with the corporate profitability.

Working Capital Analysis

The major components of gross working capital include stocks (raw materials, work-in-progress and finished goods), debtors, cash and bank balances. The composition of working capital depends on a multiple of factors, such as operating level, level of operational efficiency, inventory policies, book debt policies, technology used and nature of the industry. While inter- industry variation is expected to be high, the degree of variation is expected to be low for firms within the industry.

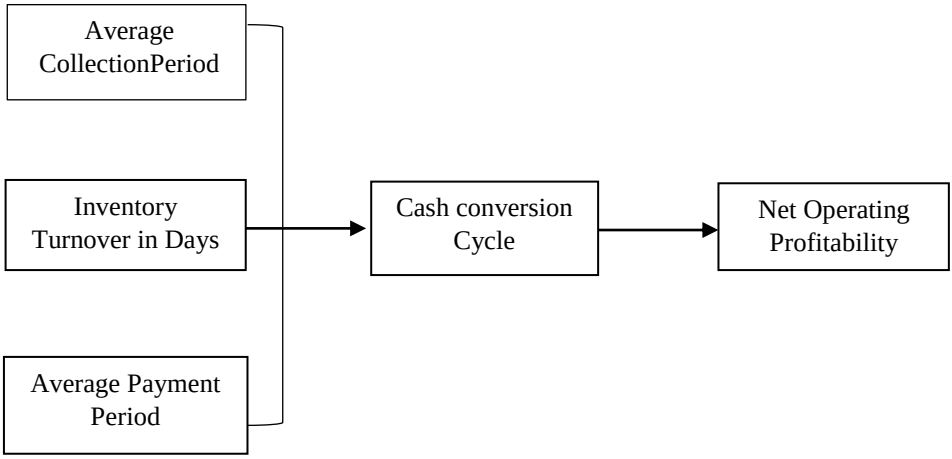

Figure 1.. Conceptual Framework

Hypothesis to be tested

The major objective of the research is to examine the relationship between WCM and the profitability of the manufacturing companies. Following hypotheses going to be tested. Based on the research model, the researcher developed a null hypothesis and a Alternative hypothesis.

Null hypothesis

H0 : There is no relationship between Working capital management and Net Operating Profitability.

Alternative hypothesis

H1: There is a significant positive relationship between Working capital management and Net Operating Profitability.

Data Analysis and Presentation

Impact of WCM on Profitability

This chapter offers the summary of the survey results obtained in the correlation coefficient analysis in relation to this study. Further relationship is explained by descriptive analysis through a mode of discussion to strength on the conclusion and explains the current situation.

This section consists of the relevant data presentation and analysis of data in order to draw meaningful conclusions on the impact of WCM on the corporate performance of the listed manufacturing companies in Sri Lanka. Descriptive statistics of the variable employed in the study also has been presented in this section. The relations between the net operating profitability and the measures of WCM are estimated using correlation analysis and regression analysis.

Descriptive Statistics

Descriptive statistics table, produced through SPSS is used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures.

Descriptive statistics including mean, median, maximum, minimum, standard deviation and skewness of the dependent, and independent variables of the study are reported in the Table 02. The average value of each variable is presented as mean in the Table 02. Median is the value that comes in the middle of data series after arranging it in either ascending or descending order. A lower standard deviation signifies that the values are closer to mean whereas a higher standard deviation means that the value is far away from the mean value.

Table 2. Descriptive statistics of the Variables under Study

Variables	N	Mean	Median	Maximum	Minimum	Standard deviation	Skewness	
							Statistic	Std. error
NOP	199	-.830	-.877	0.000	-2.760	.520	-.137	.172
ACP	194	1.574	1.696	3.127	-.460	.539	-1.295	.175
APP	191	1.073	1.202	2.732	-1.021	.595	-.642	.176
ITID	190	1.976	1.945	3.892	.832	.360	1.157	.176
CCC	190	2.059	2.084	3.960	.000	.455	-1.150	.176

Correlation Analysis

Table 3. Correlation Summary between Variables

		NOP	ACP	APP	ITID	CCC
NOP	Pearson Correlation	1	-.166*	-.023	.226**	.146*
	Sig. (2-tailed)		.021	.747	.002	.044
	N	199	194	191	190	190
ACP	Pearson Correlation	-.166*	1	.013	.227**	.373**
	Sig. (2-tailed)	.021		.862	.002	.000
	N	194	194	191	190	190
APP	Pearson Correlation	-.023	.013	1	.215**	-.150*
	Sig. (2-tailed)	.747	.862		.003	.038
	N	191	191	191	190	190
ITID	Pearson Correlation	.226**	.227**	.215**	1	.783**
	Sig. (2-tailed)	.002	.002	.003		.000
	N	190	190	190	190	190
CCC	Pearson Correlation	.146*	.373**	-.150*	.783**	1
	Sig. (2-tailed)	.044	.000	.038	.000	
	N	190	190	190	190	190

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

Table 3 shows correlation coefficients of the dependent and independent variables. The purpose of this analysis, as already mentioned, is to find out the relationship between different variables under the consideration. In statistics, correlation indicates the strength and direction of a linear relationship between two random variables.

The above table shows the relationship between dependent variable and the independent variables of companies in term of correlation coefficient. Correlation coefficient of NOP and ACP is -0.166, which describe the significant but negative relationship between Net Operating Profitability (Dependent variable) and Average Collection Period (independent variable). The significant level is 0.021 .it is smaller than 0.05 alpha values.. In addition, It shows the weak relationship between the variables NOP and ACP because of the correlation coefficient of -0.166.

The result of correlation analysis of NOP and ITID shows the significant positive coefficient of correlation of 0.226. It is also the weak relationship between the variables NOP and ITID, with *p*-value of 0.002. Its alpha value is 0.01, So, it is also gives the strength position of the model since it is at 0.002, smaller than the alpha value.

The result of correlation analysis of NOP and APP shows the weak negative coefficient of correlation of -0.023. It means APP was not strongly correlated in determining the NOP. The significant level is 0.747. It is higher than 0.05 alpha values. The result does not give the strength position of the model since it is at the 0.747 significant levels.

CCC exhibits a positive correlation with NOP. The correlation coefficient of 0.146 indicates the CCC has highly significant positive association with Net Operating Profitability. The significant level is 0.044. It is lower than the 0.05 alpha values. The result does give strength position of the model. Therefore, Ho will be rejected, and H1 hypothesis will be selected.

Regression Analysis

Regression analysis shows how to determine nature of relationship between two or more variables. The known variables are called the independent variables. The variable that is to be predicted is the dependent variable. The multiple (model 1) and simple (model 2) linear regression models has been used in this analysis.

Regression analysis is a statistical technique to investigate the relationship between a dependent and the independent variable. Hence, this research employs regression analysis to measure the corporate performance of the manufacturing sector firms listed in CSE. Briefly, simple regression is employed to measure the effect of the CCC on the corporate performance.

Model 1; $YNOP = \alpha + \beta\ 1ACP + \beta\ 2ITID + \beta\ 3APP + \varepsilon$

Model 2; $YNOP = \alpha + \beta\ CCC$

Table 4. Coefficient Summary (model 1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.246	.213		-5.857	.000
	ACP	-.225	.069	-.231	-3.240	.001
	APP	-.074	.062	-.085	-1.198	.232
	ITID	.431	.106	.297	4.075	.000

This multiple linear regression equation shows that β equals to -0.225, -0.074, 0.431. That means slope of the regression line, which simply indicates that there is a negative relationship between the NOP and ACP, APP. In that, NOP has a significant relationship with ACP (p *(0.001)* < 0.05). Then, there is a significant positive relationship between

NOP and ITID (*p (0.000)* < 0.05). The value of "α" is -1.246. It can be derived the regression equation as,

$$NOP = -1.246 – 0.225ACP + 0.431ITID – 0.074APP + \varepsilon$$

Table 5. Coefficient Summary (Model 2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.169	.174		-6.705	.000
	CCC	.167	.083	.146	2.023	.044

The researcher considers the simple linear regression equation used to find out the relationship between NOP and CCC. This table shows that β equals to 0.167. It indicates that there is a significant negative relationship between the NOP and CCC. The value of "α" is –1.169. The significant level is 0.044. It is lesser than 0.05 alpha values. The result does give strength position off the model. It can be derived the regression equation as,

$NOP = -1.169 + 0.167_{CCC}$

Hypotheses Testing

There is a statistical model and it can be used to test the hypothesis. In this section, hypotheses are going to be tested by using significant test of regression model by using regression.

Decision Rule

If the calculated significant value is greater than alpha value, the model cannot be considered as significant model. That means Ho has to be accepted and alternative hypotheses H1 has to be rejected. On the other hand, if the calculated significant value is not greater than alpha value, that model can be considered as significant model. That means Ho has to be rejected and H1 has to be accepted.

Computed figures for significant test can be tabulated as follows based on alpha value and significant level.

Table 6. Summarized Hypothesis H_1 Test Result

In between	Alpha Value	Significant value	H_0		H_1	
			Accepted	Rejected	Accepted	Rejected
CCC and NOP	0.05	0.044	–	√	√	–

To carry out the existence of linear relationship between the CCC and NOP, using alpha value of 0.05, the critical point from significant level is found to be 0.044 clearly. Here *P*< 0.05, which is less than 0.05, and indicates that, overall, the model applied statistically significantly predict the outcome variable. Since the calculated significant value (0.044) is less than the table alpha value (0.05), the null hypothesis (Ho) should be rejected and alternative hypothesis (H1) should be accepted.

The conclusion of alpha- value technique at 95% confidence value is that so, manufacturing companies in Sri Lanka have to consider tightly about the level of Cash Conversion Cycle.

Findings and Conclusion

Discussion of Findings

Correlation coefficient of NOP and Average Collection Period is -0.166 which describes the negative relationship between NOP and ACP. Correlation coefficient of NOP and ITID is 0.226 which describe the positive relationship between NOP and ITID. Correlation coefficient of NOP and APP is -0.023. Which describes the negative relationship in between NOP and APP. According to the correlation technique, correlation coefficient of NOP and CCC is 0.146 which describes the positive relationship between NOP and CCC.

According to the testing of hypothesis, the calculated significant value of 0.044 is less than the alpha value of 0.05, the null hypothesis (Ho) should be rejected, and alternative hypothesis (H1) should be accepted. The result does give strength position off the model since it is at a 0.044 significant level. The acceptance of alternative hypothesis pointed out "There is a positive significant relationship between Working Capital management and Net Operating Profitability". This research objective is to understand the relationship between Working Capital Management and corporate performance. Hence, as researcher's hypothesis was satisfied by these findings, the researcher objective is reached by the findings. The findings of this study reveal that significant relationship was found between change in working capital and profitability of the firm at the overall level. This is because of the fact that the profitability of the firm is affected by a multiplicity of factors, and working capital is one of them.

Conclusion

Several policy implications can be drawn from the above findings of the study which include that working capital management should be the concern of all the manufacturing sectors firms and need to be given due importance. The collection and payment policies of the firms in manufacturing sectors, in general, need to be thoroughly reviewed. It is generally argued that firms need to accelerate their cash collections and their payments. This can only be possible with some professional advice and supervision. The findings indicate that firm managers/executives can enhance performance of the firms by increasing the number of days in inventories, Cash Conversion Cycle.

Most of the Sri Lanka's manufacturing companies 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 companies. Finally, we can conclude that most of the manufacturing companies cannot earn profit without making proper plan in debt management. The firms in this sector needs to have enough working capital (ACP + ITID – APP) to maintain the continuous production, which is vital matter.

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