THE EFFECT OF WORKING CAPITAL MANAGEMENT ON FIRMS' PROFITABILITY IN MALAYSIA

NADZRAH BINTI ABDULLAH

MASTER OF SCIENCE (FINANCE)

UNIVERSITI UTARA MALAYSIA

2014

THE EFFECT OF WORKING CAPITAL MANAGEMENT ON FIRMS' PROFITABILITY IN MALAYSIA

By

Nadzrah Binti Abdullah

812376

Dissertation Submitted to the Fulfillment of the Requirements for the degree of

Master of Science (Finance) at the Graduate School Business

Universiti Utara Malaysia

2014

DECLARATION

I hereby declare that I am responsible for the accuracy and originality of my work except for quotations and citations that have been duly acknowledged. I also declare this paper has not been previously submitted for any Master's program at Universiti Utara Malaysia or other institutions.

Nadzrah Binti Abdullah

812376

Othman Yoep Abdullah Graduate School of Business

Universiti Utara Malaysia

2014

PERMISSION TO USE

In presenting this thesis in partial fulfillment for a post graduate degree from the Universiti Utara Malaysia, I agree that the university's library may take it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or part, for scholarly purposes, may be granted by my supervisor or, in other absence by the Dean, Postgraduate Studies, and College of Business. It is understood that any copying or publication or use of this dissertation or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due to recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my dissertation.

Request for permission to copy or to make other use of materials in this dissertation in whole or in parts should be addressed to :

Dean of Research and Postgraduate Studies

College of Business

Universiti Utara Malaysia

06010, Sintok, Kedah, Malaysia

ABSTRACT

This study investigates the relationship between working capital management and firms' profitability in Malaysia. It examines the components in working capital such as days' accounts payable, days' accounts receivables, days' inventory held and cash conversion cycle in relation to return on asset (ROA). In general, this study contributes to the scarce of literature in this area in Malaysia by providing empirical evidences. Data were obtained from DataStream for two sectors in Malaysia. The sectors chosen are construction & material, and food producer sector. The time period for this study covers from year 2008 to 2012. Finding show working capital management affects firms' profitability. In construction and material sector, ROA has negative relationship with days' accounts receivable and days' inventory held, but positive relationship with days' accounts payable. In food producer sector, ROA has negative relationship with days' accounts receivable and payable but negative relationship with days' inventory held. In both sectors, cash conversion cycles are negatively associated with firm profitability. It indicates that longer duration of cash conversion cycle will decreases firm's profitability

ACKNOWLEDGEMENT

Alhamdulillah, all praises and gratitude for Allah SWT for allowing me and giving me the strength to complete this dissertation. Without His permission, I would not be able to complete this study.

Million thanks to my supervisor Associate Professor Norafifah Ahmad for her unlimited guidance in helping me to keep on the right track with this dissertation. This research could have not be completed smoothly without her ideas and comments. I would like to express my sincere gratitude for her patience and knowledge as this study has consumed a lot of her valuable time.

My highest appreciation goes to my husband for providing me with his endless support to achieve my master degree upon completing this study. I really appreciate his consideration and patience for allowing me to concentrate on the study.

I would like to express my special thanks to my parents for supporting my decision to continue my study and for always showing concern about the progress of my study. My deepest appreciation also goes to my friends who have share their ideas and thoughts and who have together through thick and thin. They are my source of strength when I am away from my husband and family.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURE

CHAPTER 1

INTRODUCTION

1.1 Background of study

The theory in corporate finance is discussed in three main areas. The areas are capital budgeting, capital structure and working capital management (WCM). The capital budgeting and capital structure are the areas which are closely related to financing and long-term investment, and returns, while working capital management is related to managing current assets and current liabilities.

One of the most important factors for a firm to consider is the management of working capital. The components inside WCM consists of current assets and current liabilities. The difference in current asset to current liabilities also reflects a firm's liquidity. The components in working capital consist of inventory, accounts receivable, accounts payable, short-term loans, cash conversion cycle and etc. It is important to have a good assessment of a company's liquidity because a decline in liquidity can lead to a greater risk of bankruptcy.

It is important for a firm to manage its working capital because it is one of the most important factor in corporate finance, which is related to short term financing and investment decision of a firm. The function of obtaining efficient working capital management is to maintain current assets and current liabilities in respect to each other. Working capital management functions to make sure a firm has enough cash flow in order to pay back its current liabilities and operating

expenses. Large corporations faced liquidity problems during the global financial crisis in 2008. The crisis brought out an awareness among the firms to unlock their valuable cash that was tied up in working capital. Net working capital position can influence a firm's ability to obtain debt financing because of the requirement by most financial institutions that require a firm to have minimum net working capital position. Mohamad & Saad (2010) state that managing working capital requirement is very important to ensure the improvement a firm's market value and profitability. Working capital management should be one of the most important factors to be considered by a firm in order to ensure that it operates efficiently and effectively.

The importance of working capital for firm is undeniable. Working capital management involves short-term decision. It covers all aspect short term-assets and liabilities. The main objective of working capital management is to ensure firms are able to run its operation with sufficient cash flow so that it able to pay short term debt and operational expenses. Working capital management includes few crucial decisions where the managers are responsible to manage the payment of accounts payable, collection of accounts receivable, maintain an optimum level of inventories and manage investments of accessible cash.

Many corporations that appear to have efficient working capital management earn profits over the year (Appuhami, 2008). Managing working capital efficiently is extremely important for short-run solvency or for survival of firm. Managing working capital efficiently can help firm to respond to any unforeseen changes in market variables. However, the strategy of managing efficient working capital is

different according to industry, nature of business, strategy, policy and etc. Thus it is very important for a firm to identify the components in working capital and understand how the component might affect their profitability of firm.

The importance of balancing the current assets and current liabilities is to ensure adequate cash flow for the firm's operation and to obtain optimum use of resources. Some might think excess cash is good, but from the firm's perspective, excess cash will lead the firm to investment in low or non-earning asset. However, lower level of current asset is also not good for a firm as it may lead to a shortage of funds. As a consequence, firms will face difficulty in maintaining smooth business operations (Horne, Van & Wachowicz Jr., 2000). The firm's ability to operate for longer durations depends on a proper balancing between the management of investment in long-term and short-term funds which is working capital. Optimal management of working capital can be achieved by firms by balancing profitability and liquidity (Sharma & Kumar, 2011).

Components in working capital are days accounts payable, days inventory held, days accounts receivable and cash conversion cycle. Days accounts payable refers to the number of days taken by a firm to settle its payable account, or in other words to pay its suppliers. A firm's ability to pay debt is depending on its profitability (Sharma & Kumar, 2011). More profitable firms have higher ability to pay creditor earlier than lower profitable firms. Less profitable firms will wait longer to pay back creditors.

Day's inventory held refers to the number of days taken by a firm to turn its inventory into sales. It is one of the components in calculating cash conversion cycle. Generally, the shorter number of day inventory held indicates better performance of the company. However, the number of days is different according to industry and the nature of business. When the number of day's inventory held decreases, it will increase firm profitability and vice versa.

Days account receivables refers to the number of days taken by a firm to collect its receivables or invoice. According to corporate finance theory, the lesser the number of days of account receivables, the more it adds to the profitability of the firm. It implies that a decrease in day's accounts receivable will add to firm profitability. To ensure the smooth running of cash in a business, it is very important to collect accounts payable as soon as possible. If a company can quickly turn its sales into cash, it can use the cash again for investment purpose. Higher number of days accounts receivable indicates that the company performs credit sales and it takes longer time to collect payment.

Cash conversion cycle (CCC) is the sum of days accounts receivable plus days inventory held minus days accounts payable. CCC has been the most frequently used measurements to measure the efficiency of working capital management. CCC indicates the average length of time taken by a company to turn its resource input into cash flow. Cash conversion cycle also provides a clearer view on the ability of firm to cover its current debt. It can be seen by looking at the number of days taken by a firm to change inventory into sales following by turning sales into cash. The cash collected then will be used to pay its suppliers.

It can be concluded that longer duration of CCC will cause the investment in working capital to be higher (Nobanee, Abdullatif, & AlHajjar, 2011). In contrast, shorter length of cash conversion cycle can lead to higher profitability as it increases the efficiency of using working capital and also reflects higher liquidity of firm. It also reflects that firm has less obligation to borrow, thus will have more chances to get benefits on the price discounts on cash purchases. Shortening the length cash conversion cycle can be done by reducing the number of day's inventory held or days of collecting the receivables.

Prior research by Nazir & Afza (2009) was related to the degree of aggressiveness in working capital management policy and firms' profitability. They found evidence that profitability and degree of aggressiveness of working capital management and policies have a negative relationship. A firm which adopts aggressive working capital policy did not have assurance of earning more profit. It is important for the managers to tackle a suitable technique to enhance their working capital management. Efficiency of working capital management is important in order to increase firms' free cash flow, which can lead to an increase in firms' growth opportunities and return to shareholders.

Previous study in Malaysia by Mohamad & Saad (2010) tried to find evidence on the impact of working capital management to valuation of market and profitability of firm. Their empirical result suggests working capital variables and profitability of firm has negative relationship. The variables used in this study are cash conversion cycle, current ratio, current asset to total asset ratio, current liabilities to total asset ratio and debt to asset ratio. At the end of the study they suggested

that future research in Malaysia should be improved with different variables for working capital and more sample size. A recent study in 2013 by Wasiuzzaman & Arumugam (2013) also suggests further study of other strategic determinants is required in Malaysia.

Firm profitability is very important for a firm to survive in the long term. Firm profitability can be affected by few factors. The factors are size of firm, lagged profitability, growth, productivity, firm age and industry affiliation (Yazdanfar, 2013). The approach used by Yazdanfar (2013) also suggests that profitability of firm is highly determined by internal factors as compared to external factors.

Firm profitability also can sometimes be referred as firm performance. Profitability of the firm can be measured in various ways, such as return on assets, return on equity or gross operating income. Many researchers have used ROA as a measure of profitability (Iqbal, Mulani, & Kabiraj, 2013).

Return on asset (ROA) defines the profitability of firm by indicating the efficiency of management in generating profits using its asset. It also give some ideas to investor to figure out the effectiveness of the management to use small investment to generate more income. To manage working capital, a firm should be dealing with current assets and current liabilities as it has relationship with ROA which measure the return on asset. It indicates how firms manage their asset and debt to generate earning using their assets. Many researchers used return on asset to define profitability in previous studies. For examples, Sharma & Kumar (2011), Banos-Caballero, Garcia-Teruel, & Matinez-Solano (2012), and Nobanee,

Abdullatif, & AlHajjar (2011) are among the authors who used ROA to define profitability in their studies.

1.2 Problem Statement

The main purpose of any firm is to maximize their shareholders' wealth. Some firms might ignore to maintain the optimal liquidity requirement while aggressively maximizing their shareholders' wealth. Market valuation of a firm is often valued by their profitability. Any changes in profitability can affect the market valuation and consequently will affect shareholder's wealth (Alavinasab & Davoudi, 2013). As firm working capital affects directly the profitability of firm, it can be considered as one of the determinants for market valuation of firm. There is very limited literature found on this issue in Malaysia.

Few studies on working capital in Malaysia have been conducted by Wasiuzzaman & Arumugam (2013) and Mohamad & Saad (2010) to find empirical evidence on working capital and firm profitability in Malaysia. Mohamad & Saad (2010) conducted a research to find empirical evidence about working capital management and its effect on the performance of Malaysian listed firm from the perspective of market valuation and profitability. They found that managing working capital requirement is important to ensure improvement in firm's market value and profitability. They left the study for further research to be explored with different variables and sample size.

Wasiuzzaman & Arumugam (2013) conducted a study on determinants of working capital investment in Malaysian public listed firms. They studied on few variables to find the impact on working capital investment of a firm. The variables studied are leverage, sales growth, level of asymmetric information, size, asset tangibility, revenue volatility, age, probability, operating cash flow, board characteristics and economic condition. They concluded that different firm characteristics need to have different working capital policies to suit their situation. Their value of R square is very low, indicating that there may be other factors that may influence working capital investment policy. They mentioned that working capital management of firms in Malaysia is unsatisfactory over the past few years. Hence, it raises an objective to have deeper understanding on the determinants of working capital investment in Malaysia. This present study will be using more recent data and test on different variables as suggested by Wasiuzzaman & Arumugam (2013).

1.3 Research Questions

In regards to the situation where some firm did not seriously take care on the liquidity management, a general research question is created. The general research question of this study is 'Does working capital management influence profitability of firm?' In order to analyze the question on working capital, specific research objectives have been developed to study the relationship between working capital management and profitability of firm.

Specific research questions:

1. Is there a negative relationship between the number of days of accounts receivable and Malaysian firms' profitability?
2. Is there a negative relationship between the number of days of inventory and Malaysian firms' profitability?
3. Is there a negative relationship between the number of days of accounts payable and Malaysian firms' profitability?
4. Is there a negative relationship between cash conversion cycle and Malaysian firms' profitability?

The development of these objectives is aim contribute to the important aspect in studying the impact of working capital management towards firm profitability.

1.4 Research Objectives

Based on the research questions, research objectives are developed to answer the questions.

General research objective:

- Does working capital management influence profitability of firms in Malaysia?

Specific research objectives:

- To investigate the relationship between number of days of accounts payable and Malaysian firms' profitability

- To investigate the relationship between number of days of accounts receivable and Malaysian firms' profitability
- To investigate the relationship between number of days of inventory and Malaysian firms' profitability
- To investigate the relationship between cash conversion cycle and Malaysian firms' profitability

1.5 Significance of the study

In Malaysia, a research on working capital has been conducted by Mohamad & Saad (2010). They study the working capital management impact to the market valuation and firm profitability. However, there is too little amount of literature on this issue been conducted in Malaysia. This is proven by Wasiuzzaman & Arumugam (2013) which mention there is a lack of study for working capital in Malaysia.

The significance of this study is to reveal a deeper understanding on the impact of working capital management towards firms' profitability. The study can help individual, companies or firm to deeply understand how the working capital management can positively or negatively gives impact to their profitability. This can help them manage working capital in the best way to increase their profit. The results also can help investors to know the financial well being of the firm by

evaluating the working capital strategy. The empirical result is hope to contribute to the scarce of literature in working capital area in Malaysia.

1.6 Scope and Limitations of the Study

The study is conducted to study two largest sectors in Malaysia which were determined by the number of firms. The two sectors have been chosen among the top five largest companies listed in Data Stream then the companies with incomplete data were then eliminated. Construction & material sector and food producer sector are chosen to be studied. The problem regarding the data required arose during the data collection step. Previously, Bursa Malaysia was referred to find the available firms according to their sector. It turned up that the sectors available in Bursa Malaysia are different from DataStream. The listing on Bursa Malaysia did not tally with the listing in the Data Stream. To conduct a study based on the listing by Bursa Malaysia, it will consume more time as the collection of data for each company need to be done separately in the Data Stream. Due to time constraint, the list of firms is chosen based on the listing in the Data Stream.

1.7 Organization of the Thesis

Chapter one is an introductory section where it provides the background of the study, problem statement, research objectives so as the significance of study. At the end of this chapter, there are discussions on the scope and limitation faced by the researcher.

Chapter two provides discussions on literature review. This chapter gives reviews to the related literature on related study in working capital and firm profitability. It provides literature and evidence from previous studies which related to days account receivables (AR), days inventory held (INV), days account payables (AP), cash conversion cycle (CCC) and return on asset (ROA).

The next chapter is meant to discuss on the methodology used to conduct this study. It also consists of explanation and discussion about research framework used, hypothesis development, data collection sampling and procedure, measurement of variables and data analysis techniques.

The analysis on the results of the study are placed in chapter 4. The analysis is provided for descriptive statistics, correlation analysis, multicollinearity and autocorrelation test and linear regression analysis.

The final chapter of this present study will discuss on the findings for two studied sectors. This chapter also will summarize and compare the difference results between the different sectors.

1.8 Summary of the chapter

This chapter highlights on the introduction and background of the study. It also discussed on the general problem statement, research objectives and significance of the study. The organization of whole study also presented in this chapter.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction To Review Of Related Literature

This chapter discusses on the independent and dependent variables used in this study. Besides, control variables used such as firm size, leverage, current ratio and sales growth will also be explained. Firm profitability which is presented by return on asset (ROA) is used as a dependent variable in this study, while the dependent variables used are day's account payables, days account receivables, days inventory held and cash conversion cycle. These four variables are representing the working capital instruments. While control variables used in this study are firm size, leverage, current ratio and sales growth. The supporting evidence from previous studies will also be included in this chapter. It compiles the result of previous studies on the relationship between the independent and dependent variables used to perform this research.

2.1 Dependent Variable

Firm Profitability

Profitability can be measured using return on assets (ROA) which is calculated as the ratio of net income to total assets. Many researchers have used ROA as a measure of profitability. Firm profitability can sometimes be referred as firm performance. Some authors used ROA rather than ROE because they only

concentrate on operating efficiency and want to avoid capital structure differences (Jose, Lancaster, & Stevens, 1996).

Return on asset is used in this study to define firm profitability. It acts as the dependent variable. It is calculated by finding the earnings before interest and tax (EBIT) to total asset ratio. A lot of studies had been using ROA to define profitability. Sharma & Kumar (2011) used return on asset to define profitability of firm in their study about effect of working capital management to firm's profitability. Another study working capital effect to profitability of Spanish SMEs firm by Banos-Caballero, Garcia-Teruel, & Matinez-Solano (2012) also used return on asset to measure the firms' profitability. Besides, return on asset also used as proxy to firm profitability by Nobanee, Abdullatif, & AlHajjar (2011) in their study on cash conversion cycle and performance of firms in Japan.

Mohamad & Saad (2010) conducted a study in Malaysia to investigate the effect of market valuation and profitability for Malaysian firms. They used return on invested capital and return on asset to measure firm profitability.

Jose, Lancaster, & Stevens(1996) in their study on corporate returns and cash conversion cycle used return on asset and return and equity as a measure for firm profitability.

Taani (2012) and Alavinasab & Davoudi (2013) measure firm profitability by using return on asset and return on equity. While Lazaridis & Tryfonidis (2006), Garcia (2011) and Vural, Sokmen & Cetenak used gross operating profit as a measurement for their dependent variable. Return on equity has been used to

measure firm profitability in research by Deloof (2003) and Malik & Bukhari (2014). Makori & Jagongo (2013) in his study on working capital and profitability use return on asset to represent the profitability while Ching, Novazzi, & Gerab (2011) use return on sales and return on asset for their research.

Yazdanfar (2013) conducted a study in Swedish to find empirical evidence of variables that can affect firm profitability. He conducted unrelated regression method for samples 12 530 firms with total observations of 87 000. The samples consist non-financial micro firms which operate in four industry sectors from year 2006 to 2007. The author found result stated that size of firm, lagged profitability, growth, and productivity have positive influence on firm profitability, while firm age and industry affiliation have negative impact to profitability.

2.2 Independent Variables

Working Capital

To determine the working capital impact to firm's profitability, the author used four independent variables to represent component in working capital. The variables used are day's account receivables, days' inventory held, days' account payable and cash conversion cycle. Cash conversion cycle can only be determined after figuring out the figure for the previous components.

Sharma & Kumar (2011) found evidence that working capital management and profitability have a positive relationship. Return on asset (ROA) was used to

measure the firm's profitability. To measure the working capital, they used the number of days' inventories held, number of days' accounts receivable (AR), number of days' accounts payable (AP) and cash conversion cycle (CCC). There was a negative relationship between profitability with AP and inventory, but positive relationship between AR and CCC with profitability.

Taani (2012) conducted a study in Amman by running multiple regression analysis for the working capital management and the firm performance. Working capital was measured by the financial leverage and debt ratio ROA and return in equity (ROE) were used to measure firm performance. Their result suggests that working capital management policy did not have a significant relationship with ROE and ROA.

A study of profitability and working capital management of Brazilian listed companies has been conducted by Ching, Novazzi, & Gerab (2011). They conducted a study for companies that use working capital intensive and fixed capital intensive. The authors concluded that managing working capital properly is equally important regardless of the type of the company. Return on asset (ROA) and return on sales (ROS) are used to measure firm profitability. Both of the measurement have different factors that could affect their value. In ROA, days' inventory held plays the biggest role while in ROS, CCC efficiency and length of inventories held are important to ensure greater return. Fixed capital intensive, number of days in working capital and debt ratio are the variables that affect ROS and ROA respectively.

Banos-Caballero, Garcia-Teruel, & Matinez-Solano (2012) studied on working capital management and its impact to the profitability of Spanish SMEs. They examine a non-linear relation between unobservable heterogeneity and possible endogeneity. They obtained data panel set of non-financial Spanish SMEs from SABI (Siberian Balance Sheets Analysis System) database where accounting and financial information for Spanish firms are provided. The sample collected was from year 2002 to 2007. The finding shows contrast result from previous study. Their result proves the presence of a concave relationship between working capital level and firm profitability.

A study on SMEs was conducted in Tunisia to find the evidence on Tunisian export SMEs. In this study the author Bellouma (2010) used 386 data of small and medium companies collected from Tunisian Export Center for the period 2001 until 2008. She performed statistical analyses which include descriptive statistics and regression on panel data. She used two working capital' component; which are net liquidity balance and required working capital. The result of regression indicates that corporate investment influence positively the cash holding or the company and diminish the level of working capital required. The study suggested that Tunisian export SMEs may overcome the shortage of liquidity by understanding how the capital investment affects the two components of working capital.

A study on working capital management and profitability of companies also conducted in Tehran. Alavinasab & Davoudi (2013) use 147 companies as sample which were selected from year 2005 until 2009. The independent variables used to

represent working capital are cash conversion cycle (CCC), current ratio (CR), current asset to total asset ratio (CATAR), current liabilities to total asset ratio (CLTAR) and debt to asset ratio (DDTAR). The dependent variables used to measure company's profitability are return on equity (ROE) and return on asset (ROA). At the end of the research, the results from the hypothesis testing show positive relationship between CATAR and profitability. While for the rest variables CCC and CLTAR shows a negative relationship with profitability.

In India, O.N & Radharamanan (2011) conducted a study on the relationship of working capital management with corporate profitability. The study was meant to focus on the Indian manufacturing firms. The authors used quite different variables which are debtor's day, inventory days, creditor's days, cash velocity, working capital policy, net working capital leverage, size of firm and current ratio. They applied correlation and regression analysis to identify the effect of the variables towards profitability. Debtor's day, inventory days, creditor's days were analyzed using correlation analysis and shows negative results. While in regression analysis they used two different methods; the fixed effect model and ordinary least square method. The regression analysis shows that cash velocity, size of the firm networking and capital leverage are significant in both methods. The result also reveals positive relationship between number of days of inventory and number of days in account payable with profitability. Profitability improves when CCC is shorter and, when the current asset and current liabilities are equal

A lot of previous studies focusing on the impact of working capital to profitability. However, a study in Brazil was conducted to find the key

components in working capital management. The authors did the research by exploring the internal factors for companies in Brazil. Samples are collected form companies listed in Sao Paulo Stock Exchange (BOVESPA) from year 2001 to 2004 in quarterly basis. The authors manage to obtain 93 companies to sample of the study. They found evidence that debt level, size and growth rate can affect the working capital management of companies. Their result also suggests that companies with low level of free cash flow have a higher level of working capital. In this case company profitability could affect working capital which suggesting different view of finding with previous studies that suggest working capital is the variable that affect profitability of firm.

Makori and Jagongo (2013) conducted a research to investigate relationship between working capital management and firm profitability in Nairobi Securities Exchange, Kenya. They used Pearson's correlation and Ordinary Least Squares regression models to obtain the relationship between working capital and firm profitability. They used an average collection period (ACP), inventory conversion period (ICP) , average payment period (APP) and cash conversion cycle (CCC) as independent variables. Few control variables such as sales growth, size, leverage and current ratio also included in their models. They found a negative relationship between ACP and ROA while ICP has positive significant association with ROA. Makori & Jagongo (2013) further found that APP has positive significant relationship with ROA. Their result also suggests that cash conversion cycle has significant negative relationship with ROA.

A study in Athens was conducted to find the relationship between working capital management and profitability of listed companies in Athens Stock Exchange. The authors used 131 samples of companies listed in Athens Stock Exchange (ASE) from year 2001 until 2004. They measure firm profitability using gross operating profit and found negative relationship between firm profitability and cash conversion cycle. They also found that increase in number of days account payables is associated with lower gross operating profit. Lazaridis & Tryfonidis (2006) concluded that less profitable firms wait longer to pay their bills to take advantage of credit period granted by their suppliers. The authors further found negative relationship between days account receivables and firm profitability which suggest that lower profitable firms tend to reduce their account receivables to reduce gap in cash conversion cycle. They also found a negative relationship between numbers of days in inventory and corporate profitability.

Dialog (2003) conducted a study in Belgian to test whether working capital management affects the profitability of Belgian firms. He obtained a balanced panel set of 5,045 firm year-observations to perform this study. Deloof used gross operating income to represent the firm profitability which is similar with Lazaridis & Tryfonidis (2006). The author found that accounts receivable has negative and highly significant relationship with firm profitability which indicates that an increase of one day in account receivables days is associated with decline in gross operating income. In second regression, the author found significant negative relationship between gross operating incomes with number of day's inventories.

The third regression then shows significant negative relationship between gross operating income and number of days account payables. This indicates that less profitable firm wait longer to pay their bills, which is also supported by Sharma & Kumar (2011) . The result shows CCC has negative but not significant relation with gross operating income. The author suggests that manager can increase firm's profitability by reducing the number of collection period and number of days inventories held.

A study on working capital management upon company's profitability was conducted by Garcia (2011) to find the evidence in European companies. The author used sample of 2,974 non - financial companies listed in 11 European Stock Exchanges. The period of observations are 12 years; starting from 1998 until 2009. The author used gross operating profit to measure the firm's profitability. The independent variables used are receivables collection period, inventory conversion period and payables deferral period. The author used ordinary least square (OLS) regression analysis to find the relationship between the independent variables with gross operating profit. The results of the regressions suggest that receivables collection period, inventory conversion period and payables deferral period have a significant negative relationship with firms' profitability. Result on cash conversion cycle also shows a negative relationship with firms' profitability, thus suggesting shortening the time span of tying up working capital within the firms can improve firms' profitability.

Nazir & Afza (2009) conducted a study on working capital requirements and the determining factors in Pakistan. They used samples of 132 manufacturing firms from 14 industry groups that were listed on Karachi Stock Exchange (KSE). The period of observations ranging from year 2004 until 2007. Working capital requirement acts as dependent variable while independent variables used are operating cycle (OC), operating cash flows (OCF_TA), level of economic activity in the country (EA), growth, return on assets (ROA), Tobin's q (Q), leverage (Lev), size and industry dummy (IndDum). The study found out that operating cycle, leverage, ROA and Tobin's q; which are the internal factors, are influencing the working capital requirements significantly.

Shin & Soenen (1998) conducted a research to find the efficiency of working capital management and corporate profitability. Working capital management was measured using net trade cycle. The authors used correlation and regression analysis to test the relationship between net trade cycle and profitability. They used Compustat sample of 58,985 firms and the observation years covering a period of year 1975 until 1994. The result suggests a strong negative association between firm's net trade cycle and profitability.

Another study in Pakistan was conducted by Muhammad, Jan, & Ullah to study the working capital management and firm profitability of textile industry in Pakistan. The study used secondary data which were collected from listed firms in Karachi stock exchange for the observation period of 2001-2006. The authors used correlation and regression analysis to test the relationship of working capital management components and profitability. Firm profitability acts as dependent

variables while cash, accounts receivable, inventory and account payables act as independent variables. The result of the regression suggests that cash, accounts receivable and inventory have a strong positive relationship with profitability. However, account payables have a negative relationship with profitability. It can be concluded that increase in cash, receivables and inventory can increase profitability of firm.

In a study conducted in Malaysia, the authors investigated the effect of market valuation and profitability of Malaysian firms which listed on Bursa Malaysia. 172 listed companies were selected randomly for a period of 2003 to 2007. Mohamad & Saad (2010) studied the working capital component which consists of current asset to total asset ratio (CATAR), current liabilities to total asset ratio (CLTAR), and debt to asset ratio (DTAR). They performed multivariate regression and Pearson correlation to test the hypothesis. Firm value was measured using Tobin Q while profitability measured by return on asset (ROA) and return on invested capital (ROIC). Their result revealed that CATAR has a positive relationship with Tobin, ROA and ROIC, while CLTAR has negative significant relationship with Tobin Q, ROA and ROIC. Based on all results, the authors concluded that there are significant relations between working capital firms' performance in Malaysia. This highlights the importance of managing working capital requirements to ensure an improvement in firm's market value and profitability and this aspect must form part of the company's strategic and operational thinking in order to operate effectively and efficiently

Another study by Nazir & Afza (2009) investigated on the impact of aggressive working capital management policy on firms' profitability found that profitability has a negative relationship with the degree of aggressiveness of working capital investment and financing policies. A firm with more aggressive policy towards working capital did not have assurance of earning more profit. It is important for the managers to tackle a suitable technique to enhance their working capital management. Efficiency of working capital management is important in order to increase firms' free cash flow, which can lead to increase in firms' growth opportunities and return to shareholders. Firm's profitability was measured using return on assets and return on equity. The result suggests that more aggressive liquidity management, which means lower cash conversion cycle is associated with higher profitability for several industries.

In India, electronic payment (EP) has been used widely with increasing coverage. It creates opportunities for Indian firms to improve their working capital management and lead to increase in profitability. Balakrishnan (2011) conducted a study to investigate the effect of the adoption of emerging electronic payment options on improving working capital management and profitability of firms in India. The result suggested that electric payment (EP) affect cash management, account receivables and account payables. The emerging EP help the firm to improve the day's sales outstanding (DSO) and quickly collect payment, thus reducing the cash conversion cycle time.

Mansoori & Muhammad (2012) conducted a research in Singapore to study the effect of working capital management on firm's profitability. They used panel

data analysis, pooled OLS (ordinary least squares) and fixed effect estimation to analyze their data. The samples used were Singapore listed firms in the main board of Singapore stock market exchange (SGE) from year 2004 until 2011. Their final samples consist of 92 firms and the total number of observations for 8 years or 736. The variables used to define profitability is return on asset (ROA) while the independent variables are cash conversion cycle (CCC), receivables collection period (RCP), inventory conversion period (ICP) and payment deferrel period (PDP). Their result suggests that cash conversion cycle is negatively associated with firm protfitability. While other three variables RCP, ICP and PDP also have negative relationship with profitability. The result implies that firm profitability can be increased by shortening average collection period and inventory held period. But lengthening the days for account payable could damage firm's reputation and and decrease profitability.

Usama (2012) investigates working capital management and its affect on firm's profitability and liquidity. The study was conducted for other food sector of (KSE) Karachi Stock Exchange. They used 18 samples of companies in other food sectors which are listed on Karachi Stock Exchange (KSE). The data collected was for 5 years, starting from 2006 until 2010/ The variables used in the study are average collection period, average payment period, inventory turnover in days, cash conversion cycle, debtratio, financial asset to total asset ratio, current ratio and net operating profitability. Pooled least square regression and common effect model were used in their methodology. The study reveals negative relationship between net operating profitability and inventory turnover in days, average

collection period and the cash conversion cycle. The results explain that firm can create profit by reducing collection period to the minimum days. Besides, reducing inventory turnover days and cash conversion cylce will also result in increasing profits.

Another study was conducted by Charitou, Elfani, & Lois (2010)in Cyprus to find empirical evidence in emerging markets. They conducted this study to investigate the effect of working capital management on firm's profitability. They hypothesized that working capital management leads to improve profitability. The authors obtained samples from Cyprus Stock Exchange starting from 1998 until 2007. After excluding financial institutions and financial firms, the total sample of 43 firms was chosen. The data for each firm was collected from the annual report. The variables used in the study are return on asset, stockholding period, debtor collection period, creditor payment period and cash conversion cycle. Return on asset is used to represent firm profitability which act as dependent variable, while the other variables are represented independent variables. The natural logarithm of sales, sales growth and debt ratio are used as control variables in their regression. Multivariate regression analysis is used to test their hypothesis of components in cash conversion cycle affect profitability. The results figure out that stock holding period is inversely related to profitability. Debtor collection period was found having negative relationship with profitability while creditor payment period is inversely related to firm profitability. The fourth regression on cash conversion cycle also found to have an inverse relationship with profitability. It means cash conversion cycle and firm profitability are moving opposite of each other. When

the cash conversion cycle increase, firm profitability will decrease and vice versa. The authors finally concluded that cash conversion cycle and its components are associated with firm profitability.

Further empirical investigation on relationship between working capital management and firm's profitability was done in emerging Asian country. The study was done by Charitou, Lois, & Santoso (2012) for Indonesian market. They used a dataset of all Indonesian firms listed in Indonesian Stock Exchange for the period of 1998 to 2010. Return on asset was used as dependent variable to define firm profitability. Cash conversion cycle and net trade cycle were used as independent variables to represent working capital. Firm size, sales growth, current ratio and debt ratio were used as control variables. Pearson correlation analysis shows that return on asset has positive relation with CCC. It is consistent with the result of multiple regression analysis. This implies that a firm with a greater level of inventory and better credit term will have greater profitability, thus increase the value of the firm. Positive relations between cash conversion cycle and return on asset shows that greater cash conversion cycle leads to greater return on asset.

Bagchi & Khamrui (2012) investigated the relationship between working capital management and profitability in selected fast moving consumer goods (FMCG) companies in India. They also aim to find out the variables that affect profitability the most. They selected a sample of 10 FMCG companies and the data was obtained from CMIE database from year 2000 until 2010. Dependent variable used returns on asset while independent variables used are cash conversion cycle,

interest coverage ratio, debt to equity ratio, age of inventory, age of debtors and age of creditors. The authors used pooled ordinary least squares (OLS) regression method to test their equations. Their result suggests that in FMCG, cash conversion cycle is negatively associated with firm's profitability.

A study on working capital management and profitability was conducted in Jordan to find the empirical evidence in Industrian Jordanian companies. Shubita (2013) obtained samples of 39 companies listed in Amman Stock Exchange for 8 years from year 2004 until 2011. Profitability of firm was presented by return on asset, while independent variables used are average collection period, inventory turnover in days, average payment period and net trade cycle. The authors employed Pearson correlation to measure the degree of association between variables and regression analysis to test the relationship between dependent and independent variables. The results suggest that shortening days of collecting debt can increase profitability because average collection period has negative relation with profitability. Second and third regression also show number of day's inventories and profitability, and net trade cycle and profitability are negatively and significantly related. It concludes that firm with low net trade cycle has higher profitability.

Erasmus (2010) conducted a study on relationship between working capital management and profitability for South African industrial firms. He used samples containing both listed and delisted South African industrial firms. The research covers a period of 19 years, from 1989 to 2007. Return on asset was used as dependent variable in the study, while net trade cycle was used as independent

variable. Few control variables were also included in this study such as sales, growth, debt ratio, invest ratio and liquidity. The result shows that in listed firms, the net trade cycle has the negative relation with profitability, while for delisted firm, the relationship is positive. However, when the samples of listed and delisted firms were tested together, the result shows negative significant association between net trade cycle and firm profitability.

A research on working capital management and profitability was conducted in Pakistan to find evidence in Pakistan firms. Saghir, Hashmi, & Hussain (2011) gathered samples of 60 textile companies listed at Karachi Stock Exchange (KSE) for the period of 2001 until 2006. The total numbers of observations are 360. Data was collected form database provided by Karachi Stock Exchange which includes financial statements and annual reports of listed public limited companies. The purpose of this study is to find statistical significant relationship between profitability with cash conversion cycle and the components inside it; which are number of days accounts receivables, number of days accounts payables andnumber of days inventory. Profitability of firm is represented by return on asset, which act as dependent variable. Independent variables consist of cash conversion cycle, number of days accounts receivable, number of days accounts payable and number of days inventory. The data were then analyzed using Pearson correlation, Model Summary and ANOVA. The result suggests that profitability and cash conversion cycle are negatively related. They observed that increase in number of days' account payable will decrease firm profitability. There is also negative relationship between days' accounts receivable and firm profitabilty

which implies that less profitable firm will decrease the number of days in accounts receivable to reduce their gap in cash conversion cycle. Days inventory and firm profitability also found to to be negatively related and suggest that sudden drop in sales and bad management of inventory will result in more expenses.

Perković (2012) conducted a research in Bosnia and Herzegovina to find empirical evidence about the effects of working capital management on profitability of manufacturing firms in that country. He chose sample of 131 listed manufacturing firms from 10 industrial groups. Secondary data was collected from the firm' financial statement. Data obtained was from year 2005 to 2009. The total number of observations for five years is 655. This study used gross operating profit as a measure of firm profitability. While working capital, which act as independent variables were represented by inventory collection period (ICP), average payment period (APP), average collection period (ACP) and cash conversion cycle (CCC). Control variables used in this study are financial leverage (LEV), firm Size (in sales), and its fixed financial assets ratio (FFA). The author used ordinary least square (OLS) method to test the equation on relationship between the dependent and independent variables. He also used descriptive statistic and Pearson correlation analysis to measure the relationship between gross operating profit and all independent variables. The regression analysis suggests gross operating profit in negatively related to inventory collection period (ICP), average payment period

(APP), average collection period (ACP) and cash conversion cycle (CCC). The results are consistent with correlation analysis.

Thapa (2013) conducted a study in food and beverage industry. She examines how profitability get affected by working capital in food and beverage corporations from USA and Canada. The period of study was taken from year 2000 until 2009. The sample of study was chosen from top 100 food and beverage companies the US and Canada, which is based on their sales ranking during year 2008. The final sample consists of 74 companies after excluded the private companies and companies with unavailable data. Based on the 74 top companies, the author then selects another 30 top companies whose data were available for the study period. The variables used in this study are following previous studies by various researchers. Return on asset is used to measure the profitability of firm, while CCC is used to measure the working capital management. Cash flow, leverage, growth, size, age and tangible fixed asset were used as control variables. Thorpe did not use ratios to examine the efficiency of working capital management. Instead, she uses performance index, utilization index and efficiency index. Regression analysis also been used to investigate the relationship between profitability and working capital. The result of correlation analysis showed that profitability is positively associated with cash conversion cycle (CCC). It indicated longer CCC with generate more profits. The reason explained is increase in CCC implies increase in credit granted to customers, thus sales will increase and ultimately increases the profitability. The regression analysis result also pointed out the same relationship between CCC and profitability.

A research on influence of working capital management on food industry enterprises profitability had been conducted in Poland and selected countries of Eurozone. The reasearch conducted was based on the unpublished data by the Polish Central Statistical Office in the trade structure and dimension of food industry enterprises in Poland. The period of study started from year 2005 to 2009. Return on asset was used to measure the profitability of firm. Independent variables were represented by inventory cycle, account receivables cycle, current liabilities cycle and cash conversion cycle. Regression results of the variables suggest that inventory cycle, account receivables cycle, current liabilities cycle and the cash conversion cycle have a negative influence on small, middle and large-sized food industry enterprises. Bieniasz & Gołas (2011) concluded that efficiency of working capital management could be achieved by managing the cycles of inventory, accounts receivables, current liabilities, and cash as well as through their reference to the obtained rate of the profitability.

In contrast with Nazir & Afza (2009), Jose, Lancaster, & Stevens (1996) provide strong evidence that aggressive working capital policies enhance firm profitability. They conducted a study to examine the relationship between profitability and management of ongoing liquidity needs. The authors used a large sample of firms for 20 year period. The measure of ongoing liquidity management was presented by cash conversion cycle, while firm profitability was measured by return on asset. They found that aggressive approach to liquidity management results in lower CCC by reducing inventory and receivables period while increasing accounts payable.

Nobanee, Abdullatif, & AlHajjar (2011) studied the relationship between cash conversion cycle and firm's performance of Japanese firms. They used dynamic panel data analysis and collected sample of Japanese firms from year 1990 to 2004. Their finding shows cash conversion cycle and firm's profitability is negatively associated. The result cater for all Japanese firms which include full sample, small companies, medium companies, large companies and all industries except for consumer goods and services. Their result suggested that Japanese firms can improve the profitability of their firms by shortening the duration of CCC.

Malik & Bukhari (2014) conducted a study in cement, chemical and engineering sectors of Pakistan. Their aim of study is to investigate the relationship between working capital management and corporate performance. They collected data from non-financial firms listed on Karachi stock exchange of Pakistan for the period of 2007-2011. Corporate performance was measured using return on equity. Their finding shows that cash conversion cycle is positively and significantly associated with return on equity. This indicates that increase in cash conversion cycle can give positive impact to firm's profitability, while decrease in cash conversion cycle will give negative impact to firm's profitability. It also reflects firms that earn high profit are less motivated to manage their cash conversion cycle. This finding is contradict with Nobanee, Abdullatif, & AlHajjar (2011), Makori & Jagongo (2013) and Deloof (2003). The finding also suggests the managers of the studied firm should spend more time to manage their cash conversion cycle and create strategies of efficient management of working capital.

2.3 Control Variables

Firm Size

In determining the relationship between the independent and dependent variables, the presence of control variables has to be taken into account. Firm size is calculated as natural logarithm of total asset. Firm size is one of the important indicators for firm performance. It is normally found to have positive relationship with firm profitability as it reflects greater size of firm will generate greater profitability for firm. It shows that larger firms are better at managing their cash cycles, thus show greater profitability. However, Wasiuzzaman & Arumugam, (2013) found negative relationship between firm size and working capital investment.

In other research conducted by Sharma & Kumar (2011), they tested all four independent variables separately. Size was used as one of the control variable in their regression. The result of all tested independent variables showed that size has negative significant relationship with firm profitability. The study was conducted in Indian market and reflects that in Indian market, larger size of firm did not increase firm profitability.

Lazaridis & Tryfonidis (2006) in their study used gross operating income to represent firm profitability. Their result showed that gross operating income increases with firm size. Malik & Bukhari (2014) found that size has positive

relationship with firm profitability which indicates that increase in size will give positive influence on firm's profitability.

Iqbal, Mulani, & Kabiraj (2013) conducted a study in Pakistani cement industry to find the relationship between firm size and profitability. They used sample of 21 Pakistani cement companies which were obtained from Karachi Stock Exchange. The period of study ranging from 2007 until 2012. Size of the firm was measured using natural logarithms of sales. The data were then analyzed using descriptive statistics, Pearson correlation and regression analysis. The result indicates a presence of direct positive relationship between firm size and profitability. The result reflects that large firm size tends to earn more profitability as compared to smaller sized firms. The result is also supported by Yazdanfar (2013) in his study on determinants of profitability in Swedish firm. His result suggested firm size positively influences the profitability ratio.

However, in a study in Indian textile industry, a contradict result was found. Singla (2011) investigated the relationship between firm size and profitability. The author tested three variables to represent profitability. The empirical result suggested that firm size has negative relationship with ratio of profit margin on net sales. But for other two variables; ration of profit on total asset and ratio of profit on capital employees (ROCE) showed positive relationship.

Pouraghajan & Emamgholipourarchi (2012) investigated on working capital management's impact on profitability and market evaluation. They conducted this study to find empirical evidence in Tehran Stock Exchange. List of samples was

obtained from Tehran Stock Exchange for the year 2006 to 2009. Finally, 80 companies were selected as samples of the study. The authors used Tobin Q to measure market value, while return on asset (ROA) and return on invested capital (ROIC) were used to represent profitability of firm. Working capital act as independent variable in this study. The components used to represent working capital are cash conversion cycle (CCC), current ratio (CR), current assets to total assets ratio (CATAR), current liabilities to total assets ratio (CLTAR) and total debts to total assets ratio (DTAR). The methods adopted in this study are multiple linear regression model and double-sided Pearson correlation. Their regression result suggests that CCC is negatively and significantly associated with return on assets and return on invested capital. However, the value of Tobin Q is greater than 5%, which is higher than the 1 % significant level thus indicates the relationship is not significant. The result is consistent with Mohamad & Saad (2010).

Charitou, Lois, & Santoso (2012) conducted a research to find empirical evidence on working capital and firm's profitability. They found that in emerging Asian country (Indonesia) size of firm and the firm’s profitability is positively related. It indicates that larger firms are able to earn more profit and this is consistent with Lazaridis & Tryfonidis (2006) and Malik & Bukhari (2014)

Leverage

In this study, leverage had been taken into account as a control variable. Leverage was determined as total debt over total asset. Wasiuzzaman & Arumugam (2013) conducted a study in Malaysia to find the determinant of working capital investment in the Malaysian public listed firm. They found that leverage and working capital have negative significant association.

A study by Malik & Bukhari (2014) indicates that leverage is having a negative relationship with profitability. It shows that a decrease in leverage will results in an increase of profitability.

Nazir & Afza (2009) conducted a study in Pakistan for firms listed in Karachi Stock Exchange (KSE). They tested leverage with working capital management and found strong and negative relationship. Vural, Sokmen, & Cetenak also found relationship between leverage and firm's profitability is negative.

A study entitled "Leverage, Size of the Firm and Profitability: A Case of Pakistani Cement Industry" was conducted in Pakistani cement industry to find the relationship between leverage and firm size and profitability. The samples of the study were obtained from Karachi Stock Exchange. The period of observation starts from year 2007 until 2012. The regression result of the study showed there is a strong negative association between leverage and profitability of the firm. This indicates that increase in firm leverage can lead to decrease in firm profitability. It can be concluded that low levered firm has high profitability while firm with high leverage has lower profitability (Iqbal, Mulani, & Kabiraj).

A study for emerging Asian country was conducted in Indonesia by Charitou, Lois, & Santoso (2012). Their purpose was to find empirical evidence on the effect of working capital management with firm's performance. Debt ratio has been used as one of the control variables in the study. Multiple regression analysis found that debt ratio has an inverse relationship with the firm's profitability. It shows that high risk is an obstacle for a firm's profitability. This is regarding the fact that higher debt levels result to increase in interest expense, thus it increase the probability of default.

Current ratio

Current ratio is a liquidity ratio that measures a firm's ability to fulfill its short term obligations. The ratio is calculated as current assets over current liabilities. Current ratio is used as one of the control variables in this study. The ratio of more than one shows the firm is able to pay its short term obligation while below one ratio indicates that the firm did not have enough cash to pay its short term debt. A study by Sharma & Kumar (2011) found that current ratio has a positive insignificant relationship with firm profitability when tested with days inventory held, days account payables and cash conversion cycle. The result shows a negative relationship when tested with days account receivables.

Sales growth (Growth)

Sales growth has a positive influence of investment in working capital as mentioned by Wasiuzzaman & Arumugam (2013).While Sharma & Kumar (2011) found sales growth has a negative insignificant relationship with firm profitability when tested with all four independent variables; the days account payables, days account receivables, days inventory held and cash conversion cycle.

Lazaridis & Tryfonidis (2006) in their used gross operating income to represent firm profitability. Their result showed that gross operating income increases with sales growth. Yazdanfar (2013) in his study in Swedish firm found that growth has a positive influence to the firm profitability. It implies that firm with greater growth has better access to resources, thus positively influence profitability.

Charity, Elfani, & Lois (2010) conducted a study in Cyprus on working capital and firm's profitability. The objective of their study is to find evidence on the relationship between working capital and profitability. They used sales growth as one of the control variables. At the end of the study, the result reveals that sales growth has positive relationship with return on asset. It implies that higher growth can increase profitability.

2.4 Summary of the chapter

Chapter two provides the literature review of dependent variable, independent variables and control variables. Dependent variable used is firm profitability which represented by return on asset (ROA), while independent variables of

working capital represented by days account payables, days account receivables, day's inventory held and cash conversion cycle. The control variables used in the study are firm size (size), leverage, current ratio and sales growth (growth).

CHAPTER 3

METHODOLOGY

3.0 Introduction

This chapter discusses on the methodology used to conduct this research. The methodology used is very important to ensure the reliability and accuracy of the findings. In this chapter author developed the research framework to get a clearer view on the variables studied. The research framework shows the framework of study on the impact of days accounts payable, days accounts receivable, days inventory and cash conversion cycle to the profitability (ROA) of a firm. Calculation for each sector was done separately to compare the performance result regarding the sectors. This chapter also discusses on the hypotheses development, data collection method, the measurement of variables and data analysis techniques.

3.1 Research Design

This study used variables to test the relationship between the working capital management and firms' profitability. Descriptive statistics and quantitative analysis are used in research methodology. Quantitative method is used because this study use financial data which is collected in the Data Stream.

Further, ordinary least square is used to perform regression analysis. The time series and cross sections will be combined to do the research because this study uses five years' time periods and observe the behaviors of working capital components of the firm throughout those five years.

3.2 RESEARCH FRAMEWORK

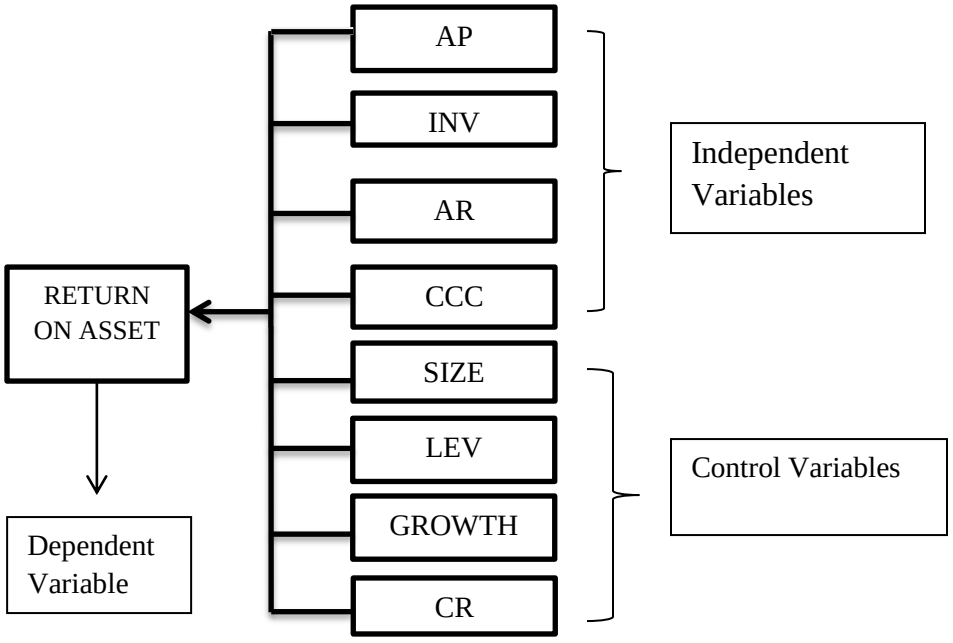

Figure 1 : Research framework

The research framework shows return on asset (ROA) act as dependent variable while the days' accounts receivable (AR), days' inventory held (INV), days' accounts payable (AP) and cash conversion cycle (CCC) act as the independent variables. While firm size (SIZE), leverage (LEV), sales growth (GROWTH) and current ratio (CR) act as control variables.

3.3 HYPOTHESES

Hypothesis 1 is developed to study the impact of days accounts receivable to the profitability of a firm which was calculated as return on asset. Days account receivables indicate the number of days taken by a firm to collect its outstanding invoice while ROA defines the efficiency of a firm to generate profit by using its asset. The purpose of developing this hypothesis is to find whether number of days to collect outstanding invoice give impact to the firm's ability to generate profit using its asset.

Previous studies by Makori & Jagongo (2013), Lazaridis & Tryfonidis (2006), Deloof (2003), Garcia (2011), Mansoori & Muhammad (2012), Usama (2012), Charitou, Elfani, & Lois (2010), Shubita (2013), Saghir, Hashmi, & Hussain (2011) and Perkovic (2012) suggested that days' account receivables have negative relationship with return on asset. It implies that any increase in one day of the collection day will decrease firm profitability. Therefore, it is hypothesized that days' accounts receivable and return on asset is negatively associated.

H1: There is a negative relationship between day accounts receivable and firm profitability

Hypothesis 2 is developed to study the impact of day's inventory to the profitability of a firm which was calculated as return on asset. Days inventory indicate the number of days a firm holds its inventory before turning it into sales.

This hypothesis is used to determine whether the number of days inventory's hold will give impact to the firm's ability to generate profit using its asset.

Previous studies by Sharma & Kumar (2011), Lazaridis & Tryfonidis (2006), Deloof (2003), Malik & Bukhari (2014), Garcia (2011), Mansoori & Muhammad (2012), Usama (2012), Shubita (2013), Saghir, Hashmi, & Hussain (2011) and Perković (2012) suggested that inventory has negative association with firm profitability. This indicates that increase in number of days inventory held will negatively affect firm profitability. Therefore, it is hypothesized that days' inventory held have negative association with return on asset.

H2 : There is a negative relationship between days inventory held and firm profitability

Hypothesis 3 is developed to study the impact of days account payables to the profitability of a firm which was calculated as return on asset. Days accounts payable indicate the number of days a firm took to clear its outstanding accounts payable. This hypothesis is generated to study whether the number of days to settle outstanding accounts payable would give impact to the firm's ability to generate profit using its asset.

Previous studies by Sharma & Kumar (2011), Lazaridis & Tryfonidis (2006), Deloof (2003), Malik & Bukhari (2014), Garcia (2011), Mansoori & Muhammad (2012), Saghir, Hashmi, & Hussain (2011) and Perković (2012) suggested that days' accounts payable have negative relationship with return on asset. It indicates that increase in number average payment period will reduce firm profitability.

This implies that firms with lower profits tend to wait longer to pay back to their creditors. Therefore, it is hypothesized that days' accounts payable have negative relationship with return on asset.

H3 : There is a negative relationship between days accounts payables and firm profitability

Hypothesis 4 is developed to study the impact cash conversion cycle (CCC) to the profitability of a firm which is calculated as return on asset. CCC indicates the number of days a firm will take to convert it resource input into cash. This hypothesis is generated to determine whether the number of days in CCC would give impact to the firm's ability to generate profit using its asset.

Previous researchers found negative associations between cash conversion cycle and return on asset. It is supported by Nobanee, Abdullatif, & AlHajjar (2011), Deloof (2003), Makori & Jagongo (2013), Garcia (2011), Mohamad & Saad (2010), Alavinasab & Davoudi (2013), Lazaridis &Tryfonidis (2006), Mansoori & Muhammad (2012), Usama (2012), Charitou, Elfani, & Lois (2010), Bagchi & Khamrui (2012),Saghir, Hashmi, & Hussain (2011) and Perković (2012). The negative relationship between cash conversion cycle (CCC) and return on asset explains that longer CCC will decrease firm profitability. In contrast, shorter CCC should promotes greater profitability for firm.

Hence, it is hypothesized that cash conversion cycle and return on asset have negative relationship.

H4 : There is a negative relationship between cash conversion cycle (CCC) and firm profitability

Listed below are the hypotheses for two different studied sectors:

Construction and Material sector:

H1a : There is negative relationship between days accounts receivable and firm profitability

H2a : There is negative relationship between days inventory and firm profitability

H3a : There is negative relationship between days accounts payable and firm profitability

H4a : There is negative relationship between cash conversion cycle (CCC) and firm profitability

Food Producer sector:

H1b : There is negative relationship between days accounts receivable and firm profitability

H2b : There is negative relationship between days inventory and firm profitability

H3b : There is negative relationship between days accounts payable and firm profitability

H4b : There is negative relationship between cash conversion cycle (CCC) and firm profitability

3.4 DATA COLLECTION SAMPLING AND PROCEDURE

The data consist of 69 firms in Malaysia's capital market. The firms are selected from two different major sectors which contribute the largest number in the Data Stream. They are construction & material sector and food producer sector. All firms are listed in Bursa Malaysia. However, due to difference in the categories of sector provided by Bursa Malaysia and DataStream, data are obtained from the list of sectors provided in the Data Stream in order to have a smooth data collection. This is because the major sources of data in this study are coming from DataStream.

Construction and material sector is chosen because of its importance in Malaysia. Construction is an essential part of any country's infrastructure and industrial development. Forecasting working capital along with cash requirements is essential for all construction contractors during the tendering stage since cash flow at the beginning of the project is a major cause of construction companies' failure. In the contracting business, construction firms are generally more concerned with short-term financial strategies than the long-term ones. The construction industry generates substantial employment and provides a growth impetus to other sectors through backward and forward linkages. It is essential, therefore, this vital activity is nurtured for the healthy growth of the economy. The construction industry in Malaysia provides job opportunities to approximately 800,000 people.

Food producer sector is chosen to be studied because of it significant roles in Malaysia's economy. It does not only serve as source of employment, but is also a market outlet and added value for primary agricultural product. Food producer industry was identified as a top priority for industrial development under the Industrial Master Plan (IMP) for 1986-1995. According to a 1990 survey by the Ministry of International Trade and Industry (MITI), the food small and medium industries (SMIs) constitute the largest group among all SMIs up to 32 percent.

For construction and material sector, the total number of firms available are 105 and food producer is 77. Out of the total number of 182 firms, the firms with no complete data were removed. The observations period for this study covers for 5 years period of observation from year 2008 until 2012. The period chose is based on the most recent years of data availability. The number of firms available for construction and material is 37 which makes the total number of observation amounted to 185 for 5 years. The number of firms for food producer sector is 32, so the total number of observation is 160 for 5 years.

The criteria used to select the sample in construction & material sector and food producer sector is as follows:

1) Listed in Bursa Malaysia
2) Construction & material sector/ food producer sector
3) All data must available for year 2008-2012

Firms without the financial information within the 5 years of observation have been eliminated from the sample. The filtration of samples are done as follows:

Construction & Material	Food Producer
Initial samples: 105	Initial samples: 77
Less : samples with incomplete data: (68)	Less : samples with incomplete data : (45)
Total : 37	Total : 32

Table 3.4 : Sample selection procedure

3.5 MEASUREMENT OF VARIABLES

The researcher used OLS regression equations following the previous research by Sharma and Kumar (2010) and Nazir and Afza (2009) to test on cash conversion cycle (CCC). However, other three independent variables are regressed together in one regression model. The variables are days accounts payable (AR), days inventory held (INV) and days accounts payable (AP). It supported by (Makori & Jagongo, 2013) which used linear regression analysis. CCC is not included with other variables and it is run separately because of high degree of multicollinearity. Due to the reason, it was automatically excluded from equation in SPSS.

The regression for CCC is done alone, while other variables are regressed together to save time as this study consists of two different sectors which need to be regressed separately to see the difference in results for each sector.

Model 1:

$$ROA_{it} = \beta_0 + \beta_1 AR_{it} + \beta_2 INV_{it} + \beta_3 AP_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 CR_{it} + \beta_7 GROWTH_{it} + e_{it} \quad (1)$$

Model 2:

$$ROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 \beta_2 LEV_{it} + \beta_4 CR_{it} + \beta_5 GROWTH_{it} + e_{it} \quad (2)$$

ROA measures return on assets, AR measures days' accounts receivable, INV measures days inventory held, AP measures days' accounts payable, while CC measures cash conversion cycle. SIZE measures firms' size, LEV measures leverage, CR measures current ratio and GROWTH measures sales growth. The subscript i denotes firm (cross section dimension) and t denoting years (time series dimension) ranging from 2008-2012, while e denotes error term.

Return on asset is used as independent variable because it has better measurement as compared to other variable. This is because ROA measurement relates the profitability of the business to the asset based. Previous studies by Sharma & Kumar (2011), Caballero, Garcia-Teruel, & Matinez-Solano (2012), Mohamad & Saad (2010), Alavinasab & Davoudi (2013), Jose, Lancaster, & Stevens (1996) and Makori & Jagongo (2013) used return on asset to measure firm profitability in their studies. Return on asset is calculated as earning before interest and tax (EBIT) over total assets.

The independent variables used in this study also supported from previous literatures. Sharma & Kumar (2011) and Perkovic (2012) used the same four independent variables to study the impact of working capital for firm's profitability. Same independent variables also used by Bieniasz & Gołas (2011) which conducted a study in food industry in Poland. Day accounts receivable (AR) is calculated as accounts receivables/ (sales/365), day accounts payables is calculated as accounts payable/ (COGS/365) , day inventory held is calculated as average inventories/(COGS/365) and CCC is calculated as AR plus INV minus AP.

There are four control variables provided in the equations which are GROWTH (the sales growth), LEV (the leverage) SIZE (company size) , and CR (current ratio). These variables had been used in previous studies such as Sharma & Kumar (2011), Charitou, Lois, & Santoso (2012) and Saghir, Hashmi, & Hussain (2011). Sales growth calculated as $(Sales_1\text{-}Sales_0)/Sales_0$, leverage calculated as total debt over total asset, size is calculated as natural logarithm of total asset and current ratio is calculated as current assets over current liabilities.

Variables	Measurement	Expected Sign
Days' account receivables (AR)	Accounts receivables/ (sales/365)	Negative
Days' inventory held (INV)	Average inventories/(COGS/365) *Perkovic (2012)*	Negative
Days' account payables (AP)	Accounts payable/ (COGS/365) *Perkovic (2012)*	Negative
Cash conversion cycle (CCC)	AR+INV-AP *Perkovic (2012) ,Sharma & Kumar (2011)*	Negative
Firm size (SIZE)	Natural logarithm of total asset *Sharma & Kumar (2011)*	Positive
Sales growth (GROWTH)	$(Sales_1\text{-}Sales_0)/Sales_0$ *Sharma & Kumar (2011)*	Positive
Leverage (LEV)	Total debt/total asset *Sharma & Kumar (2011)*	Negative
Current Ratio (CR	Current assets/current liabilities *Sharma & Kumar (2011)*	Positive

Table 3.5 : Measurement of Variables

3.6 DATA ANALYSIS TECHNIQUES

In this study, ordinary least square (OLS) method is used to study the relationship between days account receivables, days account payables, days inventory and cash conversion cycle with return on asset. The analysis used are descriptive analysis, correlation of variables and regression analysis.

3.6.1 Descriptive Analysis

Descriptive analysis normally helps to obtain the summary details about the collected data. Descriptive analysis is a table of summary statistic which includes the maximum and minimum value, the mean and also mode and median. It also measures the variability of variables including the standard deviation. Descriptive statistics provide simple summaries about the sample studied.

3.6.2 Correlation of Variables

The correlation of variables was presented in correlation matrix table. It shows negative or positive correlation between the variables to indicate the positive or negative relationship between the studied variables. Correlation is a relationship between two variables where both are moving in tandem. The value +1.00 indicates perfect positive correlation between variables, while a 0.00 indicates no correlation and a -1.00 indicates a perfect negative correlation. Positive correlation occurs when two variables moving in same direction. For example, when one variable decreases, the other variable also decreases too and vice versa.

3.6.3 Regression Analysis

Linear regression analysis is adopted in order to study the relationship between dependent variable and independent variables. In this study, linear regression is used to study the relationship between ROA and days' account receivables (AR), ROA and days' inventory held (INV), ROA and days account payables (AP), and ROA and cash conversion cycle (CCC). AR, INV and CCC is regressed together in multiple regression analysis while CCC is regressed alone in second model due

to high multicollinearity. The regression is done for two different sectors to find the result for each sector.

3.7 Summary of the chapter

Chapter 3 provides discussion on the methodology used to perform this study. It also discussed on the research frameworks which shows the dependent and independent variables to be studied in this paper. The hypothesis development also been explained to show how the hypothesis was developed and to explain the relationship between dependent and independents variables tested. This chapter further discussed on the data collection sampling and procedure followed by the measurement of variables which used ordinary least square method. Finally this chapter discussed on the data analysis techniques used to conduct this study.

CHAPTER 4

RESULT AND ANALYSIS

4.0 INTRODUCTION

This present chapter discusses on the findings of the study. The analysis techniques used were descriptive statistics, correlation analysis and regression analysis. The data collected were analyzed Statistical Package for the Social Sciences (SPSS).

At the end of the chapter, there will be a discussion on the findings.

4.1 CONSTRUCTION AND MATERIAL SECTOR

4.1.1 Descriptive Statistic

Table 4.1.1 Summary Of Descriptive Statistic For Construction And Material Sector

	N	Mean	Std. Deviation
ROA	185	3.1015	7.0499
AR	185	209.2486	460.7583
INV	185	219.2810	395.7005
AP	185	161.5956	525.0094
CCC	185	266.9405	579.1540
SIZE	185	12.7861	1.1948
LEVERAGE	185	0.2201	0.1324
CR	185	2.1214	1.5605
GROWTH	185	13.3317	89.2026
Valid N (listwise)	185		

Table above shows the summary of descriptive statistic for construction and engineering sector. Mean for return on asset (ROA) is 3.1015, while standard deviation calculated for ROA is 7.049975. Day's account receivables (AR) have mean of 209.2486 and standard deviation of 460.7583. For days inventory (INV), the mean and standard deviation calculated are 219.2811 and 395.7006. It indicates the average of holding inventory for construction and material sector is 219 days. Mean and standard deviation for cash conversion cycle (CCC) are 266.9405 and 579.154. Size has mean and standard deviation of 12.7861 and 1.1948 . For leverage, the calculated mean and standard deviation is .2201 and .1324. The statistic for current ratio shows a mean 2.1214 and standard deviation is 1.5605.

4.1.2 Correlation Analysis for Construction and Material Sector

Table 4.1.2 : Correlation Matrix

	ROA	AR	INV	AP	CCC	SIZE	LEV	CR	GROWTH
ROA	1								
AR	-0.2899	1							
INV	-0.1301	0.0759	1						
AP	0.0129	0.2461	0.5238	1					
CCC	-0.3312	0.6242	0.2688	-0.3528	1				
SIZE	0.2469	0.0506	0.0403	0.2194	-0.131	1			
LEV	-0.2088	0.0139	-0.0126	-0.0119	0.0132	-0.0395	1		
CR	0.2772	-0.1241	0.0119	-0.0888	-0.0101	0.0557	-0.5212	1	
GROWTH	0.1067	-0.0988	-0.0931	0.0055	-0.1472	0.076	0.1871	-0.0378	1

Correlation analysis is used as a method to determine the level of relationship between each tested variables. Correlation of $\pm$ 1 shows perfect positive or negative relationship. It starts from 0 which indicates no relationship, and 1 as perfect relationship. ROA has negative relationship with AR, INV, CCC and LEV. The relationship between ROA wit AR, INV and LEV is considered small as the value is less than 0.29 while CCC has medium relationship as its value more than 0.3. Large relationship is determined when the correlation is more than 0.5. The relationship between LEV and CR is considered large as the correlation is -0.5212.

4.1.3 Multicollinearity and Autocorrelation Test for Construction and Materials Sector

Table 4.1.3 : Multicollinearity Statistics for Model 1 and 2

	Model 1		Model 2	
Model	Collinearity Statistics	Autocorrelation Statistic	Collinearity Statistics	Autocorrelation Statistic
	VIF	D-W statistic	VIF	D-W statistic
(Constant)		2.169		2.162
AR	1.0951			
INV	1.4237			
AP	1.5780			
SIZE	1.0720		1.025	
LEV	1.4405		1.431	
CR	1.4292		1.382	
GROWTH	1.0749		1.071	
CCC			1.039	

Multicollinearity test is conducted to find the presence of multicollinearity. The most common used method to detect multicollinearity is Variance Inflation Factor (VIF). The function of multicollinearity test is to discover whether the explanatory variables in multiple regression are highly linearly correlated.

An optimum value of VIF should be in range 1 until 10. If the value exceeds 10, it indicates that the independent variables have high correlations which lead to a multicollinearity problems. The three independent variables was tested in one equation except for CCC which has been automatically excluded the equation. To summarize the result, all VIF for days account receivables, days inventory, and days account payable for construction and materials sector are ranging from 1.0 to

10. This indicates that the value is good and in the range of optimum value, so it shows no presence of autocorrelation. The result of autocorrelation test gave D-W statistic a value of 2.169 and 2.162. It is in the range of 0 to 4 which indicates an optimum value. It can lead to conclusion that there is no autocorrelation and multicollinearity in the data

4.1.4 Linear Regression Analysis Construction and Material sector

	Construction and Materials	
	AR, INV, AP	CCC
AR	**-0.004*** **	
INV	**-0.003** **	
AP	**0.002***	
SIZE	**1.271** **	**1.103***
LEV	-5.911	-5.317
CR	**0.858** **	**0.97***
GROWTH	0.006	0.006
CCC		**-0.004***
R square	.248	.231
Adj. R square	.219	.210
F value	8.360	10.777

*** *Significant at 0.01*

***Significant at 0.05*

**Significant at 0.1*

Table 4.1.4 : Linear Regression Result for Model 1 and Model 2

R-square indicates how much percentage is explained by the benchmark index. R-square can vary from 0 to 100. An R-square of 100 means the entire index is explained by the variable. In this model, R-square for both models is 20%, so this

means the proportion of return on asset (dependent variable) is explained by the independent variables are 20%. Adjusted R-square is used to compensate for the additional variable in the model. In this context adjusted R-square is 21.9%. The F value for this model shows significant value of 8.360. An optimum significant value of F should be lower than 0.05, so the value of F in this model is good as it show significant value of .000 which is lower than 0.05.

For construction and material sector, all three independent variables in first equation have significant coefficient value. Days' accounts receivable (AR) and days inventory held (INV) have negative significant value as they are negatively related to return on asset (ROA). The decrease in one day of AR and INV will increase ROA by 0.004 and 0.002%. The result of AR is contradicted with Sharma & Kumar (2011) and Malik & Bukhari (2014). However, it is supported by Deloof (2003) and Garcia (2011), Lazaridis & Tryfonidis (2006), Makori & Jagongo (2013), Mansoori & Muhammad (2012), Usama (2012), Shubita (2013) and Charitou, Elfani, & Lois (2010).

The regression result of INV indicates negative significant result with firm profitability. It's supported by Deloof (2003), Lazaridis & Tryfonidis (2006), Mansoori & Muhammad (2012), Usama (2012), Saghir, Hashmi, & Hussain (2011), Perković (2012) and Garcia (2011). However, days' accounts payable (AP) has a positive significant relationship with ROA which is contradicted with Sharma & Kumar (2011), Lazaridis & Tryfonidis (2006), Deloof (2003), Garcia (2011) and Malik & Bukhari (2014). They found that AP has a negative relationship with firm profitability which implies that longer duration of AP will

reduce firm profitability. However, this present study is supported by Makori & Jagongo (2013) and O.N & Radharamanan (2011) which found that AP has a very significant relationship with ROA.

Model 2 used CCC as independent variable and shows value of the coefficient is significantly negative. This result is highly supported by Makori & Jagongo (2013), Nobanee, Abdullatif, & AlHajjar (2011), Deloof (2003), Mohamad & Saad (2010), Garcia (2011), and Alavinasab & Davoudi (2013). However, it is contrasted with Sharma & Kumar (2011), Charitou, Lois, & Santoso (2012) and (Malik & Bukhari, 2014) as they found that CCC has a positive relationship with firm profitability. To explain further, in construction and material sector, the negative relationship between CCC and ROA implies that shortening the length of CCC can help firm earn more profit. In contrast, any increase in CCC will reduce firm profitability by 0.004 %.

All control variables in both models show a consistent relationship with correlation analysis. Size shows positive relationship which is consistent with findings from Wasiuzzaman & Arumugam (2013), Lazaridis & Tryfonidis (2006), Iqbal, Mulani, & Kabiraj (2013) and Yazdanfar (2013). It implies that firm with greater size can generate greater profitability. While for leverage, negative relationship is identified as it indicates lower leverage will increase return on asset. This finding is consistent with Wasiuzzaman & Arumugam (2013), Malik & Bukhari (2014), Nazir & Afza (2009) and Iqbal, Mulani, & Kabiraj (2013). The regression result suggests that current ratio has a positive relationship with return on asset in both models. It is supported by (Sharma & Kumar, 2011) in his three

regressions for days' inventory held, days' account payables and cash conversion cycle. The fourth control variable; sales growth is also found to have a positive relationship with firm profitability. It implies that firm with greater sales growth has better access to resources, thus can positively affect the profitability of the firm. This result is consistent with Wasiuzzaman & Arumugam (2013), Lazaridis & Tryfonidis (2006) and Yazdanfar (2013)

.

4.2 FOOD PRODUCER SECTOR

4.2.1 Descriptive Statistic

Table 4.2.1 Descriptive Statistics

	N	Mean	Std. Deviation
ROA	160	8.4856	7.6351
AR	160	48.0625	40.9892
INV	160	70.3437	91.8282
AP	160	45.3812	42.1864
CCC	160	73.0250	118.0056
SIZE	160	13.3779	1.2214
LEV	160	0.1868	0.2770
CR	160	6.8605	13.9687
GROWTH	160	13.8613	33.6014
Valid N (listwise)	160		

The table above shows the summary of descriptive statistic for the food production sector.. The standard deviation calculated for ROA is7.6351 while the mean is 8.4856. Day's account receivables (AR) have a mean of 48 days and standard deviation of 40.99. For days inventory (INV), the mean and standard deviation are 70.34 and 91.83. Mean and standard deviation calculated for cash conversion cycle (CCC) are 73.03 and 118.01. This indicates the average of cash conversion cycle period in food producer sector is 73 days. Size has mean and standard deviation of 13.38 and 1.22, while leverage has mean and standard deviation of .1869 and .2771. Current ratio shows a mean of 6.86 and standard deviation calculated is 13.97.

4.2.2 Correlation Analysis

Table 4.2.2 : Correlation Matrix

	roa	ar	inv	ap	ccc	size	leverage	cr	growth
roa	1								
ar	-0.238	1							
inv	-0.1044	0.6769	1						
ap	-0.0734	0.4194	0.2081	1					
ccc	-0.1377	0.7242	0.9389	-0.0499	1				
size	0.1336	-0.438	-0.0898	-0.1927	-0.1532	1			
leverage	-0.2114	0.1216	0.1388	-0.0256	0.1594	0.0794	1		
cr	-0.1304	-0.1583	-0.1467	-0.0775	-0.1414	-0.1024	-0.3946	1	
growth	0.3501	-0.1152	0.0112	0.0286	-0.0415	0.0142	0.0951	-0.1349	1

The table shows correlation matrix for food producer sector. It shows the relationship between each variable tested. ROA has negative correlation with AR, INV,AP, CCC, LEV and CR. While only size and growth have positive correlation with ROA. All the correlation show small relationship as the values are less than 0.3 except for relationship between growth and ROA, which is 0.3501 and considered has medium relationship.

4.2.3 Result and Analysis for Model 1

Table : Multicollinearity & Autocorrelation Result

	Model 1		Model 2	
Model	Collinearity Statistics	Autocorrelation Statistics	Collinearity Statistics	Autocorrelation Statistics
	VIF	D-W statistic	VIF	D-W statistic
(Constant)		2.162		1.945
AR	3.119			
INV	2.126			
AP	1.256			
SIZE	1.449		1.045	
LEV	1.215		1.208	
CR	1.255		1.219	
GROWTH	1.083		1.026	
CCC			1.072	

Multicollinearity test conducted to find the presence of multicollinearity. The most common used method to detect multicollinearity is VIF (Variance Inflation Factor). The function of multicollinearity test is to detect whether the explanatory variables in multiple regression are highly linearly correlated. An optimum value of VIF should be in range 1 until 10. If the value exceeds 10, it indicates that the independent variables have high correlations which lead to a multicollinearity problems. All three independent variables were tested in one equation except for CCC. To summarize the result, all VIF for days account receivables, day's inventory, days account payable and cash conversion cycle for construction and materials sector are ranging from 1.02 to 3.12. This indicates that the value for both regression is good and in the range of optimum value. Value of D-W statistic

is 2.162 and 1.945 which is in range of 0 to 4. It can lead to conclusion that there is no autocorrelation and multicollinearity in the data

4.2.4 Linear Regression Analysis for Model 1 and Model 2

	Construction and Materials	
	AR, INV, AP	CCC
AR	-.038	
INV	.004	
AP	-.005	
SIZE	.256	1.678*
LEV	-14.802***	-4.209***
CR	-.129**	-2.728*
GROWTH	.074***	4.898***
CCC		-1.146
R square	.263	.245
Adj. R square	.229	.221
F value	7.756	9.998

*** *Significant at 0.01*

***Significant at 0.05*

**Significant at 0.1*

R-square indicates how much percentage is explained by the benchmark index. R-square can vary from 0 to 100. An R-square of 100 means the entire index is explained by the variable. In both models, R-square is 26.3 and 24.5%, so this means the proportion of return on asset (dependent variable) is explained by the independent variables are 26.3% in model 1 and 24.5% in model 2. Adjusted R-square is used to compensate for the additional variable in the model. In these models adjusted R-square is around 22%. R-square and adjusted R-square are consistent with previous studies by Charitou et al. (2012 and Perkovic (2012).

The F value for this model shows significant value of 7.756 and 9.998. An optimum significant value of F should be lower than 0.05, so the value of F in this model indicates the whole regression is worthwhile.

For model 1 in the food production sector, all independent variables of days' accounts receivable (AR), days' inventory held (INV) and days' accounts payable (AP) did not show significant coefficient value. AR and AP show negative values while INV shows positive value. A lot of previous studies found that the AR has a negative relationship with firm profitability. This present study is consistent with Makori & Jagongo (2013), Lazaridis & Tryfonidis (2006), Deloof (2003), Garcia (2011), Saghir, Hashmi, & Hussain (2011), Charitou, Elfani, & Lois (2010) and Perković (2012). The negative association implies that the decrease in the number of days' account receivables will add the profitability of the firm. The finding is in line with corporate finance theory which mentions that the lesser the number of days' account receivables, the more it will add to firm profitability.

This present study found a positive association between days' inventory held (INV) and firm profitability. This result is contradict with a lot of previous studies such as Lazaridis & Tryfonidis (2006), Sharma & Kumar, (2011), Deloof (2003), Shubita (2013) and Mansoori & Muhammad (2012). Their results indicate lower number of days taken by a firm to hold its inventory before selling it will increase profitability of firm. However, this present result is consistent with O.N & Radharamanan (2011) and Makori & Jagongo (2013).

The regression result for days' account payables (AP) suggests a negative relationship with firm profitability. It implies that higher number of days in account payables will decrease firm profitability. Deloof (2003) argues that less profitable firm tends to delay payment to creditors. The result is consistent with previous studies done by Sharma & Kumar (2011), Lazaridis & Tryfonidis (2006), Deloof (2003), Malik & Bukhari (2014), Garcia (2011), Mansoori & Muhammad (2012), Saghir, Hashmi, & Hussain (2011) and Perković (2012).

The result on CCC for second regression produces negative insignificant result for CCC with a value of -. 005. This result is highly supported by Deloof (2003), Nobanee, Abdullatif, & AlHajjar (2011), Makori & Jagongo (2013), Garcia (2011), Mohamad & Saad (2010), Alavinasab & Davoudi (2013) and etc. However, it is contrast with Sharma & Kumar (2011), Charitou, Lois, & Santoso (2012) and Malik & Bukhari (2014) as they found that CCC has positive relationship with firm profitability. This present study proves that the decrease in CCC can lead to positive or increase in firm profitability for food producer sector in Malaysia.

The regression results for both models show consistent result for the relationship between control variables and firm profitability. Size has positive significant relationship with firm profitability to imply that increase in size of a firm can positively affect profitability of the firm. It also indicates that firms with greater size are better at managing their cash cycle, which will bring to increment in profitability of firm. This result is supported by Yazdanfar (2013), Lazaridis &

Tryfonidis (2006), Iqbal, Mulani, & Kabiraj (2013) and Wasiuzzaman & Arumugam (2013).

LEV and CR are negatively correlated with firm profitability which indicates that any increase in leverage and current ratio will decrease the firm profitability. LEV result is supported by Wasiuzzaman & Arumugam (2013), Malik & Bukhari (2014), Nazir & Afza (2009) and Iqbal, Mulani, & Kabiraj (2013). While current ratio result is consistent with Sharma & Kumar (2011) in their regression between AR and firm profitabiltiy.

The fourth control variable; sales growth shows a positive relationship, suggesting that increase in company sales growth can increase firm profitability. It indicates that greater sales growth has better access to resources, thus can positively influence profitability. This is supported by Wasiuzzaman & Arumugam (2013), Lazaridis & Tryfonidis (2006) and (Yazdanfar, 2013). However, it is contradicts with all Sharma & Kumar (2011) results in their models.

4.3 Discussion Of Findings

Table 4.3 : Summary of Findings

	Construction and Materials		Food Producer	
	AR, INV, AP	CCC	AR, INV, AP	CCC
AR	-0.004		-0.038	
INV	-0.003		0.004	
AP	0.002		-0.005	
SIZE	1.271	1.103	0.256	0.751
LEV	-5.911	-5.317	-14.802	-14.911
CR	0.858	0.97	-0.129	-0.115
GROWTH	0.006	0.006	0.074	0.079
CCC		-0.004		-0.005
Adj. R^2	.219	.210	.229	.221

4.3.1 Construction and Material Sector

Based on the result in the first model, H1a, H2a and H4a are accepted. H1a states the presence of a negative relationship between firm profitability and days account receivables while H2a stated firm profitability and day's inventory held has negative relationship. The regression result is consistent with H1a and H1b. However, H3a states that there is negative relationship between ROA and AP in which the regression result shows positive significant result. Thus, H3a is rejected. The hypothesis for model two (H4a) states that there is negative relationship between the profitability of the firm and CCC. The hypothesis is consistent with the regression result, therefore, H4 is accepted. All results for four tested independent variables in construction and material sector show significant result. This indicate that the variables have strong relationship with firm's profitability.

4.3.2 Food Producer Sector

Based on the result of model 1 for regression in food producer sector, H1b is accepted as the result shows the presence of negative relationship between firm profitability (ROA) with days account receivables. However, H2b is rejected as the regression result shows opposite relationship with H2b which day's inventory held and ROA are negatively associated. H3b mentions about negative relationship between days' account payables with firm profitability. The regression result shows a consistent relationship, therefore H3b is accepted. In model 2 CCC regression analysis show negative insignificant relationship with ROA, therefore H4b is accepted.

4.4 Summary of the chapter

Chapter 4 discussed on the findings of this study. The results for descriptive statistics, correlation analysis, Multicollinearity and Autocorrelation Test and Multiple Linear Regression Analysis are presented in this chapter. The results are analyzed with evidences from previous studies.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter is presented to discuss on the findings in this study as well as to summarize the result of the whole study. This section discusses on the results for two studied sectors and also contributions of this study. The final section in this chapter discusses on future research that should be done in future to improve the result of present study.

5.2 Summary Of Study

This chapter discusses on the finding of the study, which used multiple regression analysis. All the results were proven with previous studies. The result for each sector is different as the nature of the business is not same. The aim of this study is to investigate the relationship between days' account receivables, days' inventory held, days' account payables and cash conversion cycle with the dependent variable; ROA. This study is done for two sectors separately so that the result obtained will be more reliable as they are difference in the business nature.

The summary of the hypotheses is presented below:

Construction & Material	Food Producer
H1a - Accepted	H1b - Accepted
H2a - Accepted	H2b - Rejected
H3a - Rejected	H3b - Accepted
H4a - Accepted	H4b - Accepted

Firms profitability in construction and material sector is found to have a negative associations with days' accounts receivable (AR), days' inventory held (INV) and cash conversion cycle. It implies that reduction in days' accounts receivable, days' inventory held and cash conversion cycle (CCC) will increase profitability of firm. It only has positive relationship with days' accounts payable. It explains firms wait and delay their payment in order to enjoy benefit of credit period given by their suppliers.

In food producer sector, AR, AP and CCC have a negative relationship with firm profitability. Shorter AR and AP will contribute to higher profitability as the firms are able to collect their invoice faster and can settle their account payable in short time. Negative relationship between CCC and profitability implies that firms in food producer sector can increase firms' profitability by decreasing the length of CCC. Days' inventory held has positive relationship with profitability which is

against the theory in finance. It indicates that longer days' for inventory held will increase firm profitability. The result is contradict with many previous studies. However, the coefficient result did not reach significant level. Other independent variables such as AP and AR also did not have significant value for firms in food producer sector.

Leverage in both models for both sectors has given negative result which can prove that decrease in leverage will lead to increase in firm profitability. Leverage was calculated as total debt over total asset. Lower number of leverage reflects lower debt for a firm thus it can increase firm profitability. Size which act as control variable also shows positive value for all models. It proves that increase in firm size can positively impact firm profitability. Sales growth also show positive relationship in all models for all sectors. It indicates that in all sector, higher growth will increase the firms' profitability. Current ratio also has positive value in all regression in both models. It can be concluded that in all sectors, higher current ratio will add to firms' profitability.

5.3 Contribution Of The Study

This study contributes the body of knowledge by identifying how working capital management affect firm's profitability and how managers use working capital strategies to increase the firm's market value. Moreover, this study focus on the effect of working capital management on firm's performance and shed more light

to how managers affect firm's profitability by managing working capital efficiently.

The theoretical contribution of this research is to enrich the existing literature by investigate the effect of working capital management on profitability in Malaysia's firms.

5.4 Implications of study

Policy implication

1. The negative association of days accounts receivable with return on asset help management in setting credit policy for sector in general for the firm in construction and food producer sector in Malaysia.
2. Working capital management has a significant impact on profitability of the firms and plays a key role in value creation for shareholders as shorter cash conversion cycle has positive impact on profitability of firm.
3. Positive association between days inventory held implies that firms, which maintain sufficiently high inventory levels, reduce cost of possible interruption in the production process.
4. Positive relationship between day accounts payable implies that the longer the accounts payable, the better the profitability due to good name created by suppliers. The suppliers will not interrupt supplies to the firm which leads to smooth operation during the year.

5.5 Future Research

Future research should focus on the sectors that contribute more to our country, such as services sector, which give largest contribution to Malaysia's GDP. Besides regression for each variable could be done separately to ensure the reliability and accuracy of the result for each variable. In this study, model 1 consists of

independent variables that regressed together because of the time constraint. Besides, this present study is conducted for two different sectors, which will require a lot of time to conduct the study separately for each variable. Further study on working capital should be done to contribute to the limited literature and improves Malaysia's firm working capital management.

5.6 Conclusion

This study examines the relationship between firm return on asset (ROA) with days account receivables (AR), days inventory held (INV), days account payables (AP) and cash conversion cycle (CCC). ROA act as the dependent variable which represents a firms' profitability while AR, INV, AP and CCC act as independent variables to represent working capital. The study has been conducted in Malaysia for two different sectors which were chosen based on the highest number of firms. The sectors chosen are construction and material, and food producer. The data were collected from DataStream from year 2008 until 2012.The relationship between dependent and independent variables is tested using multiple regression

analysis. Descriptive statistics, correlation analysis, multicollinearity and autocorrelation test also conducted to measure the correlation between each variable and to the test the presence of multicollinearity and autocorrelation.

The results suggest that components in working capital are related to firm's profitability. In construction & material sector and food producer sector, cash conversion cycles are negatively associated with firm profitability. It indicates that longer duration of cash conversion cycle will decrease firm profitability. Both sectors can ensure higher profit by making the duration of CCC to be shorter. Decreasing CCC means reducing time taken to convert resource inputs into cash flow. It can be done by reducing the inventory conversion period and shorten the receivables collection period

As a conclusion, working capital management does give impact to profitability of firm. Each of the components in working capital plays important roles thus affecting the firm's profitability. A firm should be able to identify the components and effectively managing the components to ensure they are at optimum level. Managing working capital is very important to ensure adequate liquidity of the firm. As mentioned by Mohamad & Saad (2010) managing working capital requirement is important to confirm an improvement in market value of firm and profitability.

REFERENCES

Appuhami, B. R. (2008). The impact of firms' capital expenditure on working capital management : An empirical study across industries in Thailand. *International Management Review*, 11-24.

Bagchi, B., & Khamrui, B. (2012). Relationship between working capital management and profitability: A study of selected FMCG Companies in India . *Business and Economics Journal*.

Balakrishnan, M. (2011). The effect of the adoption of emerging electronic payments options on improving working capital management and profitability of firms in India. *Journal of Payments Strategy & Systems, 5*(2), 188-208.

Banos-Caballero, S., Garcia-Teruel, P. J., & Matinez-Solano, P. (2012). How does working capital management affect the profitability of Spanish SMEs 517-529.

Barine, M. N. (2012). Working capital management efficiency and corporate profitability: Evidences from quoted firms in Nigeria. *Journal of Applied Finance & Banking, 2*(2), 215-237.

Bellouma, M. (2010). Effects of capital investment on working capital management. *The International Journal of Finance, 22* (3), 6497-6509.

Bieniasz, A., & Gołas, Z. (2011). The Influence of working capital management on the food industry management on the food industry. *Journal Of Contemporary Economics , 5*(4), 68-81.

Chakraborty, K. (2008). Working capital and profitability: An empirical analysis of their relationship with reference to selected companies in the Indian pharmaceutical industry. *The Icfaian Journal of Management Research, Vol. VII, No. 12,*.

Charitou, M. S., Elfani, M., & Lois, P. (2010). The effect of working capital management on firm profitability: Empirical evidence from an emerging market. *Journal of Business and Economic Research, 8*(12), 63-68.

Charitou, M., Lois, P., & Santoso, H. B. (2012). The relationship between working capital management and firm's profitability: An empirical investigation for an emerging Asian country. *International Business & Economics Research Journal, 11*(8), 839-848.

Ching, H. Y., Novazzi, A., & Gerab, F. (2011). Relationship between working capital management and profitability in Brazilian listed companies. *Journal Of Global Business and Economics*, 74-86.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance and Accounting*, 573-587.

Erasmus, P. (2010). The relationship between working capital management and profitability for South African listed industrial firms. *The Business Review, Cambridge, 15*(1), 193-198.

Fred Shelton, J. (2002). Working capital and the construction industry. *Journal of Construction Accounting and Taxation,* 23-27.

Garcia, J. F. (2011). The Impact of working capital management upon companies' profitability: evidence from European companies.

Horne Van, J., & Wachowicz Jr., J. (2000). In *Fundamentals of Financial Management (11th edn).* Prentice Hall.

Iqbal, A., Mulani, J., & Kabiraj, S. (2013). Leverage, size of the firm and profitability: A case of Pakistani cement industry. *IJBIT, 7*(1), 16-22.

Jose, M. L., Lancaster, C., & Stevens, J. L. (1996). Corporate returns and cash conversion cycle. *Journal of Economics and Finance*, 33-46.

Lazaridis, I., & Tryfonidis, D. (2006). Relationship between working capital management and profitability in the Athens stock exchange. *Journal of Financial Management and Analysis*, 26-35.

Makori, D. M., & Jagongo, A. (2013). Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange, Kenya. *International Journal of Accounting and Taxation, 1*(1)

Malik, M. S., & Bukhari, M. (2014). The impact of working capital management on corporate performance: A study of firms in cement, chemical and engineering sectors of Pakistan. *Pakistan Journal of Commerce and Social Sciences*, 134- 148.

Mansoori, E., & Muhammad, J. (2012). The effect of working capital management on firm's profitability: Evidence from Singapore. *Interdisciplinary Journal Of Contemporary Research In Busines , 4*(5), 472-486.

Mohamad, N. E., & Saad, N. B. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International Journal of Business and Management 5*(11).

Nazir, M. S., & Afza, T. (2009). Impact of aggressive working capital management policy on firms' profitability. *The IUP Journal of Applied Finance, 15(*8), 19-30.

Nazir, M. S., & Afza, T. (2009). Working capital requirements and the determining factors in Pakistan. *The Icfai Journal of Applied Finance, 15*(4).

Nobanee, H., Abdullatif, M., & AlHajjar, M. (2011). Cash conversion cycle and firm's performance of Japanese firms. *Asian Review of Accounting, 19*(2), 147-156.

O.N, A., & Radharamanan, T. (2011). Analysis of effects of working capital management on corporate profitability of Indian manufacturing firms. *IJBIT, 5*(1)

Palombini, N. V., & Nakamura, W. T. (2012). Key factors in working capital management in the Brazilian market.

Perković, G. (2012). The impact of working capital management on profitability of manufacturing firms in Bosnia and Herzegovina. *Sarajevo Business and Economics Review*, 117-138.

Pouraghajan, A., & Emamgholipourarchi, M. (2012). Impact of working capital management on profitability and market evaluation: Evidence from Tehran stock exchange. *International Journal of Business and Social Scienc , 3*(10), 311-318.

Saghir, A., Hashmi, F. M., & Hussain, M. N. (2011). Working capital management and profitability evidence from Pakistan firms. *Interdisciplinary Journal Of Contemporary Research In Business, 3*(8), 1092-1105.

Sharma, A., & Kumar, S. (2011). Effect of working capital management on firm profitability: Empirical evidence from India. *Global Business Review*, 159-173.

Shin, H.-H., & Soenen, L. (1998). Efficiency of working capital management and corporate profitability. *Financial Practice And Education*, 37-45.

Shubita, M. F. (2013). Working capital management and profitability: A case of industrial Jordanian companies. *International Journal of Business and Social Science, 4*(8), 108-115.

Singla, H. K. (2011). Does firm size affect profitability? An empirical investigation of Indian textile industry. *Paradigm*.

Taani, D. K. (2012). Impact of working capital management policy and financial leverage on financial performance: Empirical evidence from Amman stock exchange. *International Journal of Management Sciences and Business Research*, 10-17.

Tahir, M., & Anuar, M. B. (2011). The effect of working capital management on firm's profitability: A review paper. *Interdisciplinary Journal Of Contemporary Research In Business*, 365-376.

Thapa, P. D. (2013). How does profitability get affected by working capital management in food and beverage industry? *Journal of Advanced Research in Management*, 79-88.

Usama, M. (2012). Working capital management and its effect on firm's profitability and liquidity: In other food sector of (KSE) Karachi stock exchange. *Arabian Journal of Business and Management Review (OMAN Chapter)*, 62-73.

Wasiuzzaman, S., & Arumugam, V. C. (2013). Determinants of working capital investment: A study of Malaysian Public Listed Firms. *AABFJ*, 7(2), 49-69.

Yazdanfar, D. (2013). Profitability determinants among micro firms: Evidence from Swedish data. *International Journal of Managerial*, *9*(2), 150-160.